DRAFT
ENVIRONMENTAL IMPACT REPORT

SAN BERNARDINO COUNTY MASTER STORM WATER SYSTEM MAINTENANCE PROGRAM

SCH NO. 2014011063

June 2018

Prepared by

DUDEK

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Riverside, California 92501

Prepared for

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

825 East Third Street
San Bernardino, California 92415-0835

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for the
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TABLE OF CONTENTS

Section **Page No.**

ACRONYMS AND ABBREVIATIONS ..... ACR-i

1 EXECUTIVE SUMMARY 1-1

1.1 Introduction 1-1
1.2 Background 1-1
1.3 Program Objectives 1-2
1.4 Program Description 1-2
1.5 Analysis of Alternatives 1-3
1.6 Areas of Controversy 1-3
1.7 Issues to Be Resolved by Lead Agency 1-4
1.8 Summary of Impacts 1-4
1.9 References 1-37

2 INTRODUCTION 2-1

2.1 Master Storm Water System Maintenance Program 2-1
2.1.1 The District, Its Functions, and Maintenance History 1939–Present 2-2
2.1.2 Maintenance Plan and Maintenance Activities 2-4
2.1.3 Streamlined Notification Process 2-5
2.2 EIR Process 2-5
2.2.1 CEQA Compliance 2-5
2.2.2 Notice of Preparation and Scoping 2-5
2.3 Contents and Organization of the EIR 2-13
2.4 References 2-16

3 PROGRAM DESCRIPTION 3-1

3.1 Program Location 3-1
3.1.1 Valley Region 3-3
3.1.2 Mountain Region 3-3
3.1.3 Desert Region 3-4
3.2 Existing Facilities Description 3-5
3.3 Background and Program History 3-14
3.3.1 Federal Programs 3-15
3.3.2 State Facilities 3-17
3.3.3 Local Overlapping Permitting Processes 3-17
3.4 Program Purpose and Need 3-19
3.4.1 Study Area 3-20
3.4.2 Program Objectives 3-21

3.5 Program Activities and Schedule 3-21
3.5.1 Program Activities 3-21
3.5.2 Schedule 3-21
3.6 Standard Operating Procedures 3-27
3.7 Permits and Approvals 3-27
3.8 References 3-28

4 ENVIRONMENTAL ANALYSIS 4-1
4.1 Aesthetics 4.1-1
4.1.1 Introduction 4.1-1
4.1.2 Regulatory Framework 4.1-2
4.1.3 Thresholds of Significance 4.1-9
4.1.4 Existing Conditions 4.1-10
4.1.5 Standard Operating Procedures 4.1-11
4.1.6 Impacts Analysis 4.1-12
4.1.7 Mitigation Measures 4.1-47
4.1.8 Level of Significance After Mitigation 4.1-47
4.1.9 Cumulative Impacts 4.1-47
4.1.10 References 4.1-48
4.2 Air Quality 4.2-1
4.2.1 Introduction 4.2-1
4.2.2 Regulatory Framework 4.2-3
4.2.3 Thresholds of Significance 4.2-16
4.2.4 Existing Conditions 4.2-16
4.2.5 Standard Operating Procedures 4.2-25
4.2.6 Impacts Analysis 4.2-25
4.2.7 Mitigation Measures 4.2-61
4.2.8 Level of Significance After Mitigation 4.2-61
4.2.9 Cumulative Impacts 4.2-62
4.2.10 References 4.2-63
4.3 Biological Resources 4.3-1
4.3.1 Introduction 4.3-1
4.3.2 Regulatory Framework 4.3-2
4.3.3 Thresholds of Significance 4.3-7
4.3.4 Existing Conditions 4.3-8
4.3.5 Standard Operating Procedures 4.3-31
4.3.6 Impacts Analysis 4.3-37
4.3.7 Mitigation Measures 4.3-134
4.3.8 Level of Significance After Mitigation 4.3-145
4.3.9 Cumulative Impacts 4.3-149

4.3.10 References 4.3-152
4.4 Cultural Resources 4.4-1
4.4.1 Introduction 4.4-1
4.4.2 Regulatory Framework 4.4-2
4.4.3 Thresholds of Significance 4.4-12
4.4.4 Existing Conditions 4.4-13
4.4.5 Standard Operating Procedures 4.4-32
4.4.6 Impacts Analysis 4.4-34
4.4.7 Mitigation Measures 4.4-46
4.4.8 Level of Significance After Mitigation 4.4-48
4.4.9 Cumulative Impacts 4.4-49
4.4.10 References 4.4-50
4.5 Geology and Soils 4.5-1
4.5.1 Introduction 4.5-1
4.5.2 Regulatory Framework 4.5-2
4.5.3 Thresholds of Significance 4.5-4
4.5.4 Existing Conditions 4.5-5
4.5.5 Standard Operating Procedures 4.5-12
4.5.6 Impacts Analysis 4.5-13
4.5.7 Mitigation Measures 4.5-15
4.5.8 Level of Significance After Mitigation 4.5-15
4.5.9 Cumulative Impacts 4.5-16
4.5.10 References 4.5-17
4.6 Greenhouse Gas Emissions 4.6-1
4.6.1 Introduction 4.6-1
4.6.2 Regulatory Framework 4.6-3
4.6.3 Thresholds of Significance 4.6-9
4.6.4 Existing Conditions 4.6-10
4.6.5 Standard Operating Procedures 4.6-12
4.6.6 Impacts Analysis 4.6-12
4.6.7 Mitigation Measures 4.6-33
4.6.8 Level of Significance After Mitigation 4.6-34
4.6.9 Cumulative Impacts 4.6-34
4.6.10 References 4.6-35
4.7 Hazards and Hazardous Materials 4.7-1
4.7.1 Introduction 4.7-1
4.7.2 Regulatory Framework 4.7-2
4.7.3 Thresholds of Significance 4.7-13
4.7.4 Existing Conditions 4.7-14

4.7.5 Standard Operating Procedures 4.7-19
4.7.6 Impacts Analysis 4.7-19
4.7.7 Mitigation Measures 4.7-24
4.7.8 Level of Significance After Mitigation 4.7-24
4.7.9 Cumulative Impacts 4.7-25
4.7.10 References 4.7-27
4.8 Hydrology and Water Quality 4.8-1
4.8.1 Introduction 4.8-1
4.8.2 Regulatory Framework 4.8-2
4.8.3 Thresholds of Significance 4.8-8
4.8.4 Existing Conditions 4.8-9
4.8.5 Standard Operating Procedures 4.8-29
4.8.6 Impacts Analysis 4.8-37
4.8.7 Mitigation Measures 4.8-64
4.8.8 Level of Significance After Mitigation 4.8-65
4.8.9 Cumulative Impacts 4.8-66
4.8.10 References 4.8-72
4.9 Land Use and Planning 4.9-1
4.9.1 Introduction 4.9-1
4.9.2 Regulatory Framework 4.9-1
4.9.3 Thresholds of Significance 4.9-5
4.9.4 Existing Conditions 4.9-5
4.9.5 Standard Operating Procedures 4.9-9
4.9.6 Impacts Analysis 4.9-10
4.9.7 Mitigation Measures 4.9-13
4.9.8 Level of Significance After Mitigation 4.9-13
4.9.9 Cumulative Impacts 4.9-14
4.9.10 References 4.9-15
4.10 Noise 4.10-1
4.10.1 Introduction 4.10-1
4.10.2 Regulatory Framework 4.10-2
4.10.3 Thresholds of Significance 4.10-3
4.10.4 Existing Conditions 4.10-4
4.10.5 Standard Operating Procedures 4.10-26
4.10.6 Impacts Analysis 4.10-26
4.10.7 Mitigation Measures 4.10-30
4.10.8 Level of Significance After Mitigation 4.10-30
4.10.9 Cumulative Impacts 4.10-31
4.10.10 References 4.10-31

4.11 Public Services 4.11-1
4.11.1 Introduction 4.11-1
4.11.2 Regulatory Framework 4.11-2
4.11.3 Thresholds of Significance 4.11-4
4.11.4 Existing Conditions 4.11-5
4.11.5 Standard Operating Procedures 4.11-9
4.11.6 Impacts Analysis 4.11-10
4.11.7 Mitigation Measures 4.11-12
4.11.8 Level of Significance After Mitigation 4.11-13
4.11.9 Cumulative Impacts 4.11-13
4.11.10 References 4.11-14
4.12 Recreation 4.12-1
4.12.1 Introduction 4.12-1
4.12.2 Regulatory Framework 4.12-1
4.12.3 Thresholds of Significance 4.12-5
4.12.4 Existing Conditions 4.12-5
4.12.5 Standard Operating Procedures 4.12-8
4.12.6 Impacts Analysis 4.12-9
4.12.7 Mitigation Measures 4.12-13
4.12.8 Level of Significance After Mitigation 4.12-13
4.12.9 Cumulative Impacts 4.12-14
4.12.10 References 4.12-15
4.13 Traffic and Circulation 4.13-1
4.13.1 Introduction 4.13-1
4.13.2 Regulatory Framework 4.13-2
4.13.3 Thresholds of Significance 4.13-5
4.13.4 Existing Conditions 4.13-6
4.13.5 Standard Operating Procedures 4.13-6
4.13.6 Impacts Analysis 4.13-7
4.13.7 Mitigation Measures 4.13-11
4.13.8 Level of Significance After Mitigation 4.13-11
4.13.9 Cumulative Impacts 4.13-12
4.13.10 References 4.13-12
4.14 Utilities and Service Systems 4.14-1
4.14.1 Introduction 4.14-1
4.14.2 Regulatory Framework 4.14-2
4.14.3 Thresholds of Significance 4.14-2
4.14.4 Existing Conditions 4.14-4
4.14.5 Standard Operating Procedures 4.14-8

4.14.6 Impacts Analysis 4.14-9
4.14.7 Mitigation Measures 4.14-13
4.14.8 Level of Significance After Mitigation 4.14-13
4.14.9 Cumulative Impacts 4.14-13
4.14.10 References 4.14-15

5 OTHER CEQA CONSIDERATIONS 5-1
5.1 Introduction 5-1
5.2 Impacts Found Not to Be Significant 5-1
5.2.1 Aesthetics 5-2
5.2.2 Agricultural Resources 5-3
5.2.3 Air Quality 5-3
5.2.4 Biological Resources 5-6
5.2.5 Cultural Resources 5-7
5.2.6 Geology and Soils 5-7
5.2.7 Greenhouse Gas Emissions 5-9
5.2.8 Hazards and Hazardous Materials 5-10
5.2.9 Hydrology and Water Quality 5-12
5.2.10 Land Use and Planning 5-15
5.2.11 Mineral Resources 5-15
5.2.12 Noise 5-15
5.2.13 Population and Housing 5-17
5.2.14 Public Services 5-17
5.2.15 Recreation 5-18
5.2.16 Transportation and Traffic 5-19
5.2.17 Utilities and Service Systems 5-21
5.3 Significant and Unavoidable Environmental Impacts 5-23
5.4 Significant and Irreversible Environmental Impacts 5-23
5.4.1 Large Commitment of Nonrenewable Resources 5-24
5.4.2 Irreversible Damage 5-24
5.4.3 Nonrenewable Energy Consumption 5-25
5.5 Growth Inducement 5-26
5.6 References 5-27

6 ALTERNATIVES 6-1
6.1 Proposed Program Objectives and Impacts 6-1
6.1.1 Proposed Program Objectives 6-1
6.1.2 Proposed Program Impacts 6-2

6.2 Alternatives Considered and Eliminated during the Program Planning Process 6-2
6.2.1 Background Information 6-2
6.2.2 Alternatives 6-3
6.3 Alternatives Selected for Further Analysis 6-5
6.3.1 No Program/Existing Maintenance Approach Alternative 6-6
6.3.2 Deferred Maintenance Alternative 6-12
6.4 Environmentally Superior Alternative 6-18
6.5 References 6-19

7 LIST OF PREPARERS 7-1
7.1 San Bernardino County Flood Control District 7-1
7.2 Dudek 7-1

APPENDICES

A Maintenance Plan
B 2014 Initial Study/NOP and Comment Letters
C 2010 Initial Study/NOP and Comment Letters
D Air Quality and Greenhouse Gas Calculations
E Biological Technical Report
F Cultural Resources Report
G Hazards Memo
H Noise Calculations

FIGURES

3-1 Program Area 3-31
3-2 Maintained Facilities Index Map 3-33
3-2A Maintained Facilities – See Mapbook on Attached CD 3-35
3-2B Maintained Facilities – See Mapbook on Attached CD 3-37
3-2C Maintained Facilities – See Mapbook on Attached CD 3-39
3-2D Maintained Facilities – See Mapbook on Attached CD 3-41
3-2E Maintained Facilities – See Mapbook on Attached CD 3-43
3-2F Maintained Facilities 3-45
3-2G Maintained Facilities 3-47
3-2H Maintained Facilities 3-49
3-2I Maintained Facilities 3-51
3-3A Typical Activities in a Concrete Channel – Etiwanda Creek Channel, 1-701-1C 3-53

3-3B Typical Activities in an Earthen Engineered Channel – Mission Channel, 3-501-1A 3-55
3-3C Typical Activities in an Earthen–Natural Channel – Mojave River, 4-101-1N 3-57
3-3D Typical Activities in a Dam – Day Creek Dam, 1-608-3A 3-59
3-3E Typical Activities in a Debris Basin – San Antonio Heights Basin No. 5 (Marble), 1-313-4B 3-61
3-3F Typical Activities in a Detention Basin – Donnell Basin, 6-402-4A 3-63
3-3G Typical Activities in a Groin – Muscoy Groin No. 4, 2-209-5D 3-65
3-3H Typical Activities in a Storm Drain – Alta Loma Storm Drain, 1-405-6A 3-67
3-3I Typical Activities in a Levee – City Creek Levee, 2-601-5B 3-69
3-3J Typical Activities in a Levee – Devil Creek Levee, 2-306-5A 3-71
3-3K Typical Activities in a Spreading Ground – San Sevaine Basin No. 1, 1-802-4A 3-73
3-3L Typical Activities in a Sand and Gravel Operations – Devil Basin No. 7, 2-304-4F 3-75
4.1-1 Scenic Corridors – Valley and Mountain Regions 4.1-51
4.1-2 Scenic Corridors – Desert Region 4.1-53
4.2-1 Air Quality Basins and County Regions 4.2-67
4.5-1 Landslide Susceptibility 4.5-19
4.5-2 Liquefaction Susceptibility 4.5-21
4.8-1 Watershed Map – Valley and Mountain Regions 4.8-77
4.8-2 Watershed Map – Desert Region 4.8-79
4.10-1 Noise Measurement Locations 4.10-33

TABLES

1-1 Summary of Program Impacts 1-5
2-1 Summary of Comments Received in Response to the 2010 NOP and 2014 NOP 2-6
3-1 District Zones 3-2
3-2 Summary of Maintained Facility Types 3-5
3-3 District-Maintained Facilities 3-8
3-4 Typical Flood Control Maintenance Activities 3-23
3-5 Agency Coordination 3-27
4-1 Cumulative Projects 4-7
4.1-1 Officially Designated and Eligible State Scenic Highways in San Bernardino County 4.1-4
4.1-2 San Bernardino County Eligible State Scenic Highways and Program Activities 4.1-14
4.1-3 Program Activities in Natural Channels 4.1-20

4.1-4 Aesthetics Impacts Summary 4.1-47
4.2-1 Ambient Air Quality Standards 4.2-4
4.2-2 Mojave Desert Air Basin Attainment Classification 4.2-13
4.2-3 South Coast Air Basin Attainment Classification 4.2-13
4.2-4 Local Ambient Air Quality Data 4.2-15
4.2-5 MDAQMD Air Quality Significance Thresholds 4.2-27
4.2-6 SCAQMD Air Quality Significance Thresholds 4.2-28
4.2-7 LSTs for San Bernardino County Source-Receptor Areas 4.2-30
4.2-8 Representative Projects Summary 4.2-32
4.2-9 Representative Project A – Concrete Channel Maintenance Activity Scenario 4.2-33
4.2-10 Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario 4.2-34
4.2-11 Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario 4.2-35
4.2-12 Representative Project D – Dam Maintenance Activity Scenario 4.2-36
4.2-13 Representative Project E – Debris Basin Maintenance Activity Scenario 4.2-38
4.2-14 Representative Project F – Detention Basin Maintenance Activity Scenario 4.2-38
4.2-15 Representative Project G – Groin Maintenance Activity Scenario 4.2-40
4.2-16 Representative Project H – Storm Drain Maintenance Activity Scenario 4.2-40
4.2-17 Representative Project I – Levee 1 Maintenance Activity Scenario 4.2-42
4.2-18 Representative Project J – Levee 2 Maintenance Activity Scenario 4.2-43
4.2-19 Representative Project K – Spreading Ground Maintenance Activity Scenario 4.2-44
4.2-20 Representative Project L – Sand and Gravel Operations Maintenance Activity Scenario 4.2-45
4.2-21 Representative Projects Estimated Maximum Daily Maintenance Activity Emissions 4.2-50
4.2-22 Representative Projects Estimated Annual Maintenance Activity Emissions 4.2-51
4.2-23 Representative Projects Estimated Maximum Daily Maintenance Activity Emissions 4.2-54
4.2-24 Representative Projects LST Analysis – On-Site Maintenance Activity Emissions 4.2-57
4.2-25 Air Quality Impacts Summary 4.2-61
4.3-1 Vegetation Communities and Land Cover Types within the Program Area in the Valley Region 4.3-12
4.3-2 Critical Habitat in the Program Area in the Valley Region 4.3-15

4.3-3 Vegetation Communities and Land Cover Types in the Mountain Region 4.3-19
4.3-4 Critical Habitat in the Mountain Region 4.3-22
4.3-5 Vegetation Communities and Land Cover Types within the Desert Region 4.3-26
4.3-6 Critical Habitat in the Desert Region 4.3-28
4.3-7 Program Ground-Disturbing Activity Impacts to Critical Habitat in the Valley Region Within LOPPs 4.3-39
4.3-8 Program Ground-Disturbing Activity Impacts to Critical Habitat in the Valley Region Not Within LOPPs 4.3-40
4.3-9 Program Ground-Disturbing Activity Impacts to San Bernardino Kangaroo Rat Habitat in the Valley Region 4.3-44
4.3-10 Program Ground-Disturbing Activity Impacts to Least Bell's Vireo Habitat and Critical Habitat in the Valley Region 4.3-46
4.3-11 Program Ground-Disturbing Activity Impacts to Delhi Sands Flower-Loving Fly Habitat in the Valley Region 4.3-47
4.3-12 Program Non-Ground-Disturbing Activity Impacts to Critical Habitat in the Valley Region 4.3-56
4.3-13 Program Non-Ground-Disturbing Activity Impacts to San Bernardino Kangaroo Rat Habitat in the Valley Region 4.3-57
4.3-14 Program Non-Ground-Disturbing Activity Impacts to Delhi Sands Flower-Loving Fly Habitat in the Valley Region 4.3-59
4.3-15 Program Ground-Disturbing Activity Direct Impacts to Critical Habitat in the Study Area in the Mountain Region 4.3-62
4.3-16 Program Non-Ground-Disturbing Activity Direct Impacts to Critical Habitat in the Study Area in the Mountain Region 4.3-70
4.3-17 Program Ground-Disturbing Activity Impacts to Critical Habitat in the Desert Region 4.3-74
4.3-18 Program Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat in the Desert Region Within LOPPs 4.3-77
4.3-19 Program Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat in the Desert Region Not Within LOPPs 4.3-77
4.3-20 Program Ground-Disturbing Activity Impacts to Desert Tortoise and Critical Habitat in the Desert Region Within LOPPs 4.3-79
4.3-21 Program Ground-Disturbing Activity Impacts to Desert Tortoise and Critical Habitat in the Desert Region Not Within LOPPs 4.3-80
4.3-22 Program Ground-Disturbing Activity Impacts to Least Bell's Vireo Habitat in the Desert Region 4.3-81
4.3-23 Program Ground-Disturbing Activity Impacts to Southwestern Willow Flycatcher Habitat in the Desert Region 4.3-82

4.3-24 Program Non-Ground-Disturbing Activity Impacts to Critical Habitat in the Desert Region 4.3-89
4.3-25 Program Non-Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat in the Desert Region 4.3-91
4.3-26 Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Valley Region Within LOPPs 4.3-95
4.3-27 Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Valley Region Not Within LOPPs 4.3-96
4.3-28 Program Non-Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Valley Region 4.3-99
4.3-29 Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities within LOPPs in the Mountain Region 4.3-101
4.3-30 Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Mountain Region Not Within LOPPs 4.3-101
4.3-31 Program Non-Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Mountain Region 4.3-105
4.3-32 Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Desert Region Within LOPPs 4.3-107
4.3-33 Program Ground-Disturbing Impacts to Special-Status Vegetation Communities in the Desert Region Not Within LOPPs 4.3-107
4.3-34 Program Non-Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Desert Region 4.3-111
4.3-35 Summary of Impact Types to Jurisdictional Waters 4.3-113
4.3-36 Program Ground-Disturbing Activity Impacts to Waters of the United States in the Valley Region Within LOPPs 4.3-114
4.3-37 Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Valley Region Within LOPPs 4.3-114
4.3-38 Program Ground-Disturbing Activity Impacts to Waters of the United States and State in the Valley Region 4.3-115
4.3-39 Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Valley Region 4.3-118
4.3-40 Program Ground-Disturbing Activity Impacts to Waters of the United States in the Mountain Region Within LOPPs 4.3-120
4.3-41 Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Mountain Region Within LOPPs 4.3-120
4.3-42 Program Ground-Disturbing Activity Impacts to Waters of the United States and State in the Mountain Region 4.3-121
4.3-43 Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Mountain Region 4.3-122

4.3-44 Program Ground-Disturbing Activity Impacts to Waters of the United States in the Desert Region Within LOPPs 4.3-125
4.3-45 Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Desert Region Within LOPPs 4.3-125
4.3-46 Program Ground-Disturbing Activity Impacts to Waters of the United States in the Desert Region 4.3-126
4.3-47 Program Ground-Disturbing Activity Impacts to Waters of the State in the Desert Region 4.3-127
4.3-48 Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Desert Region 4.3-128
4.3-49 Biological Resources Impacts Summary 4.3-146
4.4-1 Temporal Periods and Complexes in the Mojave Desert 4.4-21
4.4-2 Exempt Activity Determinations for Cultural Resources on or near the Program Site 4.4-39
4.4-3 Cultural Resources Impacts Summary 4.4-49
4.5-1 Geology and Soils Impacts Summary 4.5-16
4.6-1 GHG Emissions Sources in California 4.6-11
4.6-2 Representative Projects Summary 4.6-16
4.6-3 Representative Project A – Concrete Channel Maintenance Activity Scenario 4.6-17
4.6-4 Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario 4.6-17
4.6-5 Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario 4.6-18
4.6-6 Representative Project D – Dam Maintenance Activity Scenario 4.6-20
4.6-7 Representative Project E – Debris Basin Maintenance Activity Scenario 4.6-21
4.6-8 Representative Project F – Detention Basin Maintenance Activity Scenario 4.6-22
4.6-9 Representative Project G – Groin Maintenance Activity Scenario 4.6-23
4.6-10 Representative Project H – Storm Drain Maintenance Activity Scenario 4.6-23
4.6-11 Representative Project I – Levee 1 Maintenance Activity Scenario 4.6-25
4.6-12 Representative Project J – Levee 2 Maintenance Activity Scenario 4.6-26
4.6-13 Representative Project K – Spreading Grounds Maintenance Activity Scenario 4.6-27
4.6-14 Representative Project L – Sand and Gravel Operations Maintenance Activity Scenario 4.6-28
4.6-15 Representative Projects Estimated Annual Maintenance Activity GHG Emissions 4.6-29
4.6-16 Estimated Annual Maintenance Activity GHG Emissions 4.6-30
4.6-17 GHG Emissions Impacts Summary 4.6-34

4.7-1 Hazards and Hazardous Materials Impacts Summary 4.7-25
4.8-1 Beneficial Uses – Santa Ana Region (Region 8) 4.8-13
4.8-2 Water Quality Impairments in the Santa Ana Region 4.8-18
4.8-3 Beneficial Uses – Lahontan Region (Region 6) 4.8-25
4.8-4 Water Quality Impairments in the Lahontan Region 4.8-27
4.8-5 Beneficial Uses – Colorado River Basin Region (Region 7) 4.8-28
4.8-6 Water Quality Impairments in the Colorado River Basin Region 4.8-29
4.8-7 Program Activity Sites with Large Amounts of Ground Disturbance – Santa Ana Region 4.8-42
4.8-8 Program Activity Sites with Large Amounts of Ground Disturbance – Lahontan Region 4.8-52
4.8-9 Program Activity Sites with Large Amounts of Ground Disturbance – Colorado River Basin Region 4.8-56
4.8-10 Hydrology and Water Quality Impacts Summary 4.8-65
4.9-1 Land Use and Planning Impacts Summary 4.9-14
4.10-1 Typical Noise Levels 4.10-7
4.10-2 Representative Projects Summary 4.10-10
4.10-3 Representative Project A – Concrete Channel Maintenance Activity Scenario 4.10-11
4.10-4 Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario 4.10-12
4.10-5 Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario 4.10-12
4.10-6 Representative Project D – Dam Maintenance Activity Scenario 4.10-14
4.10-7 Representative Project E – Debris Basin Maintenance Activity Scenario 4.10-15
4.10-8 Representative Project F – Detention Basin Maintenance Activity Scenario 4.10-16
4.10-9 Representative Project G – Groin Maintenance Activity Scenario 4.10-17
4.10-10 Representative Project H – Storm Drain Maintenance Activity Scenario 4.10-17
4.10-11 Representative Project I – Levee 1 Maintenance Activity Scenario 4.10-19
4.10-12 Representative Project J – Levee 2 Maintenance Activity Scenario 4.10-19
4.10-13 Representative Project K – Spreading Grounds Maintenance Activity Scenario 4.10-21
4.10-14 Representative Project L – Sand and Gravel Operations Maintenance Activity Scenario 4.10-22
4.10-15 Short-Term Sound Level Measurement Results 4.10-23
4.10-16 Noise Emission Reference Levels and Usage Factors 4.10-27
4.10-17 Maintenance Activity Noise Results Summary (Based on Facility Type) 4.10-28
4.10-18 Noise Impacts Summary 4.10-30
4.11-1 Fire Jurisdiction Summary 4.11-6
4.11-2 Public Services Impacts Summary 4.11-13
4.12-1 Recreation Facilities 4.12-6

4.12-2 Recreation Impacts Summary 4.12-13
4.13-1 Daily Vehicle Trips for Levee Sediment Removal Phase 4.13-9
4.13-2 Traffic and Circulation Impacts Summary 4.13-12
4.14-1 Utilities and Service Systems Impacts Summary 4.14-13
6-1 Comparison of Alternatives 6-18

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
APE	area of potential effect
AQMP	Air Quality Management Plans
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BP	before present
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
California Register	California Register of Historical Resources
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CA/T Project	Central Artery/Tunnel Project
CBC	California Building Code
CBRP	Comprehensive Bacteria Reduction Program
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CH_4	methane
CMP	Congestion Management Program
CNEL	community noise equivalent level
CNG	compressed natural gas
CO	carbon monoxide
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
District	San Bernardino County Flood Control District
DPM	diesel particulate matter
DPS	distinct population segment
DSOD	Division of Safety of Dams
DTSC	Department of Toxic Substances Control
ECORP	ECORP Consulting Inc.

Acronym/Abbreviation	Definition
EDR	Environmental Data Resources Inc.
EIR	environmental impact report
EO	Executive Order
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
FE	federally endangered
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLOD	First Line of Defense
FT	federally threatened
GHG	greenhouse gas
GIS	geographic information systems
GWP	global warming potential
HAP	hazardous air pollutant
HCP	habitat conservation plan
HMBP	Hazardous Materials Business Plan
HFC	hydrofluorocarbon
I-	Interstate
IFC	International Fire Code
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
kV	kilovolt
L_{eq}	equivalent sound level
L_{max}	root-mean-square maximum
L_{min}	root-mean-square minimum
LOPP	local overlapping permitting process
MBA	Michael Brandman Associates
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MLD	Most Likely Descendant
MM-	Mitigation Measure
MMT	million metric tons
MPO	metropolitan planning organization
MS4	municipal separate storm sewer system
MSCP	Multi-Species Conservation Program
MSHCP	Multiple Species Habitat Conservation Plan
MT	metric tons
MTBE	methyl tert-butyl ether
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places

Acronym/Abbreviation	Definition
NCCP	natural community conservation plan
NEPA	National Environmental Policy Act
NF_3	nitrogen trifluoride
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO	nitric oxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NSLU	noise-sensitive land use
O&M	operations and maintenance
O_3	ozone
OES	Office of Emergency Services
OHP	Office of Historic Preservation
PCE	passenger car equivalent
PFC	perfluorocarbon
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
ppb	parts per billion
ppm	parts per million
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
RIP	Rehabilitation and Inspection Program
RTP	regional transportation plan
RWQCB	Regional Water Quality Control Board
SANBAG	San Bernardino Associated Governments
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	sustainable communities strategy
SE	state endangered
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company
SOI	sphere of influence
SOP	standard operating procedure
SO_x	sulfur oxides
SR-	State Route
SRA	Source-Receptor Area

Acronym/Abbreviation	Definition
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TCE	trichloroethylene
THPO	Tribal Historic Preservation Office
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
UST	underground storage tank
VOC	volatile organic compound
WQMP	water quality management plan
WWTP	wastewater treatment plant
YBP	years before present

CHAPTER 1
EXECUTIVE SUMMARY

1.1 INTRODUCTION

The San Bernardino County Flood Control District (District) has prepared this Draft Environmental Impact Report (EIR) to provide the decision makers, the public and responsible agencies information about the potential adverse effects on the local and regional environment associated with implementation of the proposed Master Storm Water System Maintenance Program (proposed program). The District is the lead agency under the California Environmental Quality Act (CEQA) of 1970 (California Public Resources Code, Section 21000 et seq.), and has prepared this Draft EIR pursuant to CEQA and the CEQA Guidelines (14 CCR 15000 et seq.).

The Draft EIR is subject to a minimum 45-day public review period by responsible agencies and interested parties. Agency and public comments on the adequacy of the Draft EIR and the lead agency's compliance with CEQA may be submitted to the District as lead agency, in writing, prior to the end of the public review period. Publication of the Draft EIR marks the beginning of the 45-day public review period, during which written comments may be submitted to:

Michael Perry, Supervising Planner
San Bernardino County Flood Control District
Environmental Management Division
825 East Third Street, Room 123
San Bernardino, California 92415-0835
Email: Michael.Perry@dpw.sbcounty.gov

Following the public review period, the District will prepare a Final EIR, which will include responses to all written comments received during the Draft EIR public review period. The District's Board may use this Draft EIR to consider approval of the proposed program, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

1.2 BACKGROUND

Since its establishment in 1939, the District has maintained its facilities on an as-needed basis and currently obtains the necessary regulatory approvals on a case-by-case basis. This approach is inefficient in permitting a large number of activities and/or facilities and can result in delays in conducting routine maintenance. Furthermore, facilities are managed by different maintenance manuals in accordance with varying regulatory requirements. Some facilities within the program fall under federal or state jurisdiction, with maintenance requirements dictated by the respective

agency, whereas certain facilities and/or activities fall within local plans or are conditioned by existing permits received by the District.

The District undertook a comprehensive review of maintenance requirements throughout its system to develop the maintenance requirements for each facility, including multiple interviews with operations staff and supervisors, hydraulic modeling of key waterways, and review of existing and historic permits and management plans. The result is a proposed program that provides a comprehensive approach to maintaining facilities, minimizing delays while ensuring compliance with regulatory requirements and applicable maintenance manuals. The Maintenance Plan included as Appendix A to this EIR lists the specific maintenance manuals that would provide the parameters under which maintenance will be conducted for the facilities in the program.

1.3 PROGRAM OBJECTIVES

The following objectives have been established for the proposed program:

- Meet the District's mission to protect life and property by maintaining facilities in such a way as to allow existing facilities or structures to function at the current/designed capacity, to update facilities or structures through minor alterations to meet current standards, and to maintain structural integrity in a manner that is environmentally sensitive.
- Develop a formalized plan that would provide a systematic and scheduled approach to maintenance activities.
- Provide a comprehensive guide for the maintenance of existing stormwater infrastructure.
- Provide the basis for acquisition of long-term maintenance permits from a number of state and federal agencies for regulated maintenance activities.
- Obtain long-term regulatory permits to streamline the CEQA and permitting process and execute projects on a regular and timely basis.

1.4 PROGRAM DESCRIPTION

The proposed Master Storm Water System Maintenance Program (proposed program) is designed to provide a formal, comprehensive approach to routine operations and maintenance of over 500 flood control facilities within the District's jurisdiction. The proposed program includes the preparation and implementation of a Maintenance Plan (see Appendix A) that incorporates guidance for future routine maintenance of facilities. The District currently conducts maintenance activities within its facilities; however, the Maintenance Plan would entail the development of a formalized, comprehensive plan that would provide a systematic and scheduled approach to these maintenance activities, providing increased efficiency and environmental sensitivity to the implementation of maintenance activities. In addition to the Maintenance Plan,

a streamlined, annual regulatory agency notification and permit compliance/approval process will be developed to notify agencies of upcoming maintenance activities. As described in Chapter 3, Program Description, a streamlined maintenance process would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County.

1.5 ANALYSIS OF ALTERNATIVES

Two alternatives to the proposed program, including the No Program/Existing Maintenance Approach Alternative and a Deferred Maintenance Alternative, were considered in Chapter 6, Alternatives. A "No Project" Alternative is a required element of an EIR pursuant to Section 15126.6(e) of the CEQA Guidelines that examines the environmental effects that would occur if the project were not to proceed. The other alternative is discussed as part of the "range of reasonable alternatives" selected by the District. The alternatives addressed in Chapter 6 are as follows:

1. No Program/Existing Maintenance Approach Alternative
2. Deferred Maintenance Alternative

1.6 AREAS OF CONTROVERSY

Section 15123(b)(2) of the CEQA Guidelines requires the executive summary of an EIR to disclose areas of controversy known to the lead agency that have been raised by the agencies and the public. The District circulated a Notice of Preparation (NOP) in 2010 (see Appendix C to this EIR) and recirculated the NOP in 2014 (see Appendix B) to solicit agency and public comments on the scope and environmental analysis to be included in the EIR. A total of 20 NOP comment letters were received during the NOP public review period in 2010 and 7 were received when the NOP was recirculated in 2014. Copies of the NOP comment letters received by the District during the public review periods in both 2010 and 2014 are included in Appendices B and C to this EIR. The following issues were raised in the written responses to the NOPs:

- Several local agencies requested coordination when work would be conducted near their facilities (in both 2010 and 2014).
- Comments about the potential for impacts to species were received from California Department of Fish and Wildlife and the Center for Biological Diversity (in 2010).
- The Regional Water Quality Control Board (Lahontan Region) requested a number of items for the hydrology and water quality analysis (in both 2010 and 2014).

1.7 ISSUES TO BE RESOLVED BY LEAD AGENCY

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved. With respect to the proposed program, the key issues to be resolved include decisions by the District, as lead agency, as to the following:

- Whether this environmental document adequately describes the environmental impacts of the proposed program
- Whether the recommended mitigation measures should be modified and/or adopted
- Whether there are other mitigation measures or alternatives that should be considered for the proposed program in addition to those identified in the Draft EIR

1.8 SUMMARY OF IMPACTS

Table 1-1 presents a summary of the environmental topics analyzed in this EIR, standard operating procedures (SOPs) that will be incorporated as part of the District's standard practice and that will reduce impacts from maintenance activities, environmental impacts that could result from the proposed program, proposed mitigation measures (MMs) to reduce program-related impacts, and the level of significance of the impact after implementation of mitigation measures.

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Aesthetics		
Impact AES-1: Would the program have a substantial adverse effect on a scenic vista?	—	Less than significant	—	Less than significant
Impact AES-2: Would the program substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	**SOP-HYD-2** (see Hydrology and Water Quality section of this table) **SOP-HYD-3** (see Hydrology and Water Quality section of this table)	Less than significant	—	Less than significant
Impact AES-3: Would the program substantially degrade the existing visual character or quality of the site and its surroundings?	**SOP-HYD-2** **SOP-HYD-3**	Less than significant	—	Less than significant
Impact AES-4: Would the program create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on aesthetic resources?	**SOP-HYD-2** **SOP-HYD-3**	Less than significant	—	Less than significant
		Air Quality		
Impact AQ-1: Would the program conflict with or obstruct implementation of the applicable air quality plan?	—	Less than significant	—	Less than significant
Impact AQ-2: Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?	**SOP-AQ-1: Diesel Particulate Filters.** Maintenance equipment incorporates control devices on auxiliary and main engines such as, but not limited to, diesel particulate filters. This reduces DPM and NO_x emissions from main engines and auxiliary engines. **SOP-AQ-2: Maintenance Equipment.** Where Tier 4 equipment is reasonably available, for off-road equipment with engines rated at 50 horsepower or greater, no equipment is used that is less than the Tier 4 Interim Standards. **SOP-AQ-3: Fugitive Dust**. Maintenance activities are conducted in conformance with Rule 403 for both MDAQMD and SCAQMD.	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AQ-3: Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors)?	**SOP-AQ-1** through **SOP-AQ-3**	Less than significant	—	Less than significant
Impact AQ-4: Would the program expose sensitive receptors to substantial pollutant concentrations?	**SOP-AQ-1** through **SOP-AQ-3**	Less than significant	—	Less than significant
Impact AQ-5: Would the program create objectionable odors affecting a substantial number of people?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on air quality resources?	**SOP-AQ-1** through **SOP-AQ-3**	Less than significant	—	Less than significant
			Biological Resources	
Impact BIO-1: Would the program have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**SOP-BIO-1: Least Bell's Vireo.** To avoid direct harm to least Bell's vireo (*Vireo bellii pusillus*), maintenance activities within suitable riparian areas occur outside the typical nesting period for this species (approximately March 15–August 15). If maintenance activities in riparian areas must be conducted during this period, a pre-activity survey is conducted by a qualified biologist within 3 days of the start of the activity. If a least Bell's vireo nest or territorial individuals are identified, a minimum 300-foot activity-free buffer is established to avoid direct and indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting the active nest. **SOP-BIO-2: Coastal California Gnatcatcher.** To avoid direct harm to coastal California gnatcatcher (*Polioptila californica californica*), maintenance activities within suitable sage scrub areas occur outside the typical nesting period for this species (approximately February 15–August 31). If maintenance activities are required in suitable habitat for coastal California	Significant	**MM-BIO-1: Minimization of Impacts under LOPPs.** Maintenance activities shall not occur within areas covered by local overlapping permitting processes (LOPPs) (including the Wash Plan, First Line of Defense (FLOD) project area, El Niño project area, and Lenwood facilities) until the relevant permits and environmental clearance have been obtained for these LOPPs. Any measures (including mitigation measures in California Environmental Quality Act (CEQA) documents, conditions in permits for impacts to jurisdictional waters, and conditions in federal and/or state Incidental Take Permits (ITPs)) from the LOPPs shall be incorporated into the Maintenance Plan for implementation with other standard operating procedures (SOPs), mitigation measures, and permit conditions as applicable to reduce any impacts due to adverse modification to critical habitat to below USFWS thresholds. Should the District decide to conduct maintenance activities within LOPP areas in advance of environmental clearance being obtained through the LOPPs, the District shall implement mitigation measures and obtain relevant permits as described in this EIR for impacts within the LOPPs. **MM-BIO-2: Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat.** Maintenance activities shall not occur within areas designated by U.S. Fish and Wildlife Service (USFWS) as critical habitat until the District receives confirmation from USFWS that either (1) the action may affect, but is not likely to adversely affect, critical habitat or (2) the District will receive authorization from USFWS for adverse modification to critical habitat through an informal consultation, a Biological Opinion under the federal Endangered Species Act (ESA), a habitat conservation plan, or other suitable mechanism. All conditions from USFWS for potential adverse modification to critical habitat shall be incorporated into the Maintenance Plan and implemented with other SOPs and mitigation measures of this proposed program. The plan shall include all methods, conditions, practices, and mitigation required by USFWS. Permanent impacts to occupied habitat and/or designated critical habitat shall include off-site acquisition and preservation of occupied habitat or designated critical habitat per the species-specific	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	gnatcatcher during the nesting period, a pre-activity survey is conducted by a qualified biologist within 3 days prior to the activity. If coastal California gnatcatcher nests are identified, a minimum 300-foot buffer is established where no maintenance activities could occur to avoid potential indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting the active nest. **SOP-BIO-3: Southwestern Willow Flycatcher.** To avoid impacts to southwestern willow flycatcher (*Empidonax traillii extimus*), maintenance activities within suitable riparian habitat occur outside the typical nesting period for this species (approximately May 1–August 31). If maintenance activities in suitable riparian areas are required during the nesting period, a pre-activity survey is conducted by a qualified biologist within 3 days of the start of the activity. If southwestern willow flycatcher nests are identified, a minimum 1,000-foot buffer is established where no maintenance activities may occur to avoid potential direct and indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting active nests. To determine southwestern willow flycatcher presence or absence within suitable habitat, protocol focused surveys for southwestern willow flycatcher are conducted prior to maintenance events within suitable habitat or as determined by the proposed program's resource agency permits. **SOP-BIO-4: Native Fish Avoidance.** Maintenance activities within the facilities suitable for native fish occur when the applicable portion of the facility is dry to the maximum extent practicable. If activities occur when water is present, a water diversion plan is developed that includes measures to avoid impacts to native fish. **SOP-BIO-5: Nesting Birds.** Potential impacts to nesting birds are avoided through implementation of the District's Nesting Bird and Burrowing Owl Management Plan. Generally, no more than 3 days prior to implementation of maintenance activities during the nesting bird season (defined broadly to include January 15–August 31) a qualified biologist completes a nesting bird survey within the maintenance footprint and appropriate buffer for nesting bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code. If active nests are found, they are protected in place with an adequate activity-free buffer until the nest is determined by a qualified biologist to be inactive. Limits of the buffer are established in the field with stakes, flagging, or other highly		mitigation measures MM-BIO-4 through MM-BIO-9 and MM-BIO-12 through MM-BIO-16, or as otherwise required by USFWS to reduce any impacts due to adverse modification to critical habitat to below USFWS thresholds. **MM-BIO-3: Mitigation for Special-Status Plants.** In cases where significant impacts to special-status plant species cannot be avoided during implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), the following mitigation shall be implemented. For species federally and/or state listed as threatened or endangered, prior to maintenance activities that would occur within occupied habitat and that may affect the respective species, a mitigation and monitoring plan shall be submitted to and approved by USFWS (for federally listed plants) and/or the California Department of Fish and Wildlife (CDFW) (for state-listed plants). Upon approval, the plan shall be implemented by the District or its designee. For non-listed plant species, prior to maintenance activities occurring within occupied habitat, District Ecological Resource Specialists shall determine if potential impacts would be significant to the long term viability of the local population of that plant species. For significant impacts, the District shall develop and implement a translocation plan for that species. The mitigation and monitoring plan for the transplanted special-status plant(s) shall describe the following as needed based on plant species: (1) the location of mitigation sites; (2) site preparation measures as needed such as topsoil treatment, soil decompaction, erosion control, temporary irrigation systems, removal of non-native species; (3) a schedule and action plan to maintain and monitor the mitigation areas; (4) adaptive management measures such as replanting, weed control, or erosion control to be implemented if habitat improvement/restoration efforts are not successful; (5) success criteria; and (6) annual monitoring and reporting requirements. Take of any listed species, or collection and transplantation of any individuals and populations of any listed species, will require approval by the USFWS and/or CDFW and issuance of an ITP. **MM-BIO-4: Mitigation for San Bernardino Kangaroo Rat.** Compensatory mitigation ratios for San Bernardino kangaroo rat shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by the applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP. Prior to direct impacts to suitable habitat for San Bernardino kangaroo rat, the District shall receive authorization from the USFWS through the ESA ITP process, including the preparation of a Biological Assessment, for take of San Bernardino kangaroo rat and adverse modification of designated critical habitat. Any measures determined to be necessary through the Incidental Take Permit process to offset impacts to San Bernardino kangaroo rat may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **Proposed Mitigation Ratios and Estimated Mitigation Acreage for San Bernardino Kangaroo Rat Habitat in the Valley Region** Habitat Quality: Low quality — Impacts (Acres)[a]: 47.0 — Mitigation Ratio[b]: 1:1 — Total Mitigation (Acres)[a]: 47 Habitat Quality: Moderate quality — Impacts (Acres)[a]: 28.2 — Mitigation Ratio[b]: 2:1 — Total Mitigation (Acres)[a]: 56.4 Habitat Quality: High quality — Impacts (Acres)[a]: 11.8 — Mitigation Ratio[b]: 3:1 — Total Mitigation (Acres)[a]: 35.4 **Total — 87 — — 138.8** [a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation would be completed as determined by actual impact acreages. [b] Mitigation ratios may be modified by the applicable resource agency permit. **MM-BIO-5: Mitigation for Least Bell's Vireo**. Compensatory mitigation ratios for least Bell's vireo shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.	

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	visible method. Maintenance personnel will be instructed on the sensitivity of nest areas and are made aware of flagging that demarks buffers. Summary results of the nesting bird surveys are provided to the CDFW in an annual report. **SOP-BIO-6: Burrowing Owl.** Prior to implementation of maintenance activities in suitable burrowing owl (*Athene cunicularia*) habitat, the District implements the measures described in the District Nesting Bird and Burrowing Owl Management Plan, which states that if burrowing owls are present, the District will consult with CDFW prior to any maintenance and any agreed-upon measures will be implemented. Measures include establishment of an activity-free buffer zone; eviction, if required and approved by CDFW; and/or creation of permanent artificial burrows to replace any occupied burrows that have been removed. Replacement of occupied burrows is typically completed at a minimum 2:1 ratio. If eviction and/or replacement of burrows is required, a management plan is prepared and approved by CDFW. The management plan includes forced dispersal (eviction) methods, post-eviction data, and construction timing/specifications/requirements for creating permanent artificial burrows. **SOP-BIO-7: Bat Roosts.** Maintenance activities in suitable bat roost habitat, including bridges and mature riparian forests and woodlands, generally occur outside the bat maternity season (generally between April 1 and July 31) or pre-activity surveys are conducted to confirm absence of bat roosts. **SOP-BIO-8: Western Spadefoot.** Implementation of maintenance activities within basins and other temporary pools that are considered suitable for western spadefoot (*Spea hammondii*) breeding (i.e., basins/pools that hold water temporarily and have adjacent native habitats) occurs only when the basins are completely dry to minimize the potential for direct harm to eggs, tadpoles, metamorphs, or adults. If avoidance is not practicable, an avoidance plan is prepared and coordinated with CDFW prior to implementation of maintenance activity. **SOP-BIO-9: Arroyo Toad.** To avoid potential direct harm to arroyo toad (*Anaxyrus californicus*) adults, juveniles, and larvae that may be within surface waters from upstream occupied areas, maintenance activities along the upper Mojave River (generally upstream of Hesperia Lake Park) occur either when no surface waters are present or outside the breeding window (approximately March–July) and the period when tadpoles or metamorphs could be present (approximately April–September). **SOP-BIO-10: Desert Tortoise.** Within 24 hours prior to initiation of maintenance activities in desert tortoise (*Gopherus agassizii*) habitat, a pre-activity survey is conducted by a qualified desert		**Mitigation Ratios and Acreage for Least Bell's Vireo Habitat in the Valley Region** Low quality: Impacts (Acres)[a] 15.4; Mitigation Ratio[b] 1:1; Total Mitigation (Acres)[a] 15.4 Moderate quality: 9.5; 2:1; 19 High quality: 41.1; 3:1; 123.3 **Total: 66.0; —; 157.7** [a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages. [b] Mitigation ratios may be modified by the applicable resource agency permit. Prior to removal of suitable least Bell's vireo habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through the California Endangered Species Act (CESA) Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to least Bell's vireo and adverse modification of designated critical habitat as applicable. Any measures determined to be necessary through the Incidental Take Permit process may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **MM-BIO-6: Mitigation for Delhi Sands Flower-Loving Fly.** The District shall compensate for impacts to Delhi sands flower-loving fly habitat through replacement ratios of 1:1 for low-quality habitat and 2:1 for moderate-quality habitat or as otherwise required by applicable resource agency permits. Prior to impacting suitable habitat for Delhi sands flower-loving fly, the District shall receive authorization from the USFWS through the ESA ITP process. The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to Delhi sands flower-loving fly. Any conditions required by the ITP may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **MM-BIO-7: Mitigation for Coastal California Gnatcatcher.** The District shall compensate impacts to up to three coastal California gnatcatcher breeding territories by preserving and/or enhancing 25.2 acres of sage scrub habitat or as otherwise required by the applicable resource agency permits. Prior to impacting suitable habitat for California gnatcatcher, the District shall receive authorization from the USFWS through the ESA ITP process. The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to California gnatcatcher. Any measures determined to be necessary through the ITP process may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **MM-BIO-8: Mitigation for Southwestern Willow Flycatcher.** Prior to removal of suitable habitat for southwestern willow flycatcher, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize adverse modification of designated critical habitat. Any conditions required by the ITP may supersede mitigation measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **MM-BIO-9: Mitigation for Tricolored Blackbird.** If suitable nesting habitat for tricolored blackbird is present in Wineville Basin, Jurupa Basin, Chris Basin, portions of the lower Cucamonga Spreading Grounds, or other identified habitat to be removed, three breeding surveys for tricolored blackbird shall be conducted in April and May, separated by a minimum of 10 days, to determine whether a breeding colony is present prior to any maintenance activities being conducted. If the results of the survey are positive, avoidance of 100% of the occupied habitat and adjacent habitat suitable for nesting shall be avoided. If 100% avoidance is not feasible due to flood protection requirements, consultation with the CDFW shall be initiated prior to implementation of any activities that may impact habitat occupied by tricolored blackbird. The District shall submit a 2081 application to the CDFW for any maintenance activities that impact tricolored blackbird breeding habitat. **MM-BIO-10: Compensation for Special-Status Vegetation Communities in the Valley Region.** Direct impacts to special-status vegetation communities shall be mitigated at the ratios included in the following table or as otherwise required in applicable resource agency permits. Mitigation shall include	

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	tortoise biologist. Any occupied or potentially suitable desert tortoise burrows are flagged and avoided. If individuals or other sign of desert tortoise are observed during the pre-activity survey, a biological monitor is present at all times during all maintenance activities unless exclusion fencing is utilized. **SOP-BIO-11: Mojave Fringe-Toed Lizard.** To reduce the potential for any impacts to Mojave fringe-toed lizard (*Uma scoparia*) or their eggs or hibernating individuals, maintenance activities in desert dune habitat are scheduled to occur in April, or between August and October, when individuals are most likely to be active on the surface. If maintenance activities are required in suitable habitat from April to October, a qualified biologist familiar with Mojave fringe-toed lizard conducts a pre-activity survey no more than 24 hours prior to the maintenance activity. If individuals or sign of Mojave fringe-toed lizard are detected during the survey, biological monitoring of the maintenance activity is conducted to reduce the potential for direct harm. **SOP-BIO-12: Western Pond Turtle.** Prior to the initiation of any maintenance activities, areas where ponded waters occur and have the potential to support western pond turtle (*Actinemys marmorata*) on the Mojave River are mapped and documented as described in the Maintenance Plan. For maintenance activities within documented ponded areas, a biological monitor is present to ensure that the pond is first drained and that any western pond turtles that may be present are able to leave the area that is to be maintained. **SOP-BIO-13: Southern Rubber Boa.** To avoid the potential for direct harm to southern rubber boa (*Charina umbratica*), the District completes maintenance activities within suitable habitat between approximately November 1 and April 1, when boas are likely in hibernation and deep in the ground within upland rock outcrops or in association with large, down logs. To avoid the potential for direct harm and permanent loss of habitat for southern rubber boa, riparian vegetation within suitable habitat is removed by hand crews only between approximately November 1 and April 1. By restricting the work to this time frame, the District helps ensure that the habitat is suitable for southern rubber boa by the summer. To further minimize potential harm to southern rubber boa during vegetation management activities, hand crews receive training specific to southern rubber boa prior to beginning work in habitat suitable for southern rubber boa. **SOP-BIO-14: Special-Status Plants Pre-Activity Surveys and Avoidance.** Prior to maintenance activities within facilities that provide suitable habitat for special-status plant species, the District completes pre-activity surveys for special-status		preservation, creation, enhancement and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) the mitigation type (e.g., preservation, creation); (2) location of mitigation; (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated; (4) an implementation plan; (5) maintenance requirements; (6) monitoring requirements; (7) reporting requirements; (8) contingency measures; (9) long-term management; and (10) funding assurances. **Proposed Mitigation Ratios for Special-Status Vegetation Communities in the Valley Region** **MM-BIO-12: Mitigation for Mohave Ground Squirrel.** Compensatory mitigation ratios for Mohave ground squirrel shall be at a ratio of 2:1 for permanent direct impacts to Good quality habitat and 3:1 for permanent direct impacts to Excellent quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with CDFW as part of the ITP. Prior to impacts of potentially occupied Mohave ground squirrel habitat, the District shall receive authorization from the CDFW through CESA Sections 2081(b) and (c). Any measures determined to be necessary through the ITP process to offset impacts to Mohave ground squirrel may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **Proposed Mitigation Ratios and Estimated Mitigation Acreage for Mohave Ground Squirrel in the Desert Region**	

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (Acres)[a]	Mitigation Ratio[b]	Mitigation Required (Acres)[a]
Coastal scrub	Brittle bush scrub alliance	5.7	1:1	5.7
	California sagebrush–California buckwheat scrub alliance	134.4	1:1	134.4
	Coastal scrub subtotal	*140.1*	*1:1*	*140.1*
Oak woodlands and forests	Coast live oak woodland alliance	2.5	1:1	2.5
	Disturbed coast live oak woodland alliance	2.6	1:1	2.6
	Oak woodlands and forests subtotal	*5.1*	*1:1*	*5.1*
Riparian forest and woodland	Black willow thickets alliance	4.3	1:1	4.3
	California sycamore woodlands alliance	1.1	1:1	1.1
	Fremont cottonwood forest alliance	28.6	1:1	28.6
	Red willow thickets alliance	<0.05	1:1	<0.05
	Riparian forest and woodland subtotal	*34.0*	*1:1*	*34.0*
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	297.1	1:1	297.1
	Riversidean alluvial fan sage scrub subtotal	*297.1*	*2:1*	*297.1*
	Total	**476.3**	**—**	**476.3**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.
[b] Mitigation ratios may be modified by the applicable resource agency permit.

Habitat Quality	Impacts (Acres)[a]	Mitigation Ratio[b]	Total Mitigation (Acres)[a]
Good	28.7	1:1	28.7
Excellent	0.8	1.5:1	1.2
Total	**29.5**	**—**	**29.9**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	plant species during the blooming period prior to the anticipated maintenance activity. Due to the proposed maintenance schedule of maintenance occurring on average at 30% of facilities each year, special-status plant surveys are anticipated approximately every 3 years for facilities supporting suitable habitat. Surveys are conducted by a qualified botanist during a time when the plant species with potential to occur are identifiable (i.e., during their blooming period for annual species) within the maintenance area that would be subject to direct or indirect impacts. Surveys conform to the California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFG 2009), and the Endangered Species Recovery Program's General Rare Plant Survey Guidelines (Cypher 2002) or the most current accepted protocol. Plant species encountered during the field surveys are identified to subspecies or variety, if applicable, to determine sensitivity status. Populations and individuals of any special-status plant species found during pre-activity surveys are mapped with GPS and documented in accordance with the Maintenance Plan. Mapped populations of listed species are avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants are avoided during maintenance activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, is implemented to protect special-status plant populations found near maintenance sites. **SOP-BIO-15: Worker Environmental Awareness Program.** If special-status biological resources are determined to potentially occur within or immediately adjacent to any of the maintenance activities during the environmental compliance review described in the Maintenance Plan, a qualified biologist conducts a training/education session for all operations staff members and/or District contractors. The biologist addresses any resources that could occur within avoided habitat and measures to minimize adverse impacts to avoided habitat areas. The biologist gives direction outlining actions to be taken should any special-status species or community be observed within or adjacent to maintenance areas. As applicable, the biologist reviews and/or designates the vegetation management area in the field with maintenance personnel. The biologist discusses with maintenance personnel that any vehicles or equipment driven and/or operated adjacent to natural open space areas		provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages. [b] Mitigation ratios may be modified by the applicable resource agency permit. **MM-BIO-13: Mitigation for Desert Tortoise.** Compensatory mitigation ratios for desert tortoise shall be at a ratio of 0.5:1 for permanent direct impacts to moderate-quality habitat and 1:1 for permanent direct impacts to high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS and CDFW as part of the ITP. Prior to impacts of potentially occupied desert tortoise habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize removal of desert tortoise habitat and adverse modification of designated critical habitat. Any measures determined to be necessary through the ITP process to offset impacts to desert tortoise may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **Proposed Mitigation Ratios and Estimated Mitigation Acreage for Desert Tortoise in the Desert Region** Habitat Quality / Impacts (Acres)[a] / Mitigation Ratio[b] / Total Mitigation (Acres)[a] Moderate / 78.7 / 0.5:1 / 39.4 High / 209.1 / 1:1 / 209.1 **Total / 287.8 / — / 248.5** [a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages. [b] Mitigation ratios may be modified by the applicable resource agency permit. **MM-BIO-14: Mitigation for Least Bell's Vireo Habitat in the Desert Region.** Compensatory mitigation ratios for least Bell's vireo shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP. **Proposed Mitigation Ratios and Acreage for Least Bell's Vireo Habitat in the Desert Region** Habitat Quality / Impacts (Acres)[a] / Mitigation Ratio[b] / Total Mitigation (Acres)[a] Low quality / 5.4 / 1:1 / 5.4 Moderate quality / 4.2 / 2:1 / 8.4 High quality / 17.1 / 3:1 / 51.3 **Total / 26.7 / — / 65.1** [a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages. [b] Mitigation ratios may be modified by the applicable resource agency permit. Prior to removal of suitable least Bell's vireo habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to least Bell's vireo, including adverse modification of designated critical habitat as applicable. Any measures determined to be necessary through the ITP process may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **MM-BIO-15: Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo in the Desert Region.** Due to the presence of moderately suitable southwestern willow flycatcher and yellow-billed cuckoo habitat within the Mojave River maintenance footprint, focused protocol surveys shall be completed for these species prior to initiation of maintenance activities in this area and repeated every 5 years to determine the presence/absence of these species.	

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	is to be checked and maintained daily to prevent leaks of materials/liquids into these areas. **SOP-BIO-16: Best Management Practices.** The District uses best management practices to ensure that no trash, debris, oil, petroleum products, or other organic material from any maintenance activity is allowed to enter into watercourses or is placed where it may be washed by rainfall or runoff into adjacent natural habitat areas or watercourses. When maintenance operations are completed, any debris or excess materials are removed from work areas. **SOP-BIO-19: Herbicide Application.** The District applies pesticides, herbicides, and related surfactants within its facilities in accordance with the District's Vegetation Management Plan, which complies with the Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG990005, Order No. 2013-0002-DWQ (Permit), dated 2013, and the District Weed Control Aquatic Pesticide Application Plan, dated 2014. The District's Vegetation Management Plan seeks to reduce the amount of herbicides used by using selective herbicides and application techniques, timing applications for maximum effect, avoiding fixed application schedules, using mechanical control techniques where appropriate, and encouraging natural controls. For areas within USFWS-designated critical habitat for desert tortoise or areas identified as suitable for desert tortoise by a qualified biologist, herbicide use is coordinated with a qualified desert tortoise biologist prior to application. Any measures identified by the qualified biologist, including avoidance or biological monitoring, are implemented. **SOP-HYD-1** through **SOP-HYD-4** (see Hydrology and Water Quality section of this table)		If the results of the survey are positive, occupied areas shall be avoided to the maximum extent practicable. If 100% avoidance is not feasible due to flood protection requirements, consultation with USFWS and CDFW shall be initiated prior to implementation of any activities that may impact occupied habitat, directly or indirectly. Authorization for removal of occupied southwestern willow flycatcher and/or yellow-billed cuckoo habitat and critical habitat shall be obtained from USFWS through the ESA ITP process and from CDFW through CESA Sections 2081(b) and (c) prior to initiating maintenance activities in occupied areas. Any conditions required by the ITP process may supersede mitigation measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures. **MM-BIO-16: Mitigation for Mojave River Vole.** Prior to implementation of maintenance activities in suitable Mojave River vole habitat upstream and downstream of I-15, a Mojave River vole management plan shall be prepared, submitted, and approved by CDFW. At a minimum, the Mojave River vole management plan shall address methodologies and timing to phase removal of occupied habitat so that suitable patches are sustained through time, as well as height of mowing to achieve flood protection goals. In addition, it will analyze the feasibility of relocating Mojave River vole from removal areas to areas confirmed to be unoccupied. The Mojave River vole management plan will include a process for identifying and confirming potentially unoccupied sites (such as areas downstream of Victor Valley or areas downstream of the Mojave Dam), need and timing of trapping surveys, relocation techniques, monitoring, and reporting. **MM-BIO-17: Compensation for Special-Status Vegetation Communities in the Desert Region.** Direct impacts to special-status vegetation communities shall be mitigated at the ratios included in the following table or as otherwise determined in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) the mitigation type (e.g., preservation, creation, etc.); (2) location of mitigation; (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated; (4) an implementation plan; (5) maintenance requirements; (6) monitoring requirements; (7) reporting requirements; (8) contingency measures; (9) long-term management; and (10) funding assurances.	

Table 1-1
Summary of Program Impacts

<table>
<tr><th>Impact Thresholds</th><th>Standard Operating Procedures</th><th>Level of Significance Prior to Mitigation</th><th>Mitigation Measures</th><th>Level of Significance After Mitigation</th></tr>
<tr><td></td><td></td><td></td><td>
Proposed Mitigation Ratios for Special-Status Vegetation Communities in the Desert Region
<table>
<tr><th>Generalized Habitat Type (CDFG 2010)</th><th>Alliance (CDFG 2010) Land Cover Type</th><th>Permanent (Acres)[a]</th><th>Mitigation Ratio[b]</th><th>Mitigation (Acres)[a]</th></tr>
<tr><td rowspan="2">Desert dry wash woodland</td><td>Desert willow woodland alliance</td><td>9.6</td><td>1:1</td><td>9.6</td></tr>
<tr><td>Mesquite bosque, mesquite thicket alliance</td><td>—</td><td></td><td>—</td></tr>
<tr><td colspan="2">Desert dry wash woodland subtotal</td><td>9.6</td><td></td><td>9.6</td></tr>
<tr><td rowspan="2">Desert dunes</td><td>Desert panic grass patches</td><td>6.0</td><td>1:1</td><td>6.0</td></tr>
<tr><td>North American warm desert dunes and sand flats</td><td>2.2</td><td>1:1</td><td>2.2</td></tr>
<tr><td colspan="2">Desert dunes subtotal</td><td>8.2</td><td></td><td>8.2</td></tr>
<tr><td>Desert sink scrub</td><td>Bush seepweed scrub alliance</td><td>0.2</td><td>1:1</td><td>0.2</td></tr>
<tr><td colspan="2">Desert sink scrub subtotal</td><td>0.2</td><td></td><td>0.2</td></tr>
<tr><td rowspan="2">Joshua tree woodland</td><td>Disturbed Joshua tree woodland</td><td>0.6</td><td>1:1</td><td>0.6</td></tr>
<tr><td>Joshua tree woodland</td><td>1.7</td><td>1:1</td><td>1.7</td></tr>
<tr><td colspan="2">Joshua tree woodland subtotal</td><td>2.3</td><td></td><td>2.3</td></tr>
<tr><td rowspan="2">Riparian forest and woodland</td><td>Fremont cottonwood forest alliance</td><td>14.3</td><td>1:1</td><td>14.3</td></tr>
<tr><td>Red willow thickets alliance</td><td>1.1</td><td>1:1</td><td>1.1</td></tr>
<tr><td colspan="2">Riparian forest and woodland subtotal</td><td>15.5</td><td></td><td>15.5</td></tr>
<tr><td>Riversidean alluvial fan sage scrub</td><td>Scale broom scrub alliance</td><td>12.6</td><td>1:1</td><td>12.6</td></tr>
<tr><td colspan="2">Riversidean alluvial fan sage scrub subtotal</td><td>12.6</td><td></td><td>12.6</td></tr>
<tr><td rowspan="3">Sonoran and Mojavean desert scrub</td><td>California joint fir scrub alliance</td><td>0.4</td><td>1:1</td><td>0.4</td></tr>
<tr><td>Disturbed Mojave yucca scrub alliance</td><td>0.5</td><td>1:1</td><td>0.5</td></tr>
<tr><td>Mojave yucca scrub alliance</td><td>1.2</td><td>1:1</td><td>1.2</td></tr>
<tr><td colspan="2">Sonoran and Mojavean desert scrub subtotal</td><td>2.1</td><td></td><td>2.1</td></tr>
<tr><td colspan="2">Total</td><td>50.5</td><td>—</td><td>50.5</td></tr>
</table>
[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.
[b] Mitigation ratios may be modified by the applicable resource agency permit.
</td><td></td></tr>
<tr><td>Impact BIO-2: Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?</td><td>SOP-BIO-15
SOP-BIO-16
SOP-BIO-18: Restoration of Temporary Impacts. Temporary impacts to special-status vegetation communities from bank stabilization are revegetated as determined by District ecologists with an application of a native seed mix to promote passive restoration of the area to pre-project conditions. Prior to seeding temporary ground-disturbance areas, District ecologists review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory, occurs.
SOP-BIO-19
SOP-HYD-1 through SOP-HYD-4</td><td>Significant</td><td>MM-BIO-1
MM-BIO-10
MM-BIO-11: Compensation for Special-Status Vegetation Communities in the Mountain Region. Direct impacts to special-status vegetation communities in the Mountain Region shall be mitigated at the ratios included in the following table or as otherwise required in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement, and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) mitigation type (e.g., preservation, creation), (2) location of mitigation, (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated, (4) an implementation plan, (5) maintenance requirements, (6) monitoring requirements, (7) reporting requirements, (8) contingency measures, (9) long-term management, and (10) funding assurances.</td><td>Less than significant</td></tr>
</table>

Table 1-1
Summary of Program Impacts

<table>
<tr><th>Impact Thresholds</th><th>Standard Operating Procedures</th><th>Level of Significance Prior to Mitigation</th><th>Mitigation Measures</th><th>Level of Significance After Mitigation</th></tr>
<tr><td></td><td></td><td></td><td>

Proposed Mitigation Ratios for Special-Status Vegetation Communities in the Mountain Region

<table>
<tr><th>Generalized Habitat Type (CDFG 2010)</th><th>Alliance (CDFG 2010) Land Cover Type</th><th>Permanent (Acres)[a]</th><th>Mitigation Ratio[b]</th><th>Mitigation (Acres)[a]</th></tr>
<tr><td>California bay forests and woodlands</td><td>California bay forests and woodlands</td><td>0.3</td><td>1:1</td><td>0.3</td></tr>
<tr><td colspan="2">California bay forests and woodlands subtotal</td><td>0.3</td><td>—</td><td>0.3</td></tr>
<tr><td rowspan="2">Coastal scrub</td><td>Brittle bush scrub alliance</td><td><0.05</td><td>1:1</td><td><0.05</td></tr>
<tr><td>California sagebrush–California buckwheat scrub alliance</td><td>1.9</td><td>1:1</td><td>1.9</td></tr>
<tr><td colspan="2">Coastal scrub subtotal</td><td>1.9</td><td>—</td><td>1.9</td></tr>
<tr><td>Oak woodlands and forests</td><td>Canyon live oak forest alliance</td><td>2.1</td><td>1:1</td><td>2.1</td></tr>
<tr><td colspan="2">Oak woodlands and forests subtotal</td><td>2.1</td><td>—</td><td>2.1</td></tr>
<tr><td>Riparian forest and woodland</td><td>California sycamore woodlands alliance</td><td>2.8</td><td>1:1</td><td>2.8</td></tr>
<tr><td></td><td>Fremont cottonwood forest alliance</td><td>0.1</td><td>1:1</td><td>0.1</td></tr>
<tr><td colspan="2">Riparian forest and woodland subtotal</td><td>2.9</td><td>—</td><td>2.9</td></tr>
<tr><td>Riversidean alluvial fan sage scrub</td><td>Scale broom scrub alliance</td><td>0.4</td><td>1:1</td><td>0.4</td></tr>
<tr><td colspan="2">Riversidean alluvial fan sage scrub subtotal</td><td>0.4</td><td>—</td><td>0.4</td></tr>
<tr><td colspan="2">Total</td><td>7.7</td><td>—</td><td>7.7</td></tr>
</table>

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.
[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-17

</td><td></td></tr>
<tr><td>**Impact BIO-3:** Would the program have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</td><td>**SOP-BIO-16**
SOP-BIO-20: Jurisdictional Waters Avoidance. The District avoids impacts to jurisdictional waters as defined under state or federal law from stockpiles by placing stockpile material outside of jurisdictional waters as practicable.
SOP-HYD-1 through **SOP-HYD-4**</td><td>Significant</td><td>**MM-BIO-1**
MM-BIO-18: Compensation for Jurisdictional Waters. Significant permanent direct impacts to waters of the United States and state shall be mitigated at a 1:1 ratio or as otherwise determined in applicable resource agency permits. Permanent direct impacts to riparian vegetation associated with jurisdictional streambeds shall be mitigated at a 1:1 ratio or as otherwise determined in applicable resource agency permits. Mitigation for special-status vegetation communities may overlap with mitigation for jurisdictional waters and will be included as part of the total mitigation obligation for jurisdictional waters such that the District is not mitigating twice for the same resource. Mitigation shall include preservation, creation, enhancement, and/or rehabilitation or restoration in kind of jurisdictional waters. Mitigation shall be completed through use of an agency-approved in lieu fee program, a mitigation bank, or applicant-proposed mitigation. For the latter, a Habitat Mitigation and Monitoring Plan shall be prepared in accordance with USACE and State Water Resources Control Board guidelines and approved by the agencies in accordance with the proposed program permits.</td><td>Less than significant</td></tr>
<tr><td>**Impact BIO-4:** Would the program 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?</td><td>—</td><td>Less than significant</td><td>—</td><td>Less than significant</td></tr>
</table>

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact BIO-5: Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	—	No impact	—	No impact
Impact BIO-6: Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	**SOP-BIO-6** **SOP-BIO-14** through **SOP-BIO-16** **SOP-BIO-18** **SOP-BIO-19** **SOP-HYD-1** through **SOP-HYD-4**	Significant	**MM-BIO-1** **MM-BIO-3** **MM-BIO-10**	Less than significant
Would the program have a cumulative effect on biological resources?	**SOP-BIO-1** through **SOP-BIO-16** **SOP-BIO-17: Monitoring.** As described in the Maintenance Plan, qualified District staff (or their designee) confirm implementation of SOPs and other relevant mitigation measures and permit conditions as described in the Maintenance Plan. **SOP-BIO-18** through **SOP-BIO-20** **SOP-HYD-1** through **SOP-HYD-4**	Significant	**MM-BIO-1** through **MM-BIO-18**	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
			Cultural Resources	
Impact CR-1: Would the program cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	**SOP-CR-1: Project-Specific APE.** An area of potential effect (APE) is established as needed on a project-specific basis for County projects, to facilitate implementing cultural resource and paleontological studies. The APE is defined by various means including but not limited to maps, aerials, plot plans, and/or a written description. APEs may be either contiguous or noncontiguous. In the absence of any defined APE boundary, the APE for maintenance projects consists of previously disturbed soils. No project-specific work outside of any APE boundary is performed without survey by a qualified cultural consultant. It is understood that recommendations for conducting cultural surveys within any defined APE vary on a project-specific basis, including survey methods, evaluation protocols, and report preparation formats and guidelines. **SOP-CR-2: Impacts to Archaeological/Built Environment Resources.** Should unanticipated or inadvertent surface and/or subsurface prehistoric or historic archaeological resources, and/or built environment resources, appear to be encountered during a maintenance activity associated with any County project, then all work within the immediate vicinity of the discovery halts until a qualified professional can evaluate the discovery. If the finds are archaeological or historic in nature, then an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and/or historic archaeology evaluates the significance of the find. This archaeologist has the authority to modify the no-work radius as appropriate, using professional judgment. The following apply, depending on the nature of the find: • If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume immediately. • If the professional archaeologist determines that the find does represent a cultural resource from any historical period or cultural affiliation, appropriate treatment measures are developed, depending on the nature of the discovery. If the find represents a Native American or potentially Native American resource that does not include human remains, which may or may not include a Tribal Cultural Resource, then the archaeologist establishes an appropriate "no-work" buffer and consults with appropriate Tribe(s) on whether the resource represents a Tribal Cultural Resource, a Historical Resource, or both, and if so, consults on appropriate treatment measures. Preservation in place is the preferred treatment, if feasible. Work cannot resume within the no-work	Significant	**MM-CR-1: Pre-Activity Review/Phase I Cultural Resources Survey.** For maintenance activities in areas not already previously disturbed or surveyed, a pre-activity review shall be performed prior to future ground-disturbing activities associated with maintenance activities. For each location where these activities will take place, the proposed program footprint will first be examined by San Bernardino County Flood Control District (District) staff to determine whether the proposed ground-disturbing activities will be confined to the area of previous disturbance or if there is a potential for additional ground disturbance within intact native sediments. If it is determined that the proposed activities have the potential to impact undisturbed native sediments, then a Phase I cultural resource survey or implementation of a monitoring program, depending on the activity, will be required. The purpose of the field surveys will be to visually inspect the ground surface for evidence of archaeological remains, and to assess the flood control facility for its potential to be a historic age built environment resource requiring evaluation. All archaeological resources observed during the course of fieldwork that have the potential to be impacted by the proposed activity shall be adequately recorded at the time of discovery, observing standard documentation procedures. **MM-CR-2: Protective Measures for Cultural Resources near Work Areas.** For future ground-disturbing maintenance activities in areas not previously disturbed and found to be in the vicinity of an archaeological or built environment resource or paleontological resource, protective measures for significant resources in close proximity to a proposed program work area shall be implemented. If the pre-activity review (MM-CR-1) identifies a known cultural or paleontological resource within a proposed program work area, the following protective measures are required as warranted:: • Exclusion fencing and flagging shall be established around any significant or potentially significant cultural or paleontological resource located within a proposed program work area. • A qualified archaeologist or paleontologist, as appropriate, shall monitor ground-disturbing activities in proposed program work areas with significant or potentially significant resources. **MM-CR-3: Phase II Cultural Resources Evaluation.** For future ground-disturbing maintenance activities in areas not previously disturbed where cultural or paleontological resources cannot be avoided by implementation of MM-CR-2, development of a Phase II resources evaluation program shall be implemented by a qualified archaeologist, architectural historian, or paleontologist, as appropriate. The findings of the cultural or paleontological resources evaluation program shall be presented in a technical report or reports to be submitted to the District (and the federal lead agency, if applicable) for review and approval. **MM-CR-4: Phase III Cultural Resources Mitigation Plan.** For those cultural resources determined to be eligible for listing in the California Register of Historical Resources and/or the National Register of Historic Places and that cannot be avoided, a Phase III mitigation plan shall be prepared by a qualified archaeologist or architectural historian prior to the onset of mitigation activities. The plan shall detail the field, laboratory, and archival methods that will be used during the mitigation program; the curation of archaeological or archival materials at an appropriate facility for future research; and provisions for a report detailing the findings and significance of the cultural resources. The plan shall be submitted the District for review and approval prior to the commencement of mitigation investigations. Results of the Phase III mitigation plan shall be presented in a technical report submitted to the District for review and approval prior to the commencement of ground-disturbing activities. A final version of the report shall be submitted to the regional California Historic Resources Information System repository.	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	radius until the County, through consultation as appropriate, determines that either (1) the site is not a Tribal Cultural Resource or Historical Resource or (2) the treatment measures for the Tribal Cultural Resource or Historical Resource have been completed. **SOP-CR-4: Changes Based on Consultation and Legal Requirements.** As necessary, and in accordance with project-specific consultations conducted with the NAHC and various Tribal entities in association with Assembly Bill 52, Senate Bill 18, and/or any other legal guidelines relating to Native American consultations, the specific language noted in SOP-CR-2 and SOP-CR-3 may change to reflect project-specific needs and requirements.			
Impact CR-2: Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	**SOP-CR-1** **SOP-CR-2** **SOP-CR-4**	Significant	**MM-CR-1** through **MM-CR-4**	Less than significant
Impact CR-3: Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	—	Significant	**MM-CR-5: Paleontological Mitigation and Monitoring Plan.** In the event that an unanticipated discovery is made during routine maintenance activities extending into areas containing previously undisturbed sedimentary deposits, the District shall implement a Paleontological Mitigation and Monitoring Plan that may require one or more of the following: • A paleontological principal investigator will provide and supervise a trained paleontological monitor who will be present during ground-disturbing activities at identified facilities with fossiliferous sediments. The monitor will be empowered to temporarily halt or redirect ground-disturbing activities to ensure avoidance of adverse impacts to paleontological resources. The monitor will be equipped to rapidly remove any large fossil specimens encountered during maintenance activities. During monitoring, samples shall be collected and processed to recover microvertebrate fossils. Processing shall include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains. • Upon encountering a large deposit of bone, salvage of bone in the area shall be conducted with additional field staff and in accordance with modern paleontological techniques. • All fossils collected during maintenance will be prepared to a reasonable point of identification. Excess sediment or matrix will be removed from the specimens to reduce the bulk and cost of storage. Itemized catalogs of the material collected and identified shall be provided to the museum repository along with the specimens. • A report documenting the results of the monitoring and salvage activities and the significance of the fossils shall be prepared. • All fossils collected during this work, along with the itemized inventory of these specimens, will be deposited in a museum repository for permanent curation and storage.	Less than significant
Impact CR-4: Would the program disturb any human remains, including those interred outside of formal cemeteries?	**SOP-CR-3: Human Remains.** If a find during a maintenance activity includes human remains, or remains that are potentially human, the archaeologist ensures that reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill 2641). The archaeologist notifies the San Bernardino County Coroner (per Section 7050.5 of the California Health and Safety	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	Code). The Coroner's Office may be contacted at Coroner's Division, County of San Bernardino, 175 South Lena Road, San Bernardino, California 92415 or by calling 909.387.2978. The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 are implemented. If the Coroner determines the remains are Native American and not the result of a crime, the Coroner notifies the Native American Heritage Commission (NAHC), which then designates a Native American Most Likely Descendant (MLD) for the project (Section 5097.98 of the California Public Resources Code). The designated MLD has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the California Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the California Public Resources Code). This also includes recording the site with either the NAHC or the appropriate Information Center, using an open space or conservation zoning designation or easement, or recording a reinterment document with the county in which the property is located (Assembly Bill 2641). Work may not resume within the no-work radius until the County, through consultation as appropriate, determines that the treatment measures have been completed to its satisfaction. **SOP-CR-4**			
Would the program have a cumulative effect on cultural resources?	**SOP-CR-1** through **SOP-CR-4**	Significant	**MM-CR-1** through **MM-CR-5**	Less than significant
Geology and Soils				
Impact GEO-1: Would the program expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a. 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 based on other substantial evidence of as known fault. (Refer to Division of Mines and Geology Special Publication 42)?	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
b. Strong seismic ground shaking?	—	Less than significant	—	Less than significant
c. Seismic-related ground failure, including liquefaction?	—	Less than significant	—	Less than significant
d. Landslides?	—	Less than significant	—	Less than significant
Impact GEO-2: Would the program result in substantial soil erosion or the loss of topsoil?	—	Less than significant	—	Less than significant
Impact GEO-3: Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**SOP-GEO-1: Earthwork and Grading Best Practices**. The District implements the following earthwork considerations, as applicable, during routine maintenance activities: • *Remedial Grading*. Prior to grading, any fill zone is cleared of surface and subsurface obstructions. Voids created by removal of buried material are backfilled with properly compacted soil. Exposed subgrade in fill zones are scarified to a depth of at least 6 inches, moisture-conditioned to above optimum, and compacted to at least 90% of the ASTM D 1557-12 (modified Proctor) laboratory maximum density. In some cases, wet subgrades may need to be stabilized with crushed rock, geogrids, and/or other methods. • *Compacted Fill/Backfill*. Fill materials are naturally occurring, well-graded soil or soil/rock combinations, free of wood, trash, and construction debris and organic, contaminated, or deleterious material. • *Slope Gradients*. New cut and fill slopes of drainage channels, basins, levees, dams, or adjacent hillsides may not exceed a gradient of 2:1 (horizontal to vertical) unless authorized by District engineering staff. • *Temporary Slopes*. When necessary to prevent caving and to protect adjacent structures or property, temporary steep slopes are shored, sheeted, braced, or sloped in accordance with California Code of Regulations Title 8 and the regulations of local authorities with jurisdiction.	Less than significant	—	Less than significant
Impact GEO-4: Would the program be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
substantial risks to life or property?				
Impact GEO-5: Would the program 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?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on geological and/or soil resources?	**SOP-GEO-1**	Less than significant	—	Less than significant
Greenhouse Gas Emissions				
Impact GHG-1: Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	**SOP-AQ-1** (see Air Quality section of this table) **SOP-AQ-2** (see Air Quality section of this table) **SOP-AQ-3** (see Air Quality section of this table)	Less than significant	—	Less than significant
Impact GHG-2: Would the program conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on greenhouse gas emissions?	**SOP-AQ-1** **SOP-AQ-2** **SOP-AQ-3**	Less than significant	—	Less than significant
Hazards and Hazardous Materials				
Impact HAZ-1: Would the program create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HAZ-2: Would the program create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	—	Less than significant	—	Less than significant
Impact HAZ-3: Would the program emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	—	Less than significant	—	Less than significant
Impact HAZ-4: Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	—	Significant	**MM-HAZ-1: Hazardous Materials Contingency Plan.** A hazardous materials contingency plan shall be prepared for the proposed program prior to ground-disturbing activities at San Bernardino County Flood Control District facilities that have an "open" or "active" regulatory case listing at the facility or immediately adjacent to it. Air monitoring shall be performed to limit worker exposure to potential hazardous chemicals in the subsurface. The hazardous materials contingency plan will identify areas with known hazardous materials concerns; include procedures for managing hazardous materials; prescribe sampling, if necessary; and include a health and safety plan. The health and safety plan will provide guidance to maintenance crews who may manage/handle hazardous material (e.g., fuels, solvents) and encounter previously unknown soil or groundwater contaminants. This plan will include information about potential contaminants, protocols for reporting suspected contaminants, authority to stop work, protocol for conducting further study, and other necessary information.	Less than significant
Impact HAZ-5: For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the program result in a safety hazard for people residing or working in the program area?	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HAZ-6: For a program within the vicinity of a private airstrip, would the program result in a safety hazard for people residing or working in the program area?	—	Less than significant	—	Less than significant
Impact HAZ-7: Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	**SOP-TR-1** (see Traffic and Circulation section of this table)	Significant		Less than significant
Impact HAZ-8: Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	**SOP-PUB-1** and **SOP-PUB-2** (see Public Services section of this table)	Less than significant	—	Less than significant
Would the program have a cumulative effect on hazards or hazardous materials?	**SOP-TR-1** **SOP-PUB-1** **SOP-PUB-2**	Significant	**MM-HAZ-1**	Less than significant
Hydrology and Water Quality				
Impact HYD-1: Would the program violate any water quality standards or waste discharge requirements?	**SOP-HYD-1: Scheduling.** Scheduling is the development of a plan that includes sequencing of maintenance activities and the implementation of BMPs such as erosion control and sediment control while taking local climate (rainfall, wind, etc.) into consideration. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the maintenance activities and control practices in accordance with the plan. The District schedules work only after the wetted portions of a channel or basin are dry enough to safely operate equipment when practicable and develops and implements a water diversion plan if activities occur when water is present; incorporates implementation of water quality BMPs into the planning and scheduling of maintenance activities to the greatest feasible extent; and sequences work to avoid periods of rain and high winds.	Significant	**MM-BIO-3** through **MM-BIO-18** (see Biological Resources section of this table)	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	SOP-HYD-2: Vegetation Management. Vegetation clearing is avoided/minimized to the greatest extent practicable in areas within flood control rights-of-way that do not impact the District's ability to maintain flood control capacity and do not impact the District's ability to comply with federal and state flood protection requirements. Clippings and cuttings are properly disposed of. All work is completed in accordance with the District's Vegetation Management Plan. Vegetation management activities reduce the flood risk by maintaining conveyance capacity for flood control facilities, maintain access, and preserve visibility for inspections and maintenance activities. Vegetation management includes maintaining in-stream vegetation, removing non-native weeds, removing vegetation on stockpiles and adjacent properties, removing hazardous trees, applying herbicide, implementing selective clearing operations, and in some cases, encouraging vegetation establishment and promotion. Vegetation can support the maintenance of flood control facilities through soil conservation and erosion control. (See SOP-HYD-4 regarding herbicide/pesticide application.) **SOP-HYD-3: Minimization of Controllable Discharge of Sediment.** The District uses BMPs during program maintenance activities to minimize the controllable discharges of sediment to drainage systems or other waters of the state and of the United States. This includes the use of some or all of the following, as appropriate: • **Storm Drain Inlet Protection.** Storm drain inlet protection consists of protective measures before runoff enters the storm drain. Control measures such as sediment filtration devices and/or impounding the area around or upstream of storm drains are implemented for sediment reduction. The following protection controls can be used: filter fabric and gravel bag barriers. The District maintains inlet protections regularly to keep them functioning properly. • **Fiber Rolls.** Fiber rolls are used to intercept runoff, reduce its flow velocity, and release runoff as sheet flow. Fiber rolls are placed at the toe or on the face of slopes, along the perimeter of a program site, around temporary stockpiles, and downslope of exposed soil areas. Fiber rolls are one of many erosion control devices that can be and are employed by the District, as applicable. • **Sandbag Barrier.** A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers placed on a level contour pond sheet flow runoff, allowing sediment to settle out. Sandbag barriers are one of many erosion control devices that can be and are employed by the District, as applicable.			

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	• **Gravel Bag Berms.** Gravel bag berms are a series of gravel-filled bags used to intercept sheet flows, pond the runoff flow, and allow the sediment to settle out and slowly release the sheet flow. Gravel bag berms can be used as a sediment/erosion control measure in the program area. Gravel bag berms are one of many erosion control devices that can be and are employed by the District, as applicable. • **Stabilized Work Area Entrance/Exit**. A stabilized work area entrance/exit reduces the tracking of mud and dirt onto public roads by work trucks. The stabilization feature can be built by using different techniques. Some of the common techniques are using 3- to 6-inch-diameter stones, placing steel rubble racks, and limiting the points of entrance/exit to the work area. The effectiveness of stabilized maintenance location entrances and exits are monitored and adjusted as necessary, and any vehicular trackouts of sediment are swept up. • **Wind Erosion Control.** This control measure prevents dust and wind erosion by simply applying water or other dust palliatives as necessary to reduce or alleviate dust nuisance generated by maintenance activities. Wind erosion control is one of many erosion control devices that can be and are employed by the District, when necessary. • **Straw Bales Barrier.** This temporary linear sediment barrier is placed where sediment-laden sheet flows from the work area can pond and settle out within the project site. Straw bales have limited applications. Straw bales barriers are one of many erosion control devices that can be and are employed by the District, as applicable. • **Geotextiles and Mats.** Mattings, or rolled erosion control products (RECPs), are made of natural or synthetic materials or a combination of the two. RECPs are used to cover the soil surface to reduce erosion from rainfall impact, hold soil in place, and absorb and hold moisture near the soil surface. Additionally, RECPs are used to stabilize soils until vegetation is established or to reinforce non-woody surface vegetation. The District applies geotextiles and mats as applicable. • **Soil Binders.** Soil binding consists of application and maintenance of a soil stabilizer to exposed soil surfaces. Soil binders are materials applied to the soil surface to temporarily prevent water- and wind-induced erosion of exposed soils on maintenance activity sites. • **Temporary Stream Crossing.** A temporary stream crossing is a temporary culvert, ford, or bridge placed			

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	across a waterway to provide access for maintenance purposes for a period of less than 1 year. Temporary access crossings are not intended to maintain traffic for the public. The temporary access eliminates erosion and downstream sedimentation caused by vehicles. • **Clear Water Diversion.** Clear water diversion consists of a system of structures and measures that intercept clear surface water runoff upstream of an activity, transport it around the work area, and discharge it downstream with minimal water quality degradation from either the program's maintenance activities or the creation of the diversion. Clear water diversions are used in a waterway to enclose a work area and reduce sediment pollution from maintenance work occurring in or adjacent to water. Structures commonly used as part of this system include diversion ditches, berms, dikes, slope drains, rock, gravel bags, wood, aqua barriers, cofferdams, filter fabric or turbidity curtains, drainage and interceptor swales, pipes, or flumes. The District conducts clear water diversion as applicable to the specific maintenance project. • **Preservation of Native Vegetation.** Native vegetation that does not impact facility capacity or compromise the integrity of the facility and that is not mandated for removal under federal and state regulatory agencies to ensure structural integrity is avoided to the greatest feasible extent, to protect soil from erosion. Vegetation incorporated into the facility as part of the project design is maintained to as-built conditions. • **Hydroseeding.** Hydroseeding typically consists of applying a mixture of a hydraulic mulch, seed, fertilizer, and stabilizing emulsion with a hydraulic mulcher, to temporarily protect exposed soils from erosion by water and wind. Hydraulic seeding, or hydroseeding, is simply the method by which temporary or permanent seed is applied to the soil surface. The District applies hydroseeding when appropriate. • **Silt Fences.** Silt fences are a temporary control measure that is made of woven geotextile and is entrenched, attached to supporting poles, and sometimes backed by plastic or wire mesh. Silt fences are one of many erosion control devices that can be and are employed by the District, as applicable. • **Location of Temporary Stockpiles.** Temporary stockpiles may be placed in channel bottoms or debris basins if located on barren soil or areas with non-native weeds, and are not placed in such a manner that the			

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	stockpiles are exposed to flowing water. No temporary stockpiles are placed on channel beds or banks from October through April for more than the duration of the sediment removal work. Permanent stockpiles are not created within County rights-of-way in areas located within the 100-year flood hazard zone. **SOP-HYD-4: Minimization of Controllable Discharge of Pollutants.** The District uses SOPs during program maintenance activities to minimize the controllable discharges of petroleum and chemical waste to drainage systems or other waters of the state and of the United States. This includes the use of some or all of the following, as appropriate: • **Control of Corrosive Substances.** Substances resulting from program-related activities that could be harmful to aquatic life, including, but not limited to, petroleum lubricants and fuels, cured and uncured cements, epoxies, paints and other protective coating materials, Portland cement concrete or asphalt concrete, and washings and cuttings thereof, are not discharged to soils or waters of the state. All waste concrete is removed and properly disposed of. • **Illegal Discharge.** Procedures and practices are put in place for contractors to recognize illegally dumped or discharged materials on a work site and to report incidents. • **Road Base Discharge Avoidance.** The District implements measures to prevent the discharge of road base, fill, sediment, concrete, and/or asphalt beyond the previously established roadbed when maintaining existing driveways and dirt access roads within the maintenance activity area. • **Spill and Leak Avoidance.** The District ensures that all equipment operating in and near a watercourse or in a basin is in good working condition and free of leaks. No equipment maintenance or refueling occurs in a channel or basin bottom. Spill containment materials are kept on site or readily available for any equipment maintenance or refueling that occurs adjacent to a watercourse. Further, a spill kit essential for controlling contaminants is available at all times. Operations staff members working with heavy equipment are trained in the use of the equipment and in spill containment and response for any unforeseeable accidents that may occur. Special care is taken to prevent liquid paint from entering aquatic resources while painting in association with graffiti removal. • **Spill Notification.** Should any spills occur, the District contracts with the County Fire Marshal–Hazardous Materials Division to prepare and implement spills			

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	response plans and report spills to any applicable state and federal regulatory agencies, including the California Office of Emergency Services. Depending on the magnitude of the spill, the District has hazardous materials handlers to implement spill response plans prepared by the County Fire Marshal–Hazardous Materials Division and to safely handle and dispose of hazardous materials. • **Housekeeping Practices.** The District promotes efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals. • **Non-Stormwater Discharges.** The District monitors and permits non-stormwater discharges as required and applicable under its NPDES MS4 permit. • **Prohibition of Machine Maintenance near Streams.** Motorized equipment is not maintained or parked within or near any stream crossing, channel, or lake margin in such a manner that petroleum products or other pollutants from the equipment may enter these areas under any flow conditions. No equipment is operated in areas of flowing water. Vehicle maintenance, staging, storage, and dispensing of fuel occur in designated upland areas. These areas are located in a manner to prevent any runoff from entering waters of the United States. • **Concrete Washout Protocols.** The District implements appropriate waste management practices during on-site concrete repair operations. Waste management practices are applied to the stockpiling of concrete, curing and finishing of concrete, and concrete wash-out operations. Waste management practices are adequate to ensure that fluids associated with the curing, finishing, and wash-out of concrete are not discharged to the channel or basin. Concrete wastes are stockpiled separately from sediment and protected by erosion control measures so that concrete dust and debris are not discharged to the channel, basin, or waters of the state. The District determines the appropriate waste management practices based on considerations of flow velocities, site conditions, availability of erosion control materials, maintenance activity costs, and other requirements that may be outlined in the District's MS4 permit. • **Aquatic Pesticide and Herbicide.** The District applies pesticides, herbicides, and related surfactants within its facilities in accordance with the District's Vegetation			

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	Management Plan, which complies with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG990005, Order No. 2013-0002-DWQ (Permit), dated 2013, and the District Weed Control Aquatic Pesticide Application Plan, dated 2014. The District's Vegetation Management Plan seeks to reduce the amount of herbicides used, by using selective herbicides and application techniques, timing applications for maximum effect, avoiding fixed application schedules, using mechanical control techniques where appropriate, and encouraging natural controls. See SOP-HYD-2 for a description of the overall purpose of the District's Vegetation Management Plan. • **Drainage System Maintenance.** As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis removes pollutants, prevents clogging of the downstream conveyance system, restores catch basins' sediment trapping capacity, and ensures that the system functions properly hydraulically to avoid flooding. • **Outdoor Storage of Raw Materials.** Raw materials, by-products, finished products, containers, and material storage areas exposed to rain and/or runoff can pollute stormwater. Stormwater can become contaminated when materials wash off or dissolve into water or are added to runoff by spills and leaks. Improper storage of these materials can result in accidental spills and the release of materials. To prevent or reduce the discharge of pollutants to stormwater from material delivery and storage, the District implements pollution prevention and source control measures, such as minimizing the storage of hazardous materials on site, enclosing or covering materials, storing materials in a designated area, installing secondary containment, conducting regular inspections, preventing stormwater run-on and runoff, and training employees and subcontractors. • **Stockpile Management.** The District implements appropriate stockpile management practices. Stockpile management procedures and practices reduce or eliminate air and stormwater pollution from stockpiles of soil; soil amendments; sand; paving materials, such as Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub			

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	base or pre-mixed aggregate, and asphalt minder (so called "cold mix" asphalt); and pressure-treated wood. • **Structural Demolition/Removal Over or Adjacent to Water.** The District implements procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses. **SOP-BIO-1** through **SOP-BIO-4** (see Biological Resources section of this table) **SOP-BIO-8** through **SOP-BIO-14** (see Biological Resources section of this table) **SOP-BIO-19** (see Biological Resources section of this table) **SOP-BIO-20** (see Biological Resources section of this table)			
Impact HYD-2: Would the program substantially deplete groundwater supplies or interfere substantially 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 planned uses for which permits have been granted?	—	Less than significant	—	Less than significant
Impact HYD-3: Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?	**SOP-HYD-1** through **SOP-HYD-3**	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HYD-4: Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	**SOP-HYD-2**	Less than significant	—	Less than significant
Impact HYD-5: Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	—	Less than significant	—	Less than significant
Impact HYD-6: Would the program otherwise substantially degrade water quality?	—	Less than significant	—	Less than significant
Impact HYD-7: Would the program place housing within a 100-year flood hazard areas as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	—	No impact	—	No impact
Impact HYD-8: Would the program place within a 100-year flood hazard area structures which would impede or redirect flood flows?	—	Less than significant	—	Less than significant
Impact HYD-9: Would the program expose people or structures to a significant risk of loss, injury or death involving flooding,	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
including flooding as a result of the failure of a levee or dam?				
Impact HYD-10: Would the program result in inundation by seiche, tsunami, or mudflow?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on hydrology or water quality resources?	**SOP-HYD-1** through **SOP-HYD-4** **SOP-BIO-1** through **SOP-BIO-4** **SOP-BIO-8** through **SOP-BIO-14** **SOP-BIO-19** **SOP-BIO-20**	Significant	**MM-BIO-3** through **MM-BIO-17**	Less than significant
Land Use and Planning				
Impact LU-1: Would the program physically divide an established community?	—	No impact	—	No impact
Impact LU-2: Would the program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	—	Less than significant	—	Less than significant
Impact LU-3: Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?	**SOP-BIO-6** (see Biological Resources section of this table) **SOP-BIO-14** through **SOP-BIO-16** (see Biological Resources section of this table) **SOP-BIO-20** (see Biological Resources section of this table) **SOP-HYD-1** through **SOP-HYD-4** (see Hydrology and Water Quality section of this table)	Significant	**MM-BIO-3** (see Biological Resources section of this table) **MM-BIO-4** (see Biological Resources section of this table) **MM-BIO-10** (see Biological Resources section of this table)	Less than significant
Would the program have a cumulative effect on land use?	**SOP-BIO-6** **SOP-BIO-14** through **SOP-BIO-16** **SOP-BIO-20** **SOP-HYD-1** through **SOP-HYD-4**	Significant	**MM-BIO-3** **MM-BIO-4** **MM-BIO-10**	Less than significant
Noise				
Impact NOI-1: Would the program result in	**SOP-NOI-1: Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks.** In order to minimize noise at	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	nearby noise-sensitive receptors, proposed program activities include the following earthwork considerations, as applicable: • Noise-generating maintenance activities are restricted to the daytime, generally 7:00 a.m. to 7:00 p.m. Monday through Friday, or to the applicable local permitted hours if the work is located within a jurisdictional boundary in the program area, except for urgent or emergency situations. As necessary, the District coordinates with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts. • Electrically powered equipment is used instead of pneumatic or internal-combustion-powered equipment, where feasible. • Temporary material stockpiles and mobile equipment staging and parking are located as far as practicable from noise-sensitive receptors.			
Impact NOI-2: Would the program result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	—	Less than significant	—	Less than significant
Impact NOI-3: Would the program result in a substantial permanent increase in ambient noise levels in the program vicinity above levels existing without the program?	—	No impact	—	No impact
Impact NOI-4: Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?	**SOP-NOI-1**	Less than significant	—	Less than significant
Impact NOI-5: For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the program expose	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
people residing or working in the program area to excessive noise levels?				
Impact NOI-6: For a program within the vicinity of a private airstrip, would the program expose people residing or working in the program area to excessive noise levels?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on noise?	**SOP-NOI-1**	Less than significant	—	Less than significant
Public Services				
Impact PUB-1: Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a. Fire protection?	**SOP-PUB-1: Fire Extinguisher.** Due to the risk of fire, all maintenance vehicles are equipped with a fire extinguisher in case of incidental sparks caused by maintenance. **SOP-PUB-2: Fire Safety Measures.** The maintenance crew provides fire safety measures during maintenance activities in compliance with Chapter 33 of the California Fire Code. Gasoline-powered or diesel-powered machinery used during maintenance are equipped with standard exhaust controls and muffling devices that also act as spark arrestors. Fire containment and extinguishing equipment are available and accessible during maintenance activities. The maintenance crew is trained in the use of the fire suppression equipment and is not permitted to idle vehicles on the job site when they are not in use. Where hot work is necessary, it is performed in compliance with the California Fire Code's Chapter 35, "Welding and Other Hot Work," and the National Fire Protection Association's 51-B, "Fire Prevention During Welding, Cutting and Other Hot Work."	Less than significant	—	Less than significant
b. Police protection?	—	No impact	—	No impact
c. Schools?	—	No impact	—	No impact
d. Parks?	—	Less than significant	—	Less than significant
e. Other public facilities?	—	No impact	—	No impact
Would the program have a cumulative effect on public services?	**SOP-PUB-1** **SOP-PUB-2**	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Recreation		
Impact REC-1: Would the program increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	**SOP-BIO-14** through **SOP-BIO-19** (see Biological Resources section of this table) **SOP-HYD-1** through **SOP-HYD-4** (see Hydrology and Water Quality section of this table) **SOP-PUB-1** and **SOP-PUB-2** (see Public Services section of this table)	Less than significant	—	Less than significant
Impact REC-2: Would the program include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	—	No impact	—	No impact
Would the program have a cumulative effect on recreation resources?	**SOP-REC-1: Agency Coordination.** During scheduling of maintenance activities, the District reaches out to the applicable agencies (e.g., agency with jurisdiction over parks and recreational resources, California Department of Fish and Wildlife) to ensure that scheduled maintenance would not conflict with other closures planned by the agency. **SOP-BIO-15** through **SOP-BIO-17** **SOP-BIO-19** **SOP-HYD-1** through **SOP-HYD-4** **SOP-PUB-1** **SOP-PUB-2**	Less than significant	—	Less than significant
		Traffic and Circulation		
Impact TR-1: Would the program conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance or the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways,	—	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
pedestrian and bicycle paths, and mass transit?				
Impact TR-2: Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	—	Less than significant	—	Less than significant
Impact TR-3: Would the program result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	—	No impact	—	No impact
Impact TR-4: Would the program substantially increase hazards due to a design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**SOP-TR-1: District Coordination and Traffic Control Plan.** The District coordinates with local jurisdictions, emergency service providers, or transit providers, as appropriate, when maintenance activities affect emergency access or bicycle, pedestrian, or transit facilities. Coordination is also required if maintenance activities cause interference with roadway operations, such as lane closures during peak hours or detours. If required by the affected jurisdiction, a traffic control plan is prepared.	Less than significant	—	Less than significant
Impact TR-5: Would the program result in inadequate emergency access?	**SOP-TR-1**	Less than significant	—	Less than significant
Impact TR-6: Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycles, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	**SOP-TR-1**	Less than significant	—	Less than significant

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the program have a cumulative effect on traffic and/or circulation?	—	Less than significant	—	Less than significant
		Utilities and Service Systems		
Impact UTL-1: Would the program exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	—	No impact	—	No impact
Impact UTL-2: Would the program require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	—	No impact	—	No impact
Impact UTL-3: Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction or which could cause significant environmental effects?	**SOP-HYD-2** (see Hydrology and Water Quality section in this table)	Less than significant	—	Less than significant
Impact UTL-4: Would the program have sufficient water supplies available to serve the program from existing entitlements and resources, or are new or expanded entitlements needed?	—	No impact	—	No impact
Impact UTL-5: Would the program result in a determination by the wastewater treatment provider which serves or may serve the program that it has adequate capacity to serve the program's projected		No impact	—	No impact

Table 1-1
Summary of Program Impacts

Impact Thresholds	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
demand in addition to the provider's existing commitments?				
Impact UTL-6: Would the program be served by a landfill with sufficient permitted capacity to accommodate the program's solid waste disposal needs?	—	Less than significant	—	Less than significant
Impact UTL-7: Would the program comply with federal, state, and local statutes and regulations related to solid waste?	—	Less than significant	—	Less than significant
Appendix F– Energy Conservation: Would the program result in wasteful, inefficient, or unnecessary consumption of energy, conflict with existing energy standards and regulations, or place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?	—	Less than significant	—	Less than significant
Would the program have a cumulative effect on utilities and/or service systems?	—	Less than significant	—	Less than significant

TBD = to be determined upon completion of the analysis section.

1.9 REFERENCES

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Public Resources Code, Sections 21000–21177. California Environmental Quality Act (CEQA), as amended.

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CHAPTER 2
INTRODUCTION

2.1 MASTER STORM WATER SYSTEM MAINTENANCE PROGRAM

The San Bernardino County Flood Control District (District) is proposing the implementation of a San Bernardino County Master Storm Water System Maintenance Program (proposed program). The proposed program includes the preparation and implementation of a Maintenance Plan (see Appendix A to this environmental impact report (EIR)), which provides guidance for the implementation of maintenance activities within the District's maintained flood control facilities in the County of San Bernardino (County). As described in the Maintenance Plan, it is intended to be a comprehensive guide to the maintenance of the District's existing flood control facilities. The Maintenance Plan includes a complete description of maintenance activities, standard operating procedures (SOPs), the frequency with which activities are conducted, seasonal restrictions, and methods for environmental compliance and reporting that would be updated to reflect changing regulatory environment, improved SOPs, and/or the addition of maintenance of new facilities. Individual future projects that may not be analyzed in this EIR would undergo environmental review to determine if there would be new impacts as a result of their inclusion in the program.

The proposed program does not include the construction of new flood control facilities. The District must obtain environmental clearance, including conducting California Environmental Quality Act (CEQA) review and obtaining relevant resource permits, for the construction of any new flood control facilities. Through this process, long-term maintenance of any new such facilities will be covered as part of the respective project approvals. It is assumed that SOPs in the Maintenance Plan will be incorporated into the maintenance requirements of the future capital improvement projects designed and constructed by the District in an effort to create uniformity among the facilities. The applicability of these SOPs for future projects would be determined in the CEQA review of the new projects and the SOPs may be supplemented by additional site- and/or facility-specific measures, if it is determined to be necessary based on the environmental impact analysis performed for the new project. It is also assumed that the long-term maintenance of new facilities will be incorporated into the Maintenance Plan, with any SOPs, mitigation measures, and/or permit conditions for those facilities incorporated into the Maintenance Plan and the applicable appendices of the Maintenance Plan updated. As a result, the Maintenance Plan would serve as the District's current comprehensive guide detailing all maintenance activities, SOPs, mitigation measures, and/or permit conditions.

Information on the types of maintenance activities included in the Maintenance Plan and the location of facilities that are currently routinely maintained can be found in Chapter 3, Program Description, and in Section 2.1.2, Maintenance Plan and Maintenance Activities, of this chapter. In

addition, the Maintenance Plan includes a streamlined notification process for federal, state, or local agencies, notifying them of maintenance activities within their respective jurisdictions. Implementing the proposed program would provide a comprehensive approach to maintenance of flood control facilities to ensure that the District meets its principal functions of flood protection and water conservation. A streamlined maintenance program would allow the District to maintain its facilities at their current/designed capacity. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity.

2.1.1 The District, Its Functions, and Maintenance History 1939–Present

The District was created in 1939 under the San Bernardino County Flood Control District Act. The act was approved by the California Legislature that same year, in response to the severe floods of March 1938, which caused loss of lives and millions of dollars of property damage within the County. The District provides flood protection throughout the County through the construction of flood control facilities, acquisition of funds and assistance for capital projects, support of other departments with flood control issues, and maintenance of flood capacity in District-maintained facilities.

The District is a separate legal entity from the County and is funded by property tax revenues, fees, and other local, state, and federal funding. While maintaining its separate legal status, in 2000 the District was brought under the umbrella of the County Department of Public Works. With the inclusion of the District, the Department of Public Works oversees flood control, transportation, solid waste, and surveyor functions.

Currently, the District routinely maintains approximately 500 flood control facilities within the County. The District's flood control responsibilities include significant portions of the Santa Ana River and its tributaries, the Mojave River and its tributaries, tributaries to the Lower Colorado River, and many smaller desert watersheds that drain into isolated dry lakes or basins. Maintained facilities are in the form of debris/detention basins, dams, channels, natural drainages, spreading grounds, levees, and storm drains. Detailed descriptions of these facilities can be found in Chapter 3, Program Description.

Most District facilities convey or contain some natural resource, whether it is water, vegetation, or wildlife. As a result, the majority of facilities fall under the jurisdiction of federal and/or state resource agencies. Resource agencies with oversight include the California Department of Fish and Wildlife (CDFW); the State Water Resources Control Board, including three of its Regional Water Quality Control Boards (RWQCBs); the U.S. Army Corps of Engineers (USACE); and in some cases, the U.S. Fish and Wildlife Service.

Often, maintenance of flood control activities requires environmental clearance under CEQA as well as authorization from CDFW through a Streambed Alteration Agreement (under Section 1602 of the California Fish and Game Code) and/or under the California Endangered Species Act; from USACE and the respective RWQCB under Sections 404 and 401 of the Clean Water Act ("404 Permit" and Water Quality Certification, respectively); and/or from the U.S. Fish and Wildlife Service under the federal Endangered Species Act. Prior to 2006, the District received authorization to maintain flood control facilities through multiple CDFW Memoranda of Understanding (MOUs) and facility-specific Streambed Alteration Agreements, as well as facility-specific 404 Permits and Water Quality Certifications. In 2005, the law changed, which limited the ability of local agencies to extend existing MOU agreements. The revised statute no longer allowed for yearly extensions of existing MOUs and facility-specific agreements for more than 1 year; based on this statute change, the District received its final 1-year extensions in 2006. In mid-2006, the District began moving forward with a plan to obtain long-term master agreements and permits for flood control maintenance. At the time, this was a joint effort with the County Department of Public Works, which was pursuing similar authorization for maintenance of roads. Starting in 2006, as an interim solution, the District held meetings with federal and state regulatory agency staff every 6 weeks in an effort to perform maintenance activities in select flood control facilities known to have low-level environmental impacts to no environmental impacts. In facilities where maintenance activities might result in more significant environmental impacts, the District would apply for project-specific Streambed Alteration Agreements from CDFW, Water Quality Certifications from the respective RWQCB, and 404 Permits from USACE. In 2014, CDFW staff discontinued attendance at the District's monthly maintenance meetings, ultimately ending the 6-week meetings. Since that time, the District's maintenance efforts have been limited to those facilities with active 5-year maintenance permits/agreements.

In 2007 the District started to obtain long-term permits for District-maintained flood control facilities within the Santa Ana River watershed. The work excluded the main stem of the Santa Ana River because the river itself was already part of a separate environmental clearance effort underway by the Santa Ana Watershed Protection Agency covering both San Bernardino County and Riverside County. In 2009, the County started to obtain long-term environmental permits for the Mojave River watershed. Originally, the District intended to prepare Initial Study documents for each watershed under CEQA. However, in 2010, state regulatory permitting agencies determined that the appropriate level of environmental document for the proposed program would be an EIR. In October 2010, shortly after the determination to prepare an EIR, the District circulated a Notice of Preparation (NOP) notifying the public of its intent to pursue an EIR for long-term maintenance of its facilities (included in Appendix C). Also in 2010, the District decided to streamline its environmental clearance effort for maintenance activities by assuming environmental clearance lead over its maintained facilities in the Santa Ana River main stem. As a result, environmental services to maintain facilities in the Mojave and Santa Ana watersheds,

including the main stems, as well as other facilities located in watersheds within the County, were consolidated under one master agreement.

In 2012, the District began to compile geographic information systems (GIS) spatial maps showing the location of maintenance activities and areas of impact, so that environmental impacts and subsequent mitigation requirements could be better assessed.

The entire maintenance effort, including the preparation of state and federal environmental documents, preparation of a District Master Maintenance Plan incorporating SOPs, database upgrades, and annual reporting for permit compliance, became known as the Master Storm Water System Maintenance Program (proposed program).

2.1.2 Maintenance Plan and Maintenance Activities

In order to ensure continued stormwater infrastructure reliability, the District is proposing to implement a comprehensive program that includes the preparation and implementation of a Maintenance Plan to support the maintenance of flood control facilities throughout the County. Maintenance occurs year-round, with some facilities requiring maintenance more than once a year and others on an as-needed basis in preparation for, or following, large storm events. Many District-maintained facilities either traverse or contain a protected natural resource; therefore, SOPs have been developed to minimize environmental impacts to the greatest extent feasible while still maintaining facilities for flood protection and groundwater recharge. Additionally, the District has to obtain multiple permits for the same work in the same facilities every 5 years, which has become an inefficient method of facility maintenance. Under the Maintenance Plan, work schedules will be identified and notifications of work and impacts will be provided to resource agency personnel. The Maintenance Plan will serve to integrate an environmental approach with the implementation of required maintenance activities associated with watershed management for the protection of life, property, and public infrastructure.

For the purpose of analysis in this EIR, “routine maintenance” of the subject flood control facilities is defined as follows:

> Routine maintenance activities occur on a regular basis, are preventive in nature, and include standard practices that detect and correct minor issues that may eventually lead to damage or loss of infrastructure, property, or life. Routine maintenance activities are described as activities performed to allow a facility or structure to function at its current/designed capacity, including minor alterations to update a facility or structure to meet current standards or to maintain structural integrity. Maintenance activities do not include alterations for expanding facility capacity. Types of routine maintenance activities include, but are not limited to, the removal of excess sediment, debris, and vegetation; vegetation management; stockpiling excess

material and debris following removal; maintaining sufficient flowpaths; grooming/repairing earthen and improved channel slopes and bottoms; and maintaining culverts and bridges to ensure proper drainage and structural integrity, including access road maintenance and related herbicide application.

Chapter 3, Program Description, includes a detailed description of the proposed activities.

2.1.3 Streamlined Notification Process

By implementing the proposed program, the District intends to coordinate with federal and state regulatory agency personnel annually in the form of pre-construction and post-construction reporting in lieu of obtaining formal authorizations every 5 years, as has been the standard. Through these notifications, the District will be able to identify work and SOPs to be implemented. Under this streamlined process, notifications will occur for the year for multiple facilities, rather than on a facility-by-facility basis, which will allow for timely and cost-effective maintenance. This notification process has been preliminarily agreed upon by the resource agencies, including USACE, the State Water Resources Control Board, and CDFW; however, the details will be finalized during the permitting phase in collaboration with the resource agencies.

2.2 EIR PROCESS

2.2.1 CEQA Compliance

CEQA (California Public Resources Code, Section 21000 et seq.) requires the preparation and certification of an EIR for any project that a lead agency determines may have a significant effect on the environment. This EIR has been prepared in compliance with the criteria, standards, and procedures of the CEQA Guidelines (14 CCR 15000 et seq.). This document represents the independent judgment of the District as the lead agency (14 CCR 15050).

The EIR generally evaluates the broad environmental impacts of the proposed program as a series of actions that can be characterized as one large project. Currently ongoing and future unidentified maintenance activities associated with the proposed program are included. Due to the large number of maintenance projects and activities covered by this proposed program, maintenance activities have further been divided into subcategories of project types (e.g., ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities).

2.2.2 Notice of Preparation and Scoping

CEQA establishes mechanisms whereby the public and decision makers can be informed about the nature of a project being proposed and the extent and types of impacts that the proposed project

and its alternatives would have on the environment should the project or alternatives be implemented. In 2014, an initial environmental review of the proposed program was conducted and an Initial Study prepared in accordance with the requirements of Section 15365 of the CEQA Guidelines (see Appendix B to this EIR). Based on the findings of the Initial Study, it was determined that some environmental resource topics should be carried forward for analysis in an EIR. Therefore, pursuant to Section 15082 of the CEQA Guidelines, an NOP for a Draft EIR, dated June 30, 2014, was prepared and circulated with the Initial Study to interested agencies, organizations, and individuals to afford them an opportunity to respond with specific comments and/or questions regarding the scope and content of the EIR. The Initial Study and NOP were also sent to the State Clearinghouse at the California Governor's Office of Planning and Research. The State Clearinghouse number assigned to this EIR is SCH No. 2014061100. An NOP was circulated previously in 2010 and agency comment letters were received (see Appendix C), but the project was modified and then the NOP recirculated based on the modified project in 2014.

Pursuant to Section 15082 of the CEQA Guidelines, recipients of the NOPs for the proposed program were requested to provide responses within approximately 30 days after their receipt of the NOPs. The review period for the 2010 Initial Study and NOP was October 6, 2010, to November 10, 2010. The review period for the 2014 Initial Study and NOP was from June 30, 2014, to July 29, 2014. All comments received during both public review periods were considered during the preparation of this EIR; however, because the proposed program has been modified since the initial NOP, the analysis in this EIR focuses primarily on issues identified in the 2014 NOP and related comments. Appendix C includes the 2010 Initial Study and NOP as well as copies of the comment letters received on the 2010 Initial Study and NOP. Table 2-1 summarizes the comments received and lists the EIR chapter where each comment has been addressed.

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
2010 NOP Comment Letters			
Federal Agencies			
United States Department of Agriculture – San Bernardino National Forest Supervisor's Office	October 20, 2010	The San Bernardino National Forest would like to be included as a Regulatory Agency. Permits or easements will be required for the anticipated work on National Forest System (NFS) lands. The U.S. Forest Service (USFS) would like to be a cooperating agency with the U.S. Army Corps of Engineers. The USFS would like the environmental impact report (EIR) to (1) consider impacts to species on NFS land including USFS Sensitive species and San Bernardino National Forest Management Indicator Species and (2) consider implementation of the	N/A. Upon initiation of maintenance activities in the proposed program area that overlaps with the San Bernardino National Forest, the District will reach out to the USDA Forest Service to coordinate those activities.

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
		applicable best management practices (BMPs) when implementing the anticipated actions.	
United States Department of the Interior – Bureau of Reclamation	November 9, 2010	The Bureau of Reclamation had no comments or concerns at the time.	N/A.
State Agencies			
The Natural Resources Agency – Colorado River Board of California	October 21, 2010	The Colorado River Board of California had no comments or concerns at the time.	N/A.
Governor's Office of Planning and Research – State Clearinghouse and Planning Unit	October 6, 2010	Requests agencies and interested parties to express their concerns early in the environmental review process.	N/A.
California Department of Transportation, District 8	November 22, 2010	In the event that modifications to the project description should impact the State Highway System, the California Department of Transportation (Caltrans) requests notification and copies of revised plans for review.	N/A. In 2010, the proposed program included maintenance of bridges that might have been under Caltrans' jurisdiction. The proposed program no longer includes bridges. However, the District will coordinate with Caltrans should proposed program activities impact Caltrans' facilities.
California Regional Water Quality Control Board – Lahontan Region	November 8, 2010	The comment letter outlines the authority of the Lahontan Regional Water Quality Control Board (RWQCB) and their responsibility to protect waters of the state. The Lahontan RWQCB requests that the EIR reference the Basin Plan in the hydrology and water quality analysis and requires compliance with applicable water quality standards and provisions. The comment letter lists the permits that may be required and requests that necessary jurisdictional determinations for surface waters in the project area be performed. The comment letter identifies potential impacts to surface waters and requests that the EIR provide a detailed narrative description of each maintenance activity and evaluate potential impacts on water	Hydrology and Water Quality.

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
		quality and hydrology. The EIR needs to describe and quantify the impacts, and minimize impacts to the extent feasible.	
Department of Toxic Substances Control	November 5, 2010	The comment letter states that the EIR should evaluate whether conditions within the project area may pose a threat to human health or the environment; identify required investigations and/or remediation for any site that may be contaminated; and findings of investigations should be summarized in the EIR. The comment letter also states that: (1) if structures are going to be demolished, they should be investigated for the presence of hazardous chemicals or hazardous materials; (2) if soil is contaminated it must be properly disposed of; (3) if necessary, a health risk assessment should be conducted by a qualified health risk assessor; (4) if hazardous wastes are or will be generated the facility should obtain a U.S. Environmental Protection Agency Identification Number; and (5) Department of Toxic Substances Control can provide clean up oversight.	Hazards and Hazardous Materials.
Native American Heritage Commission	October 14, 2010	Requested a records search to determine known traditional cultural resources, and preparation of an archaeological inventory survey if required. A list of appropriate Native American contacts for consultation concerning the project site should be contacted. Mitigation plans should be included in the EIR to identify and evaluate accidentally discovered archaeological resources pursuant to California Health and Safety Code Section 7050.5 and California Environmental Quality Act (CEQA) Section 15064.5(f). In addition, a mitigation plan for the discovery of Native American human remains should be included.	Cultural Resources.
South Coast Air Quality Management District	October 19, 2010	Recommends that the CEQA Air Quality Handbook (1993) be used for the air quality analysis and California Emissions Estimator Model land use emissions software be used to estimate pollutant emissions from typical land use developments. Air quality impacts from project operations and construction should be calculated. The South Coast Air Quality Management District has developed regional and localized significance thresholds for criteria pollutants that should be compared to estimated proposed project emissions. A mobile source health risk assessment should be performed	Air Quality and Greenhouse Gas Emissions.

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
		in the event that the proposed project generates or attracts vehicular trips. The California Air Resources Board's *Air Quality and Land Use Handbook: A Community Perspective* is recommended as guidance for siting incompatible land uses. Several resources are recommended to assist in the drafting of mitigation measures in the event that the project generates significant adverse air quality impacts. CEQA requires that feasible mitigation measures that go beyond what is required by the law be utilized during project construction and operation to minimize or eliminate these impacts. Any impacts resulting from mitigation measures must be discussed pursuant to CEQA Guidelines Section 15126.4(a)(1)(D).	
Mojave Desert Air Quality Management District	October 13, 2010	The District recommends the EIR contain an Air Quality Element, which identifies Particulate Matter (PM) control measures pursuant to District Rule 403.2 – Fugitive Dust Control for the Mojave Desert Planning Area.	Air Quality and Greenhouse Gas Emissions.
California Natural Resources Agency – Department of Water Resources	November 12, 2010	The comment letter states that if any alterations or modifications to a jurisdictional dam are necessary, as part of the scope of work, an alteration application, together with plans and specifications, must be filed with the division for the construction of the project. Any dam safety-related issues must be resolved prior to approval of the application, and the work must be performed under the direction of a Civil Engineer registered in California.	N/A. The District will comply with these requirements.
California Department of Fish and Wildlife[1]	October 26, 2010	The comment letter lists discretionary actions that may be required, such as a Lake or Streamed Alteration Agreement and/or a California Endangered Species Act (CESA) Permit. The comment letter goes on to list the federally and/or state-listed threatened or endangered species the project may affect. CDFW suggests that the EIR include assessments and rankings of: (1) categories of streams (e.g., concrete channels, earthen bottom channels and intact streams); (2) types of habitat to be impacted in terms of their usefulness for native habitat species; (3) impact categories of maintenance (e.g., sediment removal, levee maintenance); and (4) biological importance of the remaining natural systems, taking into account special-	Program Description, Biological Resources, and Alternatives.

[1] As of January 2013, the California Department of Fish and Game (CDFG) has changed its name to the California Department of Fish and Wildlife (CDFW).

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
		status species and their degree of impact. CDFW suggests a mitigation plan be provided with complete mitigation ratios and identifying where mitigation locations would occur; a complete project description that lists all locations of proposed maintenance should be included; an estimate of the size of the areas of impact; biological surveys should be conducted in areas where native habitat is to be impacted; indicate areas of biological sensitivity; biological assessment should be conducted within 1 year of the commencement of construction; a jurisdictional delineation should be included; and sensitive plant surveys should be conducted in accordance with most current protocols. It is recommended that a discussion of the purpose and need for the project; a description of the proposed project, including construction staging areas and access routes; and a range of feasible project alternatives be discussed in the EIR. CDFW makes recommendations of information to include in the EIR in order to provide a complete assessment of the flora and fauna within and adjacent to the project area. CDFW also makes recommendations of information to include in the EIR in order to provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources. The comment letter also mentions that under CESA, take of an endangered, threatened, or candidate species is prohibited and if any proposed project activities result in the take of any of these species, the project proponent must seek appropriate take authorization prior to implementation.	
Local Agencies			
Western Municipal Water District	October 7, 2010	The Western Municipal Water District does not provide retail water service in San Bernardino County.	N/A.
Southern California Edison	November 22, 2010	The project has the potential to impact multiple Southern California Edison (SCE) facilities, and SCE will require notification when any construction equipment associated with the described maintenance will be in proximity to SCE facilities. Proposed use of SCE's right-of-way would need to be coordinated with SCE and any proposed use would	N/A. Upon initiation of maintenance activities in the proposed program area where there may be SCE facilities, the District will reach out

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
		be reviewed on a case-by-case basis.	to SCE to coordinate those activities.
Orange County Public Works	November 15, 2010	This comment letter states that the EIR should clarify whether it is intended to cover joint (or contractual) maintenance activities between the San Bernardino County Flood Control District and the Orange County Flood Control District, Orange County Water District, and others that own property and/or have easements over property in the Santa Ana River floodplain within San Bernardino County.	N/A. Upon initiation of maintenance activities in the proposed program area where there may be joint or contractual obligations, the District will reach out to Orange County Public Works to coordinate those activities.
City of Redlands	November 22, 2010	The City of Redlands suggests that rather than just "incorporating by reference" previously approved environmental documents, a more detailed list or table be included in the EIR listing each creek, basin, or facility and any documents that already exist that list requirements or mitigation measures. The City of Redlands also suggests that the map showing the District's southwestern facilities and zones should be of larger scale and should map specific facilities.	Each chapter of the EIR includes a references cited list. The EIR Appendix A also includes a list of mitigation measures and standard operating procedures that will apply to the proposed program activities. Maps are also included, but they are for the entire proposed program area which is County wide, not just the southwestern area.
City of Chino	November 9, 2010	The City of Chino requested that the District coordinate with the City of Chino when evaluating impacts within the city's boundaries or sphere of influence. Encroachment and detour/lane closure permits will be required for any work within the public right-of-way.	N/A. The District will coordinate with the City of Chino when initiating maintenance activities within the city's boundaries.
Organizations			
Center for Biological Diversity	November 8, 2010	The Center for Biological Diversity (CBD) suggests that the EIR provide meaningful information regarding the potential impacts of the project on endemic, rare, threatened, and endangered species. Discussion should include analysis of candidate, sensitive, and special-status species. The comment letter lists the species which could be potentially affected and suggests that the analysis in the EIR include direct, indirect, and cumulative impacts of the project. CBD suggests that mitigation measures be included to	Biological Resources.

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
		reduce impacts and that the EIR must consider the extent to which the project will impact water resources and, subsequently, biological resources. CBD requests that the EIR pay particularly close attention to the impacts of invasive species in the project area and how management of streams, dams, and culverts could help reduce such adverse impacts. CBD also suggests that the EIR discuss the impacts of maintenance activities on wildlife corridors and alternatives to alleviate habitat fragmentation.	
The Sierra Club	June 3, 2011	This comment letter lists the undesirable effects of digging in the channels in an attempt to control flooding. The letter suggests that alternative methods be identified for flood control methods.	Hydrology and Water Quality.
Individuals			
Jenny Wilder	April 4, 2011	Ms. Wilder suggests that a complete list of species that benefit from the wetland areas along the upper reaches of the Mojave River from the Narrows to Deep Creek be identified. Ms. Wilder also suggests that the method of bulldozing and piling up the dirt in channels be studied.	Biological Resources.
2014 NOP Comment Letters			
State Agencies			
California Regional Water Quality Control Board – Lahontan Region	August 13, 2014	The comment letter outlines the authority of the Lahontan Regional Water Quality Control Board (RWQCB) and their responsibility to protect waters of the state. The Lahontan RWQCB requests that the EIR reference the Basin Plan in the hydrology and water quality analysis and requires compliance with applicable water quality standards and provisions. The comment letter identifies specific issue areas that should be considered and general information that should be included in the EIR, related to hydrology and water quality impacts. The comment letter lists the permits that may be required as part of the project.	Hydrology and Water Quality.
Local Agencies			
Mojave Desert Air Quality Management District	July 3, 2014	This comment letter concurs with potential air quality impacts and the proposed scope of work.	Air Quality and Greenhouse Gas Emissions.

Table 2-1
Summary of Comments Received in Response to the 2010 NOP and 2014 NOP

Commenter	Date Received	Summary of Comment	EIR Chapter Where Comment Is Addressed
Southern California Association of Governments	July 7, 2014	This comment letter requests that environmental documentation be sent to the Southern California Association of Governments for review.	N/A. The Southern California Association of Governments will be notified when the EIR is ready for review.
Orange County Public Works	July 28, 2014	Orange County Public Works requests the EIR clarify whether document covers joint or contractual maintenance activities between San Bernardino and Orange County Flood Control Districts.	N/A. Upon initiation of maintenance activities in the proposed program area where there may be joint or contractual obligations, the District will reach out to Orange County Public Works to coordinate those activities.
Inland Empire Utilities Agency	July 29, 2014	The Inland Empire Utilities Agency (IEUA) requests that the EIR ensure consistency in operations and maintenance activities, because many facilities are also in IEUA's maintenance permits and environmental documents.	N/A. Upon initiation of maintenance activities in the proposed program area where there may be IEUA facilities, the District will reach out to IEUA to coordinate those activities.
Individuals			
Michelle O'Brian	July 3, 2014	Michelle O'Brian requests coordination with IEUA.	N/A. Upon initiation of maintenance activities in the proposed program area where there may be IEUA facilities, the District will reach out to IEUA to coordinate those activities.
Iona Chelette	July 26, 2014	This comment addresses concerns about Quail Wash, Joshua Tree.	Noise.

N/A = not applicable.

2.3 CONTENTS AND ORGANIZATION OF THE EIR

The EIR is organized as shown in the paragraphs below. Note that a list of documents consulted during preparation of the EIR is presented in a “References” section at the end of each chapter and at the ends of Sections 4.1 through 4.14.

Chapter 1, **Executive Summary**, presents a brief summary of the proposed program background and objectives, as well as a description of the proposed program activities. The section also includes a table summarizing (1) the level of significance for each potential impact in each resource category analyzed in the EIR; (2) the proposed SOPs to be implemented as part of the proposed program and mitigation measures proposed to reduce or avoid significant impacts; and (3) the level of impact significance following mitigation.

Chapter 2, **Introduction**, serves as a foreword to the EIR, providing an overview of the proposed program, a brief summary of CEQA and the EIR process, and a discussion of the preparation and distribution of the 2010 and 2014 Initial Studies and NOPs. This chapter also presents the contents and organization of the EIR.

Chapter 3, **Program Description**, provides a thorough description of the proposed program activities, including a list of the federal, state, and local agencies that the District may need to coordinate with or receive authorization from to implement this proposed program.

Chapter 4, **Environmental Analysis (Introduction)**, includes a summary of the overall approach to the analysis of each resource category and the identification of potentially significant impacts, as well as an overview of the organization of each of the resource sections.

Sections 4.1 through 4.14 provide analysis of the potentially significant environmental impacts identified for the proposed program, as well as proposed SOPs and/or mitigation measures to reduce or avoid any potentially significant impacts for each of the resource categories listed below. For each resource category, the context for the proposed program, regulatory framework, thresholds of significance and the impact thresholds identified in the 2014 Initial Study to be carried forward for analysis in the EIR, existing conditions, and SOPs for that particular resource are included within each section in Chapter 4, preceding the analysis of potential impacts from the proposed program and any mitigation measures necessary to reduce potentially significant impacts. The District's SOPs are also provided with the Maintenance Plan in Appendix A of the EIR.

The following resource categories are discussed in Chapter 4 of this EIR:

- Section 4.1, Aesthetics
- Section 4.2, Air Quality
- Section 4.3, Biological Resources
- Section 4.4, Cultural Resources
- Section 4.5, Geology and Soils
- Section 4.6, Greenhouse Gas Emissions

- Section 4.7, Hazards and Hazardous Materials
- Section 4.8, Hydrology and Water Quality
- Section 4.9, Land Use and Planning
- Section 4.10, Noise
- Section 4.11, Public Services
- Section 4.12, Recreation
- Section 4.13, Traffic and Circulation
- Section 4.14, Utilities and Service Systems

Based on the results of the 2014 Initial Study, impacts for all significance thresholds were determined to be less than significant for the resource categories of Agriculture and Forestry Resources, Mineral Resources, and Population and Housing. The impact analysis for these resources is included in the 2014 Initial Study (provided in Appendix B) and these topics are not further addressed in this EIR.

Chapter 5, **Other CEQA Considerations**, includes a discussion of significant environmental impacts that cannot be avoided and significant irreversible environmental changes that would result from implementation of the proposed program. The impacts found not to be significant and growth-inducing impacts associated with the proposed program are also discussed.

Chapter 6, **Alternatives**, includes a description of a No Program/Existing Maintenance Approach Alternative (the "No Project" Alternative) and a Deferred Maintenance Alternative. The chapter provides a brief analysis of impacts associated with each alternative compared to the proposed program, as well as a determination of the environmentally superior alternative.

Chapter 7, **List of Preparers**, lists the personnel and organizations involved in preparation of the EIR.

Appendices include various technical studies and other related documents prepared for the proposed program, as listed below:

- Appendix A – Maintenance Plan
- Appendix B – 2014 Initial Study/NOP and 2014 NOP Comment Letters
- Appendix C – 2010 Initial Study/NOP and 2010 NOP Comment Letters
- Appendix D – Air Quality and Greenhouse Gas Emissions Calculations
- Appendix E – Biological Resources Technical Reports
- Appendix F – Cultural Resource Reports

- Appendix G – Hazards Records Search Results
- Appendix H – Noise Calculations

2.4 REFERENCES

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Public Resources Code, Section 21000–21177. California Environmental Quality Act (CEQA), as amended.

CHAPTER 3
PROGRAM DESCRIPTION

This chapter describes the purpose and objectives of the proposed Master Storm Water System Maintenance Program (proposed program), provides a detailed description of the proposed program and proposed maintenance activities, and discusses standard operating procedures (SOPs) that are incorporated into the proposed program and identified in Appendix A. This chapter also lists the discretionary actions, approvals, and coordination with other agencies that may be required to implement the proposed program.

The San Bernardino County Flood Control District (District) routinely maintains approximately 500 flood control facilities within the 20,105 square miles of San Bernardino County (the County). The District's flood control responsibilities include significant portions of the Santa Ana River and its tributaries, the Mojave River and its tributaries, portions of the Lower Colorado River, and many smaller desert watersheds that drain into isolated basins. The history of the District, its jurisdiction, and its operations and maintenance activities is described in Section 2.1, Master Storm Water System Maintenance Program.

3.1 PROGRAM LOCATION

The County of San Bernardino has an area of approximately 20,105 square miles and is composed of three distinct geographic regions: the Valley, Mountain, and Desert Regions. Approximately 80% of the geographic extent of the County falls within the Desert Region. The District's flood control system is organized into six flood control zones. Each zone has specific interests, responsibilities, or geographical divisions distinctive of the particular zone. In matters of taxation or ventures, each zone functions independently, although joint activities may be entered into by mutual arrangement. Flood Control Zones 1, 2, and 3 are in the Valley Region, Zone 5 is in the Mountain Region, and Zones 4 and 6 are primarily in the Desert Region, although some facilities in Zone 6 are in the Mountain Region (Figure 3-1, Program Area; Figure 3-2, Maintained Facilities Index Map; and Figures 3-2A through 3-2I, Maintained Facilities). Table 3-1 summarizes the extent of each zone within the County and is followed by a description of each of the geographic regions. The boundaries of the major watersheds and subwatersheds identified in Table 3-1 are depicted on Figures 3-2A through 3-2I.

Table 3-1
District Zones

Flood Control Zone	Area (square miles)	City/Community
Zone 1	275	The western portion of the San Bernardino Valley extending from Beech Avenue in the Fontana area to the Los Angeles County line, all south of the San Gabriel Mountains. This includes the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland and the community of Etiwanda. Watersheds: Middle and Upper Santa Ana watershed (Reach 4), with subwatersheds that include San Antonio Creek, Cucamonga and West Cucamonga Creek, and portions of Day Creek/Etiwanda Creek/San Sevaine.
Zone 2	318	The central area of the San Bernardino Valley, east of Zone 1 to approximately the Santa Ana River and City Creek demarcations. This includes the cities of Colton, Fontana, Grand Terrace, Highland, Loma Linda, Redlands, Rialto, and San Bernardino and the communities of Bloomington, Devore, and Muscoy. Watersheds: Middle and Upper Santa Ana watershed (Reaches 4 and 5), with subwatersheds that include Lytle/Cajon Creek, Twin/Warm Creek, and portions of Day Creek/Etiwanda Creek/San Sevaine, Rialto, Grand Terrace, and City/Plunge/Mill Creeks.
Zone 3	366	The eastern end of the San Bernardino Valley, east of Zone 2, including the cities of Highland, Loma Linda, Redlands, San Bernardino, and Yucaipa and the community of Mentone. Watersheds: Upper Santa Ana watershed (Reach 5), with subwatersheds that include San Timoteo Creek, Mission/Zanja, Upper Santa Ana River, City/Plunge /Mill Creeks, and portions of Big Bear/Santa Ana Headwaters and Twin/Warm Creek.
Zone 4	1,783	The Mojave River Valley from the San Bernardino Mountains to Silver Lakes. This includes the cities/towns of Adelanto, Apple Valley, Barstow, Hesperia, and Victorville and all or portions of the communities of Baker, Baldy Mesa, Daggett, Desert Knolls, El Mirage, Helendale, Hinkley, Hodge, Lenwood, Oro Grande, Phelan, Piñon Hills, Silver Lakes, Spring Valley Lake, Wrightwood, and Yermo. Watersheds: Mojave River (Upper, Middle, Lower Reaches), Sheep Creek, and portions of Mojave/Baker.
Zone 5	163	The mountainous watershed of the Mojave River on the crest and north slopes of the San Bernardino Mountains, including the communities of Arrowbear Lake, Blue Jay, Cedar Glen, Crestline, Green Valley Lake, Lake Arrowhead, Lake Gregory, Rimforest, Running Springs, Silverwood Lake, Skyforest, Snow Valley, and Twin Peaks. Watersheds: Upstream portion of the Mojave River(Upper Reach) and upstream portion of the Santa Ana River (Reach 5), which includes upstream sections of the subwatersheds of Lytle/Cajon, Twin/Warm, Upper Santa Ana, and City/Plunge/Mill Creeks.
Zone 6	17,200	The remainder of the County not embraced by other zones, including portions of the San Bernardino Mountains and the semi-desert portion of the County. This includes the cities/towns of Big Bear, Needles, Yucca Valley, and Twentynine Palms and the communities of Amboy, Joshua Tree, Lucerne Valley, Morongo Valley, and Trona. Watersheds: Little Morongo Creek, Yucca Creek, Lucerne Valley Storm Drain, Trona, Needles/Sacramento, and a portion of Mojave/Baker, Upper Mojave River, and Big Bear Santa Ana River headwaters.

3.1.1 Valley Region

The Valley Region of San Bernardino County is situated at the base of the San Gabriel and San Bernardino Mountains, and is bounded by the City of Upland and the Los Angeles County line to the west and the City of Yucaipa and the Riverside County line to the east. The Valley Region is composed of a diverse geography, including valleys and foothills. The inland valleys within San Bernardino County are bounded on the northeast and northwest by the San Bernardino and San Gabriel Mountains. The Valley Region is largely developed, with approximately 77% of the area within County jurisdiction either developed or under agricultural uses. The Valley Region falls within a Mediterranean climate, with hot, dry summers and cool winters. Winters can be colder than other areas within the Southern California region; morning frost is a common occurrence, with rare snow flurries. Summers are very hot, with numerous days over 100°F. In the Valley Region, the average annual rainfall is approximately 15 inches, with most of the rainfall occurring November through April and occasional thunderstorms during the summer months.

The defining waterways in the Valley Region are creeks, streams, and washes that have formed from mountain and foothill fluvial processes, most of which drain into the Santa Ana River, which ultimately ends at the Pacific Ocean.

3.1.2 Mountain Region

The Mountain Region is located north of the Valley Region in the San Gabriel and San Bernardino Mountains, separated by the Cajon Pass, a defining feature of the San Andreas Fault zone. The mountain communities stretch from Mount Baldy and Wrightwood to the west, to Big Bear City on the east, and Forest Falls to the southeast. The Mountain Region consists of steep mountainous terrain with multiple peaks exceeding 10,000 feet above mean sea level (amsl). The Mountain Region is composed of steep canyons marked by unstable hillslope rock debris. This debris is constantly stripped away by slope failures and erosion. Debris sediment is then deposited on alluvial fan channels and surfaces (USGS 2006).

Annual rainfall amounts for the San Bernardino Mountains can reach up to 40 inches in some areas, with the wettest months being November through March. Summers are relatively dry, with few thunderstorms. In winter months, snow typically occurs above 3,000 feet amsl and is very common above 5,000 feet amsl. The average annual snowfall amount in Big Bear Lake is 72.3 inches. Annual rainfall in Big Bear Lake is 20.05 inches, with most of the precipitation occurring November through March.

Runoff from the mountains provides the main water source for both the Santa Ana and Mojave Rivers. Fluvial landforms in the Mountain Region consist of a series of creeks, streams, and rivers that drain into mountain lakes, the Valley Region, or the Desert Region. The more prominent drainage features in the Mountain Region maintained in full or in part by the District

are creeks, streams, washes, and channels including Arrowbear Creek, Green Valley Creek, Seeley Creek, Knickerbocker Creek, Ski Creek Culvert, Grout Creek, Rathbone Creek, Canyon Creek, Van Dusen Creek, Swarthout Creek, Heath Creek, and Sheep Creek.

3.1.3 Desert Region

The Desert Region is located north of the San Bernardino and San Gabriel Mountains and north of the Riverside County line, to the Arizona state line to the east, Kern and Los Angeles Counties to the west, and Inyo County and Nevada state line to the north. The Desert Region is primarily characterized by shorter, remote mountain ranges surrounded by desert plains. These mountain ranges often have alluvial fans (a fan-shaped buildup of earthen materials that accumulates at the base of mountains) associated with them. These landforms originate from flash-flood debris and stream sediment accretion (Harden 2004). When an alluvial fan becomes larger and the paths become more integrated, it is referred to as a bajada. Other significant landforms within the desert include mountains, plateaus, basins, playas, and dunes. The space between the mountainous areas is often characterized by playas and basins, which take the form of dry lakes.

The Desert Region is composed of two deserts, the Mojave Desert and the Sonoran Desert. The Mojave Desert covers a large portion of San Bernardino County in the central, northern, and eastern portions of the County. The Mojave Desert typically receives most of its rain during the winter months, with the valleys getting from 2 to 5 inches of rain annually and the mountains typically receiving between 10 to 30 inches of rain annually (Webb et al. 2009). The Mojave Desert sees some monsoonal rainfall as well, with an average of 1.5 inches annually (TNC 2010). Wet years and periods of drought typically follow the El Niño Southern Oscillation cycle. The Sonoran Desert, also sometimes referred to as the Colorado Desert, has a lower average elevation than the Mojave Desert, and as a result it is hotter and drier than the Mojave Desert. There are two distinct wet seasons in this portion of the Desert Region: annual winter rains and North American monsoons during the end of summer and beginning of fall (from July to late September) (NOAA 2016). The desert foothills encompass the northern edges of the San Gabriel and San Bernardino Mountains and the Western Transverse Ranges and their vegetation generally consists of chaparral. Typical annual precipitation for these areas is about 10 inches of rain and 0.8 inches of snow (WRCC 2011).

The Desert Region is characterized by an assemblage of low mountain ranges and desert floors. The Mojave River is the most prominent drainage feature in the Desert Region, and portions of the river and its tributaries are maintained in full or in part by the District. Other features maintained in full or in part by the District include Morongo Valley Creek and other drainages and washes emanating from the various low mountain ranges in the region, which terminate either in dry lakes or on the desert floor.

3.2 EXISTING FACILITIES DESCRIPTION

The District has a flood control facility indexing system in which each facility has a unique system number that refers to a subunit of a drainage course with specific upstream and downstream limits. Approximately 500 facilities are routinely maintained and are the subject of the proposed program. Although 80% of the County is located within the Desert Region of Zones 4 and 6, Zones 1 and 2 in the Valley Region contain the largest number of maintained facilities. The approximate percentage breakdown of maintained facilities by zone is as follows: Zone 1 (28%), Zone 2 (29%), Zone 3 (20%), Zone 4 (11%), Zone 5 (<1%), and Zone 6 (12%).

The types of facilities maintained by the District include debris/detention basins, dams, channels, natural drainages, spreading grounds, levees, and storm drains. As described in Section 3.3, Background and Program History, some facilities are also under the jurisdiction of other federal, state, and local agencies. Although the District may identify a facility as a certain type (such as a basin), another jurisdiction may identify that same facility with a different label (such as a levee). Table 3-2 summarizes the total number of facilities of each type as defined by the District as well as the total number of facilities of each type that fall under a state or federal program. The subsections that follow define the types of flood control features that exist throughout the system.

Table 3-2
Summary of Maintained Facility Types

District Facility Type	District Facility Total	Facilities in USACE Levee Safety Program	Facilities Certified as FEMA Levee	Facilities Designated as DSOD Dam	Facilities Participating in RIP
Natural channels	29				4
Channels	241	9			64
Spreading grounds	32		6		
Dams	1			1	
Levees	37	28	9		29
Basins	133		18	14	14
Storm drains	21				
Groin	10	1	6		1
Total no. of facilities	**504**	**38[a]**	**39[a]**	**15**	**112**

USACE = U.S. Army Corps of Engineers; FEMA = Federal Emergency Management Agency; DSOD = Division of Safety of Dams; RIP = Rehabilitation and Inspection Program.

[a] Seven facilities are included as both FEMA levees and levees in the USACE Levee Safety Program.

Natural Drainages

These are natural waterways which are maintained for flood control purposes, may have received some level of improvement within certain areas but remain primarily in their historic location and in a natural or semi-natural state. These include creeks, canyons, washes, and rivers.

Creeks

These drainage courses generally follow historic streams, which may be channelized. See definition for channels in this section.

Canyons

These are deep, steep gullies caused by extensive persistent erosion such as from a river, or often in the desert, a wash. Canyons form the headwaters of creeks and rivers, with the canyon mouth being where the gullies widen out.

Washes

Washes are dry beds of intermittent streams that only briefly carry water after a rain event. These features rarely hold water at or near the surface and therefore are subject to flash flooding during heavy rainstorms. Upstream sediment is gradually weathered and moved farther downstream within the wash, usually depositing in an alluvial fan or dry lakebed.

Rivers

Rivers are major drainage courses that are fed by numerous streams, collecting water from a large combined drainage area.

Channels

Channels are constructed to collect and convey runoff flows, generally along historic stream paths. These facilities include fully developed concrete channels, earthen channels, and semi-improved channels. Semi-improved channels are a combination of engineered and natural features and may have, but are not limited to, the following: concrete bottom or walls, riprap, revetment, and/or earthen side slopes or bottoms. Channels are subdivided into reach segments for operational purposes.

Spreading Grounds

These facilities are typically large areas of native ground that contain above-ground-surface embankments (levees), or basins (below ground surface) with earthen bottoms, some of which are used by private and public water purveyors to impound water to recharge groundwater aquifers. Generally, spreading grounds are constructed in conjunction with a channel. The channel diverts flows into a spreading ground to impound the water for groundwater recharge.

Dams

A dam is usually a large embankment that blocks an existing watercourse. The embankment is used to control the release of stormwater downstream via an outlet pipe that limits the amount of water that can exit the dam. Any flows in excess of the capacity of the dam outlet are stored behind the dam. Dams also contain an overflow emergency spillway to carry outflows in excess of the design capacity. Larger dams are regulated by the Department of Water Resources, Division of Safety of Dams (DSOD). Some of the District's larger and more prominent dams are also regulated by the U.S. Army Corps of Engineers (USACE), including the Seven Oaks Dam and the Mojave River Forks Dam. Smaller dams maintained by the District also function as basins. Dams contain sediment as water impounds at the embankment. This sediment is removed annually or as necessary to maintain design capacity. The District currently maintains 15 facilities that are certified by DSOD (14 of which are designated as basins by the District).

Levees

In general, a levee is a manmade barrier such as an embankment, floodwall, or similar structure designed to provide flood protection to adjacent land areas during major storm events. A levee is usually constructed of earthen, concrete, or rock material to control or divert floodwaters and ensure the structure is not compromised. The design and construction of levee embankments are integral to the performance of a flood damage reduction system and undergo regular inspections to maintain their certification. Inspections are performed by the U.S. Federal Emergency Management Agency (FEMA) and/or the USACE under the Levee Safety Program and/or the Rehabilitation and Inspection Program (RIP). Of the 70 facilities maintained by the District that are part of a federal levee program (as described in Section 3.3), 37 are classified as levees in the District's Maintenance Plan.

Basins

District basins are generally constructed to operate as either detention basins or debris basins. Many water districts throughout San Bernardino County use the District's basins for groundwater recharge and conservation efforts. In an effort to improve the water conservation and recharge efforts into the District's basins, maintenance activities like disking, scarifying, ripping, and/or removing clay/silt layers from the basin floors take place on more regular intervals over the long term. The surface area of an average basin is approximately 20 acres. The following are examples of the types of basins within the District.

Detention Basins

A detention basin's primary purpose is to detain peak flows and release them over a longer period of time. A basin typically will have an outlet pipe and overflow spillway that is typically

designed to detain the 1,000-year storm event (defined as a storm event with a 0.1% chance of happening in any year). Any flows that exceed the pipe's outflow capacity and remain below the spillway elevation are temporarily detained in the basin. Detention basins can be sized to store some sediment and debris, but their primary function is to reduce peak flows.

Debris Basins

Debris basins are usually located at the mouth of a canyon where there is a potential for large sediment and debris yields. The purpose of the debris basin is to capture sediment and debris, not water. Sediment and debris can reduce the capacity of downstream channels, if not contained, as well as blocking culverts and road crossings. In addition to spillways and outlet pipes, debris basins also have intake towers, which are designed to allow water to flow through the outlet pipes while retaining the sediment.

Storm Drains

Storm drains are generally smaller channels, or reinforced concrete boxes and pipes, which receive flows primarily from urban runoff. These small facilities drain to a larger channel, stream, or watercourse.

Groins

Groins are typically designed as a component of a levee system and are elongated berms with one end on the bank of the stream and the other end projecting into the flow. Groins are designed to direct or deflect flows into the desired watercourse without having to construct a continuous bank. Groins protect a system's main levees from the erosive action of stream currents by kicking the water away from the main levee. The orientation of the groin angle from the bank of a river or channel varies depending on the nature of the site. Deposition or sedimentation may occur, also depending on the site and the tributary watershed. A groin may be armored with rock or other materials, depending on the potential velocity of the storm flow to prevent erosion and deterioration.

Table 3-3 describes the types of flood control facilities within the District's system and lists the facility names and general locations.

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
San Antonio Creek System – Zone 1, Valley Region	College Heights Spreading Grounds Ely Basin Nos. 1 San Antonio Heights Basin, West Frankish	Carbon Canyon Creek Channel Chino Creek Chino Storm Drain Cypress Channel	Chino Chino Hills Montclair Ontario

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
	San Antonio Heights Basin Nos. 1–3	English Canyon Channel Grove Avenue Basin Drain Lake Los Serranos Channel Lower Los Serranos Channel San Antonio Channel – U.S. Army Corps of Engineers (USACE)* San Antonio Heights Intercept – USACE* Soquel Canyon Channel Sultana–Cypress Storm Drain West Cucamonga Channel West State Street Storm Drain	Upland
Cucamonga/West Cucamonga Creek System – Zone 1, Valley Region	8th Street Basins Nos. 1–3 Alta Loma Basin Nos. 1–3 Chris Basin Cucamonga Basin Nos. 6, 7, and 8 Cucamonga Dam – USACE, Division of Safety of Dams (DSOD)* Cucamonga Spreading Grounds Day Creek Spreading Grounds Day Creek Spreading Basin No. 1 Deer Creek Debris Basin – USACE* Demens Basin No. 1 – USACE,* DSOD* Ely Basin Nos. 1–2 Hillside Basin – USACE* Lower Cucamonga Spreading Grounds San Antonio Heights Basins Nos. 3–6 Turner Basins Nos. 1–5	19th Street Storm Drain Almond Intercept Channel Alta Loma Storm Drain County Line Channel Cucamonga Channel Deer Creek Channel – USACE* Deer Creek Reception Levee Demens Basin Channel Demens Creek Channel -- USACE* Hillside Channel – USACE* Lower Deer Creek Channel San Antonio Heights Intercept – USACE* West Cucamonga Channel	Chino Ontario Rancho Cucamonga Upland
Day Creek/Etiwanda-San Sevaine System – Zone 2, Valley Region	Banana Basin Day Creek Dam – DSOD* Day Creek Spreading Basin Nos. 1–5 Day Creek Spreading Grounds Declez Basin – DSOD* Etiwanda Debris Basin (Dam) Etiwanda Spreading Grounds Hickory Basin – DSOD* Jurupa Basin – DSOD* Rich Basin Riverside Basin San Sevaine Basin Nos. 1–5 San Sevaine Spreading Grounds Victoria Basin Wineville Basin	24th Street Storm Drain Day Creek Channel Declez Channel Etiwanda Creek Channel Hawker-Crawford Channel Henderson Channel Henderson Channel (Wardman Channel) Highland Channel Lower Etiwanda Creek Channel Mulberry Channel San Sevaine Channel San Sevaine Spreading Grounds– West and East Levees West Fontana Channel	Bloomington Colton Chino Chino Hills Fontana Ontario Rancho Cucamonga

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
Lytle/Cajon Creeks System – Zone 2, Valley Region	Badger Spreading Grounds – Upper Baseline Basins Nos. 1–3 Devil Basins Nos. 2–3, 5–7 Devil Canyon Dam North Badger Basin Sweetwater Basin West Badger Basin Wiggins Basin No. 1	Badger Channel Cable Creek Channel Devil Creek Devil Creek Diversion Channel – USACE* Devil Creek Levee – USACE* Island Levee – USACE* Lower Devore Levee – USACE* Lytle Creek Channel – USACE* Lytle Creek Gatehouse – USACE* Lytle Creek Levee – USACE* Lytle–Cajon Channel – USACE* Macy Storm Drain Muscoy Groin Nos. 1–5 – USACE* Muscoy Levee – USACE* Nealey's Corner Drain Riverside Groin Nos. 1–5 – USACE* Sweetwater Channel Upper Devore Levee – USACE*	Devore Fontana Lytle Creek Rialto San Bernardino
Twin/Warm Creeks System – Zone 2, Valley Region	29th Street Basin Nos. 1–3 Badger Spreading Grounds, Lower and Upper Brush Canyon Basin Daley Basin East Badger Basin and Spillway Harrison Basin Lemon Basin Little Mountain Dam – DSOD* Little Sand Canyon Basin Lynwood Basin Nos. 1–4 MacQuiddy Basin Macy Basin North Badger Basin Patton Basin Perris Hill Basin Sand Canyon Basin Sand Canyon Dam Small Canyon Dam – DSOD* South Badger Basin Twin Creek Spreading Grounds Warm Creek Conservation Basin Nos. 2–4 Waterman Basin Nos. 1–4 Wiggins Basin No. 1	Baldrige Creek Brush Canyon Storm Drain City Creek Channel City Creek City Creek Levee -- USACE* City Creek Levee, West Bank – USACE* Del Rosa Channel (Daley Channel) Devil Creek Channel Duffy Street Storm Drain Elm Storm Drain Little Mountain Channel Little Sand Creek Lytle Creek Channel – USACE* Lytle Creek Gatehouse – USACE* Lytle–Cajon Channel – USACE* Macy Storm Drain McGlothlen Storm Drain McQuiddy–Severance Diversion Channel Muscoy Levee – USACE* Sand Creek Santa Ana River – USACE* Santa Ana River	Colton Highland San Bernardino

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		Small Canyon Channel Small Canyon Diversion Channel Sycamore Diversion Channel Twin Creek Twin Creek Channel Improved – USACE* Twin Creek Levees – USACE* Upper Warm Creek Channel Warm Creek Channel Warm Creek – USACE* Warm Creek Levee – USACE* Waterman Creek Waterman Levee – USACE* Western Avenue Channel	
Rialto System – Zone 2, Valley Region	Cactus Basin Nos. 1–2 Linden Basin Merrill Basin Mill Basin Pepper Basin Randall Basin	East Fontana Storm Drain East Rialto Storm Drain East Rialto Storm Drain No. 1 Rancho Avenue Storm Drain Lytle-Cajon Channel – USACE* Reche Canyon Creek Randall Channel Turnout Rialto Channel Riverside Groin No. 3 – USACE* Santa Ana River – USACE* Santa Ana River Warm Creek Levee – USACE* Warm Creek – USACE*	Colton Fontana Rialto San Bernardino
Grand Terrace System – Zone 2, Valley Region		Grand Terrace Storm Drain Santa Ana River – USACE* Santa Ana River Reche Canyon Creek	Grand Terrace Colton
Upper Santa Ana System – Zone 3, Valley Region	Seven Oaks Dam – USACE, DSOD*		
City Creek/Plunge Creek/Mill Creek System – Zones 2 and 3, Valley Region	Cook Canyon Basin Dynamite Basin Elder Creek Basin Oak Creek Basin Plunge Creek Spreading Grounds	Bledsoe Creek City Creek City Creek Channel City Creek Levee – USACE* City Creek Levee, East Bank – USACE* City Creek Levee, West Bank – USACE* East Highland Storm Drain Elder Creek	Forest Falls Highland Loma Linda San Bernardino Mountain Home Village Redlands Yucaipa

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		Mill Creek Mill Creek Levee – USACE* Mission Channel Oak Creek Plunge Creek Santa Ana River Santa Ana River (incl. USACE*) Small Canyon Diversion Channel	
Zanja/Mission Creek System – Zone 3, Valley Region	San Timoteo Sediment Basins Nos. 3–5	Mission Channel Morrey Arroyo Redlands Storm Drain No. 1 San Timoteo Creek – USACE* Santa Ana River Santa Ana River – USACE* Zanja Creek	Loma Linda Mentone Redlands San Bernardino Yucaipa
San Timoteo Creek System – Zone 3, Valley Region	Brown Ditch Basin Oak Glen Creek Basin Nos. 1–3 Potato Creek Spreading Grounds San Timoteo Sediment Basin Nos. 1–18 Wildwood Debris Basin Wilson Creek Basin Nos. 1–4 Wilson Creek Spreading Grounds	Birch Creek Gateway Wash Loma Linda Storm Drain Oak Glen Creek Reche Canyon Creek San Bernardino Avenue Storm Drain San Timoteo Creek San Timoteo Creek – USACE* Santa Ana River (incl. USACE*) Water Canyon Creek (Wildwood tributary) Wildwood Creek Wilson Creek Yucaipa Creek	Colton Grand Terrace Loma Linda Redlands San Bernardino Yucaipa
Big Bear/Headwaters Santa Ana River System – Zone 6, Mountain Region		Grout Creek Knickerbocker Creek Rathbone Creek Sand Canyon Creek Van Dusen Creek (low flow)	Big Bear City Big Bear Lake Fawnskin
Sheep Creek System – Zone 4, Desert and Mountain Regions		Flume Creek Heath Creek Swarthout Creek	Phelan Pinion Hills Wrightwood
Upper Mojave River System – Zones 4 and 5, Desert and Mountain Regions		Antelope Creek Wash Desert Knolls Wash Mojave River – Forks Dam to I-15 Oro Grande Wash Green Valley Creek Hesperia East Channel	Apple Valley Hesperia Victorville Cedarpines Park Green Valley Lake Running Springs

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		Hunsicker Drain Seeley Creek Sequoia Drain	Valley of Enchantment
Middle Mojave River System – Zone 4, Desert Region		Adelanto East Channel Buckthorn Wash D Street SD El Evado Channel Fremont Wash Mojave Drive Channel Mojave River – I-15 to Lenwood Road Turner Ditch	Adelanto Apple Valley Barstow Helendale Hesperia Hinkley Lenwood Mountain View Silver Lakes Victorville
Lower Mojave River System – Zone 4, Desert Region	Waterman Road Basin	Arrowhead Channel Daggett Channel Lenwood Channel Mojave River – Lenwood Road to Mineola Crossing North Barstow Channel Southwest Barstow Channel Waterman Road Channel Yermo Flood Channel	Barstow Daggett Lenwood Mineola Nebo Newberry Springs Yermo
Mojave–Baker System – Zone 6, Desert Region		Baker Levee East Baker Channel	Baker
Lucerne Storm Drain System – Zone 6, Desert Region		Lucerne Valley Channel	Lucerne Valley
Yucca Creek System – Zone 6, Desert Region	49 Palms Spreading Grounds Donnell Basin Long Canyon Basin Old Woman Springs Basin	Twentynine Palms Flood Channel Burnt Mountain Wash Church Street Channel Covington Wash Channel High School Channel Hospital Channel Joshua Tree Wash Juanita Drainage Ditch Long Canyon Channel Oasis Creek Channel Old Woman Springs Creek Pinto Cove Creek Quail Wash Quail Wash Levee – USACE* Yucca Creek	Twentynine Palms Joshua Tree Pioneer Town Yucca Valley

Table 3-3
District-Maintained Facilities

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
Little Morongo Creek – Zone 6, Desert Region		Little Morongo Creek	Little Morongo Heights Yucca Valley
Needles/Sacramento Wash System – Zone 6, Desert Region	Needles Basins Nos. 1–5 North Needles Basin	Eagle Pass Levee – USACE* Needles Flood Channel Needles Riverview Levee Needles S Street Channel – USACE* S Street Channel Inlet Levee	Needles
Trona		Argus Channel Borosolvay Channel Cemetery Channel Rockcrusher Channel South Trona Channel Trona Flood Channel	Argus South Trona Trona

USACE = U.S. Army Corps of Engineers; DSOD = Division of Safety of Dams.
* These facilities, although maintained by the District, are under the jurisdiction of other entities (USACE or DSOD, as noted in the table) and must comply with USACE/DSOD requirements.

3.3 BACKGROUND AND PROGRAM HISTORY

Since its establishment in 1939, the District has maintained its facilities on an as-needed basis and obtained the necessary regulatory approvals on a case-by-case basis. This approach is inefficient in permitting a large number of activities and/or facilities and can result in delays in conducting routine maintenance. Furthermore, facilities are managed by different maintenance manuals, as described in the Maintenance Plan in Appendix A, in accordance with varying regulatory requirements. Some facilities within the proposed program fall under federal or state jurisdiction, with maintenance requirements dictated by the respective agency. Additionally, certain facilities and/or activities fall within local plans or are conditioned by existing permits received by the District.

The District undertook a comprehensive review of maintenance requirements throughout its system to develop the maintenance requirements for each facility, including multiple interviews with operations staff and supervisors, hydraulic modeling of key waterways, and review of existing and historic permits and management plans. The result is a program that provides a comprehensive approach to maintaining facilities and minimizing delays while ensuring compliance with regulatory requirements and applicable maintenance manuals. The Maintenance Plan lists the specific maintenance manuals that would provide the parameters under which maintenance will be conducted for the facilities in the proposed program.

Federal, state, and local jurisdiction of facilities that affect the type of maintenance activities prescribed are described below. The types of District facilities within each federal program are summarized in Table 3-2.

3.3.1 Federal Programs

Some of the facilities in the proposed program are also subject to federal program maintenance requirements. These facilities were either constructed and/or funded by a federal agency or are certified under a federal program, and as a result, must comply with applicable federal requirements. Federal programs and/or certifications that may be applicable to the District's facilities include the USACE Levee Safety Program, the USACE RIP, and the FEMA levee certification.

The USACE and FEMA have different roles and responsibilities related to levees. FEMA addresses mapping and floodplain management issues related to levees, and accredits levees as meeting requirements set forth by the National Flood Insurance Program. The USACE addresses a range of operations and maintenance, risk communication, risk management, and risk reduction issues as part of its responsibilities under the Levee Safety Program and the RIP, which are described in more detail below.

USACE Levee Safety Program

The District maintains 38 facilities that are in the USACE Levee Safety Program. The USACE's Dam and Levee Safety Division performs periodic inspections of levees across the United States that are part of the USACE Levee Safety Program. The goal of the proposed program is to maintain the integrity and viability of these levee systems so they are structurally sound in the event of severe weather. This minimizes risk to the public, property, and the environment. The inspections identify deficiencies that need to be corrected to maintain structural integrity, and effectively track the condition of the levees over time. Periodic inspections are a requirement to keep USACE levees active in the Levee Safety Program.

In order to pass the periodic USACE inspection, the facility must be maintained in accordance with USACE requirements, including the federal Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures (USACE Vegetation Guidelines; USACE 2014). Guidelines include a vegetation-free zone both wide and tall enough to accommodate any likely access requirements. The minimum height of the corridor is 8 feet and the minimum width is 15 feet on each side of the structure, measured from the outer edge of the outermost critical structure. No vegetation other than approved grasses may penetrate the vegetation-free zone. Other aspects inspected include the following:

- Encroachments
- Good condition of closure structure, culverts, and/or discharge pipes

- Slope stability
- Freedom of structure from erosion, bank caving, depressions/rutting, and cracking
- Absence of settlement that could affect integrity of the levee
- Existence of an animal control program

USACE Rehabilitation and Inspection Program

The District maintains 112 facilities within the federal Rehabilitation and Inspection Program (RIP). The RIP was enacted through Public Law 84-99. The goal of the RIP is to help local communities rehabilitate flood control facilities that have sustained damage in a flood. Under the RIP, the USACE, under the Emergency Management Division, provides federal funds to supplement local funds needed for repairs. In order for a flood control facility to quality for the RIP, the facility must be maintained in accordance with the RIP Levee Owner's Manual for Non-Federal Flood Control Works maintenance manual prepared by the USACE (2006). According to the manual, each qualifying facility must be maintained in accordance with the USACE Vegetation Guidelines (USACE 2014). Guidelines include a vegetation-free zone both wide and tall enough to accommodate any likely access requirements. The minimum height of the corridor is 8 feet and the minimum width is 15 feet on each side of the structure, measured from the outer edge of the outermost critical structure. No vegetation other than approved grasses may penetrate the vegetation-free zone. Other aspects inspected include the following:

- Encroachments
- Good condition of closure structure, culverts, and/or discharge pipes
- Slope stability
- Freedom of structure from erosion, bank caving, depressions/rutting, and cracking
- Absence of settlement that could affect integrity of the levee
- Existence of an animal control program

FEMA-Certified Levees

The District maintains 39 facilities that have been or are in the process of being certified by FEMA. FEMA provides flood risk information to communities via Flood Insurance Rate Maps. In order to update these maps, FEMA requires levee owners to provide professional-engineer-certified documentation proving that their levees can protect their designated areas from a 100-year flood event and are compliant with Title 44 of the Code of Federal Regulations, Section 65.10. If the levee in question has previously been accredited and its owner cannot provide the required documentation right away, it becomes a Provisionally Accredited Levee and the

required documentation must be delivered within 24 months. This will either certify or decertify the levee system. Once a licensed engineer has signed off on the certification, the levee system owner needs to prepare a maintenance manual to be considered accredited.

3.3.2 State Facilities

The proposed program includes 15 facilities that fall under the jurisdiction of the DSOD, 2 of which are also subject to federal maintenance requirements, as discussed above. The DSOD has a process in place for constructing (or enlarging) dams or reservoirs that would be under its jurisdiction (DWR 2008). The facility must then be maintained to meet the design capacity and function. The DSOD conducts inspections of facilities for which it is responsible, including periodic evaluations of operational dams, inspections for in-depth review of an entire dam or a specific feature, and special inspections in response to an unusual condition, incident, or emergency (Baines 1999). Unlike the federal programs described above, the DSOD program does not have specific maintenance manuals; however, the inspections determine the maintenance requirements for these facilities.

3.3.3 Local Overlapping Permitting Processes

Some of the facilities maintained by the District are also subject to the local permits or regulatory processes described below.

Wash Plan

The District will be a permittee of the Upper Santa Ana Wash Land Management and Habitat Conservation Plan (Wash Plan). The purpose of the Wash Plan is to allow the coordinated development and management of multiple resources in the Wash Plan area. The Wash Plan designates specific areas within the Wash Plan area for public services and aggregate mining to balance ground-disturbing activities and habitat preservation. The Wash Plan includes certain District routine maintenance activities. The official draft of the Wash Plan was approved in May 2015, with implementation of the plan beginning on December 1 of the same year, and has since been reviewed and edited several times. Two bills—H.R. 4024 and S. 3080—have been introduced into the House of Representatives and the Senate that will allow for the land transfer needed for the successful implementation of the Wash Plan. Both bills are currently being looked over in committee. The Draft Wash Plan is complete, and the California Environmental Quality Act (CEQA)/National Environmental Policy Act draft environmental documents are currently being finalized. The Wash Plan and environmental documents are pending publication in the Federal Register, which will be followed by a 90-day public comment period. Finalization of these documents, including the Implementation Agreements, is currently scheduled for 2018.

District maintenance activities covered by the Wash Plan are included in the proposed program; however, regulatory clearance and mitigation for these activities are expected to be covered by the Wash Plan and its associated regulatory approvals. Conditions of the Wash Plan and its permits relevant to the District will be incorporated into the Maintenance Plan.

First Line of Defense

The District's First Line of Defense facilities include approximately 40 basins located in the foothills of the Valley Region that capture storm and debris flow as it runs off the mountains during and after storm events. Currently the District is in the process of obtaining 5-year permits from the USACE under Section 404 of the Clean Water Act, a Water Quality Certification under Section 401 of the Clean Water Act from the Santa Ana Regional Water Quality Control Board, and a Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW) for the maintenance of these basins. The proposed program covers the long-term maintenance of these basins, and conditions of the 5-year permit, once finalized, will be incorporated into the Maintenance Plan.

El Niño Maintenance Area

In 2015–2016, El Niño, a series of large storm events, was predicted to take place; in preparation, the District determined that a portion of the Santa Ana River needed to be maintained in order to restore capacity and prevent any flooding that could take place in the surrounding areas as a result of this projected weather condition. The District prepared the emergency permit application required by the USACE for the proposed emergency activities and obtained a Notice to Proceed from the USACE (SPL 2015-00758-SLP) for the emergency activities. The District also submitted the requisite emergency permit notification to the Santa Ana Regional Water Quality Control Board, as well as the CDFW's emergency notification application. Currently, the District is working with the USACE and the U.S. Fish and Wildlife Service (USFWS) to obtain a Biological Opinion under the federal Endangered Species Act for potential impacts to regulated species in the emergency impact area. Because the District has determined that the emergency impact area is the same as what is needed as part of routine maintenance activities for the area, the conditions of the Biological Opinion, once finalized, will be incorporated by reference into the Maintenance Plan.

Lenwood Facilities

The District is in the process of obtaining 5-year maintenance and new construction permits for two facilities, Lenwood Channel and Lenwood Spreading Grounds. These facilities encompass an area over 200 acres and are located southwest of the City of Barstow in the Desert Region of the County. Permits in process include a Section 404 permit from the USACE and related USFWS consultation leading to a Biological Opinion, a Water Quality Certification under Section 401 of the Clean Water Act from the Lahontan Regional Water Quality Control Board,

and a Streambed Alteration Agreement from the CDFW. Currently, the District does not have resource agency permits to conduct maintenance in these facilities and, as a result, there has been a lack of maintenance. Within the spreading grounds, sediment and debris has built up over time, resulting in a decreased capacity for storm flow containment and groundwater recharge. In some areas, the sediment buildup is 7–9 feet deep. In addition to maintenance, the District proposes to upgrade the spillway between the channel and spreading grounds damaged during the 2014 storm season. Due to the size of the Lenwood facilities, the extent of maintenance required, and nature of the scope of work, which combines maintenance with new construction elements, it was decided that these facilities would receive individual CEQA clearances and be permitted under separate environmental processes. Conditions of the 5-year maintenance permit, once finalized, will be incorporated into the Maintenance Plan.

3.4 PROGRAM PURPOSE AND NEED

The purpose of the proposed program is to provide a comprehensive approach to maintenance of flood control facilities, so that the District can meet its principal functions of flood protection and water conservation in a timely and cost-effective manner, for the benefit of residents, businesses, and other stakeholders. A streamlined maintenance program would allow the District to maintain its facilities at their current/designed capacity without unnecessary delays or burdens to the resource agencies (the USACE, State Water Resources Control Board, CDFW, and USFWS). The proposed program expects to obtain permits from the resource agencies that would cover 20 years of maintenance activities. The proposed program also includes a comprehensive list of SOPs to minimize environmental impacts and incorporates a comprehensive approach to off-site resource conservation. The streamlined notification process has been preliminarily approved by the resource agencies and will be finalized during the permitting process in collaboration with federal and state agencies that have regulatory oversight over County-maintained flood control facilities.

Proposed maintenance activities would not include the construction or alteration of facilities and the program would not expand facility capacity. Because the program is expected to be permitted for 20 years, it is likely that maintenance of new facilities would be added to the program. As described in Chapter 2, Introduction, future facilities that are not analyzed in this environmental impact report (EIR) would undergo environmental review to determine if there would be new impacts as a result of their inclusion in the program.

Currently the District maintains its facilities as needed and as authorized under regulatory approvals, on a case-by-case basis. The District receives authorization in two ways, through the approval of 5-year routine maintenance permits, agreements, or certifications (permits), or through the receipt of emergency permits. Emergency permits are obtained as needed prior to or following storm events to address imminent threats to life and property. Depending on District and agency staff availability, the District has routine maintenance permits for approximately 10% to 25% of its facilities in a given year. The proposed program would provide for the

maintenance of an average of 30% of the facilities each year over the life of the long-term permit. The long-term permits for the program would provide the District with the flexibility to maintain facilities as needed; however, based on operations staff and equipment constraints, budget constraints, and historic maintenance requirements based on storm events, the District does not anticipate maintaining more than an average of 30% of its facilities each year. This would allow the District to meet its flood control responsibility more efficiently, minimizing the need for emergency permits and reducing staff workload. Although routine maintenance is currently ongoing, the regular and consistent maintenance of facilities may result in environmental impacts, which are the focus of this EIR.

As stated above, the proposed program includes the preparation and implementation of a Maintenance Plan (see Appendix A). The Maintenance Plan will describe the maintenance activities that would be performed on a regular basis for each facility, including a general description of work to be performed, vehicle and equipment needs, and anticipated activity timing and/or frequency. The Maintenance Plan will list the District SOPs and provide management plans implemented by the District during routine maintenance activities, including an integrated pest management plan, vegetation management plan, and nesting bird and burrowing owl management plan. Finally, the Maintenance Plan will describe a streamlined compliance and reporting process to resource agencies with regulatory oversight and will provide a copy of the proposed program's resource agency permits.

The implementation of the Maintenance Plan would provide a comprehensive program for maintenance of various flood control channels and basins to ensure flood protection. Maintenance activities would allow District facilities to function at their current/designed capacity and would include minor alterations to update facilities to current standards or to increase stability. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. Section 3.5, Program Activities and Schedule, provides the types of proposed maintenance activities to be implemented as described in the Maintenance Plan (Appendix A), as well as the general scheduling for the various types of maintenance activities.

3.4.1 Study Area

The study area for the proposed program includes the facilities described in Table 3-3 and the areas within the District's existing right-of-way and access roads where maintenance activities would occur in San Bernardino County. To ensure an appropriate geographic scope of analysis, the following areas in the County were included in a geographic information system (GIS) geodatabase that delineates the entire study area:

- District access roads, with a 10-foot-wide buffer applied to either side of the approximate centerline of the roads, for a total buffer width of 20 feet

- Activity-specific polygons delineating the footprint of the locations of maintenance activities identified as part of the proposed program and extending to the limits of fee properties and easements where the footprint is less than that area

3.4.2 Program Objectives

The proposed program objectives are as follows:

- Meet the District's mission to protect life and property by maintaining facilities in such a way as to allow existing facilities or structures to function at the current/designed capacity, to update facilities or structures through minor alterations to meet current standards, and to maintain structural integrity in a manner that is environmentally sensitive.
- Develop a formalized plan that would provide a systematic and scheduled approach to maintenance activities.
- Provide a comprehensive guide for the maintenance of existing stormwater infrastructure.
- Provide the basis for acquisition of long-term maintenance permits from a number of state and federal agencies for regulated maintenance activities.
- Obtain long-term resource agency permits to streamline the CEQA and permitting process and execute projects on a regular and timely basis.

3.5 PROGRAM ACTIVITIES AND SCHEDULE

3.5.1 Program Activities

Table 3-4 summarizes the proposed program activities, the estimated duration of those activities, and the equipment likely to be used for each activity. Figures 3-3A through 3-3L depict the extent and type of typical maintenance activities at representative program facilities.

3.5.2 Schedule

Maintenance activities in each flood control facility occur on an annual basis or more or less often, as needed. Some facilities may only require maintenance once every several years following large storm events, whereas others may require maintenance more than once a year. In general, an average of 30% of flood control facilities are expected to be maintained each year. The District does not anticipate maintaining more than an average of 30% of its facilities each year based on operations staff and equipment constraints, budget constraints, and historic maintenance requirements based on storm events. The timing of flood control maintenance is dictated by the following:

- **Weed Abatement Notices** – June through September. Chemical and mechanical treatment may be needed twice per year—once before spring, and again before fall—to adequately control and remove dry brush and weeds in accordance with local fire code requirements.

- **Storm Season** – Varies, but generally from October through April. Work typically occurs only after the wetted portions of a channel or basin are dry enough to safely operate equipment. During monsoon season in the desert areas, storms can also occur in July, August, and September.
- **Nesting Season for Migratory Birds** – Depending on specific location and weather patterns, nesting season is generally January 15 through August 31. For areas with sensitive biological resources, the District avoids conducting maintenance during nesting season if practicable. The District applies avoidance measures for their facilities during the nesting season to ensure compliance with regulations protecting nesting birds.
- **Unforeseen and Urgent Maintenance Repairs Discovered** – Sometimes during maintenance inspections or as a result of outside agency notification to the District, previously unknown damage to facilities is discovered, and the nature of the damage is such that immediate attention is required for public safety purposes. Examples of work requiring immediate attention include slope erosion that undermines an access road known to be used by the public or adjacent to a railroad or other public structure, or imminent failure of concrete structures or revetment requiring in-kind repairs. Emergency work is exempt under CEQA Guidelines Section 15269, Emergency Projects. In these circumstances, the District processes environmental clearance as required by the resource agencies.

Routine maintenance activities typically occur Monday through Friday from 7:00 a.m. to 7:00 p.m. Weed abatement is conducted on Saturdays and Sundays by crews of approximately 12 to 18 people. Additionally, on Saturdays and Sundays, one operations staff member is present for 9 hours a day for each zone and conducts minor maintenance such as manual debris removal, is available for emergency situations, and oversees weed abatement work. Maintenance activities beyond minor maintenance would occur on the weekends only in urgent situations, which typically occurs less than 10% of the time (approximately six times a year). Maintenance activities outside the limits described above would occur only in emergency situations. This is generally consistent with the applicable local codes and ordinances.

Table 3-4
Typical Flood Control Maintenance Activities

Activity	Description	Activity Duration/Timing	Equipment
	Ground-Disturbing Activities		
Federal maintenance	This activity refers to areas where a federal agency has jurisdiction over maintenance activities (as described in Section 3.3.1 of this document). Maintenance activities generally consist of vegetation management. It is listed as a separate activity because federal jurisdiction requires removal of all vegetation except for grasses. The San Bernardino Flood Control District's (District's) maintenance approach for vegetation management for non-federal facilities allows for avoidance and minimization measures such that some vegetation may remain in place as described for vegetation management below.	5–15 days	Excavator Gradall Grader Loader Service truck Skidsteer loader Speed loader Sprayer trucks Water truck Tractor mowers Disk trailer Boom mowers
Vegetation management	Ground-disturbing vegetation management activities include mowing and disking to remove vegetation within facilities that prevents the proper conveyance of storm flows downstream. Dense vegetation can be uprooted in heavy storms and damage downstream facilities. Dense vegetation can trap sediment rather than transporting the material downstream, damage levees, reduce water quality, and inhibit wildlife feeding and movement. Vegetation management activities such as mowing and disking result in thinning and involve shallow soil disturbance, which encourages seed germination, soil aeration, and insect populations. Equipment used includes, but is not limited to, tractor mowers, tractor and disk trailer, and boom mowers.	5–15 days	Dump truck Excavator Gradall Grader Loader Service truck Skidsteer loader Speed loader Sprayer trucks Water truck Tractor mowers Disk trailer Boom mowers Scraper
Mechanized land clearing	Mechanized land clearing includes centerflow (the establishment and maintenance of a smaller center channel within a channel and/or basin) to convey and guide low-volume storm and dry weather (urban runoff) flows within the center of an earthen channel or basin to keep flows away from the slopes and for guiding flows. A	5–15 days	Dozer Dump truck Loader

Table 3-4
Typical Flood Control Maintenance Activities

Activity	Description	Activity Duration/Timing	Equipment
	centerflow channel is established by clearing sediment and vegetation within the center of the channel or basin. The centerflow generally represents a width of up to 20%–50% of the channel and a depth of approximately 2–3 feet. Mechanized land clearing includes grading the channel inverts or basin bottoms to properly convey flows downstream. Mechanized land clearing includes debris and sediment removal for flood control, water quality control, and groundwater recharge. Debris removal includes removal of dead vegetation such as fallen boughs and leaves, as well as illegally dumped trash. Material is removed to maintain conveyance capacity of each facility as necessary. High-priority facilities must be maintained at 100% capacity. Sand and gravel operators often contract with the District to remove sediment. Basin bottom silt and clays are removed and soil is typically broken up and kept free of vegetation to restore groundwater recharge. Illegally dumped trash, vehicles, and homeless camps are removed from District facilities, and material is taken to a landfill or appropriate recycling facility for disposal. Mechanical vegetation clearing includes the removal of vegetation with equipment such as dozers, graders, loaders, and excavators to allow conveyance of storm flows downstream and to remove large areas of growth from regulated facilities that are certified/inspected by the Federal Emergency Management Agency, U.S. Army Corps of Engineers, and Division of Safety of Dams. Mechanical vegetation clearing is also required for fuel modification purposes per state and local fire codes.		Excavator Service truck Skidsteer loader Speed loader Water truck Scraper
Ingress/egress	Maintenance of access roads includes, but is not limited to, fencing and gate repairs, signage, road grading, and pavement repair.	5–7 days	Grader Loader Service truck Skidsteer loader Water truck Broom (asphalt roads only) Pneumatic roller

Table 3-4
Typical Flood Control Maintenance Activities

Activity	Description	Activity Duration/Timing	Equipment
Flood control structure repair	Flood control structure repair or in-kind replacement include, but are not limited to, appurtenant structures such as inlets, outlets, culverts, spillways, bottom controls, water quality structures, riprap, and channel inverts.	12–20 days	Dump truck Grader Loader Scraper Service truck Water truck Cement truck
Bank repair	Bank repairs include, but are not limited to, removal of excess sediment and sand from the bottom (invert) of the channel or basin or on-site/off-site stockpile location and placing it onto the side slopes. Sometimes, additional and incidental riprap rock or gabion placement may be required for banks that experience frequent erosion resulting in high frequency of maintenance. Riprap repair includes repositioning, replacement, or placement of incidental riprap to stabilize the slopes. It also includes the repair of grouted and ungrouted sections of rock. Bank repair can also include the repair or replacement of steel revetment with more revetment or riprap rock.	5–15 days	Dozer Dump truck Gradall Grader Loader Scraper Service truck Water truck
Stockpiling	Maintenance of stockpile locations includes placement of material (i.e., debris and sediment from District facilities) at specific locations for use in repairs and temporary storage. Stockpiles are often treated to avoid the spread of invasive plants.	5–10 days	Grader Loader Dump truck Water truck
Non-Ground-Disturbing Vegetation Management			
Manual vegetation management	The District employs manual vegetation management where sensitive resources are present or where ground-disturbing vegetation management is not necessary for flood control purposes. It consists of trimming and pruning vegetation with hand tools such as power trimmers, weed eaters, pruning loppers, saws, and clippers to trim and thin vegetation so it does not clog downstream facilities or reduce water quality.	5–15 days	Power trimmers Weed eaters Manual tools (pruning loppers, saws, clippers)
Non-Ground Disturbing Activities			
Sand and gravel operations	The County coordinates with sand and gravel operations vendors to sort the materials into different size materials and sells the surplus material that has been stockpiled through maintenance. The duration of sand and gravel operations varies. The average is 2 years, but there are situations where it can extend up to 5 years. This is a result of material sitting for a period of time until a buyer is found, which can occur during	2 years (average)	Front-end loader Water truck Dump truck Grizzly

Table 3-4
Typical Flood Control Maintenance Activities

Activity	Description	Activity Duration/Timing	Equipment
	depressed economic years. Duration of the activity is market driven and also dependent on the amount of material that is stockpiled on site. When the economy is good and there is a lot of construction activity, sand and gravel operations move quickly.		Portable power screen Portable power crusher
Ingress/egress	Maintenance of access roads includes, but is not limited to, fencing and gate repairs and signage.	5–7 days	Service truck
Herbicide and rodenticide	Herbicide application, sometimes referred to as chemical vegetation clearing, is accomplished by trained and licensed applicators to manage vegetation. Herbicides are used to allow for proper conveyance of flows, and to prevent the spread of invasive species and aquatic weeds, such as algae and grasses considered detrimental to flood control facilities. Typical aquatic herbicides applied include, but are not limited to, glyphosate, copper, triclopyr, and diquat. Equipment used includes backpack sprayers or sprayers mounted on a service truck. Rodenticide is applied by a licensed applicator to control burrowing rodents and prevent them from destabilizing banks and levees. California ground squirrels (*Spermophilus beecheyi*) are generally the targeted species. Rodenticide used in areas containing protected rodents such as the threatened Mohave ground squirrel (*S. mohavensis*) or the endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is applied using special traps, and in accordance with applicable federal and state laws, regulations, and policies and the County's agency-approved Integrated Pest Management Plan.	5–15 days Rodenticide is ongoing on an as-needed basis throughout the year	Sprayer truck Service truck Water truck
Graffiti removal	Graffiti is removed by spraying paint on the concrete facility. Graffiti removal also includes cleanup of discarded spray paint cans.	1–4 days	Hand tools Service truck
Vector control	Vector control primarily involves mosquito control to reduce the spread of disease, including West Nile Virus. Vector control typically includes biopesticides. Historically it has also included introduction of mosquito-larva-eating fish and this method may be utilized again in the future.	1–2 days	Service truck Sprayer truck/equipment
Stream gage maintenance	Maintenance of stream gages and stream gage sites, as well as maintenance of other scientific measurement devices to measure and record scientific data, including, but not limited to, water quality monitoring, wells, and sampling stations.	1–3 days	Service truck Water truck

3.6 STANDARD OPERATING PROCEDURES

The District implements SOPs to avoid and minimize potential impacts to sensitive resources. The SOPs applicable to each resource topic are included in the relevant sections of Chapter 4, Environmental Analysis, and a complete list of SOPs is provided with the Maintenance Plan in Appendix A.

3.7 PERMITS AND APPROVALS

Federal, state, and local agencies may rely on information in the EIR to inform them in their decision making regarding issuance of specific permits related to the proposed program. Table 3-5 lists the federal, state, and local permits and authorizations required for the proposed program prior to maintenance activities, as well as the agencies that the District will likely need to coordinate with regarding the proposed program.

Table 3-5
Agency Coordination

Agency	Jurisdiction	Permit Regulatory Requirement
Federal		
Advisory Council on Historic Preservation	National Historic Preservation Act	• National Historic Preservation Act, Section 106 Consultation (if required as part of the Section 404 Clean Water Act permit review)
U.S. Fish and Wildlife Service	Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, Fish and Wildlife Coordination Act	• Endangered Species Act Section 7 Consultation • Endangered Species Act Section 10 Incidental Take Permit
U.S. Army Corps of Engineers, Los Angeles District	Clean Water Act	• Clean Water Act Section 404 permit
U.S. Department of the Interior, Bureau of Land Management	Manages the West Mojave Habitat Conservation Plan	• Coordination on compliance with reserve agreements
U.S. Forest Service	Manages U.S. Forest Lands	• Coordination
State		
California Department of Fish and Wildlife, Inland Deserts Region (Region 6)	Manage fish, wildlife, plant resources, and habitats; California Endangered Species Act, California Native Plant Protection Act, California Fish and Game Code Section 1601	• Streambed Alteration Agreement • California Endangered Species Act Section 2081 Incidental Take Permit and/or Section 2080.1 Consistency Determination
California Department of Transportation	California Streets and Highways Code 660–711.21; 16 CCR 1411.1–1411.6	• Encroachment Permits • Traffic Control Plans
California State Office of Historic Preservation	Potential to affect cultural or paleontological resources	• National Historic Preservation Act, Section 106 Consultation

Table 3-5
Agency Coordination

Agency	Jurisdiction	Permit Regulatory Requirement
State Water Resources Control Board	Clean Water Act, Sections 401 and 402; Porter–Cologne Water Quality Control Act; California Water Code Division 7: Water Quality	• Clean Water Act Section 401 Water Quality Certification and/or Waste Discharge Requirement
Local		
Local Jurisdictions	Local/city roads and rights-of-way	• Road Encroachment Permit • Coordination
South Coast Air Quality Management District (SCAQMD) and Mojave Desert Air Quality Management District (MDAQMD)	SCAQMD and MDAQMD Regulation II, Rules 201 and 20310	• Authority to Construct and Permit to Operate

3.8 REFERENCES

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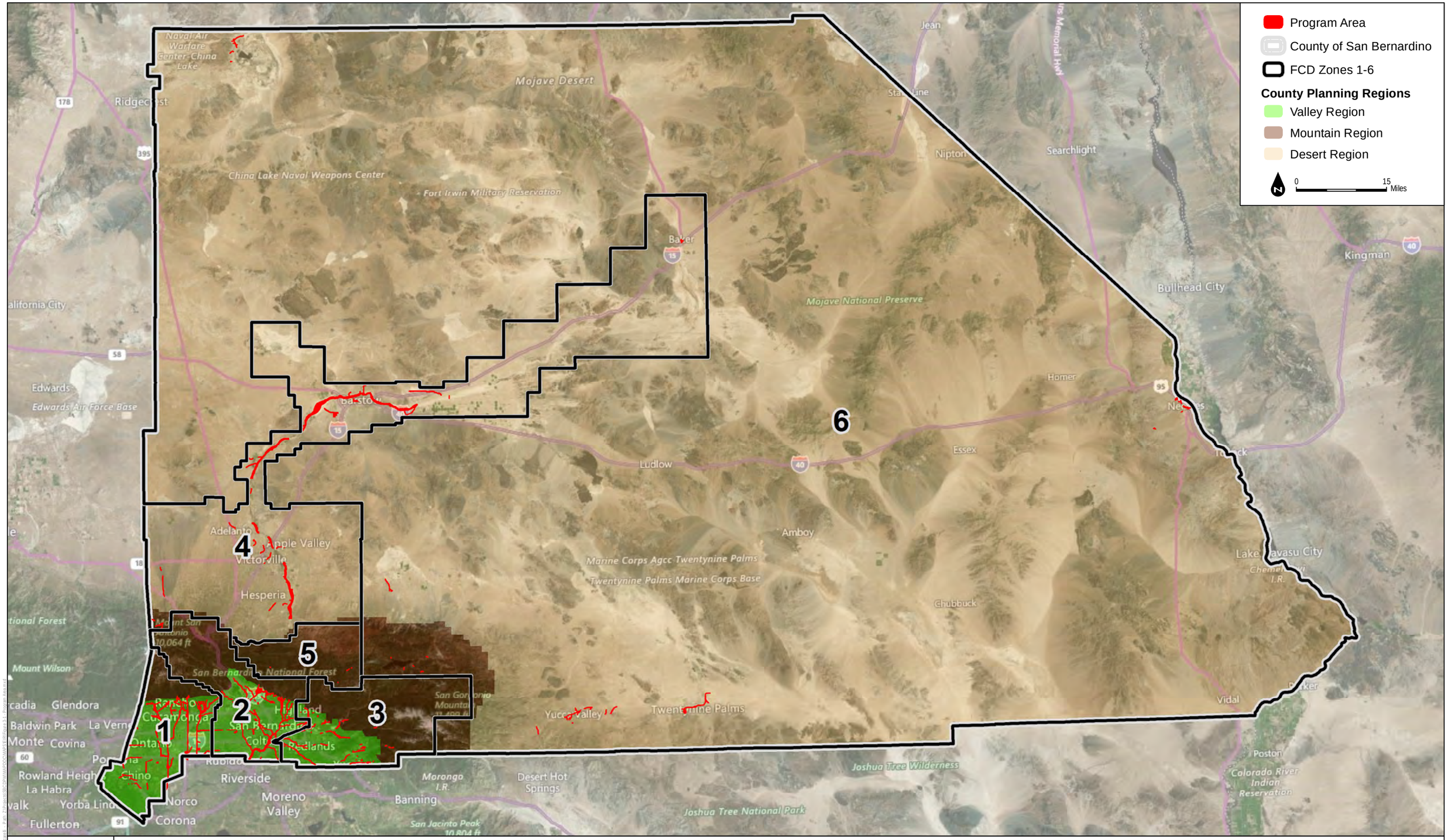

SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

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FIGURE 3-1

Program Area

San Bernardino County Flood Control District

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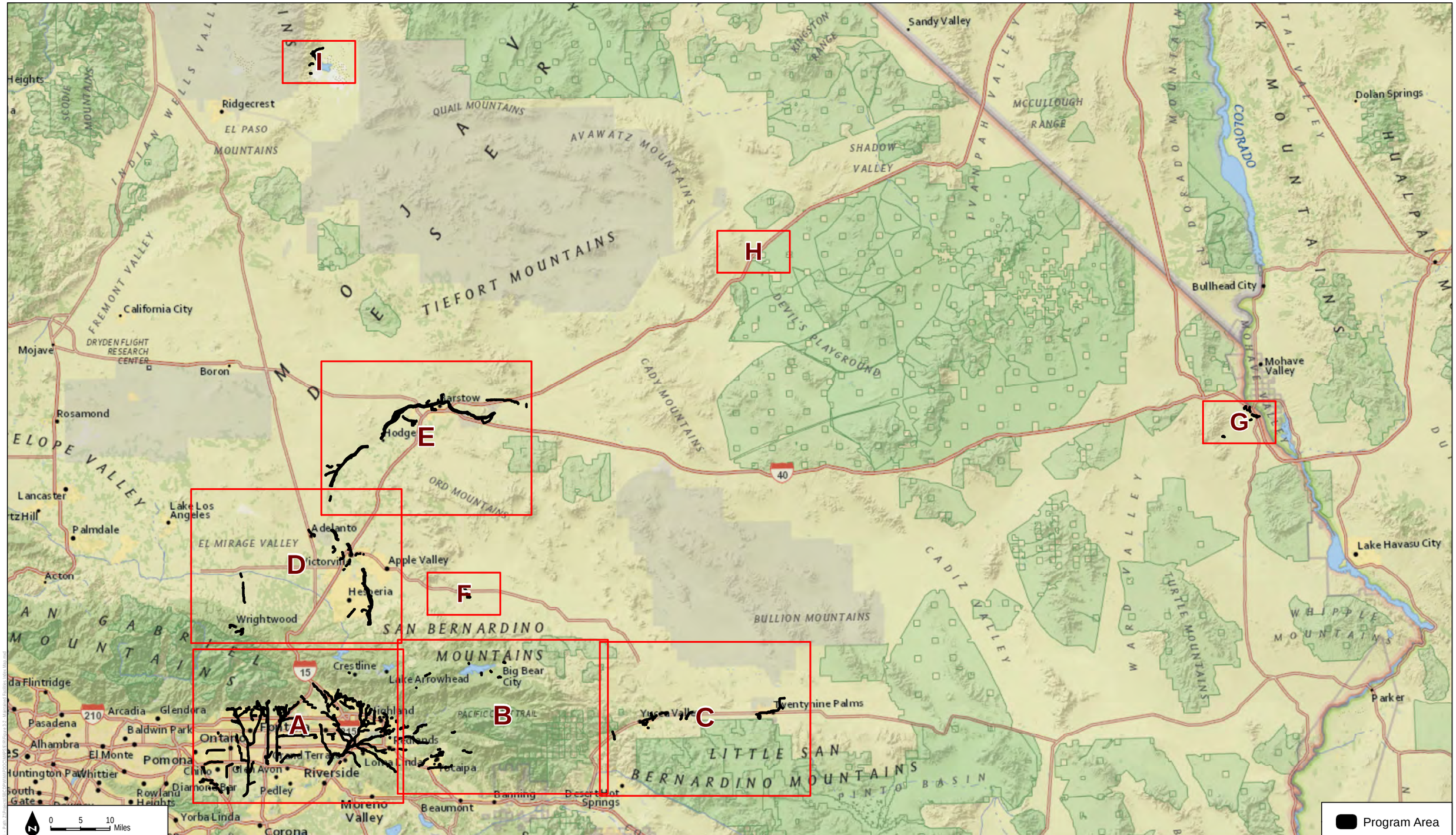

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FIGURE 3-2

Maintained Facilities Index Map

San Bernardino County Flood Control District

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Figure 3-2A Maintained Facilities – See Mapbook on Attached CD

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Figure 3-2B Maintained Facilities – See Mapbook on Attached CD

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Figure 3-2C Maintained Facilities – See Mapbook on Attached CD

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Figure 3-2D Maintained Facilities – See Mapbook on Attached CD

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Figure 3-2E Maintained Facilities – See Mapbook on Attached CD

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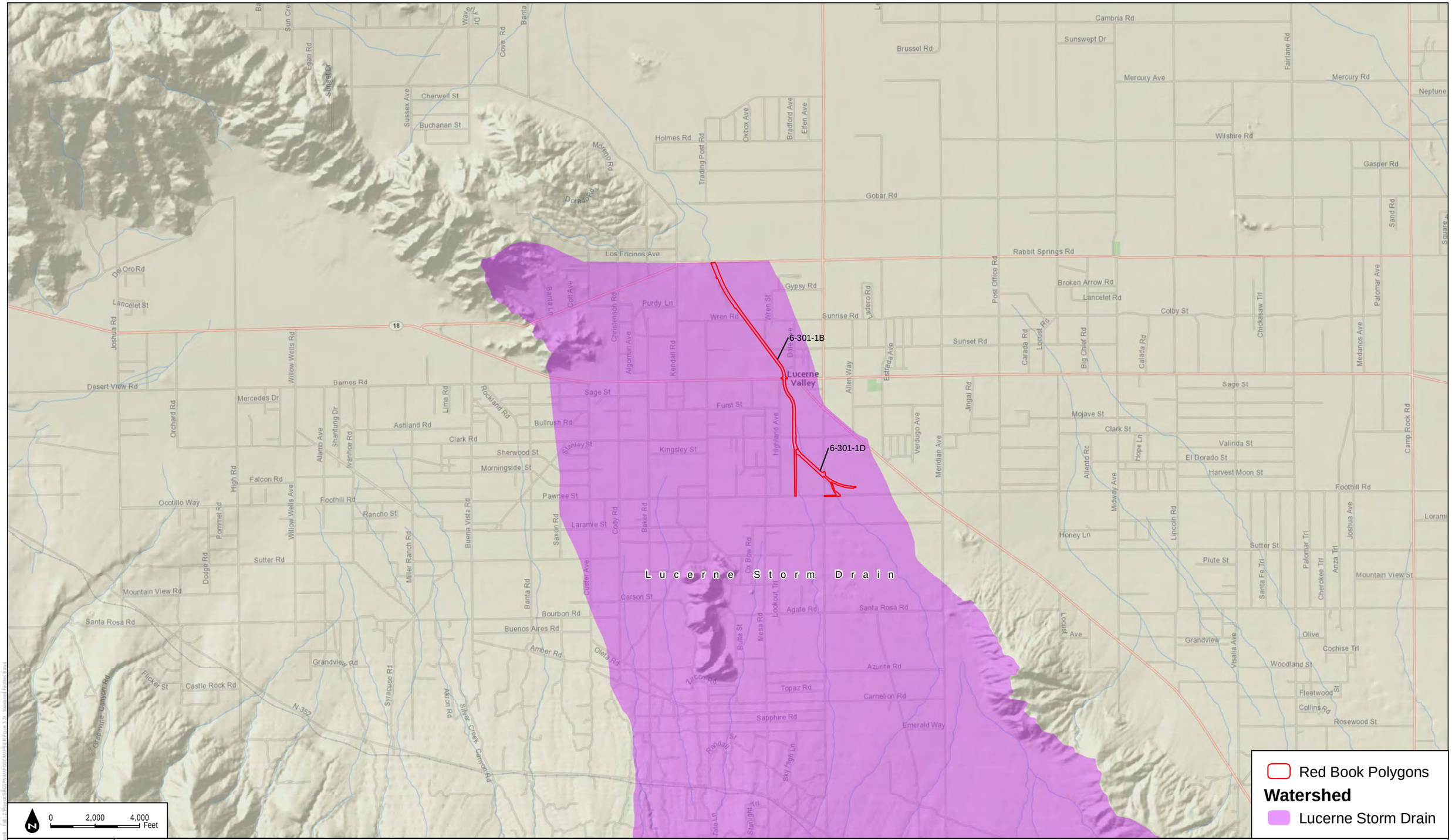

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FIGURE 3-2F
Maintained Facilities

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San Bernardino County Flood Control District

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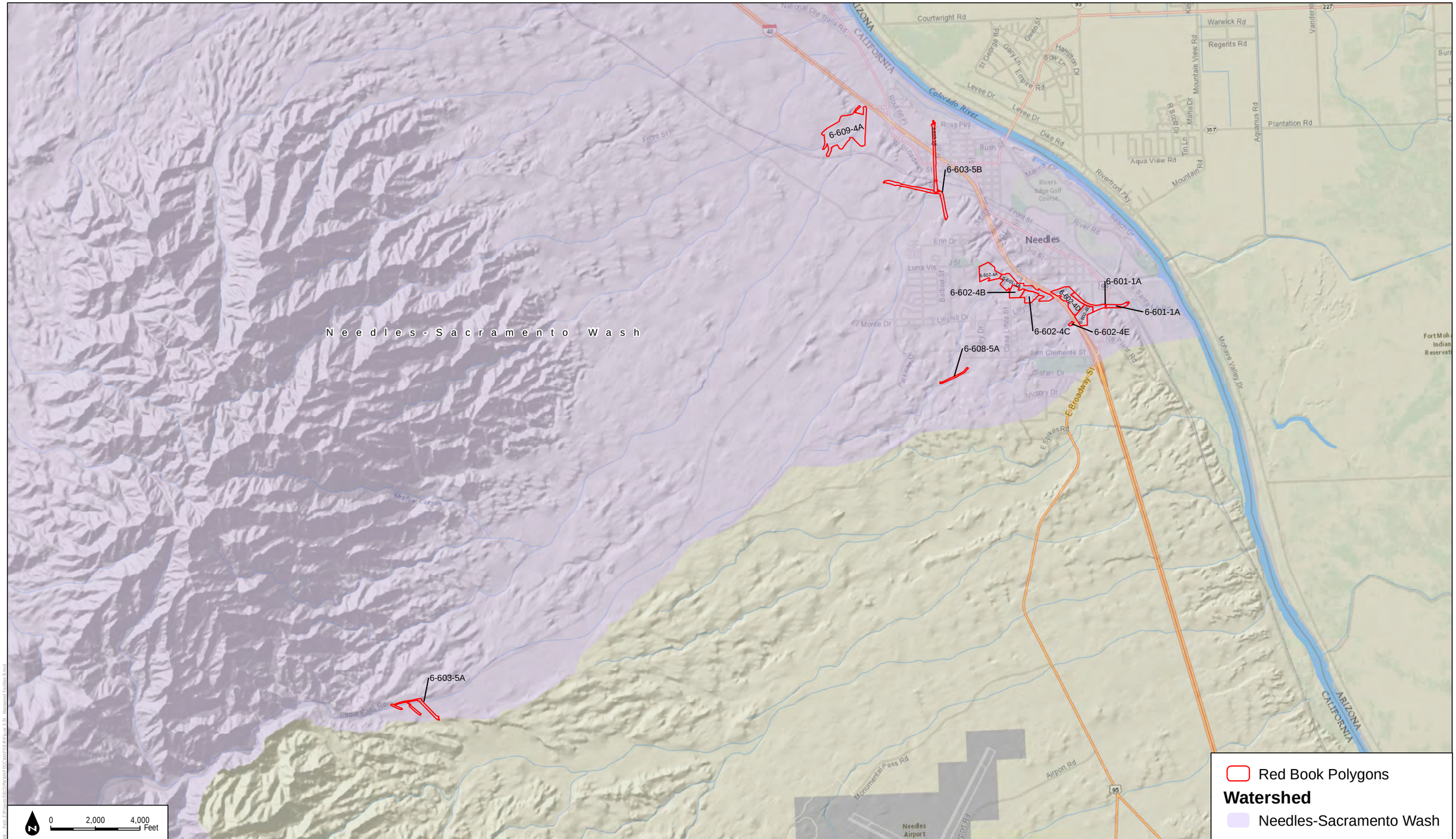

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-2G

Maintained Facilities

San Bernardino County Flood Control District

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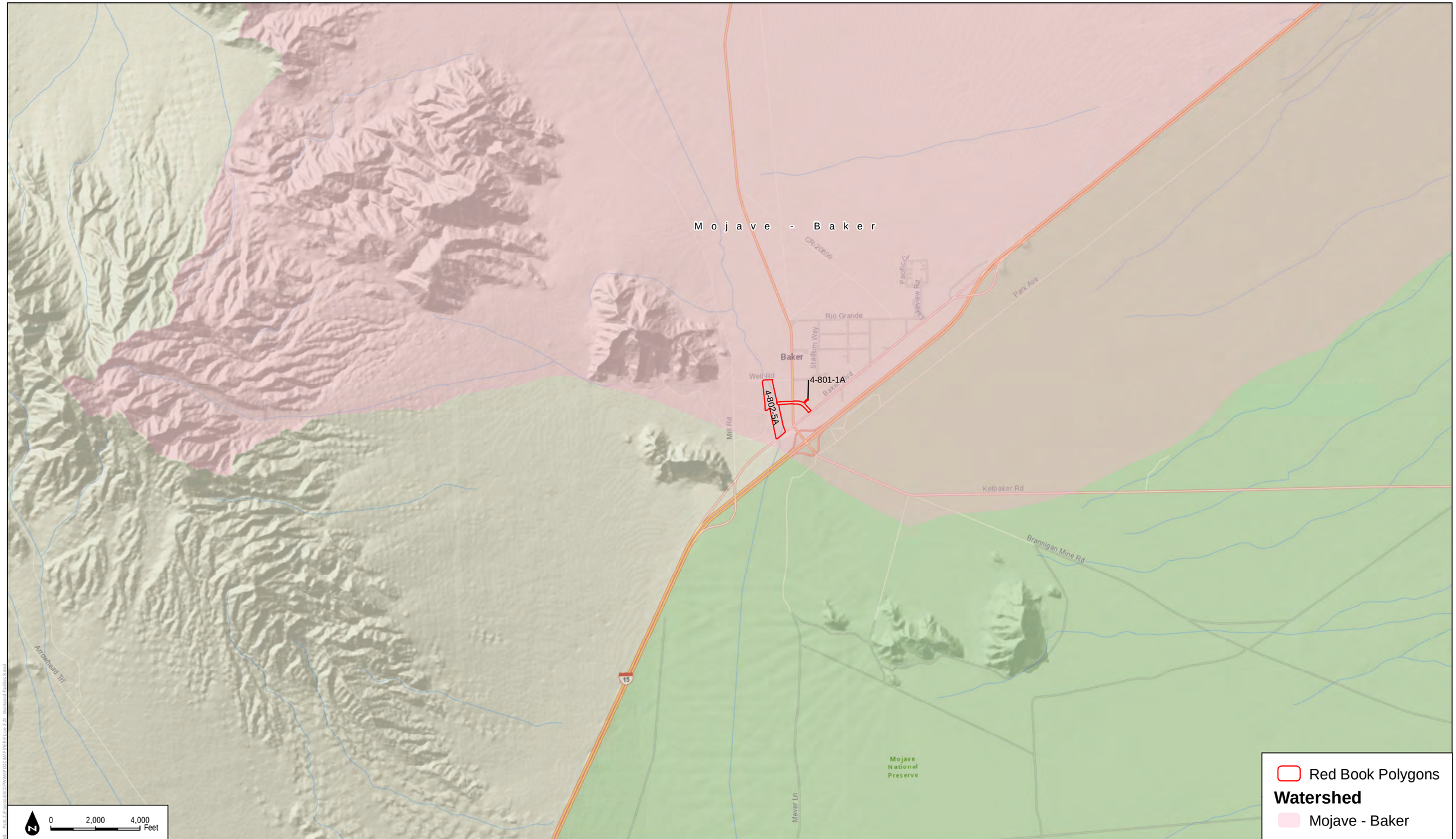

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FIGURE 3-2H

Maintained Facilities

San Bernardino County Flood Control District

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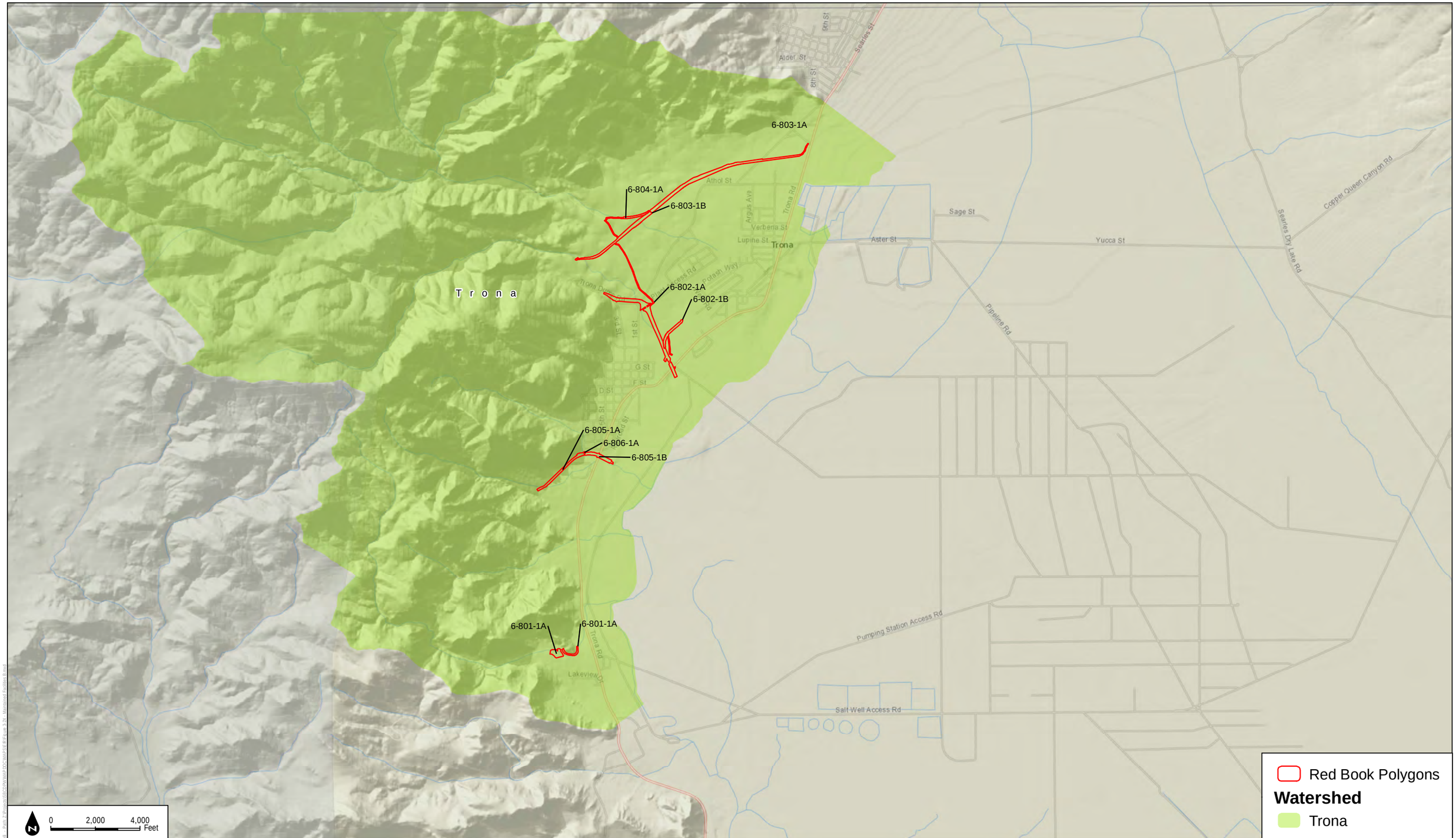

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FIGURE 3-2I

Maintained Facilities

San Bernardino County Flood Control District

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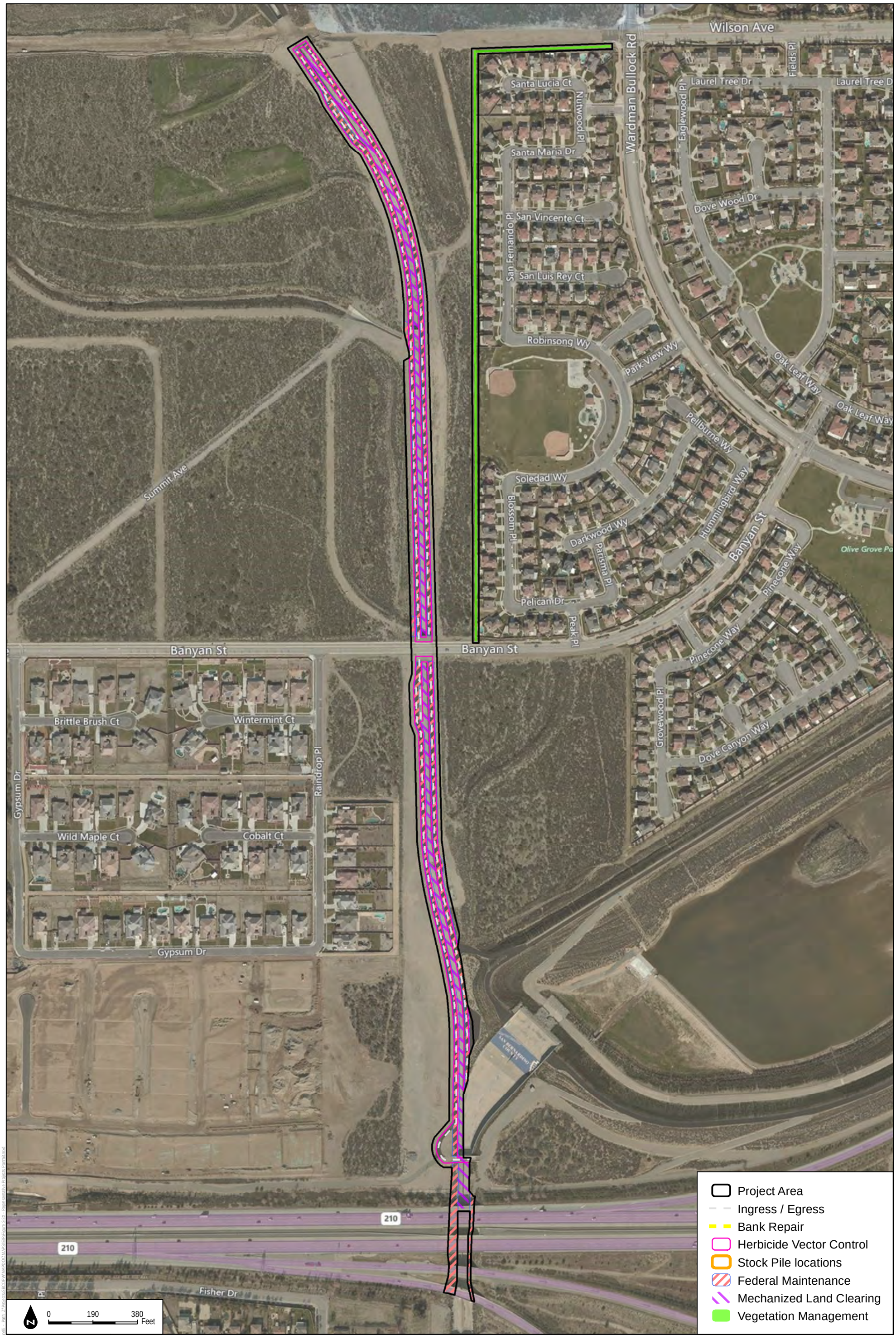

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FIGURE 3-3A

Typical Activities in a Concrete Channel - Etiwanda Creek Channel 1-701-1C

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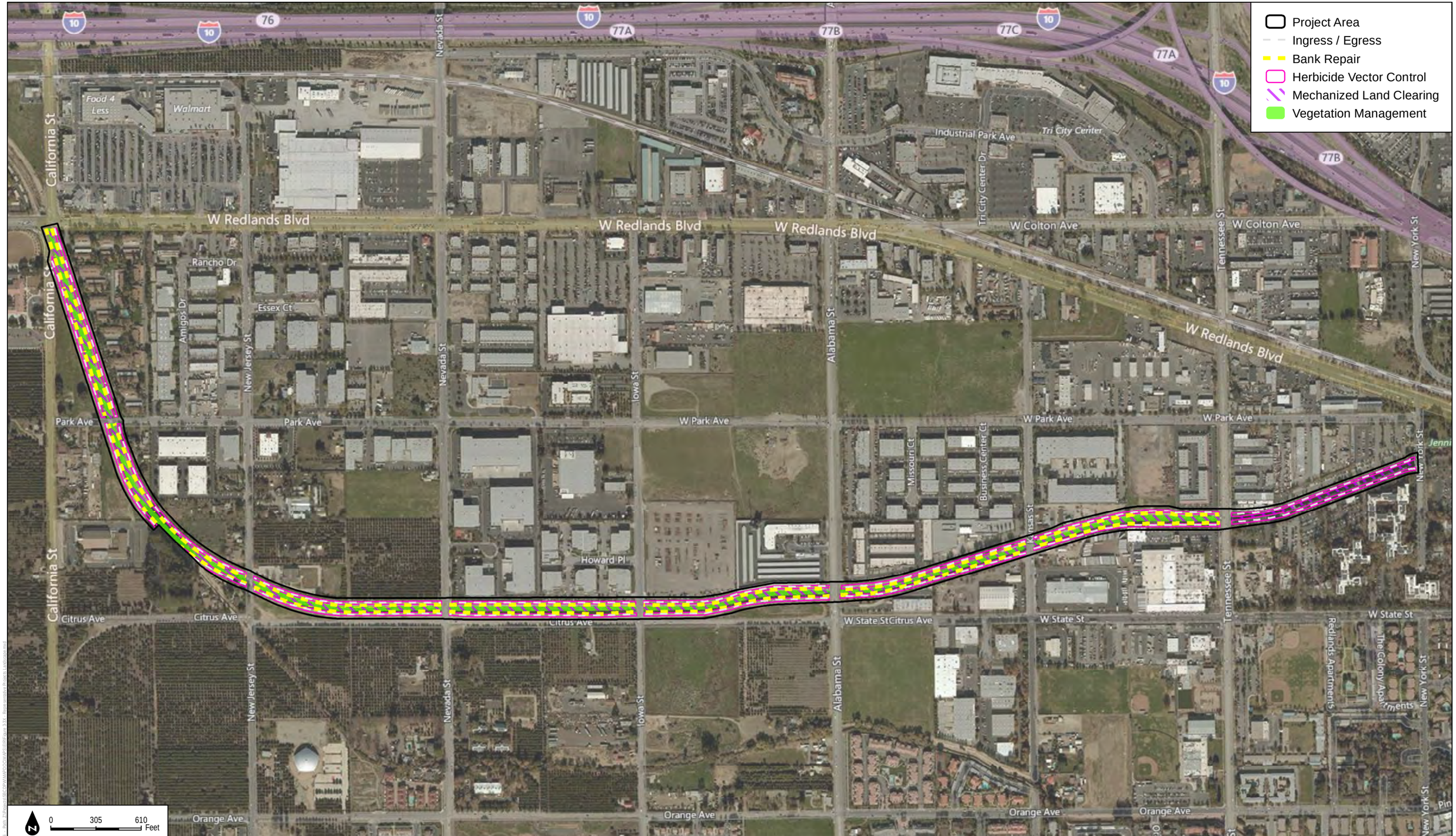

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FIGURE 3-3B

Typical Activities in an Earthen Engineered Channel - Mission Channel 3-501-1A

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FIGURE 3-3C

Typical Activities in an Earthen-Natural Channel - Mojave River 4-101-1N

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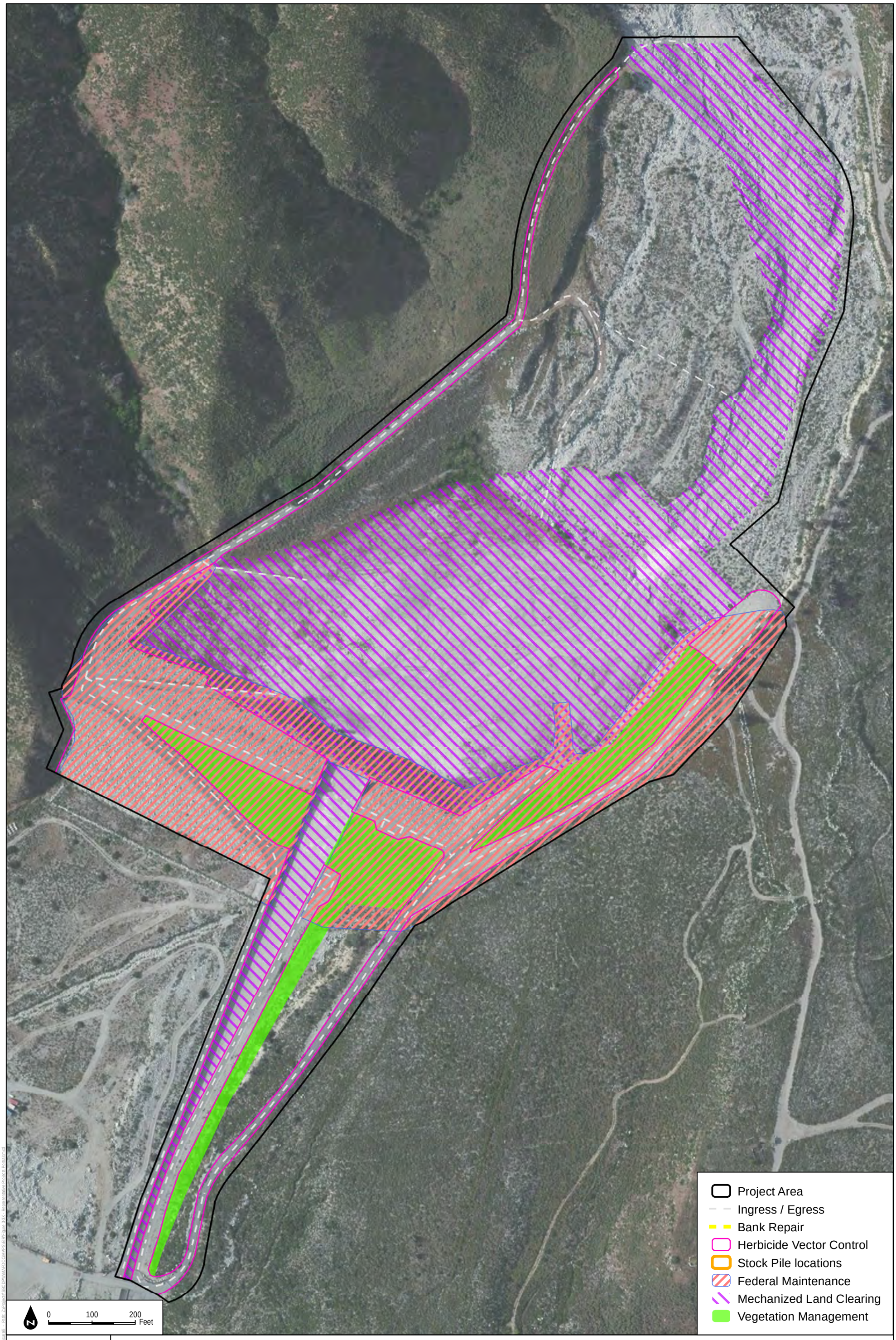

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-3D

Typical Activities in a Dam - Day Creek Dam 1-608-3A

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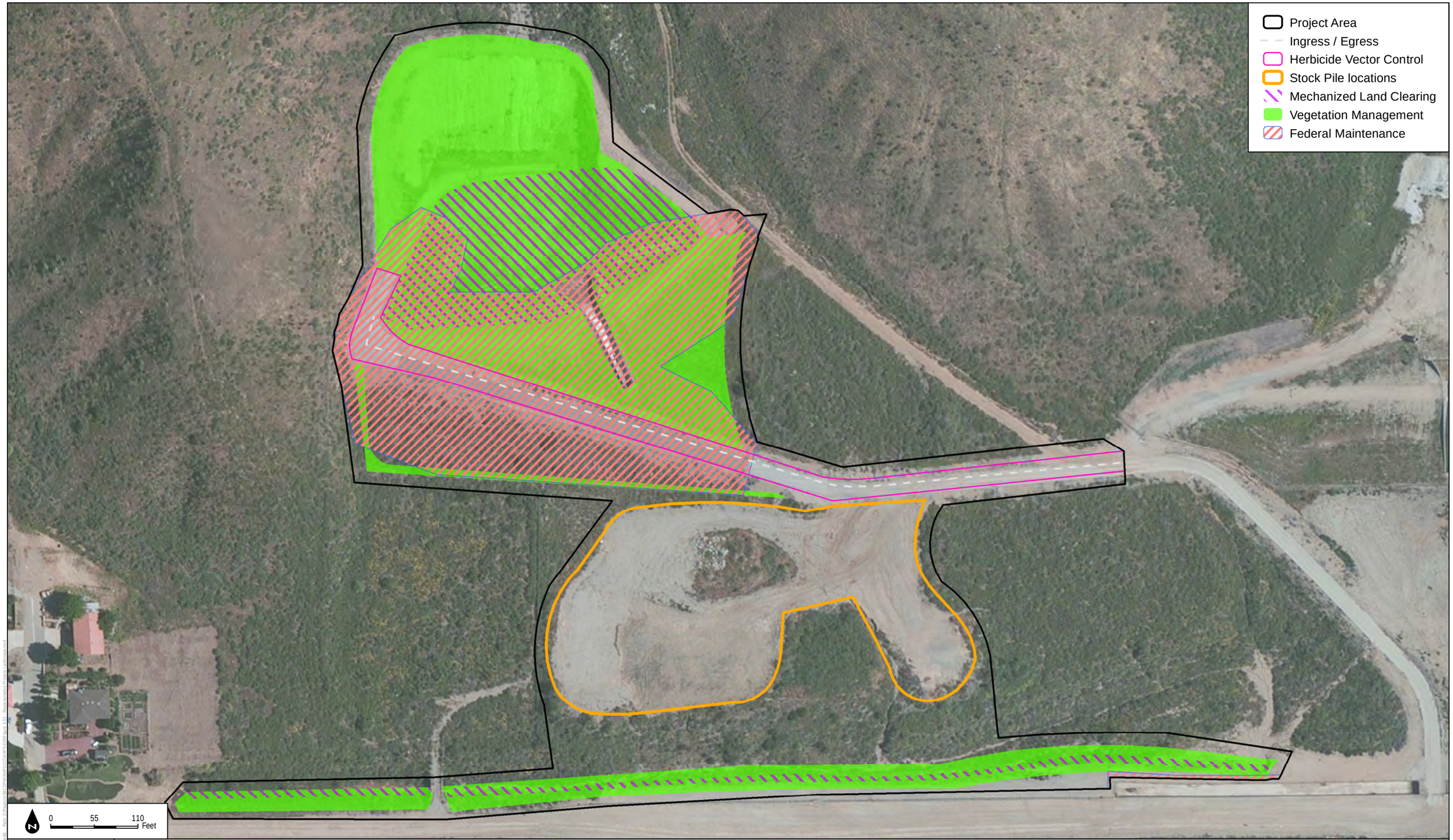

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FIGURE 3-3E

Typical Activities in a Debris Basin - San Antonio Heights Basin #5 (Marble), 1-313-4B

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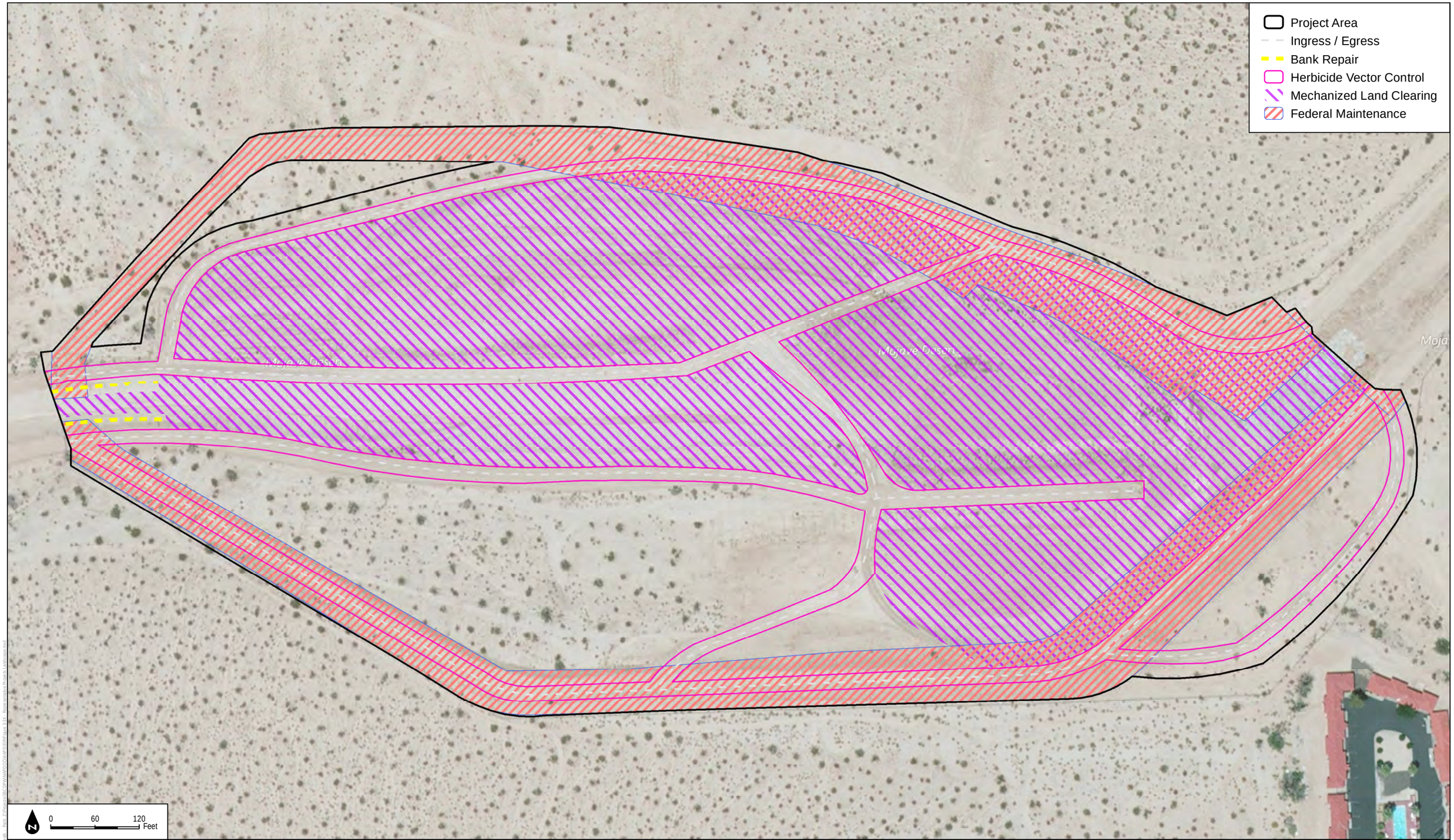

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-3F

Typical Activities in a Detention Basin - Donnell Basin 6-402-4A

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-3G

Typical Activities in a Groin - Muscoy Groin #4, 2-209-5D

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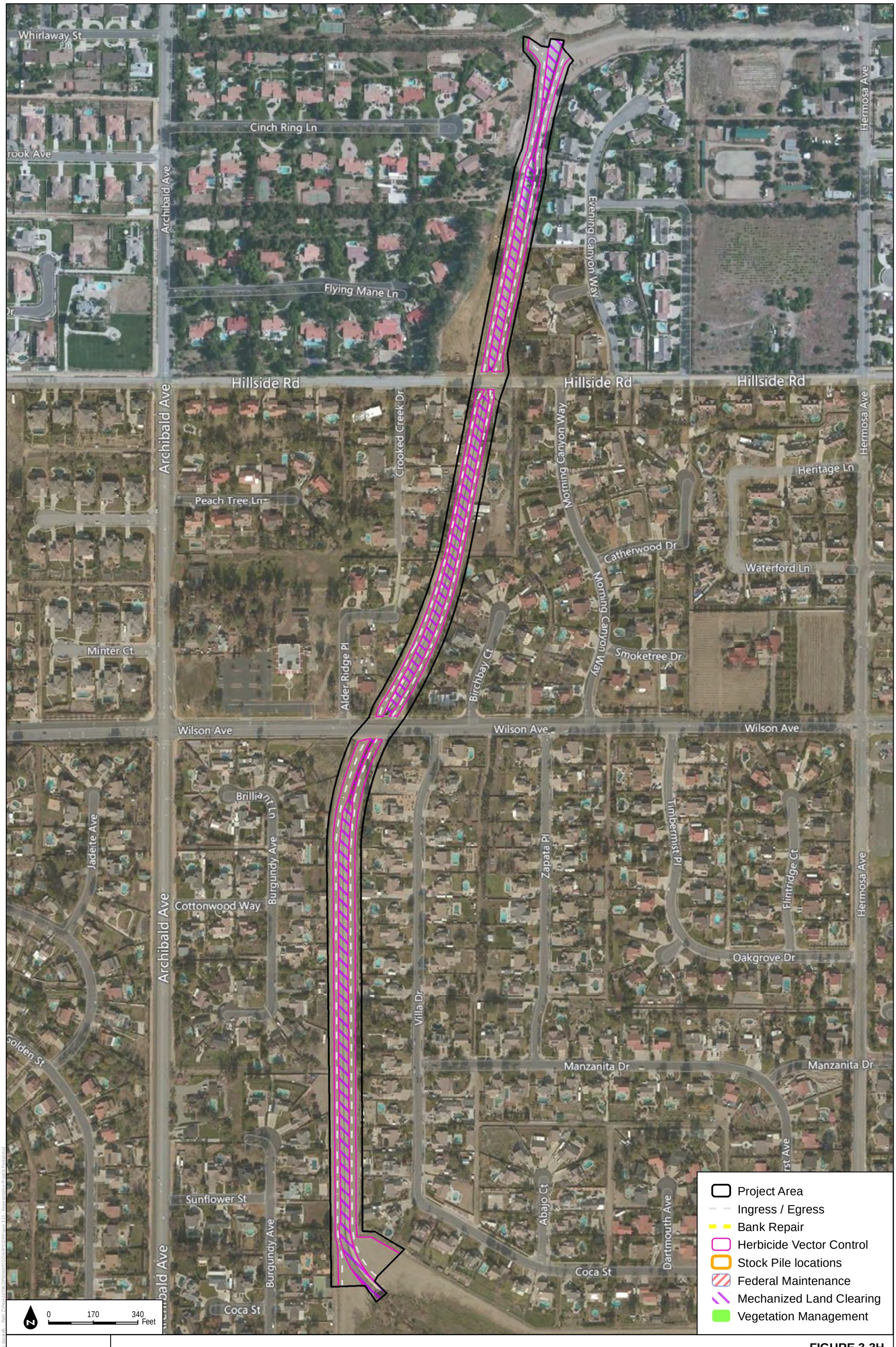

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-3H

Typical Activities in a Storm Drain - Alta Loma Storm Drain 1-405-6A

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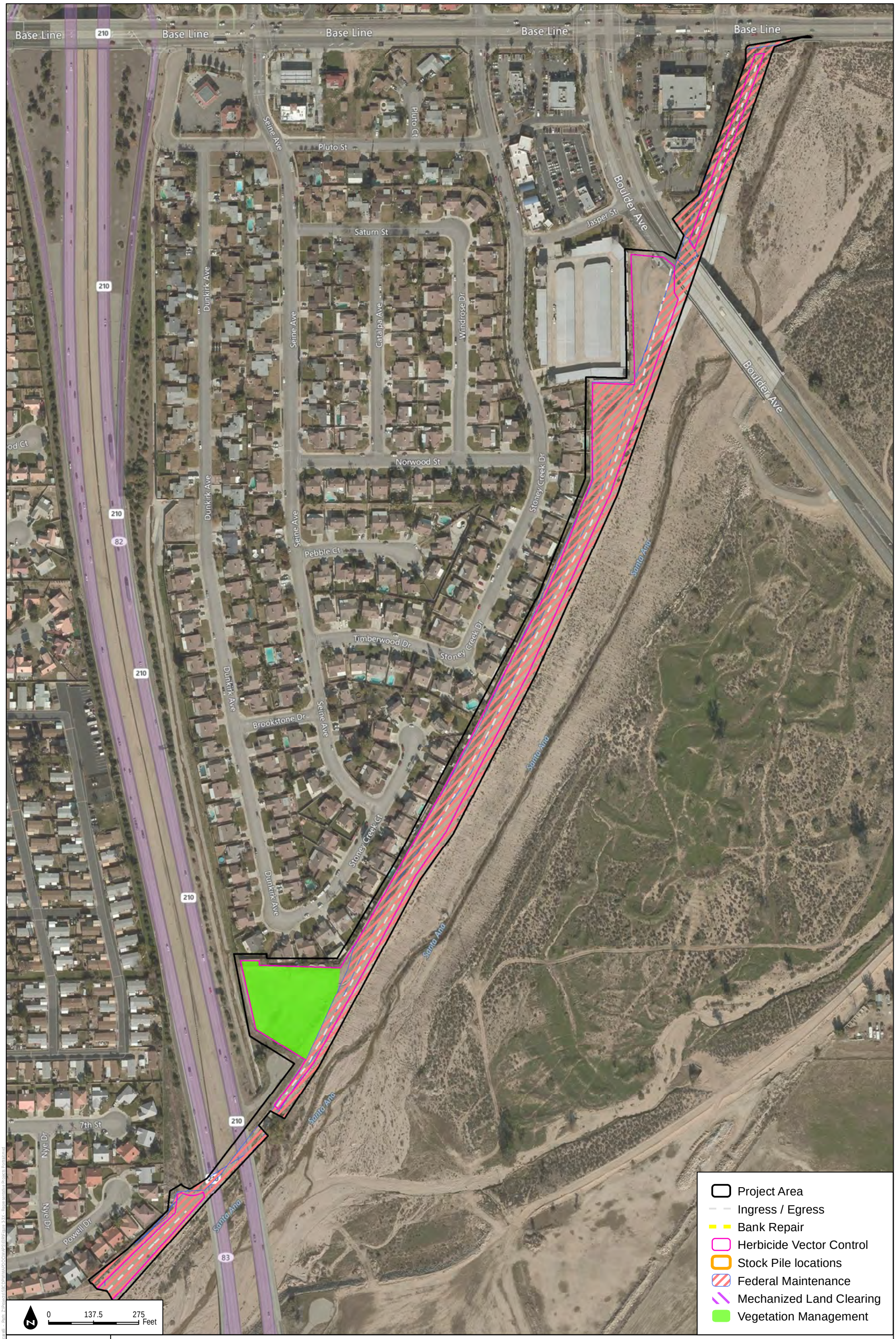

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-3I

Typical Activities in a Levee - City Creek Levee, 2-601-5B

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FIGURE 3-3J

Typical Activities in a Levee - Devil Creek Levee, 2-306-5A

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FIGURE 3-3K

Typical Activities in a Spreading Ground - San Sevaine Basin #1 1-802-4A

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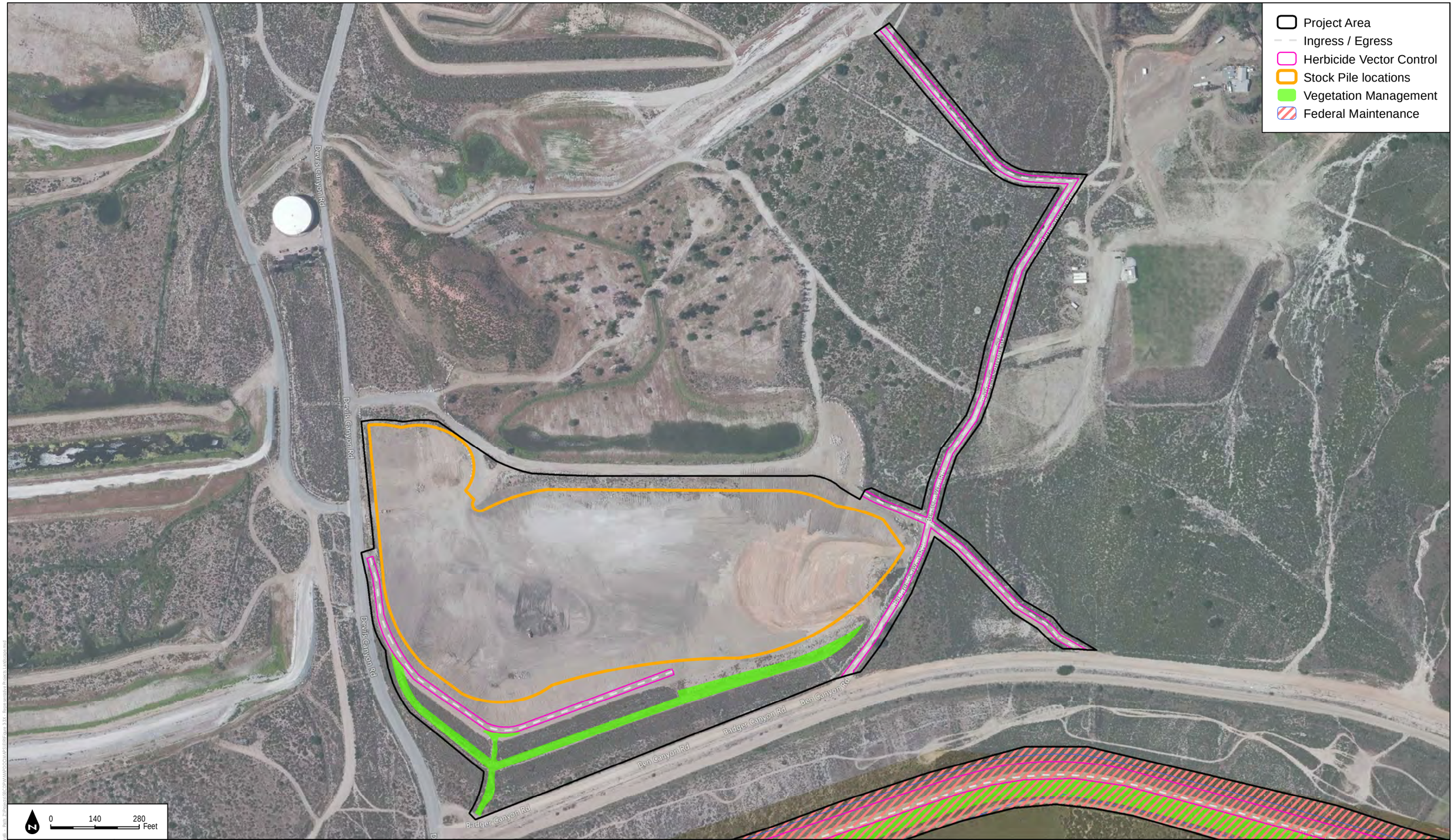

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SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

FIGURE 3-3L

Typical Activities in a Sand and Gravel Operation - Devil Basin #7 2-304-4F

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CHAPTER 4
ENVIRONMENTAL ANALYSIS

Introduction

The following environmental analyses provide information relative to 14 California Environmental Quality Act (CEQA) environmental resource categories as they pertain to the proposed San Bernardino County Master Storm Water System Maintenance Program (proposed program). Each section of this chapter describes the existing environmental conditions of the proposed program area; provides the regulatory framework for each resource category; presents the impact thresholds used to determine whether an impact would be significant; analyzes potential impacts of the proposed program; references the standard operating procedures (SOPs) that are implemented as part of standard practice by the San Bernardino County Flood Control District (District) to reduce impacts; identifies mitigation measures for each significant impact, if any, to reduce impacts to below a level of significance; and summarizes the significance of impacts after mitigation has been applied. This environmental impact report (EIR) generally evaluates the broad environmental impacts of the proposed program as a series of actions that are characterized as one large project, as defined in the CEQA Guidelines (14 CCR 15000 et seq.).

Pursuant to Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) for a Draft EIR dated June 30, 2014, was prepared and circulated with an Initial Study to interested agencies, organizations, and individuals (see Appendix B of this EIR). An NOP had been circulated previously in 2010 and agency comment letters were received (see Appendix C), but the project was subsequently modified to the currently proposed program, after which the NOP and Initial Study based on the proposed program were recirculated in June 2014. Although comments received on both the 2010 and 2014 NOPs were reviewed and addressed as appropriate (see Table 2-1 of this EIR for further details) the analysis in this EIR focuses primarily on issues identified in the 2014 NOP and related comments. The 2014 Initial Study included an analysis of all 17 resource categories required per Appendix G of the CEQA Guidelines; however, impacts for 3 of the resource categories (Agriculture and Forestry Resources, Mineral Resources, and Population and Housing) were found to be less than significant and are therefore not further analyzed in this Draft EIR.

This chapter includes a separate section for each of the following resource areas:

- Section 4.1, Aesthetics
- Section 4.2, Air Quality
- Section 4.3, Biological Resources
- Section 4.4, Cultural Resources

- Section 4.5, Geology and Soils
- Section 4.6, Greenhouse Gas Emissions
- Section 4.7, Hazards and Hazardous Materials
- Section 4.8, Hydrology and Water Quality
- Section 4.9, Land Use and Planning
- Section 4.10, Noise
- Section 4.11, Public Services
- Section 4.12, Recreation
- Section 4.13, Traffic and Circulation
- Section 4.14, Utilities and Service Systems

Analysis Format

This EIR evaluates how the proposed program would impact the 14 resource areas. Each environmental resource category addressed in the EIR is analyzed in a separate section that is organized as shown in this subsection.

***Introduction*.** The introductory portion of each section of Chapter 4 provides the context for the proposed program, including a discussion of the project description, and assumptions used in the analysis.

***Regulatory Framework*.** This subsection provides the regulatory framework, including relevant regulations and local plans and codes, for each resource category.

Thresholds of Significance. This subsection provides the impact thresholds (based on the California Environmental Quality Act Guidelines) for determining the significance of impacts and specifies the topics carried forward from the Initial Study for analysis in the EIR.

***Existing Conditions*.** This subsection provides information describing the existing physical environmental conditions within or surrounding the proposed program area that may be subject to change as a result of the implementation of the proposed program. The conditions included in the EIR are those that existed at the time the Notice of Preparation was released for public review. For most resource topics, the Existing Conditions subsection is organized by the Valley, Mountain, and Desert Regions in the County; where this is not the case, the rationale for a different organizational method is provided.

Standard Operating Procedures. This subsection summarizes the SOPs that are implemented as part of standard practice by the District to reduce impacts that are relevant to the impact topic. Each SOP is listed with a unique code and title (e.g., SOP-AQ-1 (Diesel Particulate Filters) for the first air quality SOP). Not all sections will include SOPs.

Impacts Analysis. This subsection provides a discussion of the methods of analysis and the characteristics of the proposed program that may have an effect on the environment, analyzes the nature and extent to which the proposed program is expected to change the existing environment, and indicates whether the proposed program impacts are beneath or exceed the significance thresholds. Due to the large number of projects and activities covered by this proposed program, the projects have further been organized into categories of maintenance activity types. Some sections, such as Air Quality, Greenhouse Gas Emissions, Noise, and Aesthetics, do not follow this structure because the activity type is not correlated directly to the potential impacts. In these instances, the methodology implemented is described in the relevant chapter.

The maintenance activity types, which are described in detail in Table 3-3, Typical Flood Control Maintenance Activities, in the Program Description, are as follows:

- ***Ground-Disturbing Activities.*** Ground-disturbing activities can range from large sediment-removal efforts for basins and channels for the purposes of flood control maintenance, channel flow, erosion control, or smaller efforts that might involve ground disturbance through vegetation removal, bank repair and stabilization, road grading, or repair of flood control structures that might include ground disturbance to install riprap or replace facilities. Specifically, ground-disturbing activities would include the following:
    - Mechanized land clearance/excavation
    - Mechanized vegetation management
    - Bank repair
    - Ingress/egress: road grading, installation of fencing and gates, installation of free-standing signage
    - Flood control structure repair: could involve replacement of riprap
    - Stockpiling: placement of material, temporary storage (assumed to be ground-disturbing for all resource areas except cultural resources because there is no soil excavation)

- ***Non-Ground-Disturbing Vegetation Management.*** Non-ground disturbing vegetation management would involve vegetation removal without disking, excavators, or other machinery that would disturb soils. Primarily, these efforts would be by hand, and would include the following:
    - Pruning
    - Mowing
    - Hand clearing
- ***Non-Ground-Disturbing Activities.*** Other non-ground-disturbing activities could include the following:
    - Sand and gravel operations: vendors sort materials on existing ground
    - Ingress/egress: Fencing and gate repairs, installation of non-free-standing signage, and pavement repair
    - Application of herbicide and rodenticide
    - Graffiti removal
    - Vector control
    - Stream gage maintenance: involves maintenance of stream gages for water quality monitoring and sampling within existing sites and wells

Each impacts analysis section is organized by threshold, then (where applicable) by region (Valley, Mountain, and Desert Regions), and then by activity type (ground-disturbing activities, non-ground-disturbing vegetation management, non-ground-disturbing activities). Where a section does not follow this format, an explanation is provided. Only those impact thresholds that were identified in the Initial Study as requiring further analysis in the EIR are included in the impacts analysis. Some topics are not grouped by activity type or by region because the types or regions do not affect the impact analysis. Where these changes occur, an explanation is provided regarding the grouping. The impacts analysis in each section may vary, but is generally organized as follows (Biological Resources is used as an example):

- Impact BIO-1
    - Valley Region
        - Ground-Disturbing Activities
        - Non-Ground-Disturbing Vegetation Management
        - Non-Ground-Disturbing Activities

  - Mountain Region
    - Ground-Disturbing Activities
    - Non-Ground-Disturbing Vegetation Management
    - Non-Ground-Disturbing Activities
  - Desert Region
    - Ground-Disturbing Activities
    - Non-Ground-Disturbing Vegetation Management
    - Non-Ground-Disturbing Activities
- Impact BIO-2
  - Valley Region
    - Ground-Disturbing Activities
    - Non-Ground-Disturbing Vegetation Management
    - Non-Ground-Disturbing Activities
  - Mountain Region
    - Ground-Disturbing Activities
    - Non-Ground-Disturbing Vegetation Management
    - Non-Ground-Disturbing Activities
  - Desert Region
    - Ground-Disturbing Activities
    - Non-Ground-Disturbing Vegetation Management
    - Non-Ground-Disturbing Activities

***Mitigation Measures*.** This subsection identifies any mitigation measures required to reduce significant adverse impacts to the extent feasible. Each mitigation measure is given a unique code and title (e.g., MM-BIO-1 (Impacts Covered by LOPPs) for the first mitigation measure for Biological Resources). Not all sections include mitigation measures.

***Level of Significance After Mitigation*.** This subsection provides a discussion of significant adverse environmental impacts that cannot be feasibly mitigated or avoided, significant adverse environmental impacts that can be feasibly mitigated or avoided, and environmental impacts that are not significant**.** The subsection includes a summary table of impacts organized by impact threshold, by region, and by activity category.

***Cumulative Impacts*.** This subsection provides a discussion of the past, present, and reasonably foreseeable projects relevant to each resource analysis and documents cumulatively considerable environmental impacts that cannot be feasibly mitigated or avoided, cumulatively considerable environmental impacts that can be feasibly mitigated or avoided, and environmental impacts that are not cumulatively considerable.

The cumulative impacts analysis is based on a listing of key large, reasonably foreseeable projects that could contribute to a cumulatively considerable impact for particular resource areas. Collectively, these projects represent known and anticipated activities that may occur in the program vicinity that have the potential to contribute to a cumulative impact on the environment. The project list was developed by reviewing proposed projects for jurisdictions (cities, including public works, water agencies, and water districts) within the County, as listed on the respective jurisdictions' websites. The project list was refined by projects that would affect waterways because those are the resources the proposed program would affect. Additionally, District projects proposed within the next 10 years were included (District, pers. comm 2018). Finally, based on a review of historic and projected trends, it was assumed that xx new projects would be added to the program over the life of the program. The list of cumulative projects considered in the analysis is in Table 4-1.

The area within which a cumulative effect can occur varies by resource. For example, air quality impacts tend to disperse over a large area, whereas traffic impacts are typically more localized. Therefore, details regarding the cumulative analysis are provided in each resource area section.

Mitigation measures to reduce cumulative impacts are included where necessary.

***References*.** This subsection includes citations for the documents referred to in the impacts analysis section.

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
Cities				
City of Chino Hills	Avalon Chino Hills	Butterfield Ranch Rd and Sagebrush St	Multifamily residential	Under construction
City of Chino Hills	Country Club Villas	Wallace Ave and Los Serranos Rd	70-unit condo	Phase 1 completed, Phase 2 project approved
City of Chino Hills	Crossings at Chino Hills	Fairfield Ranch Rd and Monte Vista, E of SR-71	High-density residential multifamily	Project entitlements approved and adopted April 14, 2015
City of Chino Hills	Founders Village	2100 Founders Dr	Duplex residential development	Under construction—models open
City of Chino Hills	Hidden Oaks Country Club	SE of Carbon Canyon Rd and Canyon Hills	Single-family residential	Preparing Draft EIR
City of Chino Hills	Hillcrest (a.k.a. Canyon Hills)	NW Carbon Canyon Rd and Canyon Hills Rd	76 single-family detached homes and open space	Phase 1 and 2 complete; Phase 3 under construction
City of Chino Hills	Jade Tree at Vista Bella	SW Butterfield Ranch Rd and St. Gaudens Drive	Multifamily residential	All permits and certificates of occupancy issued
City of Chino Hills	Lago Los Serranos	SW Ramona Ave and Birdfarm Rd	95-unit town home	Grading completed
City of Chino Hills	Morningfield Estates	Morningfield Dr and Elkwood Circle	Single-family residential	Post-entitlement review
City of Chino Hills	The Santa Barbara	SE Soquel Canyon Pkwy and Butterfield Ranch Rd	Mixed-use	Under construction
City of Chino Hills	Stonefield Development	Fairway Dr and Carbon Canyon Rd	28-unit single family	Final map is under review
City of Chino Hills	Bristol (Trumark Mixed Use)	NW Soquel Canyon and Pomona Rincon Rd	Mixed-use	Under construction
City of Chino Hills	Vila Borba	Butterfield Ranch Rd near Pine Ave	Single-family and multifamily	Developing some tracts, others are still in review
City of Chino Hills	The Commons at Chino Hills	NE Ramona Ave and SR-71	Freeway Commercial Development	Partially complete and open to the public
City of Chino Hills	Coptic Orthodox Church	14715 Peyton Dr	Coptic Orthodox Church	Post-entitlement review
City of Chino Hills	Crossroads Entertainment Center	Adjacent to SR-71 at Chino Ave	Mixed-use freeway commercial and entertainment	Open
City of Chino Hills	Fairfield Ranch Commons	E of Fairfield Ranch Rd	Business park and residential project	Approved

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Chino Hills	Heritage Professional Center	SE Soquel Canyon Pkwy and Pomona Rincon Rd	Mixed-use (medical office, hotel, retail)	Approved
City of Chino Hills	Indus Light Industrial	NW Fairfield Ranch Rd and Red Barn Ct	Light industrial	Entitlement approved
City of Chino Hills	The Rincon (formerly The Golden Triangle)	SW Soquel Canyon Pkwy and SR-71	Mixed-use	Under construction
City of Chino Hills	Soquel Canyon Square	NW Soquel Canyon and Pomona Rincon Rd	Mixed-use	Under construction
City of Rancho Cucamonga	Day Creek Square	SW Day Creek Blvd and Baseline Rd	Mixed-use (single-family, townhomes, higher-end boutique hotel, and restaurant)	In review
City of Rancho Cucamonga	Empire Lakes Specific Plan	NW 4th St and Milliken Ave	Mixed-use (single-family, townhomes, higher-end boutique hotel, and restaurant)	Post-approval
City of Rancho Cucamonga	North Eastern Sphere Annexation Proposal	Milliken Ave and Banyan St	Neighborhood, commercial, and parks/open space	Under review
City of Ontario	Armstrong Ranch	S of Cucamonga Creek Channel and Chino Ave	Residential, schools, parks, etc.	Post-approval
City of Ontario	California Commerce Center	S Riverside Dr and SCE Substation	Regional commercial/ office, residential, medical office, and research	Post-approval
City of Ontario	Colony Commerce Center	E Cucamonga Creek Channel and Archibald Ave	Industrial and business park	EIR approved March 2018
City of Ontario	Grand Park Specific Plan	SW Edison Ave and Haven Ave	Residential community with variety of housing and schools	EIR approved 2013
City of Ontario	Guasti Plaza	S of I-10 and Archibald Ave	Residential, office park, and commercial	Post-approval
City of Ontario	Meredith International Centre Specific Plan	N of I-10, S of 4th St	Industrial and urban commercial	Under construction

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Ontario	West Ontario Commerce Center Specific Plan	S of Eucalyptus Ave and N of Merrill Ave	Business park and industrial use	Pending approvals
City of Montclair	Construction of Commercial/Industrial	4500 block Holt Blvd	Commercial and industrial	Preliminary review
City of Montclair	Expansion and Renovation of Montclair Plaza	5060 Montclair Plaza Ln	Commercial	Planning Commission approval April 2015
City of Montclair	18,892 sq. ft. Multitenant Commercial Center	9303 Central Ave	Commercial	In leasing
City of Montclair	40,060 sq. ft. Multitenant Commercial Center	4480 Holt Blvd	Commercial	Under construction and in leasing
City of Montclair	Reestablishment of Car Wash, Gas Station, and Convenience Store	5515 Holt Blvd	Commercial	Under review
City of Montclair	Construction of 11,213 sq. ft. Industrial Building	10603 Oak Glen Ave	Industrial	Plan check
City of Montclair	Exterior Renovation of Commercial Building	10543 Mills Ave	Commercial	Under construction
City of Montclair	North Montclair Downtown Specific Plan	8949 Monte Vista Ave	Multifamily	Approved July 2016
City of Montclair	Multifamily Detached Residential	4975 Mission Blvd	Multifamily	Under construction
City of Montclair	Single-Family Detached Residential	4975 Mission Blvd	Multifamily	Under construction
City of Montclair	Detached Residential Duplex	NEC Kingsley St and Poulsen Ave	Residential	Plan check
City of Montclair	Multifamily Detached Residential	10998 Central Ave	Residential	Plan check
City of Montclair	Multifamily Detached Residential	5165 Mission Blvd	Residential	Under construction
City of Montclair	Single-Family Detached Residential	11119 Monte Vista Ave	Residential	Under construction
City of Montclair	Attached Residential Duplex	10374 Marion Ave	Residential	Under construction
City of Montclair	Multi- and Single- Family Residential	4952-4974 Arrow Hwy	Residential	Under construction

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Montclair	Arrow Station	N of Arrow Hwy and E of Monte Vista Ave	129-unit (99 multifamily and 30 single-family)	Under construction
City of Upland	Tierras Altas	NEC Euclid Ave and 8th St	Mixed-use (apartments, recreation, retail	Unknown
City of Upland	Upland Hills Country Club	NEC 16th St and N Upland Hills Dr	68 single-family detached residential	Unknown
City of Upland	Spanish Trails	NEC W 15th St and N Benson Ave	39 single-family detached residential	Unknown
City of Upland	Claremont University Consortium Athletic Fields Project	N of Arrow Rd and E of Claremont Blvd	College sports complex	Unknown
City of Upland	Cucamonga Crosswalls Project	N Campus Dr and Cucamonga Creek Trail	Repair wall	Unknown
City of Twentynine Palms	Project Phoenix	From SR-62 to Cactus Drive	Community center and affordable housing	Pre-development planning work
Town of Apple Valley	Dale Evans Parkway Improvement Project	Dale Evans Pkwy between Otoe Rd and Waalew Rd	Infrastructure	Under construction
City of Big Bear Lake	Tentative Parcel Map 2017-0138	N of Big Bear Blvd near Civic Center	Motel/hotel	Unknown
City of Big Bear Lake	Scotty's Ride Shop	N of Big Bear Blvd and W of Highland Rd	Commercial	Unknown
City of Big Bear Lake	599 Echo Lane	Chipmunk Ln and North Bay Dr	Single-family residential	Unknown
City of Big Bear Lake	Zip Line	S of CA 18 and E of Wildrose Ln	Recreational	Unknown
City of Big Bear Lake	Snow Play Hill Addition and Ropes Course	42825 Big Bear Blvd	Commercial recreational	Unknown
City of Colton	NEC 10 Pepper	NEC of Pepper Ave and Valley Blvd	Mixed-use (commercial and restaurant)	Approved
City of Colton	Hillwood Center Street Industrial Project	N of Center St and S of Pellisier Rd	Industrial	Approved
City of Colton	Agua Mansa Commerce Center	1500 W Agua Mansa Rd	Commercial	Approved
City of Colton	Roquet Ranch Specific Plan	E of I-215 in La Loma Hills	874 residential dwelling units of all types	EIR adopted August 2017

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Colton	Colton's Hub City Center Specific Plan	N of I-10 near Pepper Ave/Valley Blvd	Mixed land uses (commercial, industrial, retail, residential)	Parts are under construction
City of Fontana	CAP Rock	N edge of I-15 and S of Sierra Ave	"High-cube" warehouse	Unknown
City of Fontana	Monarch Hills	NEC Lytle Creek and Duncan Canyon Rd	473 DU of varying densities	Unknown
City of Fontana	Walmart North	SEC Sierra Ave and S Highland Ave	Walmart	Unknown
City of Fontana	Walmart South	SEC Slover Ave and Sierra Ave	Walmart	Unknown
City of Fontana	West Valley Logistics Center	W of Logistic Ave near Armstrong Rd	7 industrial buildings	Unknown
City of Fontana	Seefried Valley and Catawba Warehouse Project	SWC of Valley Blvd and Catawba Ave	"High-cube" warehouse	Unknown
City of Fontana	Cherry and Santa Ave Warehouse Project	SEC of Santa Ana and Cherry Ave	Warehouse building	Unknown
City of Fontana	Fontana Water Tanks and Retail	SWC of Summit and Citrus Ave	Water tanks	Unknown
City of Fontana	Southwest Fontana Logistics Center	NEC of Jurupa Ave and Cypress Ave	Warehouse building	Unknown
City of Fontana	Pacific Freeway Center	10829 Etiwanda Ave	Warehouse building	Unknown
City of Hesperia	Church Relocation	9608 I Avenue Suites	Church	Approved
City of Hesperia	Tentative Tract Map No. 15033	NWC of Palm St and Fuente Ave	36 single-family residential lots	Approved
City of Hesperia	Tentative Tract Map (TT-18214)	S of Ranchero Rd between Glider Ave and Jenkins Ave	36-lot single-family residential subdivision	Approved
City of Hesperia	New 5,500 sq. ft. Industrial Building	S of Lilac St	5,500 sq. ft. industrial building	Approved
City of Hesperia	Industrial Park	N of Lemon St near C Ave	24,875 sq. ft. industrial park	Approved
City of Hesperia	Crossfit Gym	17525 Catalpa Rd	Gym	Approved
City of Hesperia	Tentative Tract TT-17959	SWC Ranchero Rd and Farmdale Ave	31 single-family residential lots	Approved
City of Hesperia	Tentative Tract TT 14-00002	Hollister Rd and Afton Ave	12 single-family residential lots	Approved
City of Hesperia	Tentative Tract TT-17915	Main St and Mojave St	268 single-family residential lots	Approved
City of Hesperia	Tentative Tract Ext TTE 17-00012	Palm Rd and Afton Ave	8 single-family residential lots	Approved
City of Hesperia	Site Plan Review 17-00010	Sequoia St and Cypress Ave	28-unit expansion	Approved

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Hesperia	TTE 17-00010	Live Oak St and Mt Shasta Dr	20 single-family residential lots	Approved
City of Hesperia	Wholesale Auto Parts	Darwin Ave and Santa Fe Ave	Three metal buildings for wholesale auto parts	Approved
City of Hesperia	TT-17679	Joshua Tree Ave and Knight Ave	9 single-family residential	Approved
City of Hesperia	TT-17681	SWC of Hollister St and Afton	20 single-family residential lots	Approved
City of Hesperia	27-Unit Apartment Complex	Sequoia St and Garnet Ave	27-unit apartment	Approved
City of Hesperia	SPR 11-10213	Live Oak St and Eighth Ave	114-unit senior affordable apartments	Approved
City of Hesperia	44-Unit Apartment Complex	Main St and I Ave	Two-story 44-unit apartments	Approved
City of Hesperia	TT-16385	Farmington St and Crockett Ave	103-lot single family residential	Approved
City of Hesperia	Pathways to College Charter School	Mariposa Rd and Eucalyptus St	Private School (K-8)	Approved
City of Hesperia	TTE 17-00001	Main St and Topaz Ave	164 detached condominiums for medium density	Approved
City of Hesperia	O'Reilly's Auto Parts	Main St and Escondido Ave	Commercial	Approved
City of Hesperia	CUP 12-00021	Verbena Rd and Bellflower St	4-story hotel	Approved
City of Hesperia	2-Story 35,730 sq. ft. Retail Center	Bear Valley Rd and Garnet Ave	Two-story, 35,730 sq. ft. retail center	Approved
City of Hesperia	New 9994 Commercial Building	Main St and Hickory Ave	Commercial building	Approved
City of Hesperia	500 sq. ft. Yacht Manufacturing Facility	Caliente Rd and Muscatel St	Yacht and small residential building	Approved
City of Hesperia	142-Unit Apartment Complex	Muscatel St and E Ave	142-unit apt complex	Approved
City of Hesperia	Frontier Communities	Mariposa Rd and Live Oak St	High-density residential	Approved
City of Hesperia	SPR for New Commercial Building	Joshua ST and Three Flags Ct	Multitenant commercial building	Approved
City of Hesperia	186-Unit Apartment Complex	Third Ave and Hesperia Rd	Multifamily development	Approved
City of Hesperia	68,209 sq. ft. Industrial Park	Eucalyptus St and Darwin Ave	Multitenant industrial park	Approved
City of Hesperia	36 Single-Family Lots	Muscatel St and Fuente Ave	Single-family residential	Approved
City of Highland	Mediterra Project	N of Greenspot Rd, E of Santa Paula	200 low-density and 110 medium-density residential units	MND adopted October 2016

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Highland	Harmony Specific Plan	Located at the base of the San Bernardino Mountains, 6 miles E of SR-210 and 4.5 miles N of I-10	Master-planned residential community (residential, neighborhood commercial, recreation/open space, community public facilities)	Development agreement signed November 30, 2016
City of Loma Linda	The Groves and Loma Linda	California St and Mission Rd	Residential and mixed-use	NOC dated April 5, 2018
City of Loma Linda	Candlewood Suites Hotel	N of Redlands Blvd and W of Richardson St	Hotel	CEQA document in public review until May 2018
City of Loma Linda	Citrus Glen	Near Orange Ave and New Jersey St	Single-family residential	Approved
City of Redlands	Newland Homes Tract	NEC Lugonia Ave and Judson St	105 residential lots	Planning commission 4/24/2018
City of Redlands	Casa Loma Apartments	Southwest corner of University St and Lugonia Ave	120 apartments in three-story buildings with associated recreation	In process
City of Redlands	Tentative Tract Map 20065	S of Highland Ave and W of Redlands St	29 single-family residential on 10 acres	In process
City of Redlands	Brookside Apartments	317 Brookside Ave	Three-story apartment building with 8 units	In process
City of Redlands	Preliminary Review	SEC Highland Ave and Wabash Ave	120 senior independent living apartments	Completed
City of Redlands	Apartment Buildings	E of Citrus Ave between Judson St and Grove St	Three-story apartment building with 96 units	Submitted
City of Redlands	Liberty Lane Apartments	SWC Lugonia Ave and Texas St	80 apartments for veterans and special needs households	Approved
City of Redlands	Redlands Pioneer Tract	N of San Bernardino Ave and E of Judson St	32 acres into 55 residential lots of future single-family residences	Approved
City of Redlands	Jacinto Tract	E of Wabash Ave and N of Highland	Subdivide 18.5 acres into 40 residential lots for future single-family residences	Approved
City of Redlands	Sam Redlands Tract	E of Wabash and N of Sylvan Blvd	Subdivide 12 acres into 34 single-family residential	Approved

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Redlands	Redlands Pennsylvania Tract	S of San Bernardino Blvd and E of Judson St	25 acres into 67 single-family residential	Approved
City of Redlands	Tract 18988	N of Pioneer St and E of Texas St	30.5 acres into 82 single-family residential	Approved
City of Redlands	Tract 16586	Wabash Ave and N Reservoir Rd	66 acres of 76 single-family residential lots	Approved
City of Redlands	Redlands Aviation Business Park	Between Pioneer Ave, Judson St, and Redlands Municipal Airport	Warehouse and industrial uses on 41 acres	Submitted
City of Redlands	Commission Review and Approval No. 894	SEC Park Ave and Iowa St	6,000 sq. ft. warehouse	in process
City of Redlands	Park Ave Industrial Center	NWC Park Ave and Alabama St	Two warehouses on 7.84 acres	Preliminary review
City of Redlands	Transit Villages Specific Plan	Downtown, University of Redlands	Transit Villages Plan	Beginning in May 2018
City of Redlands	Upper Santa Ana River Wash Plan Habitat Conservation Plan and EIR	Northerly boundary of City within the Santa Ana River Wash	Comprehensive habitat conservation plan and conceptual trails plan for the areas within and adjacent to Santa Ana River Wash	City Council MOU September 19, 2017
City of Rialto	Valley and Spruce Project	N of I-10 and W of I-215	Warehousing building 404,837 sq. ft. on 16.9 acres	Approved
City of Rialto	Pepper Ave Specific Plan	E of Eucalyptus Ave, S of SR-210	Commercial, multifamily residential, open space	Approved
City of Rialto	Renaissance East	NEC Ayala Dr and Renaissance Pkwy	80,000 sq. ft. retail/ commercial center	Approved
City of Rialto	Renaissance Specific Plan	S of SR-210, W of Ayala Dr	Mixed-use	Unknown
City of Yucaipa	6th Place at Wildwood Creek Low Water Crossing Replacement	Flood Control at Wildwood Creek	Replace existing box culvert bridge	In progress
City of Yucaipa	Oak Glen Road Widening	Colorado St to I-10 Freeway	Road widening	In progress
City of Yucaipa	Yucaipa Blvd Street Improvements Phase I and Phase II	Yucaipa Blvd between 15th and 16th St	Road widening	Under construction
City of Yucaipa	5th Street Improvement Project	5th St from Yucaipa Blvd to Ave E	Road widening	Under construction

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
City of Yucaipa	33 Residential Lots	Yucaipa Ridge Rd N of Ivy Ave	39 acres into 33 residential lots	Approved
City of Yucaipa	Wilson Creek Estates	Between Oak Glen Rd and Wilson Creek	Subdivide 236 acres into 184 single-family residential	Approved
City of Yucaipa	Garden Works	S of Fire Ave and W of Bryant St	Commercial/industrial/ institutional	Approved
City of Yucaipa	Oak Glen Creek Specific Plan	S of Oak Glen Rd and N of Date Ave	200 homes on 115.7 acres	Pending application
City of Yucaipa	Oak Glen Neighborhood Park	N of Oak Glen Rd E of Yucaipa Regional Park	Neighborhood park	Under construction
City of Yucaipa	33 Homes	E of 3rd St between Cape Cod Ct and Kelly Ln	33 homes	Under construction
City of Yucaipa	Magnolia Garden	N of County Line Rd and E of 4th St	108 detached condos on 14.82 acres	Under construction
City of Yucaipa	57 Unit Detached Condos	S of Avenue H between 4th and 5th St	57 units detached	Approved application
City of Yucaipa	56 Condominiums	Avenue D and 12th St	56 condominiums on 9.07 acres	Pending application in process
City of Yucaipa	Yucaipa Gateway Plaza	Oak Glen Rd and I-10	Commercial center	Under construction
City of Yucaipa	9 Residential Lots	Tennessee St and Overcrest Dr	9 residential lots on 8.57 acres	Approved application
Other Jurisdictions				
San Bernardino County Flood Control District	Bandicoot Basin Project	Hesperia	Basin and dam project	Pending (Phase I, mid 2021; 12 months est. duration) (Waterline mid 2018; 2 months est. duration)
San Bernardino County Flood Control District	Desert Knolls Wash Phase III	Apple Valley	Channel through Lewis Center property	Pending (late 2018; 6 months est. duration)
San Bernardino County Flood Control District	Donnell Basin	Twentynine Palms	Detention basin and outlet channel	Pending (early 2019; 12 months est. duration)
San Bernardino County Flood Control District	Oak Hills Basin	Hesperia	Detention basin	CEQA and property acquisition only
San Bernardino County Flood Control District	Sand Creek/Warm Creek Confluence	Highland	Rock channels with drop structures, with ungrouted rock inverts	In progress (Spring 2018; 4 months est. duration)

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
San Bernardino County Flood Control District	West Fontana Channel	West Fontana Channel from Banana Basin to Juniper, Fontana	Channel project	Pending (mid 2018; 18 months est. duration)
San Bernardino County Flood Control District	West Fontana Channel	West Fontana Channel from Hickory Basin to Banana Basin, Fontana	Channel improvements	Pending (early 2019; 9 months est. duration)
San Bernardino County Flood Control District	Hawker Crawford Channel	Hawker Crawford Channel from Rich Basin to Wilson Avenue, Fontana Area, Fontana	Channel project	Pending (early 2019; 9 months est. duration)
San Bernardino County Flood Control District	Grove Basin Outlet Storm Drain	Grove Basin Outlet Storm Drain from Grove Basin to Riverside SD, Ontario	Storm drain project	Pending (late 2019; 6 months est. duration)
San Bernardino County Flood Control District	Carbon Canyon Channel	Carbon Canyon Channel from Payton Drive to Pipeline Avenue, Chino Hills	Channel project	Pending (2021; duration TBD)
San Bernardino County Flood Control District	Amethyst (Oro-Grande No. 9) Basin	Oro-Grande No. 9	Detention basin and dam project	In progress (12 months est. duration)
San Bernardino County Flood Control District	Cactus Basin Nos. 4/5	Rialto	Detention basin and dam project	Pending (late 2019; 12 months est. duration)
San Bernardino County Flood Control District	Elder Creek	Highland	Channel reconstruction project	Pending (early 2019; 6 months est. duration)
San Bernardino County Flood Control District	Plunge Creek	Highland	Creek restoration project	Pending (2020; duration TBD)
San Bernardino County Flood Control District	Rialto Channel	Rialto Channel from I-10 to Cameron Way, Rialto	Channel reconstruction project	Pending (2021; duration TBD)
San Bernardino County Flood Control District	West State Street Storm Drain Segments III-B and III-C	West State Street Storm Drain Segments III-B and III-C, Ontario	Channel reconstruction project	Pending (mid 2019; 12 months est. duration)
San Bernardino County Flood Control District	Etiwanda Channel Invert Repair	Etiwanda	Repair project	Pending (mid 2018; 4 months est. duration)
San Bernardino County Flood Control District	Twin Creek Basin	Highland	Proposed regrading on easterly outside bank	Pending (mid 2018; ongoing)

Table 4-1
Cumulative Projects

City/Jurisdiction	Project	Location	Use	Status
Western Municipal Water District	La Sierra Pipeline Project	Starts at Arlington Desalter and travels south toward La Sierra Reservoir	Pipeline expansion, 5 miles of 30-in. pipeline and new pump station	Under construction
Western Municipal Water District	Victoria Recharge Basin Project	City of Riverside off Victoria Ave and Jackson St	Recharge basin on 10-acre site	Under construction
Western Municipal Water District	Arlington Desalter/ Chino Desalter	City of Riverside off I-215 between Cactus and E Alessandro Blvd	Expand desalter facilities	Under construction
Western Municipal Water District	Seven Oaks Dam	N of Greenspot Rd along Santa Ana River	Mitigation efforts for water conservation-related issues with the dam	Under construction
West Valley Water District	Groundwater Wellhead Treatment System Project	Rialto-Colton Groundwater Basin	Bioremediation in Rialto-Colton Groundwater Basin	In progress

Source: City of Big Bear Lake 2018; City of Chino Hills 2018; City of Colton 2018; City of Fontana 2018a, 2018b; City of Hesperia 2018; City of Highland 2018; City of Loma Linda 2018; City of Montclair 2018; City of Ontario 2018; City of Rancho Cucamonga 2018; City of Rialto 2018; City of Upland 2018; City of Yucaipa 2018; District, pers. comm. 2018; Town of Apple Valley 2018.
Notes: E = east; SE = southeast; EIR = environmental impact report; NW = northwest; SW = southwest; CEQA = California Environmental Quality Act; SR- = State Route; S = south; SCE = Southern California Edison; I- = Interstate; SEC = southeast corner; NEC = northeast corner; SWC = southwest corner; NWC = northwest corner; CUP = conditional use permit.

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4.1 AESTHETICS

4.1.1 Introduction

This section of the environmental impact report (EIR) describes the existing aesthetics setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce aesthetics impacts, and evaluates potential impacts related to implementation of the proposed program.

The analysis is based on whether the proposed program would substantially damage scenic resources within a state (or County) scenic highway and whether maintenance activities would substantially degrade the existing visual quality and character of the site and surrounding area. To make these determinations, state scenic highways and County scenic routes[1] are identified and the proximity of proposed program activities to these highways is measured. Program activities occurring within 2 miles of a scenic highways and routes are considered potentially visible to motorists. Existing visual conditions and viewer exposure to elements of proposed program activities are considered in determining whether impacts to scenic resources within state scenic highways or County scenic routes would occur. Regarding impacts to visual quality and character, proposed program activities occurring within natural channels (as opposed to engineered facilities) are considered because they may be perceived by the public as displaying moderate to high visual and scenic quality. As such, natural channels in the study area are identified and specific planned management activities are considered and evaluated for each channel to determine the severity of potential impacts to existing visual character and quality. Several factors, including noticeable visual change, proximity of proposed program activities to viewers, and view duration and exposure, are considered in the analysis of potential effects to existing visual quality and character.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County and in portions of 24 cities and towns in the County. The locations of

[1] Scenic highways (officially designated and eligible) are designated as such by the State of California; the County of San Bernardino designates scenic routes. Where applicable, this section identifies designated scenic highways and scenic routes in the Project area. Non-scenic designated transportation facilities (i.e., local and access) are generally referred to as "roads."

proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The analysis in this section is based on a desktop-level review of the proposed program area using aerial photography and maps and images from Google's Street View technology. Other documentation used in this analysis included the San Bernardino County General Plan (County of San Bernardino 2007a) and the General Plan Final EIR and Appendices (County of San Bernardino 2007b). Other sources consulted are listed in Section 4.1.10, References.

4.1.2 Regulatory Framework

Federal

Several roads in the Desert Region of the County that provide opportunities for normal touring car, high-clearance vehicle, and off-highway vehicle (OHV)/dirt bike/all-terrain vehicle (ATV) use are designated by the Bureau of Land Management (BLM) as Back Country Byways. Described by the BLM as "off the beaten path" routes, Back Country Byways are a unique component of the National Scenic Byways System (BLM 2017). As detailed in the County General Plan discussion below, seven of these Back Country Byways are also designated as scenic routes by the County (County of San Bernardino 2003).

Six of the seven Back County Byways identified as County scenic routes in the General Plan are located more than 25 miles from the nearest stormwater facility included in the County Master Storm Water System Maintenance Program. Due to distance and the intervening hills and mountains that are relatively common in the eastern Desert Region of the County, maintenance activities would not be visible from these Back Country Byways. The following list provides the proximity of the Back Country Byways to the nearest facilities included in the proposed program:

- Black Canyon Road: at Cedar Canyon Road, Black Canyon Road is located approximately 35 miles from the nearest facility (Baker Levee; Facility No. 4-802-5A) in Baker.
- Cedar Canyon Road from Kelso Cima Road southeast to Lanfair Road: at Lanfair Road, Cedar Canyon Road is located approximately 35 miles from the nearest facility (North Needles Basin; Facility No. 6-609-4A) in Needles.
- Cima Road from Interstate 15 (I-15) southeast to Cima: at I-15, Cima Road is located approximately 25 miles from the nearest facility (Baker Levee; 4-802-5A) in Baker.
- Essex Road from Essex northwest to Mitchell Caverns: at Mitchell Caverns, Essex Road is located approximately 40 miles from the nearest facility (Baker Levee; Facility No. 4-802-5) in Baker.

- Kelso–Cima Road from Kelso northeast to Cima: Kelso-Cima Road is separated from the nearest facility (East Baker Channel; Facility No. 4-801-1Al), which is located approximately 30 miles away in Baker.
- Parker Dam Road from Parker Dam southwest to the Colorado River Indian Reservation: Parker Dam Road parallels the Colorado River and California/Arizona border. The nearest facility (Needles Basin No. 5) is located over 40 miles to the north in Needles.

One Back County Byway is located near a stormwater facility included in the County Master Storm Water System Maintenance Program. At I-15 in Baker, Kelbaker Road is located within 0.35 miles of the nearest facility (Baker Levee; Facility No. 4-802-5A). Although northbound motorists on Kelbaker Road would be located within 0.35 miles of the Baker Levee, views to the facility from the road are obstructed by intervening development (primarily gas stations and convenience stores in Baker) and by the lower-lying elevation of the levee. In addition, the facility located nearest to Kelbaker Road (Baker Levee; Facility No. 4-802-5A) is surrounded by commercial and limited residential development in Baker and views toward the facility from this segment of the road are not particularly long or broad. The facility is viewed against the backdrop of local hilly terrain and the proximity of I-15 and development in Baker do not accurately reflect the primarily undeveloped and open to partially enclosed character of desert lands visible from Kelbaker Road to the southeast of Baker toward Seventeenmile Point, along the Willow Wash and toward the community of Kelso.

State

California Department of Transportation Scenic Highway Program

In 1963, the California Legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in Section 260 et seq. of the Streets and Highways Code. A highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers from the route, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view. The boundaries of the scenic corridor generally encompass the land adjacent to and visible from the highway using a motorist's line of sight. A reasonable boundary is selected when the view extends to the distant horizon (Caltrans 2008; County of San Bernardino 2007a). A state route must be included on the list of highways eligible for scenic highway designation in Streets and Highways Code Section 263. State routes not listed must be added before they can be nominated for official designation. Additions and deletions can only be made through legislative action (Caltrans 2008).

A segment of one highway in San Bernardino County has been officially designated scenic, and segments of 13 highways traversing the County have been determined to be eligible for listing as state scenic highways. State scenic highways (officially designated and eligible) are listed in Table 4.1-1. Highways are nominated for scenic designation by local governing bodies (i.e., counties and cities) and cannot be considered for official scenic designation until a visual assessment and Scenic Highway Proposal has been submitted to the Caltrans District Scenic Highway Coordination. Please note that although the state identifies officially designated and eligible state scenic highways, the County designates scenic routes. Scenic highway designation is applied to highways that are maintained by the state (i.e., Caltrans).

Table 4.1-1
Officially Designated and Eligible State Scenic Highways in San Bernardino County

Route	Status	Segment	Post Miles
2[a]	Eligible	SR-210 in La Canada Flintridge to SR-138/SR-173	22.9–6.36
38	Officially designated	From South Fork Family Campground to 2.9 miles south of SR-18	31.0–46.7
15	Eligible	SR-58 near Barstow to SR-127 near Baker	R17.7–73.8
18	Eligible	SR-138 near Anderson Peak to SR-247 near Lucerne Valley	T29.5–33.3
30[b]	Eligible	SR-330 near Highland to I-10 near Redlands	0.0–154.6
38	Eligible	I-10 near Redlands to SR-18 near Fawnskin (all)	L0.0–49.4
40	Eligible	Barstow to Needles	6.6–R37.9
58[c]	Eligible	SR-14 near Mojave to I-15 near Barstow	112.0–R4.5
62[d]	Eligible	I-10 near Whitewater to Arizona state line	0.0–142.7
127[e]	Eligible	I-15 near Baker to Nevada state line (all)	R17.7–73.8
138	Eligible	SR-2 near Wrightwood to SR-18 near Anderson Peak	0.0–4.4
142	Eligible	Orange County line to Peyton Drive	0.0–23.0
173	Eligible	SR-138 near Silverwood Lake to SR-18 south of Lake Arrowhead (All)	0.0–78.1
247	Eligible	SR-62 near Yucca Valley to I-15 near Barstow (All)	29.5–44.1
330	Eligible	SR-30 near Highland to SR-18 near Running Springs (All)	0.0–49.5

Source: Caltrans 2017.
Notes: SR = State Route; R = first realignment of highway; T = temporary connection of original or realign mileage; L = overlapping post miles; I = Interstate.

[a] Segment traverses Los Angeles and San Bernardino Counties.
[b] SR-30 was decommissioned and renumbered in 1998 as SR-210. Originally, SR-30 ran from San Dimas/La Verne to Running Springs via the current SR-330.
[c] Segment traverses Kern and San Bernardino Counties.
[d] Segment traverses Riverside and San Bernardino Counties.
[e] Segment traverses San Bernardino and Inyo Counties.

Local

The proposed program area encompasses the Valley, Mountain, and Desert Regions of the County, and District facilities are located in a number of incorporated cities and unincorporated communities. Counties and cities have independent planning documents, such as general plans, that typically contain policies, objectives, and other regulations established for the protection of visual and/or scenic resources, with consideration of the existing visual character in the development process. General plans and associated local policies and regulations are established to guide new development. Visual and scenic resources identified for protection in local general plans and policies include open space and formally designated scenic areas, mature native trees, and unique natural landforms such as canyons, hillsides, and ridgelines. The proposed program involves maintenance of existing District facilities and does not include the development of new facilities. Because regular facility maintenance currently occurs throughout the proposed program area, the continuation of maintenance and the resulting visual effects generally would not be considered inconsistent with these types of local plans and policies. The District strives to be consistent with local jurisdictions' general plans and regulations, and understands the importance of compliance with the goals and policies therein.

County General Plan

The Open Space Element within Section VI of the County's General Plan (County of San Bernardino 2007a) and the General Plan Final EIR (County of San Bernardino 2007b) include policies and goals associated with the identification and protection of scenic resources. Goals and policies relevant to scenic resources and the proposed program are as follows:

GOAL OS 4 The County will preserve and protect cultural resources throughout the County, including parks, areas of regional significance, and scenic, cultural and historic sites that contribute to a distinctive visual experience for visitors and quality of life for County residents.

Policy OS 5.3 The County desires to retain the scenic character of visually important roadways throughout the County. A "scenic route" is a roadway that has scenic vistas and other scenic and aesthetic qualities that over time have been found to add beauty to the County. Therefore, the County designates the following routes as scenic highways and applies all applicable policies to development on these routes (see Figures 2-4A through 2-4C of the Circulation and Infrastructure Background Report):

Valley Region

a. Beaumont Avenue within the Loma Linda Sphere of Influence (SOI)

b. Citrus Avenue within the Redlands SOI

c. Colton Avenue within the Redlands SOI

d. Crafton Avenue within the Redlands SOI

e. Fifth Avenue within the Redlands SOI

f. Highland Avenue within the Redlands SOI

g. I-10 from the City of Redlands to the City of Yucaipa

h. Mentone Boulevard within the Redlands SOI

i. San Bernardino Avenue within the Redlands SOI

j. Sand Canyon Road between Crafton Avenue and the City of Yucaipa

k. San Timoteo Canyon Road in the Loma Linda SOI

l. State Route 71 — All of the route in unincorporated County area

m. State Route 83 (Euclid Avenue/Mountain Avenue) – 24th Street northwest to San Antonio Dam

Mountain Region

a. Crest Forest Drive from State Route 18 west to Sawpit Canyon Road

b. Dart Canyon Road

c. Devil's Canyon Road

d. Grass Valley Road

e. Green Valley Lake Road/101 Mile Drive

f. Kuffel Canyon Road

g. Lake Drive from Knapps Cutoff northeast to Dart Canyon Road

h. Lake Gregory Drive

i. Lone Pine Canyon Road

j. Mt. Baldy Road from Los Angeles County line northeast to Mt. Baldy

k. North Road from Lake Gregory Drive northeast to State Route 189

l. Oak Glen Road

m. Old Waterman Canyon Road

n. Playground Drive

o. Rim of the World Drive from Green Valley Lake Road to State Route 38

p. San Moritz Drive

q. Sawpit Canyon Road/Sawpit Creek Road

r. State Route 2 from State Route 138 southwest to the Los Angeles County line

s. State Route 330 from the San Bernardino National Forest boundary northeast to State Route 18

t. Burns Canyon

Desert Region

a. Amboy Road from Bullion Mt. Road northeast to Amboy

b. *Black Canyon Road

c. *Cedar Canyon Road from Kelso Cima Road southeast to Lanfair Road

d. *Cima Road from Interstate 15 southeast to Cima

e. *Essex Road from Essex northwest to Mitchell Caverns

f. Historic Route 66 (National Trails Highway or Main Street) from Oro Grande northeast and east to the Arizona state line, excepting those areas with incorporated cities

g. Interstate 40 from Newberry Springs to Needles excepting the Highway Commercial designation at Hector Road Interchange and the Crucero Road interchange

h. *Kelbaker Road from Interstate 15 southeast to Interstate 40

i. *Kelso–Cima Road from Kelso northeast to Cima

j. Lanfair/Ivanpah Road

k. Park Blvd./Quail Springs Road from State Route 62 southeast to Joshua Tree National Park

l. *Parker Dam Road from Parker Dam southwest to the Colorado River Indian Reservation

m. Pioneer Town Road from Pipes Canyon Road to the Town of Yucca Valley

n. State Route 127 from Interstate 15 at Baker northwest to Inyo County line

o. State Route 247 (Old Woman Springs Road/Barstow Road) from the Town of Yucca Valley north to Barstow

p. State Route 62 (Twentynine Palms Highway) from the Riverside County line northeast to the Town of Yucca Valley; from the Town of Yucca Valley east to Twentynine Palms; from Twentynine Palms southeast to the Riverside County line and from the Riverside County line northeast to state line

q. Pipes Canyon

Multiple Regions

a. Baldwin Lake Road from SR-18 southeast to Pioneer Town Road; continuing east on Pioneer Town Road to Burns Canyon Road; continuing southeast on Burns Canyon Road to Rimrock Road; and continuing southeast on Rimrock Road to Pipes Canyon Road

b. Coxey Truck Trail from Bowen Ranch Road southeast to Rim of the World Drive

c. Interstate 15 from the junction with Interstate 215 northeast to the Nevada state line, excepting those areas within the Barstow Planning Area and the community of Baker where there is commercial/industrial development; those portions within the Yermo area from Ghost Town Road to the East Yermo Road overcrossing on the south side only and from First Street to the East Yermo Road overcrossing on the north side; and all incorporated areas

d. State Route 18 from San Bernardino northeast to the City of Big Bear Lake; from Big Bear Lake northwest to Apple Valley; within the Victorville sphere of influence; and from Victorville and Adelanto to the Los Angeles County line

e. State Route 38 from Garnet St. in Mentone northeast to Big Bear Dam

f. State Route 138 from Crestline cutoff at State Route 18 northwest to Los Angeles County line

g. State Route 173 from State Route 18 northwest to Hesperia

* *Starred items in the list above have been designated by the BLM as a part of their Back Country Byway Program, a component of the National Scenic Byway System.*

Other General Plans

General plans serve to guide and direct local government decision making for aesthetics. Generally, open space, conservation, and design elements in local jurisdictions' general plans focus on setting aside open space or maintaining existing open space or recreational areas and preserving the existing aesthetic setting. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding aesthetics. However, the proposed program would not conflict with these general plan policies.

4.1.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to aesthetics are based on criteria in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to aesthetics would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact AES-1 ***Would the program have a substantial adverse effect on a scenic vista?***

Impact AES-2 ***Would the program substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?***

Impact AES-3 ***Would the program substantially degrade the existing visual character or quality of the site and its surroundings?***

Impact AES-4 Would the program create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

In June 2014, the District circulated a Notice of Preparation (NOP) and Initial Study (see Appendix B), which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The Initial Study determined that there would be no impact or a less than significant impact with regard to an adverse effect on a scenic vista, substantial damage to scenic resources, and creation of a new source of substantial light or glare (Impacts AES-1, AES-2, and AES-4). However, because Impact AES-2 (substantial damage to scenic resources) was the subject of a comment on the NOP (see Appendix C), it has been included for analysis in this EIR.

Impacts AES-2 and AES-3 were determined to be carried forward for analysis in the EIR and are examined in Section 4.1.6.2, Analysis.

4.1.4 Existing Conditions

This section describes the existing conditions in the proposed program area and identifies the resources that could be affected by the proposed program.

The introduction to Chapter 4, Environmental Analysis, specifies that the analysis of impacts will be divided by geographic region (Valley, Mountain, and Desert Regions); however, aesthetic impacts are more effectively assessed in terms of landscape type. The County consists of three distinct landscape types: valleys, mountains, and deserts. These areas are connected by a system of interstate freeways, highways, and local roads. The County's valleys consist of a diverse geography, including valleys and foothills, and are largely developed (approximately 77% of the area within County jurisdiction is either developed or under agricultural uses). The defining waterways in valley areas are creeks, streams, and washes that have formed from mountain and foothill fluvial processes, most of which drain into the Santa Ana River, which ultimately ends at the Pacific Ocean. Most District facilities are located in the largely developed valley areas of San Bernardino County and are interwoven into urban and suburban landscapes. Due to a general close proximity to developed use, District facilities are typically visible from state highways and local roadways, parks, trails, residences, and businesses.

Separated by the Cajon Pass, the San Gabriel and San Bernardino Mountains are generally situated to the north of the County's developed valleys and south of vast desert areas. Local mountain ranges consist of steep, mountainous terrain, with multiple peaks exceeding 10,000 feet above mean sea level. Several mountain communities are distributed throughout the County's higher-elevation areas, including Mount Baldy, Wrightwood, Big Bear City, and Forest Falls. Runoff from the mountains provides the main water source for both the Santa Ana River and the Mojave River and fluvial landforms in the mountains consist of a series of creeks, streams, and rivers that

drain into mountain lakes, or to local valleys and deserts. In the County's mountains, District facilities are generally located at the southern base of the San Bernardino Mountains. These facilities typically have limited visibility due to distance and the presence of intervening landforms, structures, and vegetation between potential viewers on roadways and facility locations.

Generally located north of the San Bernardino and San Gabriel Mountains, the County's deserts are primarily characterized by shorter, remote mountain ranges surrounded by desert plains. These mountain ranges often have alluvial fans (a fan-shaped buildup of earthen materials at the base of a mountain) associated with them. Other significant landforms within the desert include mountains, plateaus, basins, playas, and dunes. The space between the mountainous areas is often characterized by playas and basins, which take the form of dry lakes. Due to the prevalence of broad desert plains and alluvial fans and the general lack of significant screening features, public vantage points from which the public is afforded views of District facilities are generally available in desert areas. Public highways, surface streets, and both developed and undeveloped private property tend to be located relatively close to District facilities in deserts (highways and streets routinely span linear District facilities).

Where visible, District facilities and effects of ongoing maintenance activities, including alterations to landform and vegetation resulting from stockpiling, sand and gravel operations, and vegetation management, contribute to the baseline visual character of local landscapes and the quality of existing views.

4.1.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The SOPs from the Maintenance Plan presented in this section are relevant to the analysis of aesthetic resources, because they indirectly address landscape elements (i.e., vegetation) that may be visible from scenic highways or routes or public viewpoints; therefore, they would help minimize impacts to aesthetic resources as a result of maintenance activities. Their relevance to specific impact topics is detailed in Section 4.1.6.

The following SOPs from Section 4.8, Hydrology and Water Quality, would reduce impacts on aesthetics from maintenance activities:

- **SOP-HYD-2** (Vegetation Management)
- **SOP-HYD-3** (Minimization of Controllable Discharge of Sediment)

4.1.6 Impacts Analysis

4.1.6.1 Methods of Analysis

The program setting was developed by reviewing available information on aesthetics in the proposed program area. Because the impacts were not based on the program activity at issue, this analysis looked at impacts in the proposed program area as a whole. Materials reviewed in support of the analysis included aerial photography and maps and images from Google's Street View technology.

In addition, comments received in response to the NOPs (see Appendices B and C) were reviewed to identify aesthetic and/or scenic resources to be considered in the analysis. Comments received in response to the NOPs included concerns regarding the potential designation of State Route 62 (SR-62) through the Joshua Tree Community Plan area as a County scenic highway and impacts to existing views from designated scenic segments of SR-62 associated with the proposed program.

The Maintenance Plan includes District facilities at which proposed program activities may occur. Different facility types, including channels, dams, debris/detention basins, levees, spreading grounds, and natural channels, are included and a detailed description of work is provided for each facility. With the exception of natural channels, District facilities are man-made facilities of generally low visual and scenic quality. Because of their engineered appearance and routine maintenance activities that create a changing visual appearance, viewers may tend to have low visual expectations and reduced sensitivity to visual changes occurring at these District facilities. Engineered facilities are located throughout the County in urban and non-urban environments. In urban environments, channels, storm drains, detention basins, and other built features are relatively commonplace and contribute to the developed nature of these landscapes. In non-urban environments, these structures/facilities tend to bear little relation to the natural environment and detract from existing views. However, because channels, basins, and other engineered District facilities are existing features in the landscape and are regularly maintained, they contribute to the existing visual character and their visual condition is changeable and impermanent. Therefore, due to the recurring nature of mechanized land clearance/sediment removal activities and the continued presence of processes and forces in/at channels, basins, and other engineered District facilities that require regular maintenance, the visual impact of proposed program activities would be less than significant. Therefore, proposed program activities at channels, basins, and other engineered District facilities are not further discussed in the Impact AES-3 analysis presented in Section 4.1.6.2.

Unlike engineered facilities, natural channels may be perceived by the public as displaying moderate to high visual and scenic quality. Natural channels tend to more clearly relate to the natural environment and can contain visual elements such as vegetation and rocks that are associated with streams and rivers. Also, viewers may have greater visual expectations of natural

channels and may be more sensitive to the effects of repeat maintenance in natural channels due to expectations of natural processes and features (as opposed to mechanized activities and managed appearances). For these reasons, the analysis in Section 4.1.6.2 focuses on typical proposed program activities that would occur in natural channel facility types as identified by the District's Maintenance Plan (see Appendix A).

4.1.6.2 Analysis

The discussion in this section provides the results of the analysis based on resource type and facility rather than by geographic divisions of the County (Valley Region, Mountain Region, Desert Region) as was done in other impact analysis sections because a project-level analysis was conducted for aesthetics. The analysis considers whether District facilities are visible from specific public vantage points (i.e., designated state scenic and eligible highways and County scenic routes) in order to evaluate the potential for impacts to existing views because of proposed program activities. A project-level analysis was prepared because the specific facilities to be maintained have been identified and the visibility of these facilities (and future maintenance activities) from public vantage points can generally be determined through use of ArcMap software, satellite imagery, and "street view" imagery. Therefore, anticipated observations of routine maintenance activities from public vantage points were characterized and the extent of visual change was evaluated to determine the significance of impacts. In addition, as a result of public comments received on the visibility of past maintenance of District facilities from SR-62 (Twentynine Palms Highway), a project-level analysis was conducted for this topic.

Eligible (as opposed to officially designated) state scenic highways and County scenic routes are not specifically addressed in the CEQA Appendix G thresholds; therefore, a significance determination regarding potential effects to views from these highways and routes is not provided in the analysis of Impact AES-2. However, in an abundance of caution, potential effects to eligible state scenic highways and local scenic routes are described and disclosed for informational purposes and public disclosure. Regarding Impact AES-3, the Initial Study determined that with the exception of stockpiling, sand and gravel operations, and vegetation management, maintenance activities would result in less than significant impacts to existing visual quality and character of the site and surroundings. In addition, the District determined that proposed program activities in engineered channels would result in less than significant impacts to existing visual quality and character. Because of their engineered appearance and routine maintenance activities that create a changing visual appearance, viewers tend to have low visual expectations and reduced sensitivity to visual changes occurring at these engineered facilities. On the other hand, natural channels may be perceived by the public as displaying moderate to high visual and scenic quality. In addition, natural channels tend to more clearly relate to the natural environment and can contain visual elements such as vegetation and rocks that are associated with streams and rivers. Lastly, viewers may have high visual expectations of natural channels and may be more sensitive to the effects of

repeat maintenance in natural channels due to an anticipation of natural processes and features (as opposed to mechanized activities and managed appearances). For these reasons, the Impact AES-3 analysis in Section 4.1.6.2 focuses on proposed program activities that would occur at natural channels in the proposed program area (as opposed to delineating the analysis by geographic region, which is applicable to other analyses in this EIR) as identified by the Maintenance Plan (see Appendix A). For both impact thresholds, the impact analysis is not grouped into activity types because the impact analysis provided is on a project level and all maintenance activities within each relevant facility are analyzed.

Impact AES-2

Would the program substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

Officially Designated State Scenic Highways

One officially designated scenic highway, SR-38 from the South Fork Campground to approximately 3 miles south of SR-18, is located within the County. There are no District facilities or proposed program activities located adjacent to or near the designated scenic segment of SR-38. As such, the proposed program would not substantially damage scenic resources within an officially designated state scenic highway. No impact would occur.

Eligible State Scenic Highways

Table 4.1-2 lists the eligible state scenic highways in San Bernardino County and indicates whether proposed program activities would occur adjacent to or near the highways.

Table 4.1-2
San Bernardino County Eligible State Scenic Highways and Program Activities

Route	Segment	Program Activities Adjacent/Nearby?
SR-2[a]	SR-210 in La Canada Flintridge to SR-138/SR-173	**Yes.** Mechanized land clearing and one soil stockpile location within wash paralleling SR-2 from San Bernardino County line east to Spruce Street in developed Wrightwood (a distance of approximately 1 mile). Mechanized land clearing within two washes occurring between Twin Lakes Road and Wright Mountain (a distance of approximately 0.60 miles) in developed Wrightwood.
I-15	SR-58 near Barstow to SR-127 near Baker	**Yes.** Mechanized land clearing in parallel wash within 300 feet of I-15 between approximately Calico Road and East Yermo Road (a distance of approximately 1.75 miles) in Yermo.
SR-18	SR-138 near Anderson Peak to SR-247 near Lucerne Valley	**Yes.** Mechanized land clearing and one soil stockpile location in wash within 750 feet of SR-18 between Foothill Road and SR-247 (a distance of approximately 1.4 miles) in Lucerne Valley.
SR-30[b]	SR-330 near Highland to I-10 near Redlands	**Yes.** Large stockpile location is situated west of I-210 and immediately north of 5th Street in Highland. Large stockpile location is situated east of I-210, within 600 feet of the freeway, in the Santa Ana River wash (Highland area).

Table 4.1-2
San Bernardino County Eligible State Scenic Highways and Program Activities

Route	Segment	Program Activities Adjacent/Nearby?
SR-38	I-10 near Redlands to SR-18 near Fawnskin (all)	**Yes.** Vegetation management in creek channel located within 30 feet of SR-38 near Rim of the World Drive in Fawnskin area.
I-40	Barstow to Needles	**Yes.** Mechanized land clearing and one stockpile location in wash parallel to I-40 (these proposed program activity locations are situated within 0.25 miles to 1 mile of I-40) between Montara Road and Dagget Yermo Road (a distance of approximately 6.4 miles) in Barstow. Two stockpile locations and mechanized land clearing in Roadrunner Wash (perpendicular to I-40), approximately 0.3 miles west of River Road in Needles area.
SR-58[c]	SR-14 near Mojave to I-15 near Barstow	**Yes.** One stockpile location adjacent to northern bank of Mojave River.
SR-62[d]	I-10 near Whitewater to Arizona state line	**Yes.** Mechanized land clearing in wash and stockpile locations located adjacent to and south of SR-62, approximately 0.2 miles east of Bonair Road in developed Joshua Tree. Mechanized land clearing in wash perpendicular (and parallel) to SR-62 located approximately 0.2 miles east of Encelia Avenue in developed Twentynine Palms. Stockpile locations are adjacent to wash and as close as 420 feet to SR-62.
SR-127[e]	I-15 near Baker to Nevada state line (all)	**Yes.** Mechanized land clearing in wash perpendicular to SR-127 approximately 0.2 miles north of Baker Boulevard in Baker. Also, one stockpile location and mechanized land clearing in wash parallel to SR-127 (wash is located within 550 feet of SR-127) located between Baker Boulevard and Well Road (a distance of approximately 0.4 miles). Soil stockpile location is situated approximately 960 feet from SR-127.
SR-138	SR-2 near Wrightwood to SR-18 near Anderson Peak	**Yes.** Limited vegetation management and bank repair in creek channel located within 120 feet of SR-138 in Valley of Enchantment area.
SR-142	Orange County line to Peyton Drive	**No.**
SR-173	SR-138 near Silverwood Lake to SR-18 south of Lake Arrowhead (all)	**No.**
SR-247	SR-62 near Yucca Valley to I-15 near Barstow (all)	**Yes**. Mechanized land clearing in wash perpendicular to SR-247 (north of Aviation Drive) and in wash (parallel to highway) and obscured detention basin located between Sierra Way and Buena Suerte Road (a distance of approximately 0.5 miles) in residential area of Yucca Valley.
SR-330	SR-30 near Highland to SR-18 near Running Springs (all)	**Yes**. Mechanized land clearing in obscured wash parallel to SR-330 from East Highland Avenue north for approximately 0.2 miles and in SR-330-adjacent detention basin located north of Black Street in developed area of Highland.

Source: Caltrans 2017.
Notes: SR = State Route; I = Interstate.
[a] Segment traverses Los Angeles and San Bernardino Counties.
[b] SR-30 was decommissioned and renumbered in 1998 as SR-210. Originally, SR-30 ran from San Dimas/La Verne to Running Springs via the current SR-330.
[c] Segment traverses Kern and San Bernardino Counties.
[d] Segment traverses Riverside and San Bernardino Counties.
[e] Segment traverses San Bernardino and Inyo Counties.

As detailed in Table 4.1-2, mechanized land clearing and soil stockpiling are the primary proposed program activities that would be visible from segments of eligible state scenic highways in the County. In general, mechanized land clearing occurs and would continue to occur in select washes

that run parallel or perpendicular to segments of eligible state scenic highways. Activities occurring in facilities parallel to roadways would typically remain in motorists' field of vision for a longer duration compared to activities occurring in washes or along areas perpendicular to roadways. For example, mechanized land clearing occurs within an existing wash that parallels SR-2 through Wrightwood for approximately 1 mile. Along this segment, views of the wash (located 100 feet south of SR-2) are available to passing motorists and the proposed routine removal of excess sediment, dead vegetation, and trash within the existing wash would maintain the existing, primarily unvegetated character of this flood control facility.

Living trees are located in washes and other linear flood control facilities and are currently permitted (and would continue to be permitted) along the centerflow perimeter of larger flood control facilities such as the Santa Ana River. In these instances (and in accordance with SOP-HYD-2 (Vegetation Management)), living trees that do not interfere with flood protection and federal vegetation management policies that pertain to federal flood control facilities would not be removed. Trees and vegetation would be removed from smaller flood control facilities; however, the least amount of removal necessary to achieve the specific maintenance objectives for the facility would occur (see SOP-HYD-2 (Vegetation Management), provided in Section 4.8.5). Motorists on eligible state scenic highways would be exposed to brief views of vegetation management effects; however, the resulting contrast would not be overly prominent within the context of the surrounding landscape. In addition, with implementation of SOP-HYD-2, existing vegetation would be managed as long as conflicts with the specific maintenance objectives for the facility would not result. When viewed against existing vegetation that would remain in place, the visual effects of vegetation management would produce moderately weak visual contrast.

A single soil stockpile location currently occurs along the eligible state scenic route segment of SR-2 and is primarily situated on an approximately 20-foot-wide maintained dirt access road that parallels the wash and SR-2. Although stockpiles would be visible to passing motorists, the duration of views would be brief and the stockpile location is partially screened by intervening vegetation (tall pine trees and shrubs). In addition, stockpiles would be in an area subjected to routine maintenance (access road), and because this location is already established and has been previously disturbed, stockpiles would not require the removal of trees, rock outcroppings, or historic buildings. Lastly, implementation of SOP-HYD-3 (Minimization of Controllable Discharge of Sediment) would ensure that stockpiles are appropriately compacted such that substantially eroded side slopes or other conditions capable of creating secondary visual effects, including the generation of dust, would not normally occur.

Elsewhere in the County, mechanized land clearing occurs and would continue to occur in washes that run perpendicular to segments of eligible state scenic highways. Debris removal would maintain the existing, primarily unvegetated character of these flood control features and would not entail the removal of trees that do not interfere with flood protection (see SOP-HYD-2 (Vegetation

Management)) or other potential scenic resources that contribute to the scenic qualities of eligible state scenic highways. If vegetation is located in District facilities and removal is required, the least amount of removal necessary to achieve the specific maintenance objectives for the facility and vegetation would occur (see SOP-HYD-2 (Vegetation Management)). Vegetation management (if required) would also occur in a non-continuous manner, as needed. Moreover, mechanized land clearing activities would generally be screened from view of motorists by vegetation and/or other highway-adjacent features (i.e., development, terrain) on the approach. Views would be available as highways span these features; however, they would be of brief duration and elements adjacent to a highway tend not to be the focal point of available views. For example, mechanized land clearing occurs in the wash that is approximately 200 feet north of Aviation Drive in Yucca Valley and runs perpendicular to SR-247. On the approach to the wash and between SR-62 and Aviation Drive, scattered commercial businesses, limited office development, and trees (Joshua tree (*Yucca brevifolia*) and pine (*Pinus* spp.)) occur along SR-247 and screen the wash from view. Further, along this segment of SR-247, north- and southbound motorists are afforded views of scattered urban and residential development set against the backdrop of rugged, mountainous terrain. North of Aviation Drive, the partial riprap slopes of the wash become increasingly visible; however, the wash is located at an elevation lower than that of the highway. As a result, debris removal occurring in the wash is generally visible for a few seconds as motorists pass the flood control feature.

Similarly, as SR-62 motorists approach the wash located east of Bonair Road in Joshua Tree, the relatively low flood control feature is screened from view by intervening desert shrubs, residential development (on the eastbound approach), and a large service yard (on the westbound approach). The wash (and debris removal activities) is visible to passing motorists as SR-247 spans this feature; however, the duration of the view is brief and activities occur in an area of linear disturbance that is routinely maintained and cleared. Stockpile locations occur south of SR-62 and adjacent to the wash. Similar to debris removal activities, these features would occur on land subjected to previous and regularly occurring disturbance, and the duration of views would be brief. In addition, the continued presence of stockpiles in these areas would not involve the removal of trees or other scenic resources and would not substantially or permanently obstruct available views of mountainous terrain to the south. A similar brief visual experience of mechanized clearing activities and stockpiles is available to SR-62 motorists in Twentynine Palms, in and adjacent to the wash located approximately 0.2 miles east of Encelia Avenue. The footprint of debris removal activities in the wash is generally obscured from view until SR-62 spans this feature (duration of views is brief) and stockpile locations are set back approximately 420 feet from SR-62. Both the brief duration of the available views of stockpiles and the physical setback from SR-62 decrease the visual prominence of stockpiles, and these features typically do not obstruct or interrupt views of nearby mountainous terrain. Lastly, proposed program activities in and adjacent to this specific wash would not entail the removal of prominent scenic resources that contribute to the eligible state scenic designation of SR-62.

County Scenic Routes

Several highways/routes identified by Caltrans as official designated or eligible state scenic highways are also scenic routes designated by the County. For example, in the County's desert areas, the eligible state scenic highway segments of I-40, SR-62, SR-127, and SR-247 are also County-designated scenic routes. Similarly, the eligible state scenic highway segments of SR-2 and SR-330 in the Wrightwood and Highland areas are also County-designated scenic routes. Outside of the overlapping designation, several road and highway segments are solely designated as County scenic routes. County scenic routes from which proposed program activities would be visible include the following:

- San Timoteo Canyon Road in the Loma Linda SOI (Valley Region)
- Green Valley Lake Road/101 Mile Drive (Mountain Region)
- SR-18 north of I-210 in San Bernardino (Valley and Mountain Region) and through Apple Valley and Victorville (Desert Region)
- I-15 in Victorville (Desert Region)
- Historic Route 66 (National Trails Highway or Main Street) from Oro Grande northeast and east to the Arizona state line, excepting those areas within incorporated cities (Desert Region)
- Park Boulevard/Quail Springs Road from SR-62 southeast to Joshua Tree National Park (Desert Region)

As with views of proposed program activities described previously for eligible state scenic highways, views of proposed program activities from County scenic routes would be relatively brief and would generally be obscured by intervening development, terrain, and vegetation. For example, on Quail Springs Road from SR-62, southbound motorists travel through a residential neighborhood and homes would block views of stockpiles and debris removal activities occurring in and adjacent to a wash (i.e., Quail Wash; Facility No. 6-452-1A) located approximately 0.35 miles to the east at the base of a prominent hill. South of Alta Loma Drive and the residential neighborhood, development becomes more scattered and easterly views are available; however, proposed program activities would no longer be in the normal field of vision of southbound motorists. Views of proposed program activities may be available to northbound Quail Springs Road motorists between Onaga Trail and Alta Loma Drive (a distance of approximately 0.75 miles). However, along this segment, proposed program activities in Quail Wash would occur more than 0.70 miles to the northeast of potential viewers and would be partially obscured by low, mounded terrain. Further, activities would occur in and adjacent to a depressed wash lower in elevation than the road surface. As such, proposed program activities would not be substantial such that they would be particularly prominent in available northerly and northeasterly views.

Similarly, mechanized land clearing and stockpile locations would be visible to southbound SR-18 motorists as they descend the San Bernardino Mountains and enter the City of San Bernardino. Proposed program activities in the Waterman Basins (i.e., Facility Nos. 2-403-4A and 2-403-4B) would occur adjacent to SR-18 south of Arrowhead Road to 40th Street and on a disturbed site that is subject to routine land clearing and stockpiles. In addition, activities would be visually screened from view by intervening vegetation and, south of Arrowhead Road, by a berm of land (i.e., Waterman Levee; Facility No. 2-408-5A) that parallels the northbound travel lanes of SR-18. Lastly, continued debris removal activities and the presence of stockpiles would not result in the removal of trees or other particularly scenic resources and would not entail the introduction of features capable of substantially obstructing views extending to the distant southern horizon.

Based on the examples provided above for Quail Springs Road and SR-18, proposed program facilities would be visible from County scenic routes but would not entail changes that would substantially damage scenic resources. As viewed from County scenic routes, proposed program activities would occur in existing creeks, washes, and basins that are subject to periodic maintenance activities that are similar to those associated with the proposed program. Because of similar visual effects that would result from program activities, resulting visual changes would be somewhat subdued as viewed by scenic route motorists. In addition, program facilities including San Timoteo Creek (Facility No. 3-401-1B) and the Mojave River (Facility No. 4-101-1G; this facility is within 0.15 miles of Historic Route 66/National Trails Highway/Main Street) may be screened from view of receptors on nearby scenic routes or set back from the scenic route such that motorists would not readily experience visual change associated with program activities.

Summary

There are no District facilities or proposed program activities located adjacent to or near the one officially designated state scenic highway (a segment of SR-38 in the San Bernardino Mountains) in the County. Because proposed program activities would not occur adjacent to or near the designated scenic highway, no impacts to officially designated state scenic highways would occur.

As discussed above, proposed program activities (primarily mechanized land clearing/sediment removal and soil stockpiling) may be visible from segments of roadways designated as eligible state scenic highways and/or County scenic routes. Typically, views of proposed program activities would be of short duration and would be obscured or partially screened by intervening foreground elements (i.e., features between the roadway and proposed program activity area) such as vegetation, development, or terrain. In addition, proposed program activities would occur in previously disturbed areas that function as regularly maintained and modified flood control facilities or accessible stockpile locations. Lastly, continued proposed program activities along larger flood control facilities would not typically require the removal of native trees (the District permits and would continue to permit trees along the centerflow perimeters of such facilities to

remain) and many existing trees in District washes or other linear flood control facilities are invasive species. If removal of living vegetation from smaller flood control facilities is required, the least amount of removal necessary to achieve the specific maintenance objectives for the facility would occur. Based on the analysis presented above, implementation of program activities would not substantially damage scenic resources within a County scenic route. Because CEQA does not specifically address eligible state scenic highways or County scenic routes, this evaluation is provided for informational purposes only and no significance determination is provided.

Impact AES-3

Would the program substantially degrade the existing visual character or quality of the site and its surroundings?

Table 4.1-3 lists the natural channels included in the proposed program area, describes proposed program activities, and lists the proximity of the nearest receptors. Where viewers are proximate to the facility and would be able to see proposed program activities, the impact analysis includes a more detailed discussion based on facility name and location following Table 4.1-3.

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
Deer Creek Channel (1-501-1A)	Access road maintenance along west side of channel	3–13 business days	Generally not visible to single-family residences located approximately 0.70 miles south and east of Haven Road, south of Tackstem Street, and north of the Hillside Channel because of intervening terrain and residential landscaping. Haven Road and Tackstem Street are not state scenic highways or County scenic routes.
Plunge Creek (2-605-1A)	Road maintenance and application of herbicides (area is included in the Upper Santa Ana River HCP)	2–12 business days	Motorists on Greenspot Road from Church Avenue to I-210 (approximately 0.30 miles) and on I-210 from Greenspot Road south approximately 0.50 miles in Highland. Greenspot Road is not a state scenic highway or County scenic route.
Santa Ana River (3-101-1A)	Road maintenance, application of herbicides, stockpile maintenance, vegetation management, vector control; this is also a water spreading facility (if flood control maintenance due to a larger storm event is not required, local water district maintain the facility to water mark)	1–11 business days	Motorists on Greenspot Road (located 200 feet east of Facility No. 3-101-1A at river crossing) in southeastern Highland. Greenspot Road is not a state scenic highway or County scenic route.

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
Santa Ana River (3-101-1B)	Excavation and maintenance of a levee access road (approximately 1,800 feet long) includes application of herbicides, vector control, and bank repair; work also includes bridge maintenance along Orange Street	6–16 business days	Motorists on East Pioneer Avenue located within 0.25 miles of the facility in San Bernardino; residents on two private properties abutting Santa Ana River and located north of East Pioneer Avenue and west of Judson Street. East Pioneer Avenue and Judson Street are not state scenic highways or County scenic routes.
Santa Ana River (3-101-1C)	Maintenance of access road and application of herbicides along Alabama Culvert and Orange Street; also includes levee maintenance (i.e., access road maintenance, application of herbicide, and bank repair), vegetation management (mostly using hand tools and involving invasive species), and sand and gravel operations between Alabama Street and I-210	Excavation: 6–16 business days Sand and gravel operations: 24 months	Motorists on I-210 and Alabama Street at Santa Ana River crossing in San Bernardino. I-210 and Alabama Street are not state scenic highways or County scenic routes.
Santa Ana River (3-101-1D)	Access road maintenance, application of herbicides, and vegetation management along Tippecanoe, bank repair of revetment and earthen slopes	10–20 business days	Motorists on South Tippecanoe Avenue, Mountain View Avenue, and Alabama Street at river crossing in San Bernardino; motorists on Riverview Drive (within 0.15 miles of Facility No. 3-101-1D); motorists on I-210 at river crossing (north of San Bernardino Avenue and south of Greenspot Road) are located approximately 0.50 miles from Facility No. 3-101-1D. South Tippecanoe Avenue, Mountain View Avenue, Alabama Street, and I-210 are not state scenic highways or County scenic routes.
City Creek (3-301-1C)	Bank repair, access road maintenance, application of herbicide and rodenticide, vector control, spillway repair, and sediment removal	10–20 days	Motorists on Base Line and Highland Avenue at creek crossing in Highland; motorists on the SR-330 northbound City Creek Road off-ramp; motorists on SR-330 between North Boulder Avenue and Highland Avenue are located within 350 feet of the facility; residents are located within 100 feet of the facility. Near 3-301-1C, SR-330 is a state scenic highway (eligible) and a County scenic route. Base Line, Highland Avenue, and North Boulder Avenue are not state scenic highways or County scenic routes.

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
San Timoteo Channel (3-401-1B)	Sand and gravel operations	24 months	Motorists on Alessandro Boulevard at San Timoteo channel crossing and approximately 700 feet north of the crossing (Alessandro Road marks the southeastern extent of Facility No. 3-401-1B) in Smiley Heights area of Redlands; motorists on San Timoteo Canyon Road from Palomares Road east for approximately 0.45 miles; ridgeline residences along the northern edge of San Timoteo Canyon and located over 0.20 miles from Facility No. 3-401-1B; trail-based recreationists at the San Timoteo Nature Sanctuary. Alessandro Boulevard, Alessandro Road, and Palomares Road are not state scenic highways or County scenic routes. San Timoteo Canyon Road is a County scenic route.
Zanja Creek (3-501-1F)	Limited work includes access road maintenance, application of herbicides, sediment removal, bank repair, vector control, and vegetation management (mostly using hand tools and involving invasive species)	3–13 business days	Motorists on Sylvan Boulevard (adjacent and parallel to Zanja Creek for approximately 460 feet) east of Judson Street in Redlands area; single-family residence at southeast corner of Judson Street/Sylvan Boulevard intersection, mobile homes abutting Zanja Creek in the Sylvan Mobile Estates community, and approximately six single-family residences on Sylvan Boulevard immediately north of the creek. Sylvan Boulevard and Judson Street are not state scenic highways or County scenic routes.
Mill Creek (3-801-1A)	Access road maintenance, application of herbicides, and some bank repair	2–12 business days	Motorists on SR-38 approximately 0.25 miles east of Old Mill Creek Road (SR-38 marks the northern extent of Facility No. 3-801-1A) in the Mountain Home Village area; rural residences on properties along Alder Drive and abutting Mill Creek. Old Mill Creek Road and Alder Drive are not state scenic highways or County scenic routes.
Mill Creek (3-801-1C)	Excavation upstream of bridge to convey downstream flows; this is also a water spreading facility (if flood control	2–12 business days	Motorists on Gannet Street at Mill Creek crossing in the Mentone area; Facility No. 3-801-1D occurs to the

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
	maintenance due to a larger storm event is not required, local water district maintains the facility to water mark)		west of Gannet Street at the crossing (see below), and Facility No. 3-801-1C occurs to the east within Mill Creek. Gannet Street is not a state scenic highway or County scenic route.
Mill Creek (3-801-1D)	Access road maintenance and related herbicide, bank repair, sediment removal, vector control, concrete repair, and limited vegetation management (no mowing)	5–15 days	Motorists on Gannet Street (street spans Mills Creek and marks the eastern extent of Facility No. 3-801-1D) and Florida Avenue/Greenspot Road (located as close as 60 feet to Facility No. 3-801-1D) near the Santa Ana River corridor in the Mentone area; Santa Ana River Trail recreationists from Gannet Street west for approximately 1.15 miles; limited rural residences located on Gannet Street and Florida Avenue/Greenspot Road. Gannet Street and Florida Avenue/ Greenspot Road are not state scenic highways or County scenic routes.
Mojave River - Forks Dam (4-101-1C)	Approximately 5 miles of levee maintenance, maintenance of approximately 3 miles of 150-foot center flowing south of Bryman Road and upstream of Rock Springs Road, and invasive species removal using hand tools and, if invasives exceed 10% of groundcover, sprayers and mechanized equipment	20–30 business days	Motorists on Deep Creek Road (adjacent to Facility No. 4-101-1C for approximately 2 miles), Arrowhead Lake Road (as close as 0.20 miles), and Calpella Avenue (as close as 300 feet); rural residences located on Deep Creek Road and residences located on Calpella Avenue; also, recreationists and spectators at Hesperia Lake Park. Deep Creek Road, Arrowhead Lake Road, and Calpella Avenue are not state scenic highways or County scenic routes.
Mojave River (4-101-1D)	This is a water spreading facility; local water district maintains to water mark unless larger storms require flood control maintenance	40–50 business days	Motorists on Bear Valley Road and Rocksprings Road (at Mojave River crossing), motorists and residents of Jess Ranch Parkway, Orchid Avenue, Choiceana Avenue, Wilson Avenue, Glendale Avenue, and Poppy Road; recreationists (golfers) at the Ashwood Golf Course (the course is adjacent to Facility No. 4-101-1D on the east in the Jess Ranch development area of Apple Valley). The roads listed above are not state scenic highways or County scenic routes.

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
Mojave River (4-101-1E)	This is a water spreading facility; local water district maintains to water mark unless larger storms require flood control maintenance	40–50 business days	Motorists on Bear Valley Road (at Mojave River crossing), western terminus of Sitting Bull Road, and Yates Road (at Mojave River crossing); residences abutting the channel along Indian River Drive, Arrowhead Trail, Riverview Drive, Driftwood Drive, Yucca Loma Drive and Appaloosa Road; recreationists and spectators at Victor Valley College soccer and softball fields (the college fields abut the Mojave River). The roads listed above are not state scenic highways or County scenic routes.
Mojave River (4-101-1F)	This is a water spreading facility; local water district maintains to watermark unless larger storms require flood control maintenance	40–50 business days	Motorists on I-15 (at Mojave River crossing in Victorville), SR-18 (between the Mojave River crossing and I-15; located within 375 feet), 6th Street (north of SR-18 and south of E Street; located within 350 feet), and Abbey Lane (within 100 feet of Mojave River) in Victorville; residents north of E Street, west of 6th Street and east of Willow Street (several properties back to Facility No. 4-101-1F) and residents of a mobile home community on Stoddard Wells Road. Recreationists at Eva Dell Park (15714 First Street). The segments of I-15, SR-18, and local roads near Facility No. 4-101-1F are not state scenic highways or County scenic routes.
Mojave River (4-101-1G)	Vegetation management mostly in the dry slopes/access roads, intermittent vegetation management following rains; mowers are sometimes needed adjacent to the levee tops	20–30 business days	Motorists on Shay Road, National Trails Highway, and Turner Road near the communities of Oro Grande and Mojave Heights and George Air Force Base; Riverside Preparatory High School and several rural residences are located adjacent to the Mojave River floodplain near this facility. Shay Road and Turner Road are not state scenic highways or County scenic routes. National Trails Highways is a County scenic route near Facility No. 4-101-1G.
Mojave River (4-101-1H)		4–14 business days	Motorists on Heritage Way north of Gator Drive and south of Bryman

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
			Road of the community of Bryman. Heritage Way and Gator Drive are not state scenic highways or County scenic routes.
Mojave River (4-101-1I)		20–30 business days	Motorists on Shadow Mountain Road, Helendale Road, and Lewis Ranch Road in the southern portion of the Helendale/Silver Lakes community located approximately 8 miles west of I-15 and 20 miles southwest of Barstow. Shadow Mountain Road, Helendale Road, and Ranch Road are not state scenic highways or County scenic routes.
Mojave River (4-101-1J)	Access road maintenance, stockpile maintenance	20–30 business days	Motorists on Vista Road, Helendale Road, Smithson Road, Holcomb Ranch Road, and Indian Trail in the northern portion of the Helendale/ Silver Lakes community; also, motorists on Hinkley Road in the Johnston's Corner area. The roads listed above are not state scenic highways or County scenic routes.
Mojave River (4-101-1K)		30–40 business days	Motorists on Lenwood Road and Hinkley Road in the Lenwood/Barstow area; Lenwood Road and Hinkley Road traverse the Mojave River at grade and delineate the eastern and western extent of Facility No. 4-101-1K; rural residences east of Hinkley Road and north of Jiggs Road. Lenwood Road, Hinkley Road, and Jiggs Road are not state scenic highways or County scenic routes.
Mojave River (4-101-1L)	This is a water spreading facility; local water district maintains to water mark unless larger storms require flood control maintenance	40–50 days	Motorists on SR-58, Lenwood Road, North 1st Avenue, and Irwin Road (at Mojave River crossing) in the Lenwood and Barstow areas; also, rural residences north of Agate Road and south of Community Boulevard and residences located east of Old Community Boulevard, west of Irwin Road, and south of Old Highway 58 in Barstow; motorists on I-15 generally from SR-58 to SR-247. The segments of SR-58 and I-15 near Facility No. 4-101-1L are state scenic highways.

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
			The other roads listed above are not state scenic highways or County scenic routes.
Mojave River (4-101-1M)	This is a water spreading facility; local water district maintains to watermark unless larger storms require flood control maintenance	40–50 days	Motorists on Dagget–Yermo Road at and approaching the Mojave River bridge located approximately 1 mile north of I-40 near the community of Dagget (Facility No. 4-101-1M is located to the west of Daggett Yermo Road); motorists on I-15 at span of Mojave River. Dagget-Yermo Road is not a state scenic highway or County scenic route. I-40 and I-15 near Facility No. 4-101-1M are state scenic highways (eligible).
Mojave River (4-101-1N)	Vector control and stockpile maintenance	20–30 business days	See above for Facility No. 4-101-1M; Facility No. 4-101-1N is located to the east of Daggett Yermo Road at the Mojave River span. Facility is within 0.50 miles of I-40 and within 1.65 miles of I-15 (activities would not be visible from I-15 due to distance and intervening terrain and development).
Adelanto East Channel (Adelanto, Mojave Desert; 4-355-1A)	15 feet of sediment removal of a low-flow channel; vegetation management is limited to debris and weed removal (99% invasives), using hand tools	5–15 business days	Motorists on U.S. Route 395 at highway crossing, motorists on local dirt roads including Auburn Avenue, Montezuma Street, Vintage Road, Jonathan Street, Pearlman Street, and paved Adelanto Road in the Adelanto area. U.S. Route 395 and the roads listed above are not state scenic highways or County scenic routes.
Green Valley Creek (Green Valley Lake; 5-211-1A)	Limited vegetation management (30% invasives) using hand tools; native vegetation includes wetland plants and trees including cattails, reeds, and willows	4–14 business days	Motorists on adjacent Green Valley Lake Road, Wild Rose Drive, Bluebird Lane, and Lakeside Drive and private properties adjacent to creek. Green Valley Lake Road is a County scenic route. Wild Rose Drive, Bluebird Lane, and Lakeside Drive are not state scenic highways or County scenic routes.
Seeley Creek (Crestline/Valley of Enchantment; 5-312-1B)	Limited vegetation management includes use of hand crews to trim vegetation, some bank repair, and concrete repair of drain under roadway	1–11 business days	The maintained segment of the creek is located within 120 feet of SR-138 but activities would not generally be visible to motorists or other public viewers due to intervening vegetation and development. SR-138 is a state scenic highway (eligible).

Table 4.1-3
Program Activities in Natural Channels

Facility Name and Number	Description of Work	Maintenance Duration	Nearest Viewers
Joshua Tree Wash (Joshua Tree; 6-452-1B)	Access road maintenance, application of herbicides, sediment removal, bank repair, vector control, concrete repair. Vegetation management (90% is invasive species removal) involves 50% use of hand tools	10 business days	Motorists on SR-62 (northern extent of wash is perpendicular to highway) and local access roads south of the highway including Desert Air Road, El Reposo Street, and Conejo Avenue. Near SR-62, Facility No. 6-452-1B is a state scenic highway (eligible) and a County scenic route. Desert Air Road, El Reposo Street, and Conejo Avenue are not state scenic highways or County scenic routes.
Grout Creek (Grout Bay/Big Bear Lake; 6-703-1A)	Vegetation management (removal and thinning) only using hand tools	1–11 business days	Motorists on adjacent Seminole Drive (parallels creek for approximately 530 feet) and SR-38 (highway spans creek). Near Facility No. 6-703-1A, SR-38 is a state scenic highway (eligible).

Note: Facilities would be maintained once every 3 years, on average.

Natural Channels

Deer Creek Channel (Facility No. 1-501-1A)

Facility No. 1-501-1A is located at the base of Cucamonga Peak, one of the highest peaks of the San Gabriel Mountains. The nearest potential viewers to the access road along the west side of the maintained facility are three single-family residences located approximately 0.35 miles away on Snowdrop Street. Although these residences are located relatively close to Facility No. 1-501-1A, rugged and dense California buckwheat scrub-covered mountainous terrain is located to the east of the residences and entirely blocks potential views of the light-colored access road. Similarly, gradually rising and densely vegetated foothills and mountainous terrain to the south of Facility No. 1-501-1A generally blocks the access road and maintenance activities from the view of northbound motorists on Haven Avenue (north of Ringstem Drive) and nearby residents in the gated Haven View Estates neighborhood. Landscape trees on private residential properties in the neighborhood also obstruct views from residential properties to annual access road maintenance activities, which would occur for an approximate duration of 3 to 13 business days. Because of distance and the screening effect of intervening mountainous terrain and public and private landscaping, the light-colored, smooth access road is blocked from view at public vantage points. Therefore, no impacts to existing visual character and quality associated with access road maintenance along the west side of Deer Creek Channel at Facility No. 1-501-1A would occur.

Plunge Creek (Facility No. 2-605-1A)

The wide, expansive floodplain in which Facility No. 2-605-1A is located has been visibly altered by industrial and commercial development and extractive mining operations. A commercial shopping center and a self-storage business are located on Greenspot Road east of I-210 and the floodplain has been modified by vegetation management and grading to facilitate the installation of access roads, sand and gravel extraction operations, and the storage of concrete infrastructure. Program activities at Facility No. 2-605-1A would include existing road maintenance and application of herbicides. These activities would occur annually for an approximate duration of 2 to 12 business days. Because the local landscape has been visibly altered by extractive operations, other developments, and numerous access roads, and because the Plunge Creek access road is an existing feature in the landscape, continued maintenance of the road would not substantially affect the existing visual character and quality of the floodplain. The annual application of herbicides would alter the density and spread of vegetation within the mapped extents of Facility No. 2-605-1A and the Plunge Creek corridor. However, due to current and ongoing application of herbicides, the vegetative growth and maintenance process within Facility No. 2-605-1A and the associated visual effects are cyclical. Because vegetation within Facility No. 2-605-1A is subject to regular maintenance, the public should anticipate that the visual condition of Plunge Creek is subject to change. In addition, the heavily modified appearance of the surrounding floodplain lowers viewers' expectations for scenic resources and their sensitivity to visual change in the floodplain. Impacts to existing visual character and quality resulting from road maintenance and application of herbicides at Facility No. 2-605-1A would be less than significant.

Santa Ana River (Facility No. 3-101-1A)

This facility is located east of Greenspot Road, south of Santa Ana Canyon Road, and approximately 0.70 miles downstream of the earth and rock fill embankment Seven Oaks Dam. Facility No. 3-101-1A consists of a rocky and sandy stretch of the Santa Ana River that is armored by ascending slopes densely covered in small white and grey riprap. The mapped extents of the facility is bordered by rugged mountainous terrain to the north, east, and south, and limited agricultural development, a large detention basin, and undeveloped lands to the immediate west. Greenspot Road is located approximately 0.10 miles west of the western extent of the facility and provides access to suburban residential development located further to the west. Because of the screening effect of mountainous terrain in the surrounding area and the general lack of development to the immediate west, potential viewers would consist primarily of passing motorists on Greenspot Road.

During annual maintenance that would occur for an approximate duration of 1 to 11 days, maintenance vehicles and personnel engaged in access road maintenance and related herbicide application, stockpile maintenance, vegetation management, and vector control activities would be

visible to Greenspot Road motorists. Facility No. 3-101-1A is also water spreading facility. A cement truck, dozer, dump truck, grader loader, and water truck may be visible in the river channel during of routine maintenance; however, vehicles do not operate in the channel for the majority of the year, and views of vehicles from Greenspot Road would be brief. Because of the limited duration of maintenance activities, the temporary presence of vehicles in the channel would not substantially affect the existing visual character of the channel or surrounding alluvial and mountainous landscape. Also, the existing maintenance regime is similar to that included in the proposed program and is designed to achieve the optimal operating condition of the facility. Because the maintenance regime of the proposed program would produce similar visual effects to the existing maintenance regime, maintenance activities would generally preserve the existing visual condition of Facility No. 3-101-1A. Therefore, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 3-301-1A would be less than significant.

Santa Ana River (Facility No. 3-101-1B)

Facility No. 3-101-1B is located downstream of Facility No. 3-101-1A and consists of four discontinuous stretches of the Santa Ana River. The eastern stretch resides in the same viewshed as Facility No. 3-1011-1A and as such, potential viewers are generally limited to Greenspot Road motorists. Two discontinuous stretches of this facility are located along the southern banks of the river and are north of commercial agricultural groves, long industrial warehouses, and Redlands Municipal Airport. The easternmost portion of Facility No. 3-101-1B consists of the Orange Street Bridge, which spans the river to the east of I-210. Nearby uses to the Orange Street Bridge include the Redlands Shooting Park, and passive park uses along the northern border of The Redlands, a single-family-housing development.

Program activities at the four sites would include access road maintenance along the Santa Ana River Trail (access road maintenance include herbicide application, vector control, and bank repair), and bridge maintenance along Orange Street. The majority of maintenance activities would occur every 3 years. Maintenance activities would occur for an approximate duration of 6 to 16 days in the fall or winter.

With the exception of the Orange Street Bridge and easternmost portion of the facility, proposed program activities at Facility No. 3-101-1B would be obscured from view by distances and intervening development. Because of the limited duration of maintenance activities, the temporary presence of vehicles in the channel would not substantially affect the existing visual character of the channel or surrounding alluvial and mountainous landscape. In addition, the existing maintenance regime is similar to that included in the proposed program and would produce similar visual effects. Maintenance activities would generally preserve the existing visual character of Facility No. 3-101-1B. Therefore, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 3-301-1B would be less than significant.

Santa Ana River (Facility No. 3-101-1C)

Facility No. 3-101-1C consists of four discontinuous work areas in the Santa Ana River corridor and between Orange Street on the east and Alabama Street on the west. This area of the Santa Ana River corridor has been visibly altered by extensive extractive mining operations and is spanned by I-210 and several local roads. Land uses adjacent to the river include industrial warehouse facilities and agricultural groves to the south and commercial and industrial development to the north. Potential viewers of proposed program activities primarily consist of motorists on Alabama Street, I-210, and Orange Street.

Program activities would consist of access maintenance and vegetation management on Alabama Street and Orange Street, levee maintenance (i.e., access road maintenance, related herbicide and bank repair) between Alabama Street and the I-210, and sand and gravel operations to the east of I-210. With the exception of sand and gravel operations, maintenance activities would occur for an approximate duration of 2 to 12 days. Vegetation management currently occurs at the identified Facility No. 3-101-1C area and results in regularly occurring and familiar visual effects to vegetative material culverts and access roads. Given the existing visual character and quality of these facilities, which are regularly subjected to vegetation management activities and altered, yet familiar, visual conditions, continued vegetation management would not substantially degrade existing visual character or quality. Impacts would be less than significant.

Depending on the market and the volume of stockpiled material at any given site, sand and gravel operations are generally present in the visual environment for an average of 2 years, but this can extend up to 5 years. Sand and gravel operations are facilitated by graders, loaders, dump trucks, and water trucks, but equipment also includes grizzlies (i.e., a system of bars or similar equipment applied over debris and sediment container to screen out large cobbles and boulders), portable power screens (which can run 5 days a week), and portable power crushers.

Sand and gravel operations at Facility No. 3-101-1C would occur in modified alluvial river channel landscape of moderately low visual quality that, in addition to the channel, includes previously disturbed lands supporting industrial and extractive land uses. Although components of extractive operations may be occasionally screened from motorists' view by elevated berms in the channel or roadside adjacent landscaping, the typically bright tones and vertical profile of the mobile and stationary equipment used in sand and gravel operations enhances the visibility of operations and increases opportunities for noticeable contrast in form, line, and scale. The landscape in which the sand and gravel operation occurs displays low visual quality and low site sensitivity (based on existing visual conditions and a general lack of zoning or land use designations protecting scenic resources). As a result, and because sand and gravel operations currently occur at Facility No. 3-101-1C, continued sand and gravel operations would not dominate the visual scene or create particularly strong (or new) contrast in available views.

Therefore, impacts to existing visual character and quality resulting from sand and gravel operations at Facility No. 3-301-1C would be less than significant.

Santa Ana River (Facility No. 3-101-1D)

Facility No. 3-101-1D is a winding stretch of the Santa Ana River stretching from South Tippecanoe Avenue on the west to Alabama Street to the east. Maintenance activities would generally occur along the southern bank of the river's stretch and adjacent land uses consist of a commercial storage facility, logistics centers and large and long office building and warehouses, and Southern California Edison's Mountainview Generating Station. The San Bernardino International Airport borders the northern bank of the river. The landscape surrounding Facility No. 3-101-1D displays a primarily industrial character. Motorists on South Tippecanoe Avenue and Alabama Street are the primary viewers afforded views of the proposed program activity work area. Because of intervening development and the winding nature of the river channel, the views of motorists would generally be limited to the western and eastern extents of Facility No. 3-101-11D that abut South Tippecanoe Avenue and Alabama Street.

Maintenance would generally occur for an approximate duration of 10 to 20 days. Activities would include access road maintenance and related application of herbicides, vegetation management along Tippecanoe Avenue, and bank repair of revetment and earthen slopes. Because of distance and intervening development and vegetation, the majority of bank repair activities would not be visible to motorists. Additionally, bank repair, access road maintenance, and vegetation management are current components of existing maintenance regime at Facility No. 3-101-1D and as such, viewers are somewhat familiar with maintenance vehicles' presence in the river channel to perform these activities. In addition, viewers would be familiar with the visual effects associated with newly graded access roads, thinned or removed vegetation along the roadway, and bank repair. Although the public may view equipment and vehicles in the river channel as a nuisance, these features would be present in the landscape for a limited duration. In addition, given the recurring nature of maintenance activities and the existing visual appearance of the river corridor, the continued, temporary presence of equipment and vehicles would not be out of character with existing conditions. Because similar activities are included in the current maintenance regime and would produce familiar and recurring visual effects, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 3-301-1D would be less than significant.

City Creek (Facility No. 3-301-1C)

Facility No. 3-301-1C is initially a wide, primarily undeveloped creek corridor that ultimately tapers to the north toward East Highland Way. The terrain is stippled with low-mounded shrubs, is traversed internally by several dirt access roads, and is lined on the west and east by relatively

wide dirt access roads. The thin, curving, and at times braided line of the vegetated City Creek corridor generally runs north–south and is aligned along the western border of Facility No. 3-301-1C. The facility is located immediately north of Base Line, south of East Highland Avenue, east of commercial and single-family residential development, and west of single-family residential development in Highland.

Motorists on Base Line and East Highland Avenue are afforded brief views of the southern (Base Line) and northern (East Highland Avenue) extents of Facility No. 3-301-1C. Base Line parallels Facility No. 3-301-1C for approximately 0.23 miles and East Highland Avenue parallels the facility for approximately 320 feet. Views of proposed program activities are also available to viewers in private residences abutting Facility No. 3-301-1C and the City Creek corridor. Program activities, including repair of the rocky, tan soil banks, access road maintenance, application of herbicides, and resulting thinning of vegetation in the creek corridor and along access roads, would be visible to motorists and private residents. Maintenance vehicles engaged in sediment removal activities occurring near the roadways would also be visible as they slowly travel along District access roads accessible from Base Line and East Highland Avenue. However, visual change (i.e., slight contrasts in color in creek bed soils and the removal of mounded or built up sediment from the creek bed) may be masked from view by the local terrain (along Base Line) and creek vegetation (along East Highland Avenue).

Similar to existing conditions, proposed program activities at Facility No. 3-301-1C would occur once every 3 years and anticipated duration of routine maintenance activities would be 10 to 20 days. Although maintenance vehicles, including cement and dump trucks, dozers, loaders, scrapers, tractors, and water trucks, operating at Facility No. 3-301-1C would be visible to local motorists and nearby private residents, the limited frequency and relatively short operating duration of these vehicles would not substantially degrade the existing visual character and quality of the creek corridor. The public may view equipment and vehicles as a nuisance; however, given the recurring nature of maintenance activities and the visual appearance of spillway and creek corridor, the continued, temporary presence of equipment and vehicles would not be out of character with existing conditions. Once maintenance activities are complete, maintenance vehicles and equipment would be removed from the site and would no longer be present in views of Facility No. 3-301-1C.

The visual effects of proposed program activities including the smoothing of access roads and concrete bank segments and thinning of vegetation would be detectable in views from Base Line and East Highlands Avenue and private residences however, long-term impacts to existing visual character and quality would be less than significant. Once repaired, creek banks would display similar characteristics (i.e., form, color, texture) as existing rocks, sediments, and sands (or near East Highland Avenue, concrete) that compose the existing side slopes of City Creek. In addition, repair of the existing spillway would enhance the appearance of the flood control

structure through the removal of damaged and/or improperly operating components. Therefore, bank and spillway repair would not create visual contrasts that would attract attention and dominate available views and would not entail fundamental alterations to the visual characteristics of Facility No. 3-301-1C. In addition, the creek corridor is subjected to similar recurring visual effects under the existing maintenance regime and proposed program activities would essentially continue to produce these expected effects.

Impacts to existing visual character and quality resulting from proposed program activities at Facility No. 3-301-1C would be less than significant.

San Timoteo Channel (Facility No. 3-401-1B)

Facility No. 3-401-1B consists of a primarily flat and denuded triangular-shaped property dotted with mounded deposits of sand and gravel and an undulating access road aligned through an adjacent riparian corridor. The access road connects the denuded property that is bound by railroad tracks to the south and Alessandro Boulevard to the north to a series of seasonally vegetated channel basins separated by low check dams. With the exception of the riparian corridor through which the access road is aligned, the visual character of the San Timoteo Channel is characterized as a wide corridor modified by vegetation management and sediment removal associated with the maintenance of basins and access roads. Basins are seasonally covered with vegetation and a large stand of tall gum trees (*Eucalyptus* sp.) is located upslope of the channel and to the west of Facility No. 3-401-1B. The rising canyon terrain lining the corridor is rugged and covered with tan grasslands and chaparral.

The western extent of the Facility No. 3-401-1B access road is visible to nearby eastbound San Timoteo Canyon Road motorists. From the road, this feature appears as a thin, smooth, curving line in the landscape. Because it is an existing feature in the San Timoteo Canyon landscape, the continued presence of the access road would not substantially affect existing visual character and quality. Proceeding eastwards, views of the triangular property portion of Facility No. 3-401-1B are entirely blocked by existing orange groves and are not available until the railroad crossing on Alessandro Boulevard. Still, motorists' views of the property are partially obscured by remnant orange trees planted along Alessandro Boulevard. Under existing conditions, mounds of sand and gravel are deposited on the property and the ongoing presence of these materials would not substantially affect existing visual character and quality as experienced by Alessandro Boulevard motorists. Existing landscaping and terrain would generally block sand and gravel operations at Facility No. 3-401-1B from the view of residences located east of Alessandro Boulevard and north of Creekside Drive in the Live Oak Canyon area. Ridgeline residences along Smiley Drive may be afforded views of the triangular property; however, because similar program activities are proposed on the property and would occur at a similar frequency and duration (biennially, or once approximately every 24 months) as under existing conditions, the quality of existing views and

character of the canyon as experienced from ridgeline residences would be maintained. Views of sand and gravel operations on the triangular property from the San Timoteo Nature Sanctuary's temporary parking area adjacent to Alessandro Boulevard would be screened by dense vegetation in the San Timoteo Channel and along an adjacent property line. Vegetation would also block mounded sand and gravel deposits and maintenance vehicles and equipment on Facility No. 3-401-1B from the view of users of the San Timoteo Nature Sanctuary's Carriage Trail. During hikes, trail users may observe slow-moving maintenance vehicles traveling on the access road; however, maintenance vehicles would be partially screened by riparian vegetation. Current sand and gravel operations and use of the access road by maintenance vehicles, and existing modifications that have occurred to the canyon are also likely to lower visual expectations and reduce sensitivity to ongoing program activities occurring at Facility No. 3-401-1B. Therefore, impacts to existing visual character and quality would be less than significant.

Zanja Creek (Facility No. 3-501-1F)

Relatively flat terrain developed with low-profile mobile and single-family homes and generally narrow, unstriped two-lane roads lined with turf parkways, street trees, and hedges typify the local landscape surrounding Facility No. 3-501-1F. Zanja Creek is a narrow, depressed waterway bordered by grass and shrub covered terrain that rises to the north toward Sylvan Boulevard and to the south toward mobile and single-family home development. Program activities at Facility No. 3-501-1F would be limited and would consist of annual access road maintenance, herbicide application, sediment removal, bank repair, and vegetation management that would occur over a 3- to 13-business-day period. In addition to several nearby residences, proposed program activities would be visible to motorists and pedestrians on Sylvan Boulevard. With the exception of vegetation management and herbicide application, the visual effects of proposed program activities would generally be difficult to detect in views. Existing vegetation and the descending creek banks would obscure bank repair and sediment removal along the creek bed from view of motorists and pedestrians. Proposed annual vegetation management and herbicide application currently occurs along the creek corridor and within the mapped extents of Facility No. 3-501-1F and results in cyclical and familiar visual effects on vegetative material. Similar patterns of effects and experiences of the changeable character of the creek would result from access road maintenance. Given the existing visual character and quality of the creek, which is subjected to vegetation management activities and other proposed program activities on a routine basis, the continuance of vegetation management and other proposed program activities would not substantially degrade existing visual character or quality. Impacts would be less than significant.

Mill Creek (Facility No. 3-801-1A)

As SR-38 motorists approach and pass the small community of Mountain Home Village, relatively dense and occasionally moderately tall vegetation covers the descending terrain to the south of the

state route. With the exception of the northeastern mapped extents of Facility No. 3-801-1A that abuts SR-38 approximately 0.25 miles east of Old Mill Creek Road, existing vegetation blocks views of the facility and associated access road maintenance and bank repair locations from state route motorists. Visual effects resulting from the biennial application of herbicides would be visible to passing motorists in the days and weeks following application. Generally, vegetation subject to applied herbicides would appear less dense and full and may suffer from wilting and yellowing effects. However, due to ongoing application of herbicides, the vegetative growth and maintenance process within Facility No. 3-801-1A and the associated visual effects experiences from SR-38 are cyclical.

Several residential properties located on Alder Drive and Bright Way abut or are afforded partially obstructed views of Facility No. 3-801-1A and Mill Creek. The creek is characterized by a dullish grey rock and sandy soil bottom marked by clumped pockets of moderately tall vegetation, including yellow flowering shrubs. Because the existing access road is an existing feature that displays a noticeable, light-colored line in the landscape, the continued presence of this feature and maintenance every 2 years would not substantially affect existing visual character and quality. Application of herbicides and bank repair activities would result in a less than significant impact on visual character and quality because these activities currently occur at a similar frequency as is proposed by the program. Mountain Home Village residents would notice the presence of maintenance vehicles and personnel in Mill Creek and Facility No. 3-801-1A. However, maintenance activities would occur for a 2- to 12-day period every third year.

Because the limited visual effects of proposed program activities experienced by SR-38 motorists are cyclical and because bank repair, herbicide application, and access road maintenance currently occur in Facility No. 3-801-1A and the program proposes to continue these activities at a similar frequency, impacts resulting from proposed program activities at Facility No. 3-801-1A would be less than significant.

Mill Creek (Facility Nos. 3-801-1C and 3-801-1D)

Facility Nos. 3-801-1C and 3-801-1D are located downstream of Facility No. 3-801-1A and are situated in Mill Creek to the east and west of the Garnet Street crossing in Mentone. Although the stretch of Facility No. 3-801-1C to the east of Garnet Street is short (approximately 300 feet), Facility No. 3-801-1D extends west from Garnet Street and upstream for approximately 1.3 miles. From both the north and the south, Garnet Street motorists are not afforded views of the rocky, sandy, and low clumped shrub-covered bed of Mill Creek until crossing the existing bridge structure.

A portion of Facility No. 3-108-1C encompasses the concrete-armored north slope of the creek that occurs to the east of Garnet Street. At the creek crossing, motorists would be afforded brief peripheral views of proposed sediment removal activities that would slightly alter the visual

appearance of the creek bed through the removal of rocks and vegetation and exposure of larger, sandy soil areas. However, because sediment removal activities currently occur at Facility No. 3-108-1C, large sandy soil areas are currently present on the creek bottom. As such, proposed program activities would not substantially affect the existing visual character and quality of Facility No. 3-108-1C. The presence of water in the creek bed and use of the creek as a water spreading facility would not create perceptible visual contrast and would not substantially affect existing visual character and quality. To the west of Garnet Street, creek banks are composed of rocky, shrub-marked terrain and the smooth line of an access road is visible in the creek bed. Views of proposed program activities at Facility No. 3-108-1D would also be available to residents of several rural agricultural properties that abut northern bank of the creek. Because of the short duration of the available view and maintenance frequency (once every 3 years, lasting 5 to 15 days), the presence of maintenance vehicles in the creek and proposed program activities including access road maintenance, bank repair, sediment removal, concrete repair, and limited vegetation management would not substantially affect the visual character of the creek. The visual effects of the majority of these activities would not be overly noticeable in the brief views afforded to passing motorists and residents. Also, visual changes to the form, line, and color of the creek bed resulting from bank repair and sediment removal activities may be screened from view by existing terrain and vegetation. Lastly, similar activities currently occur in Mill Creek upstream of the Garnet Avenue Bridge and contribute to the changeable visual character of the maintained creek.

Because of the brief duration of views afforded to motorists and because activities of a similar nature and frequency occur in Mill Creek and reduce viewer expectations of a natural creek channel, impacts to existing visual character and quality resulting from proposed program activities at Facility Nos. 3-801-1C and 3-801-1D would be less than significant.

Mojave River (Facility No. 4-101-1C)

The approximately 5-mile-long reach of Facility No. 4-101-1C is located south of the Rocksprings Road Mojave River crossing and abuts undeveloped desert lands, mobile and rural residential home development, limited agricultural operations, and Hesperia Lake Park. The Forks Dam, an earth-fill dry dam, is also included in Facility No. 4-101-1C. Deep Creek Road and Centennial Street parallel the east extent of the facility and Calpella Avenue and Arrowhead Lake Road are located near the western extent. Within Facility No. 4-101-1C, the Mojave River is generally flat but features occasional mounds and embankments covered with spreading and low shrubs, grasses, sporadic trees, and patches of spreading vines. The presence of several linear embankments and perpendicular berms suggests that agricultural operations may have occurred within the river channel.

During the 20- to 30-day duration of routine activities (maintenance would occur once every 3 years in the summer and/or fall), cement and dump trucks, dozers, excavators, graders,

loaders, and scrapers may be operating in the river channel at any given time. Levee and center flowline maintenance work, as well as invasive species removal with hand tools and mechanized equipment, would be visible to local motorist and residents. However, similar maintenance activities currently occur in the river channel at a similar duration and frequency. Therefore, the presence of maintenance vehicles, equipment, and personnel in the Mojave River channel would be familiar to area viewers and maintenance activities would create similar visual effects. In addition, once repaired/maintained, the slopes of the Forks Dam and center flowline would display similar visual characteristics as the existing earthen dam slopes and riverbed centerline. Maintenance of the existing levee and center flowline would also enhance the appearance of the levee and channel through the removal of damaged and/or improperly operating components or built-up sediment deposits. Invasive species removal would enhance the character of the channel and improve views of the channel from the surrounding area through the removal of dissimilar features and materials from the maintained natural channel landscape. In addition to the beneficial effects of invasive species removal, levee and channel repair would not create strong visual contrast, would not dominate views, and would not entail fundamental alterations to the visual character of Facility No. 4-101-1C. Therefore, impacts to the existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1C would be less than significant.

Mojave River (Facility No. 4-101-1D)

The mapped extents of the sandy and low mounded shrub-stippled river channel that composes Facility No. 4-101-1D are wide (i.e., generally over 1,000 feet in width) and have a long linear reach (approximately 4.2 miles). A shorter, discontinuous, sandy, shrub-dotted channel located off Carob Street/Orchid Avenue to the west of the larger facility is also included in Facility No. 4-101-1D. Stretching from Bear Valley Road south to Rock Springs Road, Facility No. 4-101-1D abuts undeveloped land, commercial shopping center, rural residences (to the west of the river) and master planned single-family development (to the east of the river), a green and tee box of a golf course, and an elementary school. A railroad supported on elevated tracks spans the southern extent of Facility No. 4-101-1D and the Mojave River. Views of Facility No. 4-101-1D are available to motorists, private residents, and limited recreationists. In addition to the natural characteristics of the river described above, tire lines and trash are common features in the river channel.

Facility No. 4-101-1D is a water spreading facility and a variety of maintenance activities would occur within the river channel. During the 40- to 50-day duration of maintenance activities, cement trucks, dozers, dump trucks, excavators, graders, loaders, scrapers, service trucks, tractors, and water trucks may be operating in the channel at any given time. Vehicles, equipment, and personnel may be engaged in a variety of maintenance activities including bank repair, concrete structure repair, herbicide and rodenticide, ingress/egress, sediment removal, mowing/hand tools, and stockpile maintenance. Under existing conditions, similar maintenance

activities occur and are facilitated by a similar fleet of maintenance vehicles as that identified for the proposed program. Because the visual change associated with maintenance activities would consist of familiar and recurring effects displayed by the wide and long river channel, the existing visual character and quality of the routinely maintained facility would not be substantially affected. The presence of and movement associated with maintenance vehicles, equipment, and personnel in the channel for 40 to 50 days would temporarily affect the quality of views available to motorists, residents, and recreationists through the introduction of vehicular traffic and activity to the maintained natural channel. However, due to the recurring nature of maintenance and the duration of proposed activities, the occasional presence of maintenance vehicles in the channel would be expected and familiar to local viewers in the vicinity and would not be out of character with existing conditions. Once maintenance activities are complete, maintenance vehicles and equipment would be removed from the site and would no longer be present in views of Facility No. 4-101-1D.

Because of the recurring nature of maintenance activities, viewer familiarity with the presence of maintenance vehicles and visual effects associated with maintenance, and the related reduced expectations and sensitivities of viewers in the surrounding area, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1D would be less than significant.

Mojave River (Facility No. 4-101-1E)

Similar to Facility No. 4-101-1D, Facility No. 4-101-1E encompasses a broad and relatively long reach of the Mojave River in the developed desert landscape of the Victorville area. Victor Valley College, including a small solar field, and single-family residential development on the west border the sandy, scattered shrub-covered river channel. On the east, pockets of native vegetation and single-family residential development border the river channel. Bear Valley Road and Yates Road/Yucca Valley Road define the southern and northern limits of Facility No. 4-101-1E. Potential viewers of proposed program activities at Facility No. 4-101-1E include motorists, recreationists and spectators at Victor Valley College athletic facilities, and residents on private properties abutting the river channel. Facility No. 4-101-1E is a water spreading facility. Annual maintenance occurs for an approximate duration of 40 to 50 business days and ensures maximum water spreading and reliable operation.

Due to the similarity of proposed program activities, the presence of similar viewer types in the surrounding area, and the fact that a similar maintenance regime to that proposed by the program currently occurs in No. 4-101-1E, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1E would be similar (i.e., less than significant) to those described for Facility No. 4-101-1D.

Mojave River (Facility No. 4-101-1F)

Facility No. 4-101-1F, a water spreading facility, is located approximately 3.1 miles upstream of Facility No. 4-101-1E in northeast Victorville. As with Facility 4-101-1E, annual maintenance of Facility No. 4-101-1F occurs for an approximate duration of 40 to 50 business days and ensures maximum water spreading and reliable operation.

An active railroad corridor (Amtrak and BNSF Railway operate on the existing lines) and industrial operations including two sand and gravel mining facilities featuring tall, metallic siding buildings and multiple tall, cylindrical stacks along D Street/Historic Route 66 mark the local landscape surrounding Facility No. 4-101-1F. In addition, a regional bus station surrounded by a landscaped parking lot area and an uncovered train platform that operates as Amtrak's Victorville Station are located to the immediate southwest of the railroad corridor. Undeveloped lots, vacant buildings, several mobile homes, and single-story development housing auto service shops, gas stations, a museum, and a liquor store also front D Street/Historic Route 66 near Facility No. 4-101-1F.

North and south of I-15 (Facility No. 4-101-1F and the Mojave River are spanned by I-15), undeveloped but disturbed lands dotted with low desert shrubs and occasionally planted with street and shade trees characterize the local landscape. In addition, the developed Eva Dell Park, featuring baseball and softball fields, a large turf area, basketball and tennis courts, and a children's playground, is located adjacent to the western extent of Facility No. 4-101-1F and east of D Street/Historic Route 66. A straight, approximately 12-foot-wide concrete pedestrian path is located atop the western raised embankment of the Mojave River and is accessible through the park and via the Mojave River Trail parking lot located at the northeasterly terminus of 6th Street. Limited single-family residential development and two single-story church buildings are located along E Street to the west of the river and an approximately 11-acre mobile home development is located to the east of the river on Stoddard Wells Road. Residences are supplied power by a busy collection of distribution lines that are supported by wooden poles.

Facility No. 4-101-1F is a stretch of the Mojave River that consists of a thick, densely vegetated riparian corridor that is spanned by I-15 and crossed by railroad tracks. The western bank of the river is composed of a raised embankment (the concrete pedestrian trail is located atop the embankment) armored by a dense installation of small boulders on its descending eastern slope. The eastern bank is earthen and littered with small to moderate-sized shrubs. Potential viewers of proposed program activities associated with maintenance of the water spreading facility at Facility No. 4-101-1F include motorists on I-15 and SR-18 (at the Mojave River crossings in Victorville) and local motorists on 6th Street and other roads near Eva Dell Park. In addition, views of Facility No. 4-101-1F would be available to residents on private properties on E Street and mobile home residents to the east of the

facility on properties abutting the river. Views of proposed program activities at Facility No. 4-101-1F would also be available to recreationists and visitors at Eva Dell Park.

Due to the similarity of proposed program activities, the presence of similar viewer types in the surrounding area, and the fact that a similar maintenance regime to that proposed by the program currently occurs in Facility No. 4-101-1F, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1F would be similar (i.e., less than significant) to those described for Facility No. 4-101-1D.

Mojave River (Facility No. 4-101-1G)

Facility No. 4-101-1G is a stretch of the Mojave River that is located approximately 1.7 miles northwest of Facility No. 4-101-1F. A braided channel covered with low mounded shrubs and seasonal grasses characterizes Facility No. 4-101-1 G. The eastern and western slopes of the channel consist of relatively wide expanses of sand covered terrain supporting scattered shrubs and grass clusters. East of the river, the desert landscape is composed of undeveloped lands traversed by dirt access roads and covered with grasses, desert shrubs, and intermittent small trees; scattered large-lot rural residential development; transmission lines supported tall and geometric steel lattice towers; and a preparatory middle and high school facility. The school property features an all-weather track and turf football field, baseball and softball fields, prefabricated classroom buildings, and a series of long, low buildings topped with sloped red tile roofs. The rural community Oro Grande is located to the north of the school campus. West of the river, undeveloped lands are commonplace; however, a 35-acre commercial photovoltaic facility has been constructed and abuts the western extent of Facility No. 4-101-1G. Distribution warehouses, aerospace facilities, the Southern California Logistics Airport, undeveloped desert terrain, and a seemingly abandoned community of vacant residences, schools, and a hospital that supported the former George Air Force Base are located to the west of the river. George Air Force Base is now the site of the Southern California Logistics Airport, which is designed for business, military, and freight use. No commercial passenger services except for fixed-base operators and charter flights are currently available at the airport.

Program activities at Facility No. 4-101-1G would consist of vegetation management that would primarily occur in the dry slope/access roads of the river. Thinning and removal of vegetation would take place for approximately 20 to 30 days each during the summer and/or fall. A limited number of viewers are provided views of the river channel at Facility No. 4-101-1G, and motorists and rural residences tend to be set back from the riverbanks and mapped extents of the facility. Because of distance, the presence of mounded terrain and/or vegetation adjacent to local roads, and the familiarity to viewers of vegetation management activities at Facility No. 4-101-1G (i.e., similar activities currently occur in the river), thinning and/or removal of vegetation would not create strong visual contrast that would substantially degrade the existing visual quality. In

addition, the recurring nature of vegetation management would reduce the potential for the familiar visual effects to command attention and substantially affect the quality of existing views across primarily flat shrub-covered or denuded desert terrain toward the river channel. Impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1G would be less than significant.

Mojave River (Facility No.4-101-1H)

Facility No. 4-101-1H is a short (approximately 1,900-foot-long) stretch of the Mojave River that abuts Heritage Way in the sparsely populated northern Victor Valley desert community of Bryman. More specifically, Facility No. 4-101-1H consists of a maintained access road and a segment of a densely vegetated stretch of the Mojave River. Dense vegetation also lines the access road on the east and partially buffers an adjacent residential property from the road. The property is littered with steel storage containers and a single metallic siding, roofed structure that may be vacant. Occupied rural residences surrounded by mature trees on large lots are located more than 1,000 feet south of Facility No. 4-101-1H and are accessible via Sunflower Lane. From these locations, views of the Facility No. 4-101-1H access road may be obscured by intervening vegetation located outside of the densely vegetated river corridor. Additional residences along Bryman Road and Heritage Way are located to the east and north of Facility No. 4-101-1H and a single residence is located nearby on the west side of the Mojave River.

Program activities at Facility No. 4-101-1H would include bank repair, which involves moving excess sediment from the channel bed and sidecasting along the channel banks. Additionally, limited vegetation management along the existing access road would occur. Under existing conditions, the approximately 30-foot-wide access road has created a broad, tan, relatively smooth line that cuts through dense and seasonally green vegetation in the Mojave Creek corridor. The existing maintenance regime preserves the visual characteristics of the line and proposed program activities would have a similar effect. A dozer, dump trucks, excavator, grader, loader, scraper, and service trucks would operate at Facility No. 4-101-1H for 4 to 14 days apiece. Although area residents on Heritage Way would see maintenance vehicles as they approach the site, the presence of dense, tall vegetation to the east and west of the road would partially screen the vehicles during maintenance activities. Because the river channel is an existing maintained feature in the landscape, the duration of maintenance activities is limited, and the adjacent vegetation provides a screening effect, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1H would be less than significant.

Mojave River (Facility No. 4-101-1I)

This facility consists of an approximately 2.85-mile-long stretch of the Mojave River. This stretch consists of a braided channel in an at times wide, shrub-dotted floodplain that abuts undeveloped desert lands, scattered rural residential development, orderly single-family residential development surrounding the North and South Silver Lakes area, and the Helendale San Bernardino County Fire Station. Potential viewers of proposed program activities at Facility No. 4-101-1I include motorists on National Trails Highway, Helendale Road, and Vista Road and other local roads in the area as well as local residents on private property abutting the river and nearby.

During maintenance activities at Facility No. 4-101-1I, dozers, dump trucks, an excavator, graders, scrapers, service trucks, and other vehicles would operate for a duration of 20 to 30 days. Local motorists and residents would be afforded views of maintenance vehicles and activities along the facility. However, because the current maintenance regime consists of similar activities that occur at a similar frequency and duration, viewers would be somewhat familiar with their occasional presence in the landscape. Further, because the facility is currently maintained and existing maintenance activities create similar visual effects as proposed activities, the proposed program would not substantially affect the visual character of the maintained river channel or the quality of views of the Mojave River. Impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1I would be less than significant.

Mojave River (Facility No.4-101-1J)

Similar to Facility No. 4-101-1I, this facility consists of two discontinuous stretches of Mojave River in the Silver Lakes/Helendale and Johnston's Corner area southwest of Barstow. The southern segment of Facility No. 4-101-1J continues north from Facility No. 4-101-1I and Vista Road in Helendale and largely consists of a low, sandy river bottoms and banks of shrub-stippled desert terrain. In addition to single-family residential uses in Helendale, undeveloped shrub-covered desert terrain, a horse-boarding complex, an RV and boat storage yard, and scattered rural residences abut the southern segment of Facility No. 4-101-1J to the west. To the east, the desert terrain gradually rises in elevation from the river corridor and is marked by undeveloped lands, a railroad line, and a few scattered residences. The northern segment of Facility No. 4-101-1J is characterized by rugged mountainous terrain to the west; three rural residential properties, undeveloped land, and the railroad corridor to the east; and Hinkley Road and large-lot rural residential properties to the north. A limited volume of motorists and residents are provided views of Facility No. 4-101-1J.

Program activities at Facility No. 4-101-1J would consist of access road maintenance (i.e., grading) within the existing river channel. Access roads are existing features and contribute to the existing

visual character of the Mojave River landscape. Although motorists and private residents would be afforded views of maintenance vehicles during the 20- to 30-day duration of access road maintenance under the proposed program, similar activities currently occur under existing conditions and viewers would be familiar with both the presence and visual effects of proposed program activities. In addition, access roads tend to mimic the line and color of unvegetated segments of the channels. Similar line and color characteristics help to reduce the visual prominence of maintenance and the attention that maintenance activities would receive from viewers. Lastly, any perceptible contrast in the landscape attributed to access road maintenance would essentially maintain the overall qualities of these existing features. Therefore, impacts to existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1J would be less than significant.

Mojave River (Facility No. 4-101-1K)

Located north of Hinkley Road in Johnston's Corner and west of Lenwood Road in Lenwood, Facility No. 4-101-1K is the northern extension of Facility No. 4-101-1J and is characterized by a sinuous, sandy, smooth channel bordered by sandy, scattered shrub-covered desert terrain. In addition to an agricultural operation, Facility No. 4-101-1K abuts a small cluster of rural residences near Hinkley Road and undeveloped lands to the east. A similar assortment of land uses occur to the west and north of the river corridor. In addition to scattered rural residences, motorists on Hinkley Road, National Trails Highway, and Youngs Drive are provided views of the Mojave River and activities associated with Facility No. 4-101-1K.

During the 30- to 40-day duration of routine activities, cement and dump trucks, dozers, excavators, graders, loaders, and scrapers could be operating in the river channel at any given time. Levee and road maintenance work would be visible to local motorist and residents in the local area. However, similar maintenance activities occur in the river channel over a similar duration under existing conditions. Therefore, the presence of maintenance vehicles, equipment, and personnel in the Mojave River channel would be familiar to area viewers and maintenance activities under the proposed program would create similar visual effects. In addition, once repaired/maintained, the levee would display similar visual characteristics to the existing levee. Therefore, impacts to the existing visual character and quality resulting from proposed program activities at Facility No. 4-101-1K would be less than significant.

Mojave River (Facility Nos. 4-101-1L and 4-101-1M)

These facilities compose an approximately 14.5-mile-long segment of the Mojave River that runs from west of SR-58 in Lenwood east through north Barstow to Daggett Yermo Road in the community of Daggett. The braided, wide, sandy river channel abuts scattered rural residential development in Lenwood and rural residential and agricultural development and a large railroad yard located north of National Trails Highway in Barstow. East of I-15, the river corridor

generally parallels the alignment of I-40 and the landscape features undeveloped properties, rural residential development, public utility (wastewater) facilities, and a golf course to the south, and rugged foothills and mountainous terrain to the north.

Facility Nos. 4-101-1L and 4-101-1M are water spreading facilities and annual maintenance occurs for an approximate duration of 40 to 50 business days. Because of the similarity of proposed program activities, the presence of similar viewer types in the surrounding area, and the fact that a maintenance regime similar to that proposed by the program currently occurs in Facility Nos. 4-101-1L and 4-10-1M, impacts to existing visual character and quality resulting from proposed program activities at Facility Nos. 4-101-1L and 4-101-1M would be similar (i.e., less than significant) to those described for Facility No. 4-101-1D.

Mojave River (Facility No. 4-101-1N)

This facility encompasses a short, 1.4-mile-long segment of the Mojave River stretching from Daggett Yermo Road east to existing railroad tracks. Similar to Facility No. 4-101-1M, this stretch of the river consists of a sandy, braided channel that abuts undeveloped desert terrain featuring scattered mounded shrubs. Potential viewers are motorists on Daggett Yermo Road and King Street and residents on private properties located more than 0.20 miles away in the community of Daggett. Spreading desert shrubs up to 4 feet in height are located along Daggett Yermo Road and undeveloped properties and partially screen the river channel from view of passing motorists and residents.

Vector control and stockpile maintenance are proposed at Facility No. 4-101-1N and would occur annually for an approximate duration of 20 to 30 business days. Vector control activities, including the use of biopesticides and use of mosquito-larva-eating fish in standing water in the wide and sandy river channel, would not substantially affect visual character. When applied, vector control measures would affect the possible spread of insect-carrying diseases and would not entail the removal of water or noticeable alteration of the form of pooled water. Changes in water color and clarity may occur; however, such a change would be viewed as beneficial by potential viewers due to the public health benefits. Although stockpiles in Facility No. 4-101-1N may be visible from public roadways, these features may be overlooked or ignored by the casual viewer due to low contrast in color when viewed in the context of the surrounding landscape. The brief duration of the available views may also cause viewers to look past these features. Local area residents and others familiar with the landscape would be provided longer-duration views of these features; however, given the expansive nature of available desert views, the temporary nature of stockpiles, and similarities in color and texture between stockpiles and adjacent channel landscapes, stockpiles would not dominate or substantially degrade the visual environment. Further, with implementation of SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), the visual effects of stockpiles, including generation of dust, would be

reduced. As a result, impacts to existing visual character and quality resulting from maintenance activities at Facility No. 4-101-1N would be less than significant under the proposed program.

Adelanto East Channel (Facility No. 4-355-1A)

Low, spreading desert vegetation on undeveloped land located east of U.S. Route 395 blocks the majority of the maintained segment of the channel from view of highway motorists north of the Adelanto area. However, the low form and sandy soils of Facility No. 4-355-1A are briefly visible to motorists at the highway crossing. Southeast of the highway crossing, the facility traverses several assumed low-use dirt roadways and then parallels Adelanto Road along the eastern border of a residential neighborhood. Due to the brief duration of views and the lower elevation of Facility No. 4-355-1A in comparison to the highway, motorists may overlook the visual effects resulting from mechanical removal of sediment and hand removal of debris and weeds. The duration of views available to motorists on Adelanto Road (and nearby residents) would be longer, but these activities currently occur twice per year for an approximate duration of 5 to 15 business days and proposed program activities would essentially maintain the existing visual conditions associated with Facility No. 4-355-1A. Therefore, impacts resulting from proposed program activities in Facility No. 4-355-1A would be less than significant.

Green Valley Creek (Facility No. 5-211-1A)

Green Valley Creek Road generally parallels the maintained segment of Facility No. 5-211-1A for approximately 0.55 miles. Under existing conditions, invasive and native vegetation within Facility No. 5-211-1A is maintained (i.e., trimmed and thinned) on an annual basis for an approximate duration of 5 to 15 business days to maintain the optimal operating condition of the facility as a flood control facility. Trimming and thinning would continue to occur on an annual basis and the annual growth and maintenance process of vegetation management would persist. Although the effects of annual vegetation management may be noticeable to the casual viewer who is present in the viewshed for a limited duration and immediately following maintenance activities, maintenance simply marks the end of the approximately yearlong untampered growth process and reversion to the somewhat managed visual condition. Because limited vegetation management activities currently occur in and along Facility No. 5-211-1A and the effects of such activities are a component of the existing visual condition of the landscape, impacts associated with proposed program activities in Facility No. 5-211-1A would be less than significant.

Seeley Creek (Facility No. 5-312-1B)

Single-story residences and dense vegetation, including mature and juvenile pine and oak trees, obscure the approximately 1,500-foot reach of the maintained facility from view of SR-138 motorists. Annual management of mature trees for an approximate duration of 1 to 11 business days in and along the facility may be detectable to motorists but limited trimming would not

substantially alter the appearance of the vegetated corridor. Program activities would be visible from private property that parallels the maintained reach of the facility; however, because similar vegetation management and bank and concrete repair currently occurs along the reach, the continuation of these activities would maintain the changeable appearance of the corridor. Impacts would be less than significant.

Joshua Tree Wash (Facility No. 6-452-1B)

The visual effects associated with mechanized land clearing/sediment removal proposed in Facility No. 6-452-1B would be similar to the visual effects resulting from mechanized land clearing/sediment removal in engineered facilities visible from SR-62 in the Joshua Tree area, as described in the Impact AES-2 analysis. Ongoing annual maintenance of access roads and continued annual application of herbicides over an approximate duration of 10 business days would maintain the existing visual condition displayed by access roads and vegetation in and along the natural channel. Bank repair and limited concrete repair are also proposed in Facility No. 6-452-1B. The removal of excess sediment or sand and placement of these materials on sediment (or sandy) wash side slopes would maintain the optimal operating condition of the wash and would not substantially alter its visual character. Bank repair would achieve the intended form of the wash (i.e., consistent low wash bed with rising side slopes) and where visible to motorists (such as at SR-62), bank repair activities would not substantially degrade the visual character of the wash or the surrounding area. Limited concrete repair activities would generally be obscured from view of motorists due to the presence of intervening structures (i.e., residences) and low desert vegetation. Therefore, impacts resulting from proposed program activities within and along Facility No. 6-452-1B would be less than significant.

Grout Creek (Facility No. 6-703-1A)

Vegetation management within and along Facility No. 6-703-1A would primarily be visible to local residences on Seminole Drive and passing motorists over an approximately 630-foot segment of SR-38 north of Big Bear Lake. Highway-adjacent residences and vegetation (primarily pine trees) obscures and blocks the maintained portion of the creek outside of this segment. In the approximately 740-foot-long maintained portion of the facility, vegetation generally occurs atop the banks of the facility and tends to be thicker at the upstream end (i.e., south of the SR-38 crossing). However, due to the brief view duration, the effects of vegetation management may go unnoticed by SR-38 motorists. Local residents would likely notice the altered habit/form of vegetation resulting from vegetation management, because they are assumed to be familiar with the landscape and are regularly exposed to views of the facility. Maintenance would typically occur for a duration of approximately 1 to 11 business days. Because similar activities occur in the maintained segment of Facility No. 6-703-1A, existing vegetation is subject to District management and invasive and native plants and trees are

routinely removed or thinned. Although Facility No. 6-703-1A is identified as a natural channel, vegetation visible from Seminole Drive and SR-38 is and would continue to be managed and modified to ensure proper conveyance of flood and/or stormwater flows. Impacts resulting from vegetation management within and along Facility No. 6-703-1A would be less than significant.

4.1.7 Mitigation Measures

With incorporation of District standard practices SOP-HYD-2 and SOP-HYD-3, any potential aesthetics impacts would be less than significant. Therefore, no mitigation measures would be required.

4.1.8 Level of Significance After Mitigation

Aesthetics impacts from implementation of the proposed program would be less than significant. Table 4.1-2 summarizes the impacts for proposed activities under each impact threshold analyzed in this EIR section.

Table 4.1-4
Aesthetics Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AES-2: Would the program substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?				
All Program Activities	SOP-HYD-2 SOP-HYD-3	Less than significant	—	Less than significant
Impact AES-3: Would the program substantially degrade the existing visual character or quality of the site and its surroundings?				
All Program Activities	SOP-HYD-2 SOP-HYD-3	Less than significant	—	Less than significant

4.1.9 Cumulative Impacts

Maintenance activities associated with the proposed program would create less than significant impacts on aesthetics. The geographic scope for cumulative aesthetics impacts is typically within the immediate viewshed of the program activity. Visual change would be highly localized and would be experienced temporarily because over time, the maintained condition of facilities would revert to their pre-maintenance appearance due to sediment buildup, growth of vegetation, erosion of roads by water and wind, and other naturally occurring processes.

The cumulative impacts analysis for aesthetics evaluates whether impacts of the proposed program and related projects, when taken as a whole, substantially damage scenic resources within a state scenic highway or substantially degrade the existing visual quality and character of sites and their

surroundings. Because proposed program activities would not be viewed by motorists as they travel on the designated state scenic highway segment of SR-38 through the San Bernardino Mountains, the proposed program would neither individually or cumulatively impact a state scenic highway. As discussed throughout this section, proposed program activities would result in less than significant impacts to visual quality and character and SOP-HYD-2 (Vegetation Management) and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment) (see Section 4.8.5) would be implemented to reduce visual effects associated with ground-disturbing and non-ground-disturbing maintenance activities implemented by the District. Because the proposed program activities evaluated in this section would occur in specific locations and would entail specific ongoing maintenance and operational activities, few simultaneously occurring localized projects are anticipated in the cumulative scenario that would result in a significant visual impact. These cumulative projects would need to be located in the same viewshed as proposed program activities to create a cumulatively considerable impact to visual character and quality, and similar to the proposed program, foreseeable projects not under the control of the District would also be subject to CEQA-level evaluation of aesthetic impacts. The determinations of significance for other lead agencies' projects would be made on a project-level basis. Also, the ongoing maintenance and operational activities identified in the proposed program would not create or facilitate long-term, wholesale visual change that would substantially upset or degrade the existing visual quality or character of the site. Therefore, because impacts resulting from proposed program activities were determined to be less than significant (see Section 4.1.6) and proposed program activities would not create or facilitate long-term, wholesale visual change, the proposed program would not contribute to a cumulatively considerable impact to the existing visual character and quality of the site and surrounding area.

4.1.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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County of San Bernardino. 2007a. *County of San Bernardino General Plan*. Prepared by URS Corporation for County of San Bernardino Land Use Services Division. Adopted March 13, 2007. Accessed March 2017. http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGPtext20130718.pdf.

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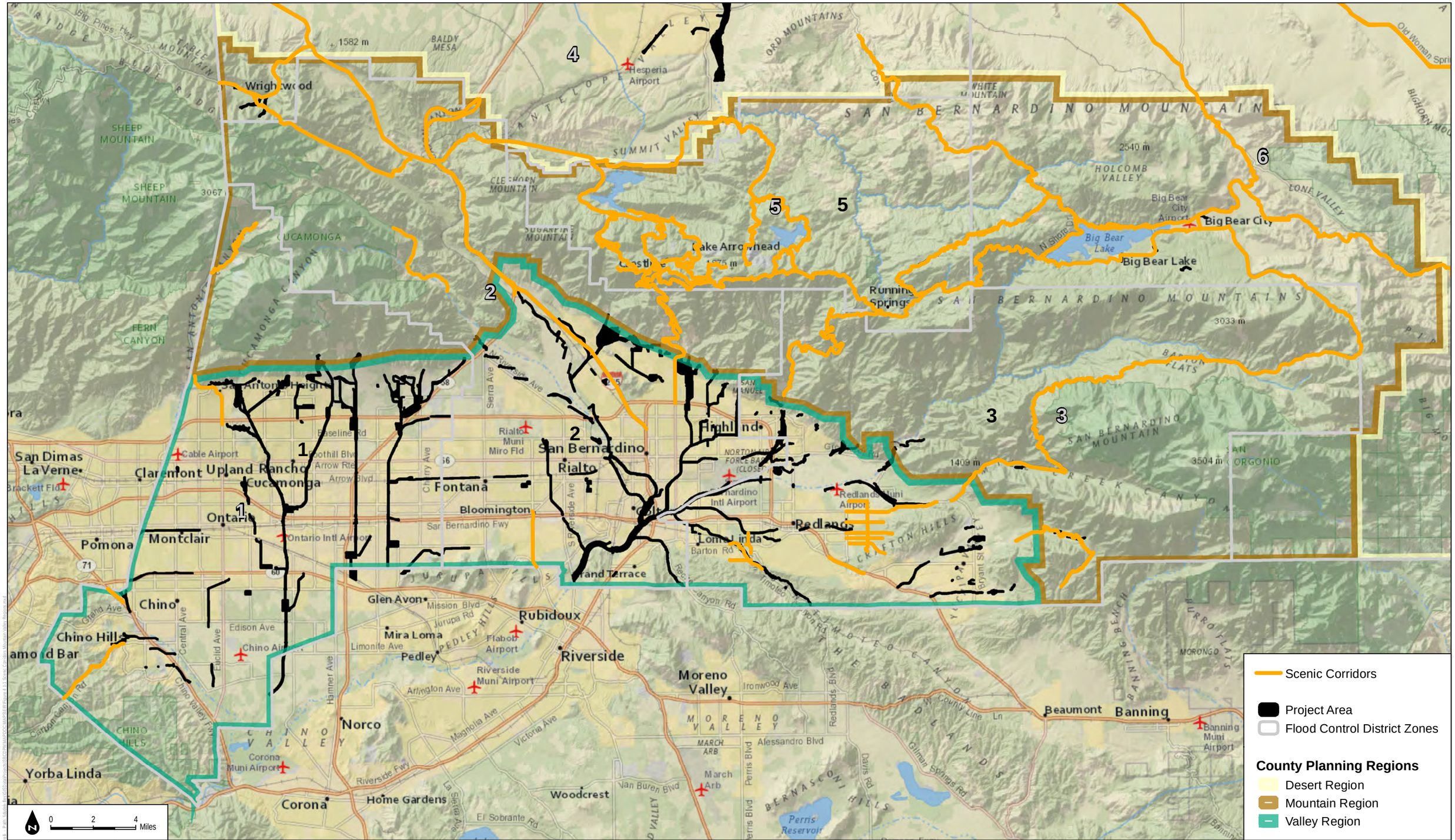

SOURCE: ArcGIS Online Basemap (Nat Geo), SBCDPW

DUDEK

San Bernardino County Flood Control District

FIGURE 4.1-1

Scenic Corridors - Valley and Mountain Regions

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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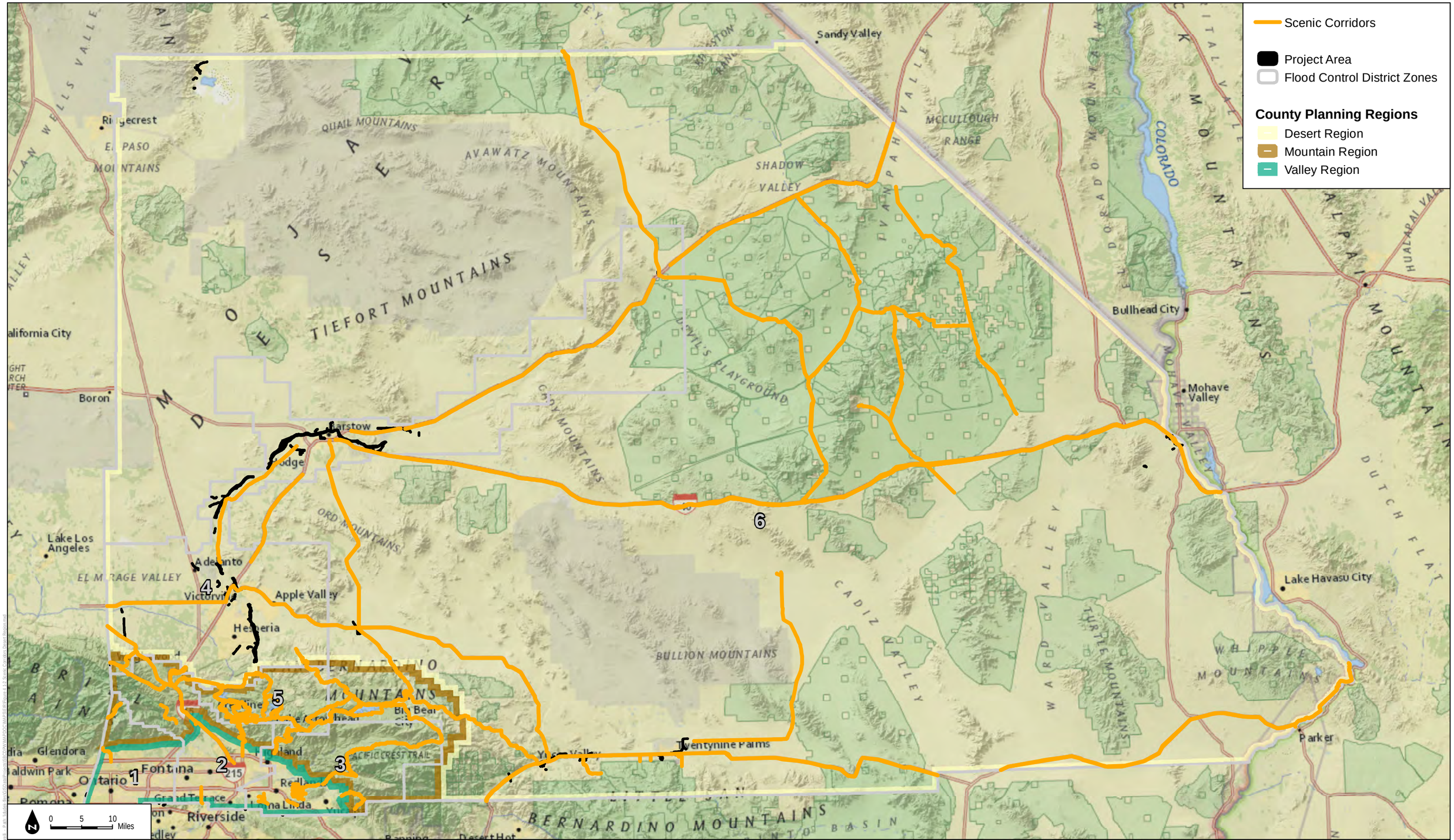

SOURCE: ArcGIS Online Basemap (Nat Geo), SBCDPW

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FIGURE 4.1-2

Scenic Corridors - Desert Region

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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4.2 AIR QUALITY

4.2.1 Introduction

This section of the environmental impact report (EIR) describes the existing air quality setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of the San Bernardino County Flood Control District (District) standard practice for reduction of air quality impacts, and evaluates potential impacts related to implementation of the proposed program.

This section evaluates maintenance activity impacts to air quality that would potentially occur as a result of implementation of the proposed program. Applicable laws, regulations, standards, and enumerated thresholds established by the Mojave Desert Air Quality Management District (MDAQMD) and South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (EPA) are provided in Section 4.2.2, Regulatory Framework. The impact thresholds from Appendix G of the California Environmental Quality Act (CEQA) Guidelines are presented in Section 4.2.3, Thresholds of Significance. Section 4.2.4, Existing Conditions, summarizes regional and local meteorological and topographical conditions, pollutants and associated health effects, sensitive receptors, and operations. In addition, Section 4.2.5 identifies SOPs that are implemented as part of the District's standard practice and that would reduce program-generated criteria air pollutant emissions. Emissions associated with the proposed program were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 (available online at www.caleemod.com) and are discussed in Section 4.2.6, Impacts Analysis. Emission calculations and model outputs can be found in Appendix D.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and representative typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The County is composed of three distinct geographic regions: the Valley, Mountain, and Desert Regions. Although approximately 80% of the geographic extent of the County falls within the Desert Region, the Valley Region is the most developed, and approximately 77% of District

facilities are in the Valley Region. However, rather than delineating the analysis by geographic region (which is applicable to other analyses in this EIR), the air quality analysis is based on representative projects (as described in Section 4.2.6, Impacts Analysis) as they relate to the two air basins. The proposed program overlaps two air basins, the Mojave Desert Air Basin (MDAB) and the South Coast Air Basin (SCAB), with approximately 80% of District facilities falling within the SCAB and approximately 20% of District facilities falling within the MDAB.

Given the large scale and number of individual projects associated with the proposed program, emissions could not be calculated for every facility. Instead, 12 representative project sites were selected with the intent of providing a conservative scenario that would best represent equipment/activity levels for each of the representative facility types. Additionally, because a representative project approach was used, where the maintenance activities occurring at a given location were incorporated into the representative project scenario, the air quality analysis does not use the impact analysis categories described in the introduction to Chapter 4, Environmental Analysis.

As previously stated, MDAQMD and SCAQMD are the local agencies responsible for air quality planning with authority over air pollutant sources. Both MDAQMD and SCAQMD provide daily significance thresholds that are used to determine the significance of a project's air pollutant emissions (see Section 4.2.6.1, Methods of Analysis). MDAQMD also includes an annual threshold to compare a project's estimated emissions (Section 4.2.6.1).

To assess impacts of the proposed program's annual emissions, the total number of proposed program facilities within the MDAB was estimated. This was calculated by taking 20% (percentage of total District facilities that are located within MDAQMD jurisdiction) of the total proposed program facilities divided by 30% (percentage of facilities maintained on an annual basis). The other 80% of facilities are located within the SCAQMD jurisdiction. Therefore, daily emissions from program maintenance activities were compared to the daily emissions thresholds of both MDAQMD and SCAQMD, and annual emissions from program maintenance activities were compared to the annual emissions thresholds of MDAQMD. However, SCAQMD does not have an annual threshold; therefore, annual emissions for program maintenance activities occurring within the SCAQMD were not estimated. Since facility maintenance activities would require similar techniques and methods comparable to traditional construction practices and would involve emission sources associated with typical construction activity, the SCAQMD construction thresholds were used to compare proposed program's criteria air pollutant emissions. The MDAQMD thresholds applied are for construction and operational emissions. For the purpose of this air quality analysis, a "project" is defined as the maintenance activities occurring within a given facility type.

The analysis in this section is based on information compiled by the District and documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.2.10, References.

4.2.2 Regulatory Framework

Federal

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric ozone (O_3) protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required EPA to identify national emission standards for HAPs to protect public health and welfare. HAPs include certain volatile organic compounds (VOCs), pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State

Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. Table 4.2-1 presents the NAAQS and CAAQS.

Table 4.2-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as primary standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as primary standard
	Annual arithmetic mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as primary standard
	Annual arithmetic mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day average	1.5 μg/m³	—	—

Table 4.2-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
	Calendar quarter	—	1.5 μg/m^3 (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 μg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m^3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m^3)	—	—
Sulfates	24- hours	25 μg/m^3	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016a.

Notes: O_3 = ozone; ppm = parts per million by volume; μg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

g To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

i On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m^3 to 12.0 μg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m^3, as was the annual secondary standard of 15 μg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

j The CARB has identified lead and vinyl chloride as toxic air contaminants (TACs) with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California toxic air contaminants (TACs) list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In January 1993, AB 2728 was enacted and the procedure for TAC identification of federal HAPs was changed. Pursuant to AB 2728, substances identified by CARB as TACs include all HAPs listed in the Federal Clean Air Act Amendments of 1990. The Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) in 1987 to address public concern over the release of TACs into the atmosphere. AB 2588 requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment. If specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation (CARB 2014), On-Road Heavy Duty (New) Vehicle Program (CARB 2005), In-Use Off-Road Diesel Vehicle Regulation (CARB 2011), and New Off-Road Compression-Ignition (Diesel) Engines and Equipment program (CARB 2008). These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (CARB 2011; 13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code, Section 41700

This section of the California Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that

endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

Local

As previously discussed in Section 4.2.1, Introduction, proposed program facilities are located within both the MDAQMD and the SCAQMD jurisdiction. The MDAB (MDAQMD jurisdiction) includes the desert portions of San Bernardino County and the SCAB (SCAQMD jurisdiction) covers the non-desert portions of San Bernardino County (see Figure 4.2-1, Air Quality Basins and County Regions). Of the District's approximately 500 flood control facilities, approximately 80% are located within the SCAB. The remaining approximately 20% are located within the MDAB. Figure 4.2-1 shows the County in relation to these air basins.

Mojave Desert Air Quality Management District

MDAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the MDAB. MDAQMD maintains a set of rules and regulations to improve air quality and maintain good air quality. MDAQMD has adopted state and federal attainment plans for the region within its jurisdiction. The most recent adopted air quality plan adopted by MDAQMD to address federal O_3 planning requirements is the federal 8-Hour Ozone Attainment Plan adopted on June 9, 2008 (MDAQMD 2008). This document replaces and/or updates all previously submitted federal O_3 plans.

The MDAQMD Federal 8-Hour Ozone Attainment Plan was adopted for the Western Mojave Desert nonattainment area (MDAQMD 2008). The Western Mojave Desert federal nonattainment area includes part of the San Bernardino County portion of the MDAB as well as the Antelope Valley portion of Los Angeles County. The area was designated as nonattainment on April 15, 2004. The 8-hour Ozone Attainment Plan (1) demonstrates that the MDAB will meet the primary required federal O_3 planning milestones and achieve attainment of the 8-hour O_3 federal ambient air quality standard by June 2021; (2) presents the progress the MDAB will make towards meeting all required O_3 planning milestones; and (3) discusses the newest 0.075 parts per million (ppm) federal 8-hour O_3 ambient air quality standard, preparatory to an expected nonattainment designation for the new federal ambient air quality standard.

On July 31, 1995, a federal PM_{10} Attainment Plan for the Mojave Desert Planning Area was adopted (MDAQMD 1995). The PM_{10} Attainment Plan indicates that local sources will be controlled with a strategy that focuses on unpaved road travel, construction, and local disturbed areas in the populated areas and certain stationary sources operating in the rural Lucerne Valley.

MDAQMD Rules

Emissions that would result from mobile, area, and stationary sources during maintenance activities under the proposed program are subject to the rules and regulations of MDAQMD (2017), which include the following:

- **Rule 401 – Visible Emissions:**[1] This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402 – Nuisance:**[2] This rule prohibits the discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 – Fugitive Dust:**[3] This rule prohibits causing or allowing emissions of fugitive dust from any transport, handling, construction or storage activity such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source.
- **Rule 404 – Particulate Matter Concentration:**[4] This rule prohibits discharge into the atmosphere of particulate matter, except liquid sulfur compounds, from any source in excess of the concentration at standard conditions.
- **Rule 406 – Specific Contaminants:**[5] This rule prohibits the discharge (from any single source of emission) of sulfur compounds in any state or combination thereof exceeding a concentration of 500 ppm by volume.
- **Rule 407 – Liquid and Gaseous Air Contaminants:**[6] This rule prohibits the discharge, from any source, of CO exceeding 2,000 ppm measured on a dry basis, averaged over a minimum of 15 minutes.
- **Rule 409 – Combustion Contaminants:**[7] This rule prohibits the discharge of combustion contaminants exceeding 0.23 grams per cubic meter of gas calculated to 12% of CO_2 at standard conditions averaged over a minimum of 25 consecutive minutes.

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1 Rule 401 Visible Emissions: http://mdaqmd.ca.gov/home/showdocument?id=288.
2 Rule 402 Nuisance: http://mdaqmd.ca.gov/home/showdocument?id=290.
3 Rule 403 Fugitive Dust: http://mdaqmd.ca.gov/home/showdocument?id=294.
4 Rule 404 Particulate Matter Concentration: http://mdaqmd.ca.gov/home/showdocument?id=298.
5 Rule 406 Specific Contaminants: http://mdaqmd.ca.gov/home/showdocument?id=302.
6 Rule 407 Liquid and Gaseous Air Contaminants: http://mdaqmd.ca.gov/home/showdocument?id=304.
7 Rule 409 Combustion Contaminants: http://mdaqmd.ca.gov/home/showdocument?id=308.

- **Rule 431 – Sulfur Content of Fuels:**[8] This rule restricts the burning of any gaseous fuels containing sulfur compounds in excess of 800 ppm calculated as hydrogen sulfide at standard conditions, or any liquid or solid fuel having a sulfur content in excess of 0.5% by weight.

South Coast Air Quality Management District

Air Quality Management Plans

SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB. SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. SCAQMD's AQMPs include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment. Each AQMP update incorporates significant new scientific data, including updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

The most recent adopted AQMP is the 2016 AQMP (SCAQMD 2017a), which was adopted by the SCAQMD governing board on March 3, 2017. The previous AQMP was the 2012 AQMP, which was adopted in February 2013 (SCAQMD 2013).

The 2012 AQMP proposed policies and measures to achieve federal and state standards for improved air quality in the SCAB and portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. The 2012 AQMP is designed to meet applicable federal and state requirements for O_3 and particulate matter. The 2012 AQMP stated that attainment of the federal 24-hour $PM_{2.5}$ standard was impracticable by 2015 and that the SCAB should be classified as a serious nonattainment area along with the appropriate federal requirements. The 2012 AQMP included the planning requirements to meet the 1-hour O_3 standard. The 2012 AQMP demonstrated a plan for attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the SCAB through adoption of all feasible measures. Finally, the 2012 AQMP updated the EPA-approved 8-hour O_3 control plan with new measures designed to reduce reliance on the Clean Air Act Section 182(e)(5) long-term measures for oxides of nitrogen (NO_x) and VOC reductions. The 2012 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development. The EPA, with a final ruling on April 14, 2016, approved the Clean Air Act planning requirements for the 24-hour $PM_{2.5}$ standard portion and on September 3, 2014, approved the 1-hour O_3 Clean Air Act

[8] Rule 431 Sulfur Content of Fuels: http://mdaqmd.ca.gov/home/showdocument?id=312.

planning requirements. The 2012 AQMP was updated in 2016 (approved March 2017); this AQMP accounts for updates to CARB's and the District's emission reductions resulting from adopted rules and regulations since the 2012 AQMP, growth factors, and demographic trends.

The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP represents a new approach, focusing on available, proven, cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gas emissions and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017a). Because mobile sources are the principal contributor to the SCAB's air quality challenges, SCAQMD has been and will continue to be closely engaged with CARB and EPA, who have primary responsibility for these sources. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this 2016 AQMP with broad support from a wide range of stakeholders.

While striving to achieve the NAAQS for O_3 and $PM_{2.5}$ and the CAAQS for O_3, PM_{10}, and $PM_{2.5}$ through a variety of air quality control measures, the 2016 AQMP also accommodates planned growth in the SCAB. Projects are considered consistent with, and would not conflict with or obstruct, implementation of the AQMP if growth in socioeconomic factors (e.g., population, employment) within the County is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook). The demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the Southern California Association of Governments (SCAG) based on general plans for cities and counties in the SCAB were used in the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2016) to estimate future emissions in the 2016 AQMP (SCAQMD 2017a).

SCAQMD Rules

Emissions that would result from mobile, area, and stationary sources during maintenance activities of the proposed program are subject to the rules and regulations of SCAQMD (2017b), which include the following:

- **Rule 401 – Visible Emissions:**[9] This rule establishes the limit for visible emissions from stationary sources.

[9] Rule 401 Visible Emissions: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-401.pdf?sfvrsn=4.

- **Rule 402 – Nuisance:**[10] This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:**[11] This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and identifies measures to reduce fugitive dust. This includes soil treatment for exposed soil areas. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:**[12] The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of sulfur oxides (SO_x) and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines:**[13] This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce NO_x, VOC, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.

Southern California Association of Governments

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States. With respect to air quality planning and other regional issues, SCAG has prepared the 2008 Regional Comprehensive Plan:

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10 Rule 402 Nuisance: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf?sfvrsn=4.

11 Rule 403 Fugitive Dust: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4.

12 Rule 431.2 Sulfur Content of Liquid Fuels: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-431-2.pdf?sfvrsn=4.

13 Rule 1110.2 Emissions from Gaseous and Liquid-Fueled Engines: http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1110-2.pdf?sfvrsn=4.

Helping Communities Achieve a Sustainable Future (Regional Comprehensive Plan) for the region (SCAG 2008). The Regional Comprehensive Plan is a problem-solving guidance document that directly responds to what SCAG has learned about Southern California's challenges through the annual State of the Region report card (SCAG 2008).

On April 7, 2016, SCAG's Regional Council adopted the 2016 RTP/SCS. The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15-12 have been met (SCAG 2016).

As previously noted, SCAQMD's 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS.

Mojave Desert Air Basin and South Coast Air Basin Attainment Designations

Pursuant to the 1990 federal Clean Air Act amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, calls for the designation of areas as "attainment" or "nonattainment," but based on the CAAQS rather than the NAAQS. Tables 4.2-2 and 4.2-3 depict the current attainment status of the proposed program area with respect to the NAAQS and CAAQS, and the attainment classifications for the criteria pollutants.

Table 4.2-2
Mojave Desert Air Basin Attainment Classification

Pollutant	Designation/Classification[a]	
	Federal Standards	*State Standards*
O_3 – 1 hour	No federal standard	**Nonattainment**
O_3 – 8 hours	**Severe nonattainment**	**Nonattainment**
NO_2	Unclassifiable/attainment	Attainment
CO	Unclassifiable/attainment	Attainment
SO_2	Unclassifiable/attainment	Attainment
PM_{10}	**Moderate nonattainment**	**Nonattainment**
$PM_{2.5}$	Unclassifiable/attainment	**Nonattainment**
Lead	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified[b]
Sulfates	No federal standard	Attainment
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: EPA 2016a (federal); CARB 2016b (state).
Notes: O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Definitions: attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
[a] Designations/classifications in **bold** type are in nonattainment.
[b] The Searles Valley portion of the basin is designated nonattainment.

In summary, the MDAB is designated as a nonattainment area for federal and state O_3 standards and federal and state PM_{10} standards. The MDAB is designated as an unclassifiable/attainment area for federal $PM_{2.5}$ standards and a nonattainment area for state $PM_{2.5}$ standards and is designated as an attainment area for federal and state NO_2 standards, federal and state CO standards, and state SO_2 standards (EPA 2016a; CARB 2016b).

Table 4.2-3
South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification[a]	
	Federal Standards	*State Standards*
O_3 – 1 hour	No federal standard	**Nonattainment**
O_3 – 8 hours	**Extreme nonattainment**	**Nonattainment**
NO_2	Unclassifiable/attainment	Attainment
CO	Attainment/maintenance	Attainment
SO_2	Unclassifiable/attainment	Attainment
PM_{10}	Attainment/maintenance	**Nonattainment**
$PM_{2.5}$	**Serious nonattainment**	**Nonattainment**
Lead	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified

Table 4.2-3
South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification[a]	
	Federal Standards	*State Standards*
Sulfates	No federal standard	Attainment
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: EPA 2016a (federal); CARB 2016b (state).
Notes: O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Definitions: attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
[a] Designations/classifications in **bold** type are in nonattainment.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state NO_2 standards, federal and state CO standards, and state SO_2 standards. Although a portion of the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard (Los Angeles County), it is designated as attainment for the state lead standard (EPA 2016a; CARB 2016b).

Local Ambient Air Quality

The proposed program area's local ambient air quality is monitored by MDAQMD and SCAQMD. CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

Four air quality monitoring stations are located throughout the following cities in San Bernardino County: Upland (1350 San Bernardino Road), Fontana (14360 Arrow Highway), San Bernardino (24302 East Fourth Street), and Redlands (500 North Dearborn). Given that individual projects associated with the proposed program are distributed throughout San Bernardino County and Riverside County, data were examined for each of the four air quality monitoring sites and the maximum air pollutant averages are presented in Table 4.2-4. Notably, none of the air quality monitoring stations presented in Table 4.2-4 are located within the MDAQMD because pollutant concentrations were found to be greater at the provided air quality monitoring stations, or a significant amount of data was missing. The data collected at these stations are considered representative of the air quality experienced in the proposed program vicinity. Air quality data from 2013 through 2015 for the monitoring stations are provided in Table 4.2-4.

Table 4.2-4
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2013	*2014*	*2015*	*2013*	*2014*	*2015*
Ozone (O_3)										
Fontana	ppm	Maximum 1-hour concentration	State	0.09	0.151	0.127	0.133	34	31	36
	ppm	Maximum 8-hour concentration	State	0.070	0.123	0.106	0.111	68	52	59
			Federal	0.070	0.122	0.105	0.111	66	52	57
Nitrogen Dioxide (NO_2)										
Fontana	ppm	Maximum 1-hour concentration	State	0.18	0.081	0.070	0.089	0	0	0
			Federal	0.100	0.082	0.070	0.089	0	0	0
	ppm	Annual concentration	State	0.030	0.021	0.020	0.019	—	—	—
			Federal	0.053	0.020	ND	0.018	—	—	—
Carbon Monoxide (CO)										
San Bernardino	ppm	Maximum 1-hour concentration	State	20	—	—	—	—	—	—
			Federal	35	3.8	4.1	2.3	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	—	—	—	—	—	—
			Federal	9	1.7	2.4	1.8	0	0	0
Sulfur Dioxide (SO_2)										
Fontana	ppm	Maximum 1-hour concentration	Federal	0.075	0.043	0.040	0.040	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.14	0.021	0.010	0.011	0.021	0.010	0.011
	ppm	Annual concentration	Federal	0.030	0.005	0.004	0.003	—	—	—
Coarse Particulate Matter (PM_{10}) [a]										
Fontana	$\mu g/m^3$	Maximum 24-hour concentration	State	50	86.0	65.0	92.0	90.2 (15)	ND (10)	ND (13)
			Federal	150	90.0	68.0	96.0	0.0 (0)	0.0 (0)	ND (0)
	$\mu g/m^3$	Annual concentration	State	20	38.8	ND	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$) [a]										
San Bernardino	$\mu g/m^3$	Maximum 24-hour concentration	Federal	35	55.3	32.2	53.5	3.3 (1)	ND (0)	6.9 (2)
	$\mu g/m^3$	Annual concentration	State	12	11.4	ND	10.7	—	—	—
			Federal	12.0	ND	ND	ND	—	—	—

Sources: CARB 2016c; EPA 2016c.

Notes: ppm = parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter; — = not available; ND = insufficient data available to determine the value.

Data were taken from CARB iADAM (http://www.arb.ca.gov/adam) or EPA AirData (http://www.epa.gov/airdata/) and represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are shown for ozone and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed either federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

4.2.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to air quality are based on criteria in Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to air quality would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact AQ-1 ***Would the program conflict with or obstruct implementation of the applicable air quality plan?***

Impact AQ-2 ***Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

Impact AQ-3 ***Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors)?***

Impact AQ-4 ***Would the program expose sensitive receptors to substantial pollutant concentrations?***

Impact AQ-5 ***Would the program create objectionable odors affecting a substantial number of people?***

In June 2014, the District recirculated a Notice of Preparation and Initial Study, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. Based on the findings of the 2014 Initial Study, Impact AQ-1 through Impact AQ-4 were determined to be carried forward for analysis in the EIR and are examined in this EIR section (see Section 4.2.6.2, Analysis).

4.2.4 Existing Conditions

The proposed program overlaps two air basins, the MDAB and SCAB, with approximately 80% of the program facilities within the SCAB. The MDAB includes the eastern portion of Kern County, northeastern portion of Los Angeles County, eastern portion of Riverside County, and desert portions of San Bernardino County. Additionally, a large number of facilities are located within the SCAB, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SCAB is a 6,745-square-mile area

bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

This section summarizes regional and local meteorological and topographical conditions within the two air basins, pollutants and associated health effects, sensitive receptors, and operations.

4.2.4.1 Meteorological and Topographical Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. Meteorological and topographical factors that affect air quality in the MDAB and SCAB are described in this section.[14]

Mojave Desert Air Basin

A portion of the proposed program is located within the MDAB.[15] The MDAB includes the desert portions of Los Angeles, Kern, San Bernardino, and Riverside Counties. Most of this area is commonly referred to as the high desert because elevations range from approximately 2,000 to 5,000 feet above mean sea level. The MDAB is generally above the regional inversion layer and experiences relatively good dispersion conditions.

The MDAB is separated from Southern California coastal regions and Central California valley regions by mountains extending up to 10,000 feet above mean sea level. As a result, the Mojave Desert is removed from the cooling effects of the Pacific Ocean and is characterized by extreme temperatures. The MDAB consists of an assemblage of mountain ranges interspersed with valleys that often contain dry lakes. Lower-elevation mountains scattered throughout the basin are generally 1,000 feet to 4,000 feet high. Mountain passes form channels for air masses flowing from the west and southwest and the prevailing winds from the west and southwest are caused by the proximity of the MDAB to coastal and central regions and to the blocking effect of the Sierra Nevada to the north.

This MDAQMD region is characterized by hot, dry summers and cool winters, with little precipitation. During the summer, the MDAB is generally influenced by a Pacific subtropical high-pressure cell that resides off the coast of California. This high-pressure cell prevents cloud

[14] The discussion of meteorological and topographical conditions of the SCAB is based on information provided in the Final 2016 Air Quality Management Plan (SCAQMD 2017a).

[15] The description of the MDAB climate and topography is based on the MDAQMD 2016 CEQA and Federal Conformity Guidelines (MDAQMD 2016). The description of the Western Mojave Desert O_3 nonattainment area is based the MDAQMD Federal 8-Hour Ozone Attainment Plan for the Western Mojave Desert Non-Attainment Area (MDAQMD 2008).

formation and engenders daytime solar heating. The MDAB is rarely influenced by the cold air masses that move south from Canada and Alaska, as these frontal systems diffuse by the time they reach the basin. Most moisture arrives in frequent warm, moist, unstable air masses from the south. The MDAB averages between 3 and 7 inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The Victorville California Irrigation Management Information System station estimates an average annual precipitation of 7.3 inches over an average of 29 days of precipitation per year. The MDAB is classified as a dry–hot desert climate, with portions classified as dry–very hot desert, to indicate at least 3 months have maximum average temperatures over 100.4°F.

The proposed program is also located within the MDAQMD portion of the Western Mojave Desert O_3 nonattainment area, which includes the following San Bernardino County communities: Phelan, Hesperia, Adelanto, Victorville, Apple Valley, Barstow, Joshua Tree, Yucca Valley, and Twentynine Palms (the southwestern portion of the MDAQMD).

Southern California Air Basin

The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The general region lies in the semi-permanent high-pressure zone of the eastern Pacific; as a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area's natural physical characteristics (e.g., weather and topography) and of manufactured influences (e.g., development patterns and lifestyle). Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75°F. However, with a less-pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain

"primary" pollutants (mainly reactive hydrocarbons and NO_x[16]) react to form "secondary" pollutants (primarily oxidants). Since this process is time-dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California also has abundant sunshine, which drives the photochemical reactions that form pollutants such as O_3 and a substantial portion of $PM_{2.5}$. In the SCAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. High O_3 levels in Southern California are generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other regions within the SCAB, San Bernardino County is susceptible to air inversions. This traps a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated PM_{10} and $PM_{2.5}$ concentrations can occur in the SCAB throughout the year, but occur most frequently in fall and winter. Although there are some changes in emissions depending on the day of the week and the season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

4.2.4.2 Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. These pollutants, as well as TACs, are

[16] NO_x is a general term pertaining to compounds of nitric oxide (NO), NO_2, and other oxides of nitrogen.

discussed in the following paragraphs.[17] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale-blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during late spring, summer, and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer as well as at the Earth's surface in the troposphere.[18] The O_3 that EPA and CARB regulate as a criteria air pollutant is produced close to ground level, where people live, exercise, and breathe. Ground-level (tropospheric) O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO_x), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_2 is formed from fuel combustion under high temperature or pressure. In addition, NO_2 is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs and may potentially lower resistance to respiratory infections (EPA 2016e).

[17] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (2016d), CARB's Glossary of Air Pollution Terms (2016d), and CARB's Fact Sheet: Air Pollution Sources, Effects, and Control (CARB 2009).

[18] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the proposed program area, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The symptoms of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that affects the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor

vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_x, NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, chronic respiratory or cardiovascular disease, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. Premature mortality has been linked to $PM_{2.5}$ exposure even in otherwise healthy populations. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Before 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling centers, and manufacturing facilities are becoming lead emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause

nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described previously.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry-cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic (cancer-causing) forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. In California, specific air toxics are designated as TACs through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. Federal laws use the term “HAPs” (hazardous air pollutants) to refer to the same types of compounds that are referred to as TACs under state law.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include

carcinogenic and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair) and thus is a subset of $PM_{2.5}$ (CARB 2016e). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016e). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars, and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016e). Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and the elderly, who often have chronic health problems.

Odorous Compounds. 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, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall, reactions to odors are quite subjective. Different people may react differently to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

4.2.4.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air

pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as "sensitive receptors." Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

Much of the proposed program area in San Bernardino County is located within developed lands that support residential, commercial, education, and industrial land uses, as well as local and regional parks, and a variety of sensitive receptors. Impacts to sensitive receptors are discussed in Section 4.2.6.2, Impacts Analysis.

4.2.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. A comprehensive list of the District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The SOPs from the Maintenance Plan presented in this section are relevant to the air quality analysis. Their relevance to specific impact topics is detailed in Section 4.2.6.

SOP-AQ-1 **Diesel Particulate Filters.** Maintenance equipment incorporates control devices on auxiliary and main engines such as, but not limited to, diesel particulate filters. This reduces DPM and NO_x emissions from main engines and auxiliary engines.

SOP-AQ-2 **Maintenance Equipment.** Where Tier 4 equipment is reasonably available, for off-road equipment with engines rated at 50 horsepower or greater, no equipment is used that is less than the Tier 4 Interim Standards.

SOP-AQ-3 **Fugitive Dust.** Maintenance activities are conducted in conformance with Rule 403 for both MDAQMD and SCAQMD.

4.2.6 Impacts Analysis

This section evaluates potential air quality impacts that would result from the proposed program. As discussed in the introduction to Chapter 4, most analyses in this EIR are organized first into geographic regions (Valley, Mountain, and Desert Regions) and then into three categories of activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, because the air quality analysis in this EIR is based on a representative project approach, neither of these categorization methods applies to the air quality analysis. Therefore, the analysis in this section is provided for the program area as a whole (all

three geographies together) and all proposed program activities combined, as they relate to the applicable air basins.

Four comment letters were received in response to the Notice of Preparation (see Appendix C to this EIR) regarding impacts to air quality.

In one comment letter, MDAQMD recommended that the EIR contain an Air Quality Element, which identifies particulate matter control measures pursuant to District Rule 403.2 – Fugitive Dust Control for the Mojave Desert Planning Area. In another letter to the District, MDAQMD concurred with the potential air quality impacts and the proposed scope identified in the Initial Study and identified no other specific comments necessary to the environmental review process. The estimated criteria air pollutant emissions presented in this analysis reflect incorporation of fugitive dust control measures such as making sure active construction sites are watered at least three times daily.

SCAQMD recommended that their CEQA Air Quality Handbook (1993) be used for all air quality analysis and that CalEEMod be used to estimate pollutant emissions from typical land use developments. SCAQMD recommended that air quality impacts from proposed program maintenance be calculated. SCAQMD also discussed the regional and localized significance thresholds (LSTs) for criteria pollutants, and recommended that these thresholds be compared to estimated proposed program emissions. This analysis uses the SCAMQD CEQA Air Quality Handbook in addition to comparing project emissions to the appropriate LSTs.

Additionally, one property owner expressed concerns about the existing conditions and the proposed program's impacts on Quail Wash in Joshua Tree. The commenter expressed concerns about several trucks hauling soil to Quail Wash during past activities, although not necessarily connected to the proposed program. The commenter mentioned that these trucks typically idle along residential roads. The commenter also mentioned that the idling of vehicles in the area has caused an odor nuisance. However, as discussed in Section 4.2.6.1 under "Representative Projects," the proposed project would not result in a significant number of worker vehicles, vendor trucks, and haul trucks that would cause an odor nuisance. Furthermore, any idling of trucks would be restricted per the requirement of CARB and SCAQMD on truck idling.

4.2.6.1 Methods of Analysis

Currently, the District maintains its facilities as needed and as authorized under regulatory approvals, on a case-by-case basis. Although routine maintenance is currently ongoing, the consistent maintenance of facilities may result in environmental impacts, which is the focus of this analysis. To provide a conservative analysis, the environmental baseline for the air quality analysis is the assumption that no activity is currently occurring. Therefore, impacts are evaluated based on the estimated total daily and annual emissions associated with the proposed program.

Pollutant emissions associated with proposed maintenance activities were quantified using CalEEMod. Project-specific information was assumed in CalEEMod based on current District practices when available. Default values provided in CalEEMod were used where detailed project information was not available.

The number of workers would vary depending on the maintenance activity and would vary depending on the facility and maintenance subphase undertaken. Numbers of workers would range from 1 to 18 workers per day for each of the representative projects. The CalEEMod default value for a worker trip distance of 14.7 miles one way was assumed in the analysis. Vendor and haul trucks were each assumed to result in two one-way trips per day. It was assumed that average one-way trip distance for vendor and haul trucks is 8.0 miles one way, based on the average distance from equipment and operational yards to various facilities along drainages where maintenance occurs. Estimated average daily haul truck trips were multiplied by the total days of the respective work phase to estimate total haul truck trips in CalEEMod.

Appendix G of the CEQA Guidelines indicates that where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied on to determine whether the proposed program would have a significant impact on air quality. The proposed program area overlies two air quality management districts, so the thresholds for both districts are discussed below.

MDAQMD Thresholds

The MDAQMD CEQA Guidelines, updated in August 2016, set forth emission-based significance thresholds which are used to determine whether a project would have a significant impact on air quality. Program-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.2-5 are exceeded. The significance thresholds are given as an annual and daily value, so that a project with phases shorter than 1 year can be compared to the daily threshold. Because the proposed program includes maintenance of multiple facilities within a year, the annual threshold has also been included below. Both the daily threshold and the annual threshold were used to determine significance within the MDAQMD jurisdiction.

Table 4.2-5
MDAQMD Air Quality Significance Thresholds

Pollutant	Annual Threshold (Tons per Year)	Daily Threshold (Pounds per Day)
VOCs	25	137
NO_x	25	137
CO	100	548
SO_x	25	137

Table 4.2-5
MDAQMD Air Quality Significance Thresholds

Pollutant	Annual Threshold (Tons per Year)	Daily Threshold (Pounds per Day)
PM_{10}	15	82
$PM_{2.5}$	15	82

Source: MDAQMD 2016.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
The emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as project with a construction phase and a separate operational phase) with phases shorter than 1 year can be compared to the daily value.

SCAQMD Thresholds

The most recent version of SCAQMD's CEQA Air Quality Handbook (SCAQMD 1993) sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality (the SCAQMD Air Quality Significance Thresholds Table was updated in March 2015). Program-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.2-6 are exceeded. The SCAQMD construction thresholds, as presented in Table 4.2-6, are applied in this analysis because facility maintenance activities would require similar techniques and methods comparable to traditional construction practices and would involve emission sources (e.g., off-road equipment, worker vehicles, and haul trucks) associated with typical construction activity.

Table 4.2-6
SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds	
Pollutant	***Construction (Pounds per Day)***
VOCs	75
NO_x	100
CO	550
SO_x	150
PM_{10}	150
$PM_{2.5}$	55
Lead[a]	3
Toxic Air Contaminants	
Pollutant	***Threshold***
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)

Table 4.2-6
SCAQMD Air Quality Significance Thresholds

Ambient Air Quality for Criteria Pollutants[b]	
Pollutant	***Attainment Standard***
NO_2 1-hour average Annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)
PM_{10} 24-hour average Annual average	 10.4 μg/m^3 (construction)[d] 1.0 μg/m^3
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[d]

Source: SCAQMD 2015.
Notes: SCAQMD = South Coast Air Quality Management District; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million; μg/m^3 = micrograms per cubic meter.
Greenhouse gas thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 4.2-6 because they will be addressed in the greenhouse gas emissions section (Section 4.6 of this EIR) and not in this air quality section.

[a] The phasing out of leaded gasoline started in 1976; gasoline no longer contains lead.
[b] TACs include carcinogens and noncarcinogens.
[c] Ambient air quality thresholds for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.
[d] Ambient air quality threshold is based on SCAQMD Rule 403.

The proposed program would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3, which is a nonattainment pollutant, if the proposed program's maintenance activity emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4.2-6. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an O_3 significance threshold (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly (see discussion of O_3 and its sources in Section 4.2.4, Existing Conditions), and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of maintenance activities. The significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, whereas the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The significance threshold for $PM_{2.5}$ is intended to ensure that maintenance activity emissions do not contribute substantially to existing exceedances of the

$PM_{2.5}$ ambient air quality standards. For project sites of 5 acres or less, SCAQMD also recommends use of its LST Methodology (SCAQMD 2008, 2009), which includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling. The allowable emission rates depend on the following parameters:

a. Source-Receptor Area (SRA) in which the project is located
b. Size of the project site
c. Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

There are seven SRAs in San Bernardino County where activities under the proposed program may occur: SRA 32 (Northwest San Bernardino Valley), SRA 33 (Southwest San Bernardino County), SRA 34 (Central San Bernardino Valley), SRA 35 (East San Bernardino Valley), SRA 36 (West San Bernardino Mountains), SRA 37 (Central San Bernardino Mountains), and SRA 38 (East San Bernardino Mountains). The nearest sensitive receptor to the proposed program differs for each proposed activity. However, the closest distance for which the SCAQMD has identified LSTs is 25 meters (82 feet). It was also assumed that the program maintenance activities would disturb 1 acre per day. The values from the SCAQMD lookup tables for San Bernardino County's SRAs for 1-acre project sites and distances of 25 meters are shown in Table 4.2-7.

Table 4.2-7
LSTs for San Bernardino County Source-Receptor Areas

Pollutant	Thresholds (Pounds per Day)
	1-Acre Project Site and Distance of 25 Meters
SRA 32 (Northwest San Bernardino Valley)	
NO_2	118
CO	863
PM_{10}	5
$PM_{2.5}$	4
SRA 33 (Southwest San Bernardino County)	
NO_2	118
CO	863
PM_{10}	5
$PM_{2.5}$	4
SRA 34 (Central San Bernardino Valley)	
NO_2	118
CO	667

Table 4.2-7
LSTs for San Bernardino County Source-Receptor Areas

Pollutant	Thresholds (Pounds per Day)
	1-Acre Project Site and Distance of 25 Meters
PM_{10}	4
$PM_{2.5}$	3
SRA 35 (East San Bernardino Valley)	
NO_2	118
CO	775
PM_{10}	4
$PM_{2.5}$	4
SRA 36 (West San Bernardino Mountains)	
NO_2	118
CO	863
PM_{10}	5
$PM_{2.5}$	4
SRA 37 (Central San Bernardino Mountains)	
NO_2	118
CO	667
PM_{10}	4
$PM_{2.5}$	3
SRA 38 (East San Bernardino Mountains)	
NO_2	118
CO	775
PM_{10}	4
$PM_{2.5}$	4

Source: SCAQMD 2009, Appendix C.
Notes: LST = localized significance threshold; SRA = Source-Receptor Area; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
LSTs are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 25 meters (82 feet).

Representative Projects

As discussed in the Program Description, the District performs routine maintenance activities on a regular and ongoing basis in an effort to maintain its existing structures, access roads, and stockpiles. These routine maintenance activities do not require engineering or involve the construction of new or the expansion of existing facilities. Some facilities may only require maintenance once every several years following large storm events, whereas others may require maintenance more than once a year.

The analysis of typical maintenance activities under the proposed program is based on representative projects, as described in the following sections. Information regarding a typical maintenance activity scenario, including anticipated phasing and phase duration, equipment, worker trips, vendor truck

tips (including water trucks), and haul truck trips, was generated for each of these representative projects. For each of the representative projects, it was assumed that all water, sprayer, and service trucks were included under the vendor truck category within the CalEEMod modeling, whereas dump trucks were included under the haul truck category.

These representative projects are intended to represent a conservative scenario associated with proposed program maintenance activities. Specifications of each proposed maintenance activity will vary depending on the subject site characteristics, maintenance needs and proposed approach; however, maintenance requirements for activities within the same category are not expected to differ substantially. Although other proposed maintenance activities not identified may differ from the scenarios analyzed, the modeled projects and estimated maximum daily emissions included herein would represent a conservative assessment of air quality impacts associated with anticipated maintenance of any given facility of the same type. In addition, it should be noted that these activities have been carried out historically on an ongoing basis for many years and continued maintenance activities under the proposed program would result in only incremental changes in emissions.

Maintenance activities were assumed to occur at the following facility types: channel, dam, debris basin, detention basin, groin, storm drain, levee, and spreading ground. Additionally, seven facilities would require sand and gravel operations, which are included as a separate component for the purpose of this analysis.

The District routinely maintains approximately 500 flood control facilities within San Bernardino County. Of the approximately 500 facilities, approximately 53% are channels, which can be further assessed based on the level of maintenance required (high, medium, and low); approximately 0.2% of the facilities are dams; approximately 26% are basins; approximately 2% are groins; approximately 4% are storm drains; approximately 7% are levees; and approximately 6% are spreading grounds.

The representative projects selected for this air quality analysis are described in this subsection. Table 4.2-8 presents a summary of the representative projects analyzed herein.

Table 4.2-8
Representative Projects Summary

Representative Project	Facility Type	Selected Representative Project
A	Concrete channel	Etiwanda Creek Channel (Facility No. 1-701-1C)
B	Earthen–engineered channel	Mission Channel (Facility No. 3-501-1A)
C	Earthen–natural channel	Mojave River (Facility No. 4-101-1N)
D	Dam	Day Creek Dam (Facility No. 1-608-3A)
E	Debris basin	San Antonio Heights Basin No. 5 (Facility No. 1-313-4B)

Table 4.2-8
Representative Projects Summary

Representative Project	Facility Type	Selected Representative Project
F	Detention basin	Donnell Basin (Facility No. 6-402-4A)
G	Groin	Muscoy Groin No. 4 (Facility No. 2-209-5D)
H	Storm drain	Alta Loma Storm Drain (Facility No. 1-405-6A)
I	Levee 1	City Creek Levee (Facility No. 2-601-5B)
J	Levee 2	Devil Creek Levee (Facility No. 2-306-5A)
K	Spreading ground	Cucamonga Spreading Grounds (Facility No. 1-303-2A)
L	Sand and gravel operations	Devil Basin (Facility No. 2-304-4F)

Source: Derry, pers. comm. 2017.

Details and maintenance activity assumptions for each representative project are provided in the following subsections.

Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))

The Etiwanda Creek Channel (Facility No. 1-701-1C) was selected to represent a concrete channel maintenance project.[19] Typical maintenance includes concrete repair, access road maintenance and adjacent herbicide application, sediment removal, vector control, and concrete structure repair. Maintenance also includes limited vegetation management, 80% of which is done using hand tools. In general, vegetation along slopes is avoided. Concrete channel maintenance activity assumptions based on Representative Project A, Etiwanda Creek Channel (Facility No. 1-701-1C), are presented in Table 4.2-9.

Table 4.2-9
Representative Project A – Concrete Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	2	4	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	2	4	4	0	N/A	N/A
Grading – sediment removal	1	4	4	2	Excavator	1
Vector control (insect control)	1	2	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A

[19] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Concrete channels include either concrete walls or bottoms. See Table 3-2 in Chapter 3, Program Description, for the number of channels located in the program area.

Table 4.2-9
Representative Project A – Concrete Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Structure repair	1	4	2	0	N/A	N/A
Vegetation management	1	4	0	0	Skidsteer loader[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parentheses represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))

The Mission Channel (Facility No. 3-501-1A) was selected to represent an earthen–engineered channel facility maintenance project.[20] Maintenance includes access road maintenance and adjacent herbicide application, sediment removal, bank repair and stabilization, and clearing fence lines. Maintenance also includes vegetation management, 10% of which is done using hand tools. Earthen–engineered channel maintenance activity assumptions based on Representative Project B, Mission Channel (Facility No. 3-501-1A), are presented in Table 4.2-10.

Table 4.2-10
Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	4	6	4	0	Grader	1
Herbicide application	2	4	2	0	N/A	N/A
Grading – sediment removal	10	12	6	48	Excavator	1
Bank repair	10	12	4	40	Scraper	2
					Crawler tractor	1
Concrete structure repair	1	2	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A

[20] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Earthen–engineered channels consist of a combination of engineered and natural features. See Table 3-2 for the number of channels in the program area.

Table 4.2-10
Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Vegetation management	1	2	2	0	Boom mowers (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))

The Mojave River (Facility No. 4-101-1N) was selected to represent an earthen–natural channel facility maintenance project.[21] Maintenance includes access road maintenance and related herbicide, sediment removal, bank repair and stabilization, vector control, and vegetation management. Earthen–natural channel maintenance activity assumptions based on Representative Project C, Mojave River (Facility No. 4-101-1N), are presented in Table 4.2-11.

Table 4.2-11
Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	1	6	2	0	N/A	N/A
Access road maintenance	2	4	4	0	Grader	1
					Broom (tractor/ loaders/backhoes)	1
Herbicide application	2	4	2	0	Polaris Ranger (other construction equipment)	1
Grading 1 – sediment removal	10	8	2	0	Crawler tractor	1
					Excavator	1
					Skidsteer loader	1
					Speed loader (tractor/loaders/	1

[21] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Natural channels consist of natural features. See Table 3-2 for the number of channels in the proposed program area.

Table 4.2-11
Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
					backhoes)	
Grading 2 – bank repair	10	8	0	0	Crawler tractor	1
					Gradall (tractor/loaders/ backhoes)	1
					Scraper	2
Other structure repair (riprap slope repairs)	2	12	4	16	Excavator	1
					Loader (tractor/loaders/ backhoes)	1
Vector control (insect control)	1	2	4	0	N/A	N/A
Vegetation management	1	2	2	0	Speed loader (tractor/loaders/ backhoes)[c]	1
					Boom mower (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))

Day Creek Dam (Facility No. 1-608-3A) was selected to represent a dam facility maintenance project.[22] Maintenance includes concrete repair, access road maintenance, adjacent herbicide application, sediment removal, and vector control. Maintenance also includes vegetation management, 10% of which is done using hand tools. The center flow maintenance (cleanup/ debris/sediment removal) is done up to 0.75 miles upstream from the spillway slope repair, as needed. High sediment load at this facility would require sediment removal of up to 500,000 cubic yards. Dam maintenance activity assumptions based on Representative Project D, Day Creek Dam (Facility No. 1-608-3A), are presented in Table 4.2-12.

[22] A dam is usually a large embankment that blocks an existing watercourse. The embankment is used to control the release of stormwater downstream via an outlet pipe that limits the amount of water that can exit the dam. See Table 3-2 for the number of dams located in the program area.

Table 4.2-12
Representative Project D – Dam Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	1	4	2	0	N/A	N/A
Grading 1 – bank repair	10	8	2	0	Gradall (tractor/loaders/ backhoes)	1
					Excavator	1
Rodenticide	1	2	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	1	4	2	0	Polaris Ranger (other construction equipment)	1
Grading 2 – sediment removal	10	8	6	0	Scrapers	1
Vector control (public health)	1	2	2	0	N/A	N/A
Vegetation management	4	18[c]	6	0	Boom mowers (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))

San Antonio Heights Basin No. 5 (Marble) (Facility No. 1-313-4B), was selected to represent a debris basin facility maintenance project.[23] Maintenance includes access road maintenance, herbicide application, vector control, bank repair and stabilization, sediment removal at the southern end of the basin facility and outlet, and vegetation management. This is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (excluding grasses) and removal of trees greater than 2 inches in diameter.[24] Any haul trucks associated with the federal maintenance were included in the vegetation management phase. Debris basin maintenance activity assumptions based on

[23] Debris basins are usually located at the mouth of a canyon where there is a potential for large sediment and debris yields. The purpose of the debris basin is to store sediment and debris, not water. Sediment and debris can reduce the capacity of downstream channels, if not contained, as well as blocking culverts and road crossings.
[24] Federal facilities are facilities over which a federal agency (e.g., U.S. Army Corps of Engineers, Division of Safety of Dams) has jurisdiction.

Representative Project E, San Antonio Heights Basin No. 5 (Facility No. 1-313-4B), are presented in Table 4.2-13.

Table 4.2-13
Representative Project E – Debris Basin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	2	0	Grader	1
Concrete repair	2	2	4	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Herbicide application	1	4	2	0	Polaris Ranger (other construction equipment)	1
Vector control	1	2	2	0	N/A	N/A
Grading 1 – bank repair	2	8	4	8	Scraper	2
					Crawler tractor	1
Grading 2 – sediment removal	2	8	4	8	N/A	N/A
Vegetation management	1	4	2	2	Boom mowers (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))

Donnell Basin (Facility No. 6-402-4A) was selected to represent a detention basin facility maintenance project.[25] Maintenance includes access road maintenance and related herbicide application, sediment removal including side casting, stockpile maintenance, bank repair and stabilization, and vector control. Detention basin maintenance activity assumptions based on Representative Project F, Donnell Basin Facility No. 6-402-4A), are presented in Table 4.2-14.

[25] A detention basin functions similarly to a dam in that its primary purpose is to cut off peak flows, thereby enabling the use of smaller channels downstream of the basin. Whereas a dam uses an embankment to impound water, a detention basin either will have no embankment or will have a small embankment. Most of the water pool is stored below grade.

Table 4.2-14
Representative Project F – Detention Basin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete structure repair	2	4	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	1	4	2	0	N/A	N/A
Grading 1 – sediment removal	1	6	0	0	Crawler tractor	1
					Excavator	1
Grading 2 – stockpile maintenance	2	6	2	0	Grader	1
					Loader (tractor/ loaders/backhoes)	1
Grading 3 – bank repair	5	6	2	0	Crawler tractor	1
					Grader	1
Rodenticide	1	2	2	0	N/A	N/A
Vector control (insect control)	1	2	4	0	N/A	N/A

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.

Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))

Muscoy Groin No. 4 (Facility No. 2-209-5D), was selected to represent a groin facility maintenance project.[26] Maintenance includes levee grading, access road repair, and herbicide application, as well as limited vegetation management along gates and fence lines, 40% of which is done using hand tools. This facility is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (except grasses) and removal of trees greater than 2 inches in diameter. Groin maintenance activity assumptions based on Representative Project G, Muscoy Groin No. 4 (Facility No. 2-209-5D), are presented in Table 4.2-15.

[26] Groins are elongated berms with one end on the bank of the stream and the other end projecting into the flow. Groins are designed to direct or deflect flows into the desired watercourse without having to construct a continuous bank. See Table 3-2 for the number of groins located in the program area.

Table 4.2-15
Representative Project G – Groin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road repair	1	6	0	2	Graders	1
Herbicide application	2	4	4	0	N/A	N/A
Vegetation management	4	14[c]	4	0	Speed loader (tractor/loaders/ backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))

Alta Loma Storm Drain 1-405-6A was selected to represent a storm drain facility maintenance project.[27] Maintenance includes concrete and bank repair and stabilization, access road maintenance and related herbicide application, sediment removal, and vector control. Maintenance also includes vegetation management, 10% of which is done using hand tools. Storm drain maintenance activity assumptions based on Representative Project H, Alta Loma Storm Drain (Facility No. 1-405-6A), are presented in Table 4.2-16.

Table 4.2-16
Representative Project H – Storm Drain Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete structure repair	1	4	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Access road maintenance	1	4	2	0	Grader	1
Herbicide application	2	4	4	0	Polaris Ranger (other construction	1

[27] Storm drain facilities are generally smaller channels, or reinforced concrete boxes and pipes, which receive flows primarily from urban runoff. These small facilities drain to a larger channel, stream, or watercourse. See Table 3-2 for the number of storm drains in the program area.

Table 4.2-16
Representative Project H – Storm Drain Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
					equipment)	
Grading – sediment removal	2	2	2	4	Skidsteer loader	1
Vector control	1	2	2	0	N/A	N/A
Vegetation management	1	2	2	0	Boom mowers (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Projects I and J: Levee (City Creek Levee (Facility No. 2-601-5B) and Devil Creek Levee (Facility No. 2-306-5A))

Two locations were selected to represent levee facility maintenance projects.[28] The City Creek Levee (Facility No. 2-601-5B) includes access road maintenance and related herbicide, vector control, bank repair and stabilization, and vegetation management. This is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (except grasses) and removal of trees greater than 2 inches in diameter. Additionally, sediment removal and vegetation management at the levee site may occur every 2 to 3 years, whereas maintenance in upstream and downstream stream segments would be tiered into phases of 3 to 7 years. Devil Creek Levee (Facility No. 2-306-5A) includes bank repair and stabilization, sediment removal, access road repair and related herbicide application, and stockpile maintenance, as well as vegetation management, 10% of which is done using hand tools. This facility is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (excluding grasses) and removal of trees greater than 2 inches in diameter.

[28] A levee is generally an elevated berm that is used to protect adjacent low-lying ground from stormwater. District facilities are generally solitary levees ("groins"), which deflect widely dispersed flows into a narrower stream course; they do not refer to the levees that make up the side slopes of small channels. These types of levees are used to deflect flows away from a larger bank, thus preventing erosion or breaching into the developed floodplain. See Table 3-2 for the number of levees located in the program area.

Levee maintenance activity assumptions based on Representative Projects I and J, City Creek Levee (Facility No. 2-601-5B) (Levee 1) and Devil Creek Levee (Facility No. 2-306-5A) (Levee 2), are presented in Tables 4.2-17 and 4.2-18.

Table 4.2-17
Representative Project I – Levee 1 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	2	0	Grader	1
Rodenticide	1	2	2	0	N/A	N/A
Concrete structure repair	2	4	2	0	N/A	N/A
Herbicide application (insect control)	1	2	4	0	N/A	N/A
Vector control	1	2	2	0	N/A	N/A
Grading 1 – bank repair	15	16	2	120	Crawler tractor	2
					Loader (tractor/ loaders/backhoes)	1
					Excavator	1
Grading 2 – sediment removal	25	26	4	200	Excavator	2
					Crawler tractor	2
					Speed loader (tractor/ loaders/backhoes)	1
					Gradall (tractor/ loaders/backhoes)	1
					Skidsteer loader	1
Vegetation management	2	15[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Table 4.2-18
Representative Project J – Levee 2 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Rodenticide	1	2	2	0	N/A	N/A
Concrete structure repair	2	4	2	0	N/A	N/A
Grading 1 – bank repair	3	8	2	12	Gradall (tractor/ loaders/backhoes)	1
Grading 2 – sediment removal	1	4	2	0	Excavator	1
Access road maintenance	1	4	4	0	Grader	1
Herbicide application	2	4	4	0	Polaris Ranger (other construction equipment)	1
Vegetation management	6	14[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project K: Spreading Ground (Cucamonga Spreading Grounds (Facility No. 1-303-2A))

Cucamonga Spreading Grounds (Facility No. 1-303-2A) was selected to represent a spreading ground facility maintenance project.[29] The Cucamonga Spreading Grounds are a large open area that encompass the area south of the Cucamonga Debris Dam and upstream of Interstate 210, and do not include the mining activities immediately north of Interstate 210. Maintenance work includes access road maintenance, stockpiling, herbicide application adjacent to the access road, and very limited vegetation management. Most vegetation management is done using hand tools. Spreading ground maintenance activity assumptions based on Representative Project K, Cucamonga Spreading Grounds (Facility No. 1-303-2A), are presented in Table 4.2-19.

[29] Spreading grounds are typically large areas of native ground that contain above-ground-surface embankments, or basins (below ground surface) with earthen bottoms, used by private and public water purveyors to impound water to recharge groundwater aquifers. Generally, spreading grounds are constructed in conjunction with a channel. The channel diverts flows into a spreading ground in order to impound the water for groundwater recharge. See Table 3-2 for the number of spreading grounds in the program area.

Table 4.2-19
Representative Project K – Spreading Ground Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	2	4	2	0	Grader	1
Grading – stockpile maintenance	2	4	0	4	Grader	1
					Loader (tractor/ loaders/backhoes)	1
Herbicide application	2	4	6	0	N/A	N/A
Vegetation management	6	14[c]	2	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for maintenance activity modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))

Devil Basin (Facility No. 2-304-4F) was selected to represent a sand and gravel operation maintenance project. Sand and gravel operations consist of vendors sorting through surplus stockpiled materials so they can be separated by size and sold to buyers. Depending on the market and the volume of stockpiled material at any given site, sand and gravel operations are generally present in the visual environment for an average of 2 years, but this can extend up to 5 years or be as minimal as 6 months. Sand and gravel operations are facilitated by graders, loaders, dump trucks, and water trucks, but equipment also includes grizzlies (i.e., a system of bars or similar equipment applied over debris and sediment to screen out large cobbles and boulders), portable power screens (which can run 5 days a week), and portable power crushers. Although models vary, portable power screens are typically composed of a steel frame and display a rectangular or square form (typically of a similar size to a 12- or 18-foot-long dumpster) with a sloped screen and debris and sediment deposit area. Once sorted, materials are either deposited at ground level near the base of the portable power screen or are transferred to a nearby area via an angled conveyor-belt apparatus that is attached to the portable power screen. Portable power crushers are larger than power screens and can be up to 15 feet tall and 50 feet long. Sand and gravel operation maintenance activity assumptions based on Representative Project L, Devil Basin (Facility No. 2-304-4F), are presented in Table 4.2-20.

Table 4.2-20
Representative Project L – Sand and Gravel Operations Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Sand and gravel operations	522	12	2	2,200	Loaders	2
					Crusher (crushing/ proc. equipment)	1
					Screening equipment (other construction equipment)	1

Source: Derry, pers. comm. 2017.
Note:
[a] Water truck is included as vendor trips for maintenance activity modeling.

4.2.6.2 Analysis

The following air quality impact analysis is organized by impact threshold, as identified in Section 4.2.3, Significance Thresholds. As discussed in the introduction to Chapter 4, most analyses in this EIR are organized into three categories of activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, because a representative project approach was used for the air quality analysis to capture the maximum potential air quality pollutants resulting from proposed program activities at selected maintenance sites, this categorization does not apply to the air quality analysis. In addition, consistent with the regional nature of air quality and cumulative effects of air pollution, the impact determination for each of the four impact thresholds analyzed in this EIR is for the proposed program as a whole. The determination of the level of significance for each threshold is for all of the representative projects proposed under the program; therefore, this analysis is not organized by geographic region as described in Chapter 4.

Impact AQ-1

Would the program conflict with or obstruct implementation of the applicable air quality plan?

MDAQMD

All Program Activities

As previously mentioned, the proposed program is located within the MDAB, which is under the jurisdiction of MDAQMD. MDAQMD is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the air basin is in nonattainment. In order to

reduce such emissions, MDAQMD adopts and enforces rules and regulations concerning sources of air pollution, issues permits for stationary sources of air pollution, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the federal Clean Air Act. A project is non-conforming with an air quality plan if it conflicts with or delays implementation of any applicable attainment or maintenance plan. As indicated in the MDAQMD CEQA and Federal Conformity Guidelines, a project is conforming if it complies with all applicable MDAQMD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan) (MDAQMD 2016).

Because of the nature of the proposed program maintenance activities, which include earthmoving and grading activities, MDAQMD Rule 403 would be applicable to the proposed program. MDAQMD Rule 403 governs emissions of fugitive dust from any transport, handling, construction, or storage activity. The rule requires that fugitive dust be controlled with best available control measures such that visible emissions of dust do not exceed this limit 100 feet from the point of origin of earthmoving activities. Compliance with this rule is achieved through application of standard practices such as applying water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads, sweeping loose dirt from paved site access roadways, ceasing construction activity when the average wind speed is greater than 15 mph, and establishing a permanent ground cover on finished sites. Earthmoving and grading activities included as a part of the proposed program are required to comply with MDAQMD Rule 403 to reduce fugitive dust impacts.

The proposed program would not conflict with or propose to change existing land uses or result in population growth. In addition, the proposed program would not result in a long-term increase in the number of trips or increase the overall vehicle miles traveled in the area. Haul truck, vendor truck, and worker vehicle trips would be generated during maintenance activities for a given facility but would be short term, generally ranging in duration from 7 to 48 days, with activities occurring at no more than three to four facilities concurrently. Therefore, the proposed program would not conflict with or delay the implementation of the MDAQMD Ozone or Particulate Matter Attainment Plans. Based on these considerations, the proposed program would result in a less than significant impact.

SCAQMD

All Program Activities

The purpose of a consistency finding is to determine whether a project aligns with the assumptions and objectives of the regional air quality plans, and thus whether it would interfere with the region's ability to comply with federal and state air quality standards.

In general, projects are considered consistent with and would not conflict with or obstruct implementation of the SCAQMD AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook). The 2016 AQMP's reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development. Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) were developed by SCAG for its 2016 RTP/SCS based on general plans for cities and counties in the SCAB. The 2016 AQMP relies on the land use and population projections provided in the SCAG 2016 Regional Growth Forecast, which is generally consistent with the local plans; therefore, the 2016 AQMP is generally consistent with local government plans.

SCAQMD has established criteria for determining consistency with the 2016 AQMP in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). The criteria are as follows:

- Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the CAAQS/NAAQS or interim emission reductions in the AQMP
- Whether the project would exceed the assumptions in the AQMP or increments based on the year of project build-out and phase

The proposed program area traverses multiple jurisdictions with distinct general plan land use designations and zoning designations; however, proposed maintenance activities are related to maintenance of existing facilities. Work would be performed on/at existing flood control facilities, and would occur primarily within existing right-of-way that is currently used and/or previously disturbed by the District. The proposed program does not propose to change existing land uses or applicable policies as designated in the general plans of the affected jurisdictions. In addition, it is not anticipated that implementation of the proposed program would require a change in land use designations. Accordingly, the proposed program would not conflict with the 2016 AQMP or exceed the assumptions in the 2016 AQMP and would not generate employment not accounted for in the SCAG 2016 Regional Growth Forecast.

The proposed program would neither increase population nor require additional long-term employment. Proposed maintenance activities are anticipated to be primarily accomplished by the District's Operations staff, with some tasks subcontracted to local contractors. Based on the proposed activities, the proposed program is not anticipated to generate employment not accounted for in the SCAG 2016 Regional Growth Forecast.

To address the criterion regarding the proposed program's potential to result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the CAAQS/NAAQS or interim emission reductions in the AQMP, a criteria air pollutant emissions modeling analysis that identified the proposed program's impact on air quality was performed as detailed under Impact AQ-2. As concluded in the discussion of the proposed program's potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation, proposed program maintenance activities would result in less than significant impacts because concurrent implementation of the maximum anticipated maintenance activities would not generate criteria air pollutant emissions that would exceed the SCAQMD thresholds. As discussed in Section 4.2.2, the MDAB and the SCAB are nonattainment areas for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. Implementation of the proposed program would result in VOC, NO_x, PM_{10}, or $PM_{2.5}$ emissions; however, program-generated emissions would not exceed the MDAQMD or SCAQMD thresholds. Therefore, the proposed program is not anticipated to contribute to the frequency or severity of existing air quality violations or delay timely attainment of the CAAQS/NAAQS or interim emission reductions in the 2016 AQMP.

Because the proposed program does not propose a change in land use designations and would not generate employment that is not accounted for in the SCAG 2016 Regional Growth Forecast, and the proposed program would not generate emissions that would exceed the SCAQMD thresholds, impacts relating to the proposed program's potential to conflict with or obstruct implementation of the SCAQMD 2016 AQMP would be less than significant.

Impact AQ-2

Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?

MDAQMD and SCAQMD

All Program Activities

Proposed program maintenance activities would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from equipment at proposed program sites, as well as from off-site trucks hauling removed

earthen materials. Maintenance activity emissions could vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 4.2.6.1, Methods of Analysis, criteria air pollutant emissions associated with implementation of representative projects were quantified using CalEEMod, Version 2016.3.1. Default values provided in CalEEMod were used where detailed project information was not available. A detailed depiction of the maintenance activity schedule, including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles, is included in Tables 4.2-9 through 4.2-20 for the proposed representative projects.

Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rules 401 (Visible Emissions), 403 (Fugitive Dust), and 431.2 (Sulfur Content of Liquid Fuels) which would assist in minimizing maintenance activity-generated fugitive dust emissions and combustion pollutants. Additionally, the District retrofits diesel equipment with diesel particulate filters and diesel oxidation catalyst per SOP-AQ-1 (Diesel Particulate Filters; see Section 4.2.5). Combined use of diesel particulate filters and diesel oxidation catalyst can reduce DPM and NO_x emissions; this analysis conservatively assumes that maintenance activities under the proposed program would implement at least Level 1 particulate controls, which is the minimum reduction provided in CalEEMod. The District also replaces maintenance equipment to EPA Tier 4 engine standards per SOP-AQ-2 (Maintenance Equipment; see Section 4.2.5). SOP-AQ-2 (Maintenance Equipment) requires that where Tier 4 equipment is reasonably available for off-road equipment with engines rated at 50 horsepower or greater, that equipment that meets Tier 4 Interim Standards (or better) shall be used.

In addition to the above SOPs, approximately 50% of the District's haul truck fleet includes compressed natural gas (CNG) trucks; however this was not accounted for within the air quality modeling because fuel types for haul trucks in CalEEMod cannot be altered. Therefore, not including CNG trucks represents a conservative approach since it is reasonable to assume that the benefits of operating CNG vehicles would include a reduction in both CO and NO_x compared with petroleum-based fuels.

For the purpose of this air quality analysis, all proposed program activities are evaluated as short-term maintenance activities and are compared to both the MDAQMD and SCAQMD construction thresholds for criteria air pollutants to determine the proposed program's potential to result in significant impacts to air quality.

Table 4.2-21 presents the estimated maximum unmitigated daily emissions generated for each representative project during maintenance activities in 2019.

Table 4.2-21
Representative Projects Estimated Maximum Daily Maintenance Activity Emissions

Project Type	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))	0.14	2.92	4.27	0.01	3.24	0.35
Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))	0.73	10.67	21.12	0.04	7.97	0.87
Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))	0.75	11.49	23.20	0.04	10.11	1.08
Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))	0.32	4.77	8.63	0.02	5.44	0.59
Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))	0.70	10.89	20.95	0.04	5.55	0.63
Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))	0.28	4.37	8.40	0.02	4.73	0.50
Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))	0.16	3.20	4.80	0.01	3.37	0.36
Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))	0.14	3.24	5.01	0.01	2.76	0.30
Representative Project I: Levee 1 (City Creek Levee (Facility No. 2-601-5B))	0.77	13.73	24.07	0.04	14.96	1.64
Representative Project J: Levee 2 (Devil Creek Levee (Facility No. 2-306-5A))	0.16	3.24	5.01	0.01	5.02	0.53
Representative Project K: Spreading Ground (Cucamonga Spreading Grounds (Facility No. 1-303-2A))	0.21	3.26	6.11	0.01	3.24	0.34
Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))	0.38	7.12	10.86	0.02	1.93	0.32
Maximum daily emissions	**0.77**	**13.73**	**24.07**	**0.04**	**14.96**	**1.64**
MDAQMD threshold	*137*	*137*	*548*	*137*	*82*	*65*
Threshold exceeded?	No	No	No	No	No	No
SCAQMD threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Source: MDAQMD 2016; SCAQMD 2015.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; MDAQMD = Mojave Desert Air Quality Management District; SCAQMD = South Coast Air Quality Management District.
See Appendix D for detailed results.

The values shown are the maximum summer or winter daily emissions results from CalEEMod.
Year 2019 was conservatively assumed to represent the year of maintenance.
All equipment uses diesel particulate filters per SOP-AQ-1 (Diesel Particulate Filters) and would meet at minimum Tier 4 standards per SOP-AQ-2 (Maintenance Equipment).
These estimates reflect control of fugitive dust required by Rule 403 (see SOP-AQ-3).

As shown in Table 4.2-21, estimated maximum daily representative maintenance activity emissions would not exceed the MDAQMD or SCAQMD construction thresholds (provided in Tables 4.2-5 and 4.2-6) for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As previously discussed, the proposed program would include maintenance activities beginning in 2019. Maximum daily emissions were estimated for 2019, which represents the first year of anticipated maintenance activities. Maximum daily maintenance activity emissions in subsequent years, compared to modeled emissions for 2019, would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

In addition to the daily thresholds presented in Table 4.2-21, the estimated criteria air pollutant emissions for facilities located within the MDAB were compared with the MDAQMD annual thresholds shown in Table 4.2-22. As discussed in Section 4.2.6.1, a portion of the proposed program area is located within the MDAB. Approximately 20% of District facilities are located within MDAQMD jurisdiction. Therefore, to approximate the annual emissions associated with maintenance activities in the MDAQMD jurisdiction, the emissions of each representative project, in tons per year were summed. In order to determine the total number of facilities located within the MDAQMD jurisdiction, the total number of District facilities was multiplied by 20% and divided by 3, because approximately 30% of maintenance activities would occur in each year.[30]

Table 4.2-22
Representative Projects Estimated Annual Maintenance Activity Emissions

Project Type	No. of Facilities within MDAQMD Maintained on an Annual Basis	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		Tons per Year					
Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))	6	0.01	0.08	0.12	<0.01	0.21	0.02

[30] To provide a conservative estimate, this number was rounded up to the next whole number. For instance, if there were 22 storm drain facilities, the number of facilities in the MDAB would be 20% of 22, or 4.4, which would be rounded up to 5. To estimate the number of facilities maintained in the MDAB in a year, 5 would be divided by 3, which is 1.7. This would then be rounded up to 2.

Table 4.2-22
Representative Projects Estimated Annual Maintenance Activity Emissions

Project Type	No. of Facilities within MDAQMD Maintained on an Annual Basis	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		Tons per Year					
Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))	10	0.15	2.37	4.28	0.01	2.77	0.30
Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))	2	0.04	0.64	1.20	<0.01	0.40	0.05
Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))	1	<0.01	0.05	0.09	<0.01	0.05	0.01
Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))	3	0.01	0.14	0.25	<0.01	0.16	0.02
Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))	6	0.02	0.35	0.66	<0.01	0.40	0.04
Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))	1	<0.01	0.02	0.02	<0.01	0.01	<0.01
Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))	2	<0.01	0.03	0.04	<0.01	0.04	<0.01
Representative Project I: Levee 1 (City Creek Levee (Facility No. 2-601-5B))	3	0.06	1.04	1.80	<0.01	1.05	0.12

Table 4.2-22
Representative Projects Estimated Annual Maintenance Activity Emissions

Project Type	No. of Facilities within MDAQMD Maintained on an Annual Basis	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		Tons per Year					
Representative Project J: Levee 2 (Devil Creek Levee (Facility No. 2-306-5A))							
Representative Project K: Spreading Ground (Cucamonga Spreading Grounds (Facility No. 1-303-2A))	3	0.01	0.10	0.17	<0.01	0.06	0.01
Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))	1	0.10	1.86	2.82	<0.01	0.50	0.08
	Total emissions[c]	**0.39**	**6.60**	**11.33**	**0.01**	**5.44**	**0.63**
	MDAQMD threshold	*25*	*25*	*100*	*25*	*15*	*12*
	Threshold exceeded?	No	No	No	No	No	No

Source: MDAQMD 2016.
Notes: MDAQMD = Mojave Desert Air Quality Management District; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
All equipment uses diesel particulate filters per SOP-AQ-1 (Diesel Particulate Filters) and would meet at minimum Tier 4 standards per SOP-AQ-2 (Maintenance Equipment).
These estimates reflect control of fugitive dust required by Rule 403 (see SOP-AQ-3 (Fugitive Dust)).
[a] Assumed total number of facilities located within MDAQMD is approximately 20% of the total program facilities maintained each year.
[b] Representative Project I annual emissions were used to compare with the MDAQMD significance thresholds which represent the highest annual emissions for maintenance activities completed for levee facility types.
[c] Total emissions were calculated by taking the facilities located within the MDAB (20% of the total facilities) and multiplied by 30% (percent of facilities maintained on an annual basis).

As shown in Table 4.2-22, the total estimated emissions associated with maintenance activities to occur on an annual basis in the MDAQMD jurisdiction would not exceed the MDAQMD construction thresholds (provided in Table 4.2-5) for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

There is a potential for maintenance activities to occur concurrently with maintenance activities at one or more other facilities, which is addressed below.

Potential Overlap of Maintenance Activities

There is a potential for multiple maintenance activities to occur concurrently. The criteria air pollutant of concern (i.e., the pollutant that concurrent maintenance activities would most likely

exceed thresholds of) is PM_{10}. As presented in Table 4.2-23, the overlap of two larger projects (Representative Projects C and I) and sand and gravel operations (Representative Project L) would result in emissions that are closest to the PM_{10} maximum daily threshold. It is not anticipated that simultaneous maintenance activities would exceed the thresholds for VOCs, NO_x, CO, SO_x, or $PM_{2.5}$ without exceeding the PM_{10} threshold because PM_{10} is generated from grading and earthmoving activities, which are the primary sources of fugitive dust emissions. As such, PM_{10} is assumed to be the limiting criteria air pollutant in this analysis.

Table 4.2-23
Representative Projects Estimated Maximum Daily Maintenance Activity Emissions

Project Type	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))	0.75	11.49	23.20	0.04	10.11	1.08
Representative Project I: Levee 1 (City Creek Levee (Facility No. 2-601-5B))	0.77	13.73	24.07	0.04	14.96	1.64
Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))	0.38	7.12	10.86	0.02	1.93	0.32
Total daily maximum emissions	**1.90**	**32.34**	**58.13**	**0.10**	**27.00**	**3.04**
MDAQMD threshold	*137*	*137*	*548*	*137*	*82*	*65*
Threshold exceeded?	No	No	No	No	No	No
SCAQMD threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Source: MDAQMD 2016; SCAQMD 2015.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; MDAQMD = Mojave Desert Air Quality Management District; SCAQMD = South Coast Air Quality Management District.
See Appendix D for detailed results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.
Year 2018 was conservatively assumed to represent the year of maintenance.
All equipment uses diesel particulate filters per SOP-AQ-1 (Diesel Particulate Filters) and would meet at minimum Tier 4 standards per SOP-AQ-2 (Maintenance Equipment).
These estimates reflect control of fugitive dust required by Rule 403 (see SOP-AQ-3 (Fugitive Dust)).

Table 4.2-23 presents a conservative scenario of daily maintenance activity overlap. Representative Projects C and I are estimated to generate the greatest daily PM_{10} emissions. Representative Project L would likely result in overlap with other maintenance activity projects, because sand and gravel operations occur over several months. As discussed previously, because the District's equipment fleet is limited, no more than three major projects, such as Representative Projects C, I, and L, in addition to two minor projects could occur at one time.

Therefore, the total daily maximum emissions presented in Table 4.2-23 would represent a conservative scenario.

The proposed total daily maximum emissions presented in Table 4.2-23 would not exceed the MDAQMD or SCAQMD thresholds (provided in Tables 4.2-5 and 4.2-6) for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. With incorporation of SOP-AQ-1 (Diesel Particulate Filters), SOP-AQ-2 (Maintenance Equipment), and SOP-AQ-3 (Fugitive Dust) into the proposed program as part of the District's standard practice, impacts from maintenance activities would be less than significant.

Impact AQ-3

Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors)?

MDAQMD and SCAQMD

All Program Activities

In considering cumulative impacts from the proposed program, the analysis should specifically evaluate the proposed program's contribution to the cumulative increase in pollutants for which the MDAB and the SCAB are designated as nonattainment for the NAAQS and/or CAAQS. If the proposed program's emissions would exceed the MDAQMD or SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the MDAB or the SCAB. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003). The impact analysis for this threshold is for the proposed program as a whole. The analysis is based on the cumulative contribution of pollutant emissions from all proposed maintenance activities, as well as the current NAAQS and CAAQS attainment status of the MDAB and the SCAB.

As discussed in Section 4.2.2, the MDAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. Likewise, the SCAB is also a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. Implementation of the proposed program would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Table 4.2-21, which presents maximum daily maintenance activity emissions, and Table 4.2-22, which presents annual emissions from proposed maintenance activities, emissions from individual representative projects would not exceed the MDAQMD or SCAQMD significance thresholds. In addition, as explained under Impact AQ-2, simultaneous maintenance activities from multiple representative projects would not exceed the

MDAQMD or SCAQMD construction thresholds because, due to limitations on the size of the District's equipment fleet, the maximum number of concurrent projects is anticipated to be less than the number of concurrent projects with combined emissions that would exceed thresholds.

The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). The discussion herein is nonetheless provided in an effort to show good faith analysis and to comply with CEQA's information disclosure requirements. Cumulative localized impacts would potentially occur if maintenance activities at a facility were to occur concurrently with another off-site (i.e., not proposed under the program) project. The proposed program includes flood control facility maintenance within various jurisdictions throughout San Bernardino County and Riverside County. Maintenance activity schedules for potential future projects near the various project sites, as well as program-proposed maintenance activity schedules, are currently unknown; therefore, potential impacts associated with the maintenance activities and two or more simultaneous projects would be considered speculative. Air pollutant emissions associated with maintenance activities would be reduced through implementation of control measures required by MDAQMD and SCAQMD, including Rule 403 (Fugitive Dust), which sets forth general and specific requirements for the maintenance activity sites within each air district. In addition, future off-site projects would be subject to CEQA, which would require an air quality analysis (if not exempt) and would require implementation of mitigation if the project would exceed the MDAQMD or SCAQMD thresholds.

Because the proposed program is not expected to exceed the MDAQMD and SCAQMD thresholds, the proposed program would not thereby conflict with SCAQMD's 2016 AQMP, which addresses the cumulative emissions in the SCAB (see discussion under Impact AQ-1). As previously discussed under Impact AQ-2, SOP-AQ-1 (Diesel Particulate Filters), SOP-AQ-2 (Maintenance Equipment), and SOP-AQ-3 (Fugitive Dust) would be incorporated into the proposed program to reduce maintenance activity-generated emissions and associated impacts. Based on the considerations presented in this analysis, the proposed program emissions would be less than cumulatively considerable for nonattainment pollutants. Potential impacts resulting from implementation of the proposed program would be less than significant.

Impact AQ-4

Would the program expose sensitive receptors to substantial pollutant concentrations?

MDAQMD and SCAQMD

All Program Activities

LST Analysis

Individually proposed program maintenance activities would be temporary in nature. Representative projects are estimated to generally range in duration from 7 to 48 days (with the exception of stockpile removal). Maintenance activities at a given facility could occur over a shorter or longer period than the range provided; however, it was assumed that most of the facilities would require maintenance activities that would occur within the provided durations. The intensity of the maintenance activities, including the number of equipment operating in a day, truck trips, and worker trips, would vary throughout the proposed program. The surrounding land uses and potential nearby sensitive receptors and the distance to the closest sensitive receptor would also vary depending on the location of the activity site.

Maintenance activities associated with the proposed program would result in temporary on-site sources of fugitive dust and maintenance equipment emissions. Off-site emissions from haul trucks, vendor trucks, and worker vehicle trips are not included in the LST analysis. It was conservatively assumed that sensitive receptors (such as residences) that would potentially be affected by maintenance activity within an individual project area could be located within 25 meters (82 feet) of the project site. The most stringent SCAQMD LST thresholds within the San Bernardino County SRAs, as shown in Table 4.2-20, are compared to the maximum daily on-site maintenance activity emissions and presented in Table 4.2-24.

Table 4.2-24
Representative Projects LST Analysis – On-Site Maintenance Activity Emissions

Project Type	NO_x	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))	2.28	3.92	0.21	0.03
Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))	10.09	20.34	0.21	0.05
Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))	11.44	22.68	0.47	0.10
Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))	4.01	8.08	0.43	0.06

Table 4.2-24
Representative Projects LST Analysis – On-Site Maintenance Activity Emissions

Project Type	NO_x	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))	10.09	20.34	0.05	0.05
Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))	4.35	8.10	0.22	0.03
Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))	2.71	4.68	0.21	0.03
Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))	2.74	4.71	0.21	0.03
Representative Project I: Levee 1 (City Creek Levee (Facility No. 2-601-5B))	12.57	22.45	0.49	0.12
Representative Project J: Levee 2 (Devil Creek Levee (Facility No. 2-306-5A))	2.74	4.71	0.21	0.03
Representative Project K: Spreading Ground (Cucamonga Spreading Grounds (Facility No. 1-303-2A))	3.10	5.86	0.22	0.03
Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))	11.36	10.72	2.52	0.89
Maximum daily on-site maintenance activity emissions	**12.57**	**22.68**	**2.52**	**0.89**
Most stringent LST	*118*	*667*	*4*	*3*
Threshold exceeded?	No	No	No	No

LST = localized significance threshold; NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
LSTs are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 25 meters (82 feet).
Year 2019 was conservatively assumed to represent the year of maintenance.
All equipment will use diesel particulate filters per SOP-AQ-1 (Diesel Particulate Filters) and would meet at minimum Tier 4 standards per SOP-AQ-2 (Maintenance Equipment).
These estimates reflect control of fugitive dust required by Rule 403 (see SOP-AQ-3 (Fugitive Dust)).

As shown in Table 4.2-24, with incorporation of diesel particulate filters on maintenance equipment per SOP-AQ-1 (Diesel Particulate Filters) and fugitive dust control measures per SOP-AQ-3 (Fugitive Dust; see Section 4.2.5), maximum daily on-site maintenance activity emissions for each representative project would not exceed the most stringent LSTs. As such, site-specific maintenance activity impacts on ambient air quality at sensitive receptor locations would be less than significant.

Carbon Monoxide Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (level of service E or

worse). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

Individual projects under the proposed program would be temporary and would not be a source of daily, long-term mobile-source emissions. Accordingly, proposed activities would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. As discussed in Section 4.13, Traffic and Circulation, of this EIR, the proposed project would not result in the generation of trips that are anticipated to impact intersection performance. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the MDAB or the SCAB is steadily decreasing. Maximum background CO levels in San Bernardino County, as shown in Table 4.2-4, are less than 30% of the 1-hour and 8-hour NAAQS and CAAQS and would be expected to improve further due to reductions in motor vehicle emissions. Based on these considerations, the proposed program would result in a less than significant impact to air quality with regard to potential CO hotspots.

Toxic Air Contaminants

TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health (see Section 4.2.4.2, Pollutants and Effects). The greatest potential for TAC emissions during maintenance activities would be DPM emissions from heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors. Although approximately 80% of the geographic extent of the County falls within the Desert Region, the Valley Region is the most developed and approximately 77% of the District facilities are in the Valley Region. The nearest sensitive receptors to the most maintained facilities are primarily located within the Valley Region. Based on the selected representative projects in the analysis, representative projects would not occur in any one area for an extended period of time; the longest period would be approximately 28 days.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk, and SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. “Incremental cancer risk” is the likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 30-year lifetime will contract cancer based on the use of standard risk-assessment methodology. The proposed program would not require the extensive use of heavy-duty equipment, which is subject to CARB’s Airborne Toxic Control Measures for in-use diesel equipment to reduce DPM emissions, and it would not involve extensive use of diesel trucks. Under California regulatory guidelines, DPM is used as a surrogate measure of

carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole, and PM_{10} from diesel exhaust can be used as a proxy for DPM. As shown in Tables 4.2-21 and 4.2-22, which present estimated maximum daily and annual emissions from maintenance activities under the representative projects, maintenance activities would not generate substantial emissions of PM_{10} and emissions from individual projects would not exceed the MDAQMD or SCAQMD maximum daily construction thresholds. In addition, incorporation of SOP-AQ-1 (Diesel Particulate Filters) as part of the District's standard practice would ensure the use of diesel particulate filters on maintenance equipment, and SOP-AQ-2 (Maintenance Equipment) would require the use of Tier 4 equipment, both of which would reduce exhaust PM_{10} emissions.

The maintenance activity period for the proposed program is expected to begin in 2018, occurring over a period of 20 years. However, maintenance activities at any single location would be short term and intermittent and would not result in extended exposure of sensitive receptors to TAC emissions. Therefore, maintenance activities are not anticipated to result in the exposure of sensitive receptors to levels that exceed applicable standards. As such, impacts related to exposure of sensitive receptors to program-related TAC emission impacts during maintenance activities would be less than significant.

CARB has published the Air Quality and Land Use Handbook: A Community Health Perspective (CARB 2005), which identifies certain types of facilities or sources that may emit substantial quantities of TACs and therefore could conflict with sensitive land uses, such as schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The proposed program would neither include sensitive land uses nor would it generate substantial short-term TAC concentrations or include long-term TAC sources on site that would impact potential sensitive land use receptors. Accordingly, the proposed program would not generate substantial TAC emissions that would conflict with surrounding sensitive receptors, and impacts would be less than significant.

Health Impacts of Criteria Air Pollutants

Maintenance activities under the proposed program would generate criteria air pollutant emissions; however, the proposed program would not exceed the MDAQMD or SCAQMD mass emission thresholds. As presented in Tables 4.2-2 and 4.2-3, the MDAB and the SCAB are nonattainment areas for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The potential health effects associated with pollutants are presented in Section 4.2.4.2.

VOCs and NO_x (precursors to O_3): Because the proposed program involves maintenance activities that would not result in VOC or NO_x emissions that would exceed the MDAQMD or SCAQMD thresholds, the proposed program is not anticipated to substantially contribute to regional O_3 concentrations and associated health impacts.

NO_2: In addition to O_3, NO_x contributes to potential exceedances of the NAAQS and CAAQS for NO_2. However, as shown in Table 4.2-4, Local Ambient Air Quality Data, the existing NO_2 concentrations are below the NAAQS and CAAQS. Thus, it is not expected that the proposed program's maintenance activity NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects.

CO: The associated CO hotspots were discussed previously as a less than significant impact. Thus, the proposed program's CO emissions would not contribute to the health effects associated with this pollutant.

PM_{10} and $PM_{2.5}$: The proposed program would not generate emissions of PM_{10} and $PM_{2.5}$ that would exceed the MDAQMD or SCAQMD's thresholds and such emissions are not expected to cause any increase in related regional health effects for these pollutants.

Accordingly, the proposed program would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

4.2.7 Mitigation Measures

The daily thresholds set forth in the MDAQMD CEQA Guidelines and the SCAQMD CEQA Air Quality Handbook and the annual thresholds set forth in the MDAQMD CEQA Guidelines would not be exceeded as a result of implementation of the proposed program. With incorporation of District standard practices SOP-AQ-1 through SOP-AQ-3, potential air quality impacts would be less than significant. Therefore, no mitigation measures would be required.

4.2.8 Level of Significance After Mitigation

Air quality impacts from implementation of the proposed program would be less than significant. Table 4.2-25 summarizes the impacts of proposed activities under each impact threshold analyzed in this EIR section.

Table 4.2-25
Air Quality Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance
Impact AQ-1: Would the program conflict with or obstruct implementation of the applicable air quality plan?				
MDAQMD and SCAQMD				
All Program Activities	—	Less than significant	—	Less than significant

Table 4.2-25
Air Quality Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance
Impact AQ-2: Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?				
MDAQMD and SCAQMD				
All Program Activities	SOP-AQ-1 through SOP-AQ-3	Less than significant	—	Less than significant
Impact AQ-3: Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				
MDAQMD and SCAQMD				
All Program Activities	SOP-AQ-1 through SOP-AQ-3	Less than significant	—	Less than significant
Impact AQ-4: Would the program expose sensitive receptors to substantial pollutant concentrations?				
MDAQMD and SCAQMD				
All Program Activities	SOP-AQ-1 through SOP-AQ-3	Less than significant	—	Less than significant

4.2.9 Cumulative Impacts

Air pollution is largely a cumulative impact and is therefore addressed regionally, based on topographic features (air basins) that are further divided into air pollution control districts, which are responsible for managing and enforcing air quality regulations. The nonattainment status of regional pollutants is a result of past and present development, and MDAQMD and SCAQMD develop and implement plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used to help determine whether a project's individual emissions would have a cumulatively considerable contribution to impacts on air quality.

Maintenance activities associated with the proposed program would result in less than significant impacts on air quality on a localized and temporary basis. As previously discussed, the proposed program would be consistent with the relevant air quality plans, would not exceed the MDAQMD and SCAQMD significance thresholds, would not expose sensitive receptors to significant pollutant concentrations, and would not produce objectionable odors that would affect a substantial number of people. In addition to the air quality management districts' efforts, CARB has comprehensive regulatory programs in place for new and existing sources of air pollution. Local policies, such as land use decisions that involve siting, zoning, and permitting actions, in conjunction with air

agency efforts have the potential to greatly enhance the effectiveness of these programs by addressing cumulative impacts in local areas. Project-specific emissions associated with implementation of the proposed program could result in regional and localized impacts. Regional pollutants such as O_3 and $PM_{2.5}$ are derived from complex interactions of emissions from many sources. In contrast, localized, or near-source, pollutants such as SO_2 are mainly derived from a single source or group of sources. Cumulative air quality impacts are the effect of long-term emissions of the proposed program plus any existing emissions at the same location, as well as the effect of long-term emissions of reasonably foreseeable similar projects, on the projected regional air quality or localized air pollution in the MDAB or SCAB regions and surrounding areas. Accordingly, impacts can be localized or far reaching and the geographic scope of air quality impacts varies based on the type of emission source.

Based on the cumulative nature of air pollution and the various mechanisms in place to reduce cumulative air pollutant emissions, project-level thresholds of significance for criteria pollutants, as analyzed in Section 4.2.6, Methods of Analysis, are relevant in the determination of whether the proposed program's individual emissions would have a cumulatively significant impact on air quality. The potential for the proposed program to result in a cumulatively considerable air quality impact is evaluated under Impact AQ-3. As discussed under Impact AQ-3, the proposed program is not expected to exceed the MDAQMD or SCAQMD mass daily emission based thresholds. In addition, as discussed under Impact AQ-4, the proposed program would not exceed SCAQMD's LSTs and would not result in impacts to potential nearby sensitive receptors. Furthermore, as part of District's standard practice the proposed program would implement SOP-AQ-1 (Diesel Particulate Filters), SOP-AQ-2 (Maintenance Equipment), and SOP-AQ-3 (Fugitive Dust), which would reduce maintenance activity-generated emissions. As such, the proposed program's potential to result in a cumulatively considerable new increase of any criteria pollutant for which the proposed program region is in nonattainment under an applicable NAAQS and/or CAAQS would be less than significant. Therefore, cumulative impacts resulting from the proposed program would not be cumulatively considerable.

4.2.10 References

13 CCR 2025. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles.

13 CCR 2449–2449.3 and Appendix A. General Requirements for In-Use Off-Road Diesel-Fueled Fleets.

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

17 CCR 93000. Substances Identified as Toxic Air Contaminants. In Subchapter 7, Toxic Air Contaminants.

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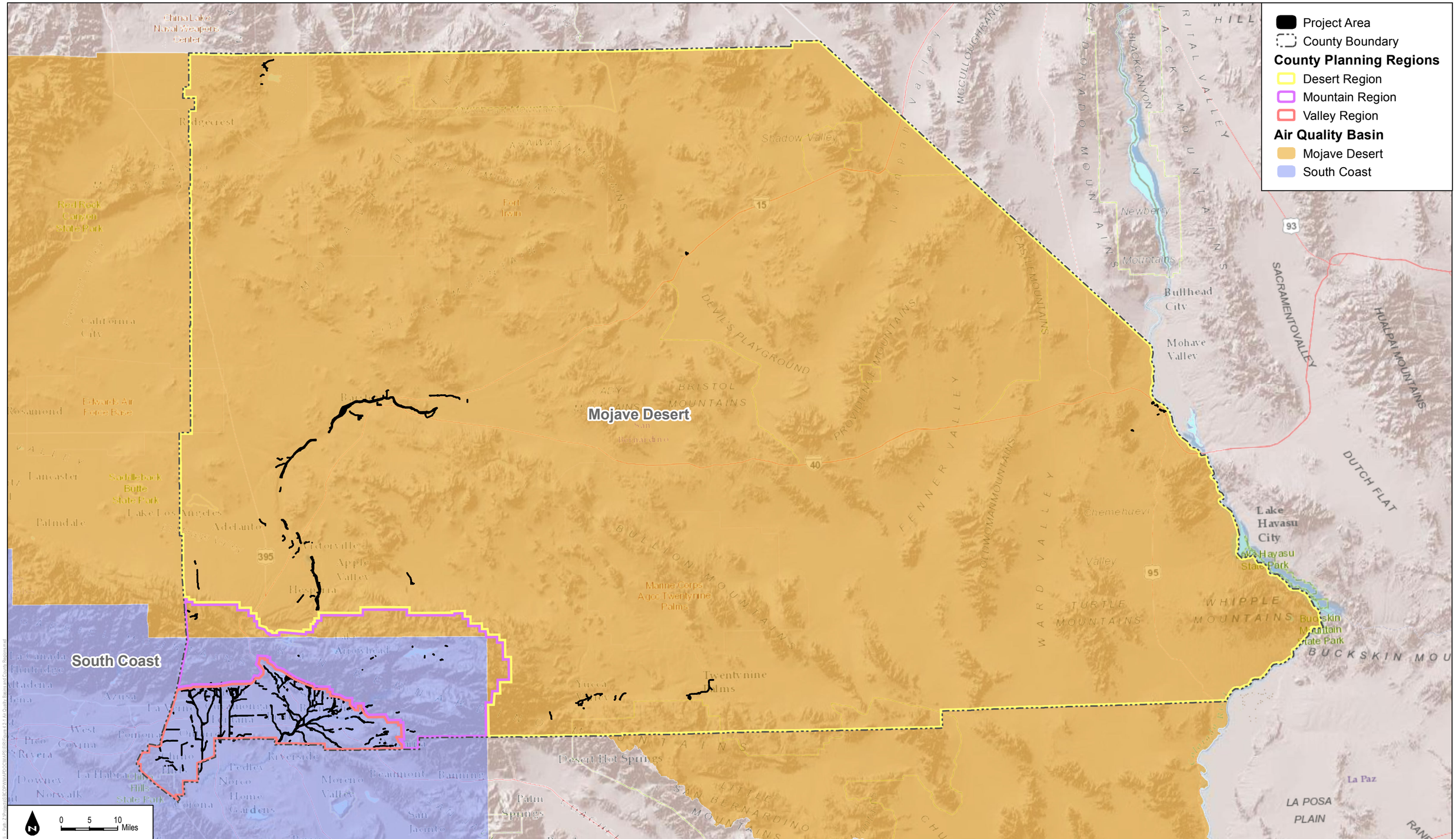

SOURCE: California Air Resources Board 2015; ESRI 2018

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FIGURE 4.2-1

Air Quality Basins and County Regions

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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4.3 BIOLOGICAL RESOURCES

4.3.1 Introduction

This section of the environmental impact report (EIR) describes special-status biological resources occurring within the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce biological resources impacts, evaluates potential impacts on special-status biological resources related to implementation of the proposed program, and proposes mitigation measures to reduce any significant impacts resulting from the proposed program. Biological resources evaluated include special-status vegetation communities, special-status plant and wildlife species, jurisdictional waters and wetlands, and wildlife movement corridors and linkages. This section also identifies existing conservation plans that overlap the proposed program area and potential conflicts with those plans from implementation of the proposed program.

The analysis in this section focuses on the proposed program's effect on vegetation communities, special-status wildlife and plant species, jurisdictional waters, wildlife corridors, and existing conservation areas.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

In addition to the documents incorporated by reference (see Section 4.3.10, References), the analysis in this section is based on the following reports:

- Biological Technical Report for the Master Storm Water System Maintenance Program (BTR; Appendix E to this EIR)
- Jurisdictional Waters Delineation Report for the Master Storm Water System Maintenance Program (Dudek 2017)

4.3.2 Regulatory Framework

Federal

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (Clean Water Act) (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987 (PL 1000-4), is the major federal legislation governing water quality. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under Section 404. Waters of the United States include (1) all navigable waters (including all waters subject to the ebb and flow of tides); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, and natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. In California, the State Water Resources Control Board (SWRCB) and the nine RWQCBs are responsible for implementing the Clean Water Act. Important applicable sections of the Clean Water Act are as follows:

Section 401 requires an applicant for any federal permit for an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Clean Water Act. Certification is provided by the respective RWQCB or the SWRCB.

Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. The National Pollutant Discharge Elimination System program is administered by the RWQCB. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401.

Section 404 provides for issuance of dredge/fill permits by the U.S. Army Corps of Engineers (USACE). Permits typically include conditions to minimize impacts on water quality. Common conditions include (1) USACE review and approval of sediment quality analysis before dredging, (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and (3) required compensation for loss of waters of the United States.

Section 14 of the Rivers and Harbors Act

Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408, or "Section 408") provides that the Secretary of the Army may, on recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation of a public work (e.g., a levee or dam) so

long as that alteration or occupation is not injurious to the public interest and will not impair the usefulness of the work. Permission for certain alterations (which include changes to the authorized purpose, scope, or functioning of a project) must be granted by USACE Headquarters. The primary focus of the USACE's Section 408 review is to ensure that there will be no adverse impacts on the flood risk reduction system.

Federal Endangered Species Act

The Endangered Species Act of 1973 (ESA) provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA regulates federally listed endangered or threatened wildlife and plant species, proposed listed species, and critical habitat. A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

The ESA defines critical habitat as "the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary to be essential for the conservation of the species." The critical habitat designation only applies to projects involving federal funding, permits, or projects.

Under Section 7 of the ESA, all federal agencies are required to consult with the U.S. Fish and Wildlife Service (USFWS) if they determine that any action that they fund, authorize, or carry out may affect a listed species or USFWS-designated critical habitat. Section 10(a) allows USFWS to authorize "take" of a listed species that is incidental to otherwise lawful activities. Approval criteria are specified in the ESA and federal regulations. Further guidance is provided in the Habitat Conservation Planning and Incidental Take Permitting Process Handbook (USFWS 1996) and the Five-Point Policy (an addendum to the handbook) (USFWS 2000).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the Migratory Bird Treaty Act is extensive and is listed in Title 50 of the Code of Federal Regulations, Section 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, as well as any part, egg, or nest of such bird (50 CFR 10.12). Migratory birds are not necessarily federally listed as endangered or threatened birds under the ESA. The Migratory Bird Treaty Act, which is enforced by the

USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668–668(d)) provides for protection of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) by prohibiting, except under certain specified conditions, the taking and possession of or commerce in such birds (or the parts, eggs, or nests of the birds). The USFWS is responsible for implementing the Bald and Golden Eagle Protection Act. The act identifies certain conditions under which permits may be issued for incidental take of bald or golden eagles.

State

California Fish and Game Code

Under Sections 3511 and 4700 of the California Fish and Game Code, which regulate birds and mammals, respectively, a fully protected species may not be taken or possessed and incidental takes of these species are not authorized. The classification of "fully protected" was the initial effort by the California Department of Fish and Wildlife (CDFW) to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under the California Endangered Species Act (CESA) and/or ESA. The California Fish and Game Code sections (fish at Section 5515, amphibians and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with fully protected species states that these species "…may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species." This language makes the "fully protected" designation the strongest and most restrictive regarding the take of these species. In 2003, the code sections dealing with fully protected species were amended to allow CDFW to authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock. Fully protected species include the golden eagle, bald eagle, white-tailed kite (*Elanus leucurus*), and peregrine falcon (*Falco peregrinus anatum*).

"California species of special concern" are broadly defined as animals not listed under the ESA or CESA, but which are nonetheless of concern to CDFW because they are declining at a rate that could result in listing or because they historically occurred in low numbers and known

threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under the ESA and CESA and cumbersome recovery efforts that might ultimately be required. Although these species generally have no special legal status, they are given special consideration under CEQA during proposed project review.

Pursuant to Section 3503.5 of the California Fish and Game Code, it is also unlawful to take, possess, or destroy any birds of prey, or to take, possess, or destroy any nest or eggs of such birds. "Birds of prey" refer to species in the orders Falconiformes and Strigiformes. Active nests of all other birds (except English sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*)) are similarly protected under Sections 3503 and 3513 of the California Fish and Game Code. Section 3513 essentially overlaps with the Migratory Bird Treaty Act, prohibiting the take or possession of any migratory non-game bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by CDFW.

Streams, lakes, and riparian vegetation, as habitat for fish and other wildlife species, are subject to jurisdiction by CDFW under Sections 1600–1616 of the California Fish and Game Code. Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. Diversion, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by means of entering into an agreement pursuant to Section 1602 of the California Fish and Game Code.

California Endangered Species Act

CESA (California Fish and Game Code, Section 2050 et seq.) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike the ESA, CESA provides state-listed plants with the same degree of protection as wildlife, but may not list insects and other invertebrates. Take is defined similarly to the ESA and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFW under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. CESA

expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals to threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are typically included within a proposed project's CEQA analysis and as a condition of discretionary permits, which require preparation and approval of mitigation plans that contain assurances of implementation, monitoring, and maintenance.

California Environmental Quality Act

CEQA requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. The act also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "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 rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "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 within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

CDFW implements the Native Plant Protection Act and CESA, and its Biogeographic Data Branch maintains the California Natural Diversity Database, a computerized inventory of information on the general location and status of California's rarest plants, wildlife, and natural communities. CDFW has developed a list of "Special Species" as "a general term that refers to all of the taxa the California Natural Diversity Database is interested in tracking, regardless of their legal or protection status." This is a broader list than those species that are protected under the ESA, CESA, and other California Fish and Game Code provisions, and includes lists developed by other organizations, including for example the Audubon Watch List Species. Guidance documents prepared by other agencies, including the Bureau of Land Management (BLM) Sensitive Species and USFWS Birds of Special Concern, are also included on this CDFW Special Species list. Additionally, CDFW has concluded that plant species included on the California Native Plant Society's California Rare Plant Rank (CRPR) 1 and 2, and potentially

some CRPR 3 plants, are covered by CEQA Guidelines Section 15380. During the CEQA review process, CDFW is given the opportunity to comment on the potential of the proposed project to affect listed plants and wildlife species.

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service."

Local

General Plans

General plans serve to guide and direct local government decision making for biological resources. Generally, conservation elements in local jurisdictions' general plans focus on managing these resources. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding biological resources. However, the proposed program would not conflict with these general plan policies.

San Bernardino Development Code

The San Bernardino Development Code, Chapter 88.01 (Plant Protection and Management) provides regulations and guidelines for the management of plant resources in the unincorporated areas of the County on property or combinations of property under private or public ownership. A regulated tree or plant shall be any of the trees or plants identified in (1) Section 88.01.060(c) (Regulated desert native plants), (2) Section 88.01.070(b) (Regulated trees), or (3) Section 88.01.080(b) (Regulated riparian plants). However, Section 88.01.030 (Exempt activities) states that the provisions in Chapter 88.01 (except tree protection from insects) shall not apply to the removal of regulated trees or plants that may occur on government owned lands, including local governmental entities such as the District. Therefore, the District is exempt from the plant protection and management regulations and guidelines.

4.3.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program impacts related to biological resources are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to biological resources would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact BIO-1 ***Would the program have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate,***

sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact BIO-2 ***Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?***

Impact BIO-3 ***Would the program have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***

Impact BIO-4 ***Would the program 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?***

Impact BIO-5 ***Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

Impact BIO-6 ***Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?***

In June 2014, the District circulated a Notice of Preparation and Initial Study (see Appendix B to this EIR), which served to focus the EIR on effects determined to be carried forward for analysis and effects determined not to be significant (14 CCR 15063). The Initial Study determined that all of the biological resources impact thresholds should be carried forward for analysis in the EIR (see Section 4.3.6, Impacts Analysis).

4.3.4 Existing Conditions

This subsection describes the existing special-status biological resources within the Valley, Mountain, and Desert Regions. Data regarding biological resources present within the proposed program area were obtained through an extensive data and literature review, desktop aerial interpretation, field reconnaissance, and limited field surveys as described in Chapter 3 of Appendix E.

For purposes of this analysis, special-status resources are defined in the following paragraphs.

Vegetation communities considered special-status are those which CDFW has given a rarity rank with an "S" ranking of 1, 2, or 3 (CDFG 2010) or associations that are considered a high priority for inventory, or were considered special-status under Holland (1986). Special-status vegetation communities also include those with protection under the existing Development Code, which includes compliance with the Desert Native Plant Act for the Desert Region and compliance with Oak Woodland protection. Additionally, some wetland habitat types may be considered special status.

Special-status plant species are those plant species that are:

- Classified as state endangered (SE), threatened, or rare and/or classified as endangered or threatened by the USFWS (federally listed), or candidates for future listing.
- Considered by the California Native Plant Society to be "rare, threatened, or endangered in California" (CRPR 1 and 2).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated in local or regional plans, policies, or ordinances. Within the County, this would apply to species regulated in the Development Code. Although the District is exempt from the Development Code, it is the District's standard practice to avoid regulated trees or plants when practicable.

Special-status wildlife species are those wildlife species that are:

- Listed as threatened or endangered or candidates for future listing under the federal ESA or CESA.
- Designated as a species of concern by the CDFW.
- Fully protected species protected under California Fish and Game Code Sections 3511, 4700, 5050, and 5515.
- Listed as protected by California Code of Regulations, Title 14 (Natural resources), Divisions 1, Subdivision 2, Chapter 5 (fur-bearing animals), Section 460 (for example, kit fox (*Vulpes macrotis*)).

Literature Review

A search of California Natural Diversity Database Rarefind (CDFW 2016) and California Native Plant Society On-Line Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2016) was conducted to identify special-status biological flora and fauna potentially present in the proposed program area. In addition, the USFWS Carlsbad geographic information systems (GIS) species database (USFWS 2016), the U.S. Department of Agriculture

Web Soil Survey (USDA 2017), the District's biological geodatabase (District 2015a), and the tricolored blackbird (*Agelaius tricolor*) data portal (UCD 2017) were used for special-status species occurrence data and critical habitat designation within the proposed program area. The Upper Santa Ana River HCP species occurrence database (District 2015b) also was also reviewed with respect to regional reserve planning and conservation efforts in the area (Appendix E). The U.S. Geological Survey National Hydrography Dataset (USGS 2016) and Google Earth aerial imagery were consulted to identify surface waters (Appendix E).

This analysis also incorporates information from the Results of Implementation of Take Methodologies in Support of MSWSMP (Dudek 2016, included as Appendix A to the BTR (Appendix E to this EIR)), which summarizes the implementation of methodologies for identifying habitat and potential impacts to federally and/or state-listed threatened or endangered species. The methodologies were developed in coordination with the resource agencies in support of the proposed program for the following species: coastal California gnatcatcher (*Polioptila californica californica*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), least Bell's vireo (*Vireo bellii pusillus*), desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Xerospermophilus mohavensis*), and Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*).

An assessment for southern rubber boa (*Charina umbratica*) completed by Steve Loe (Loe 2015) was also reviewed.

Special-Status Species

The analysis of existing conditions and potential impacts to special-status biological resources was primarily based on a review of existing available data and literature. This analysis was used to determine which special-status endangered species may be impacted by the proposed program. In coordination with the wildlife agencies (CDFW and USFWS), methods were developed to assess potentially suitable habitat for listed species within the proposed program area and/or potential of occupation by those species. More details on the methods can be found in the BTR (Appendix E). Habitat assessments were conducted for San Bernardino kangaroo rat, least Bell's vireo, Mohave ground squirrel, southern rubber boa, and Delhi sands flower-loving fly. Desert tortoise was analyzed based on information compiled by the District and data collected in the field by District biologists during monitoring of maintenance activities. Additionally, the District conducted a breeding habitat assessment and focused surveys for arroyo toad (*Anaxyrus californicus*).

Vegetation and Land Use Mapping

Vegetation and land cover mapping was conducted in four phases: (1) data and literature review, (2) desktop mapping based on a 2009 aerial, (3) field verification, and (4) data interpretation and analysis. The CDFW Natural Communities List (CDFG 2010), which is based on the Manual of California Vegetation (MCV2; Sawyer et al. 2009), was used to determine the appropriate

classification system and vegetation communities applicable for use during the mapping effort. A full description of methods used for vegetation and land cover mapping is described in Section 3.4 of the BTR (Appendix E).

4.3.4.1 Valley Region

Climate

The Valley Region's climate is Mediterranean, with hot and dry summers and cool, moist winters. Winters can be colder than other areas within the Southern California region; morning frost is a common occurrence, with rare snow flurries. Summers are very hot, with numerous days over 100°F. Within the Valley Region, the City of San Bernardino receives an average of 16 inches of rain annually, with most of the rainfall occurring November through April and occasional thunderstorms during the summer months. The Santa Ana winds are common within the Valley Region, as warm and dry winds blow from the desert in the east.

Soils

The Valley Region has soil types that are primarily composed of alluvial deposits with several areas of dune sand (USDA 2017). Soil types that support special-status biological resources are alluvial fans and Delhi soil series. Three phases of vegetation associated with alluvial fans have been recognized based on differences in flooding frequency and intensity: pioneer, intermediate, and mature. Soils in the pioneer phases are primarily friable open sands, allowing specialty plants and wildlife to persist. Soils in the intermediate phase can also be sandy and friable but with development of a cryptogamic crust; vegetation is also denser. In the mature phase, surface loam is more prevalent than sandy soils, and overall the shrub vegetation can be tall and dense with few open areas. Together, these phases make up the vegetation community known as Riversidean alluvial fan sage scrub. Riversidean alluvial fan sage scrub supports a number of special-status species including San Bernardino kangaroo rat, slender horned spineflower (*Dodecahema leptoceras*), and Santa Ana river woollystar (*Eriastrum densifolium* ssp. *sanctorum*). The Delhi soil series is found in the southern portion of the valley and overlapping the proposed program area. The Delhi soil series supports a number of endemic insect species, including the Delhi sands flower-loving fly, a federally endangered (FE) species.

Watersheds

The dominant aquatic feature within the Valley Region is the Santa Ana River. The Santa Ana River runs from east to west through the Valley Region, continuing southwest into Riverside County and to Prado Dam, ultimately terminating at the Pacific Ocean. The District mapped the following 10 subwatersheds within the proposed program area in the Valley Region (as shown on Figure 3-2 of this EIR): Lytle/Cajon Creek, Twin/Warm Creek, City Creek/Plunge Creek/Mill

Creek, Zanja/Mission, San Timoteo, Day Creek/Etiwanda–San Sevaine, Rialto, Grand Terrace, Cucamonga/West Cucamonga Creek, and San Antonio Creek. Additional descriptions of these watersheds can be found in the BTR (Appendix E).

Topography and Geomorphology

The Valley Region is composed of a number of valleys and foothills. The inland valleys within San Bernardino County are bounded on the northeast and northwest by the San Bernardino and San Gabriel mountain ranges and to the south from east to west by the Badlands, Jurupa Hills, and Chino Hills. Associated with the foothill areas and spreading to the valley floor are a number of relatively flat alluvial fans, which are landforms created by the buildup of earthen materials including stream sediments and debris flows (Harden 2004). Elevation within the heavily urbanized valley/foothills ranges from 500 feet above mean sea level (amsl) near Prado to 3,000 feet amsl in Yucaipa.

Vegetation Communities/Land Cover Types

Vegetation communities and land covers identified in the proposed program area in the Valley Region include the following generalized habitat types: coastal scrub, eucalyptus naturalized forest, grasslands, marsh, oak woodlands and forests, riparian forest and woodland, riparian scrub, Riversidean alluvial fan sage scrub, undifferentiated chaparral scrubs, waterway, open water, and non-natural land covers. Table 4.3-1 provides a summary of acreages for each vegetation community and land cover identified within the proposed program area in the Valley Region. As discussed in Chapter 3, Methods, of the BTR (Appendix E to this EIR), there are limitations to vegetation community mapping on a programmatic level, and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status vegetation communities present within the program area that are not captured in Table 4.3-1, or acreages may vary from existing conditions at the time maintenance would occur. As described in the Maintenance Plan (Appendix A to this EIR), special-status communities will be mapped prior to maintenance activities to accurately capture special-status communities present within maintenance areas.

Table 4.3-1
Vegetation Communities and Land Cover Types within the Program Area in the Valley Region

Generalized Habitat Type (Macrogroup) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Valley Region in San Bernardino County	Total Acres in Valley Region in Riverside County
Coastal scrub (*California coastal scrub, Vancouverian coastal dune and*	Brittle bush scrub alliance*	17.6	—
	California buckwheat scrub alliance	223.2	—
	California sagebrush scrub alliance	221.1	—

Table 4.3-1
Vegetation Communities and Land Cover Types within the Program Area in the Valley Region

Generalized Habitat Type (Macrogroup) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Valley Region in San Bernardino County	Total Acres in Valley Region in Riverside County
bluff, and Mojavean–Sonoran Desert scrub)	California sagebrush–California buckwheat scrub alliance*	407.7	—
	Coyote brush scrub alliance	0.6	—
	Deer weed scrub alliance	0.6	—
	Disturbed brittle bush scrub alliance*	7.3	—
	Disturbed California buckwheat scrub alliance	29.1	—
	Disturbed California sagebrush scrub alliance	34.9	—
	Disturbed California sagebrush–California buckwheat scrub alliance	19.4	—
	Disturbed deer weed scrub alliance	2.3	—
	Subtotal	*963.8*	—
Eucalyptus naturalized forest (*introduced North American Mediterranean woodland and forest*)	Eucalyptus groves semi-natural woodland stands	43.8	—
	Subtotal	*43.8*	—
Grasslands (*California annual and perennial grassland*)	Non-native grassland	230.5	2.5
	Subtotal	*233.0*	*2.5*
Marsh *(western North American freshwater marsh)*	Cattail marshes alliance*	*10.4*	—
	Subtotal	*10.4*	—
Oak woodlands and forests *(California forest and woodland)*	Coast live oak woodland*	*7.5*	—
	Disturbed coast live oak woodland alliance*	4.0	—
	Subtotal	*11.5*	—
Riparian forest and woodland (*Southwestern North American riparian, flooded and swamp forest*)	Arroyo willow thickets alliance	107.2	—
	Black willow thickets alliance*	13.4	—
	California sycamore woodlands alliance*	1.7	—
	Disturbed arroyo willow thickets alliance	18.2	—
	Disturbed black willow thickets alliance*	0.0	—
	Disturbed Fremont cottonwood forest alliance*	0.0	—
	Fremont cottonwood forest alliance*	200.7	—
	Red willow thickets alliance*	0.3	—
	White alder groves forest alliance	0.6	—
	Subtotal	*342.1*	—
Riparian scrub (southwestern	Disturbed mulefat thickets alliance	60.1	—

Table 4.3-1
Vegetation Communities and Land Cover Types within the Program Area in the Valley Region

Generalized Habitat Type (Macrogroup) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Valley Region in San Bernardino County	Total Acres in Valley Region in Riverside County
North American riparian, flooded and swamp forest/scrubland)	mulefat thickets alliance	102.9	—
	Subtotal	*163.0*	—
Riversidean alluvial fan sage scrub (*Madrean warm semi-desert wash woodland/scrub*)	Disturbed scale broom scrub alliance*	25.2	—
	Scale broom scrub alliance*	548.2	—
	Subtotal	*573.4*	—
Undifferentiated chaparral scrubs *(California chaparral)*	Chamise chaparral alliance	20.5	—
	Hoary leaf ceanothus chaparral alliance	0	1.1
	Laurel sumac scrub alliance	2.9	—
	Scrub oak chaparral alliance	0.3	—
	Subtotal	*24.9*	*1.1*
Waterway	Concrete channel	600.7	22.0
	Unvegetated channel	182.1	—
	Unvegetated wash	197.6	—
	Subtotal	*1,002.4*	*22.0*
Open water	Open water	*<0.1*	—
	Subtotal	*<0.1*	—
Non-natural land covers	Basin†	1,317.3	105.0
	Disturbed land	1,282.6	—
	Agriculture	21.8	1.9
	Ornamental plantings	26.2	—
	Ruderal	102.2	—
	Upland mustard	17.5	—
	Urban	1,587.6	40.8
	Subtotal	*4,502.9*	*147.7*
	Total	**7,871.1**	**173.3**

Notes: As discussed in Chapter 3, Methods, of the BTR (Appendix E to this EIR), there are limitations to vegetation community mapping on a programmatic level and the communities listed and acreages provided herein represent a best estimation of existing conditions.

* Denotes a special-status plant community. Due to the limitations of the vegetation mapping, there may be special-status vegetation communities that were not captured on this table or acreages may vary from existing conditions. As described in the Maintenance Plan (Appendix A), special-status communities will be mapped prior to maintenance activities. Impacts and mitigation for special-status communities will be based on actual conditions at time of maintenance.

Critical Habitat

USFWS has designated critical habitat for several wildlife species. The acreage of critical habitat in the proposed program area in the Valley Region is summarized in Table 4.3-2.

Table 4.3-2
Critical Habitat in the Program Area in the Valley Region

Critical Habitat Species		Total Critical Habitat in Program Area in Valley Region (Acres)	Total Critical Habitat Identified as Suitable in Program Area in Valley Region (Acres)[a]
Common Name	***Scientific Name***		
California gnatcatcher	*Polioptila californica*	10.4	N/A
Least Bell's vireo	*Vireo bellii pusillus*	5.8	1.2
Santa Ana sucker	*Catostomus santaanae*	915.8	N/A
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	1,743.6	67.4
Southwestern willow flycatcher	*Empidonax traillii extimus*	758.3	95.8

Source: USFWS 2017.
Notes: N/A = not applicable.
[a] Based on habitat assessments conducted for the proposed program as described in Appendix E (BTR). N/A indicates that a habitat assessment was not conducted for that species.

Plant Species

A literature review identified 28 special-status plant species documented in the Valley Region. Of these 28 species, 6 either are confirmed present within the proposed program area or have a moderate to high potential to occur; 3 are federally and state-listed endangered and 3 are non-listed special-status species: Nevin's barberry (*Berberis nevinii*) (FE/SE/CRPR 1B.1), Santa Ana River woollystar (FE/SE/1B.1), slender-horned spineflower (FE/SE/CRPR 1B.1), Parry's spineflower (*Chorizanthe parryi* var. *parryi*) (CRPR 1B.1), Sanford's arrowhead (*Sagittaria sanfordii*) (CRPR 1B.2), and white-bracted spineflower (*C. xanti* var. *leucotheca*) (CRPR 1B.2).

The remaining 22 species documented in the Valley Region have a low potential to occur within the proposed program area and are not further discussed because the proposed program would not cause direct, indirect, or cumulative impacts on them.

Wildlife Species

A total of 40 special-status animal species have been documented in the Valley Region. Three species that are federally listed or state-listed as endangered or threatened (including candidate species) are known to be present or have a high potential to occur within the proposed program area: least Bell's vireo, Santa Ana sucker (*Catostomus santaanae*), and San Bernardino kangaroo rat. The federally endangered Delhi Sands flower-loving fly has a moderate potential to occur in the proposed program area, limited to those areas with Delhi sands. Three listed bird species have a low potential to occur in the proposed program area, including tricolored blackbird, coastal California gnatcatcher, and southwestern willow flycatcher (*Empidonax traillii extimus*). One state fully protected species, white-tailed kite, has a low potential to nest within riparian woodlands in the proposed program area, particularly in the Prado area.

A total of 18 non-listed wildlife species have a moderate or greater potential to occur in the proposed program area in the Valley Region. These include western spadefoot (*Spea hammondii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), glossy snake (*Arizona elegans*), silvery legless lizard (*Anniella* sp.), south coast gartersnake (*Thamnophis sirtalis* ssp.), Blainville's horned lizard (*Phrynosoma blainvillii*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), yellow warbler (*Setophaga petechia*), cactus wren (*Campylorhynchus brunneicapillus*), yellow-breasted chat (*Icteria virens*), arroyo chub (*Gila orcuttii*), San Diego desert woodrat (*Neotoma lepida intermedia*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), western red bat (*Lasiurus blossevillii*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and western yellow bat (*Lasiurus xanthinus*). The analysis does not further discuss the non-listed special-status species with low potential to occur because the proposed program would not cause direct, indirect, or cumulative impacts on them.

The majority of the proposed program area supports nesting opportunities to a wide variety of bird species. Vegetated portions of the proposed program area have been documented as supporting nests of common species like song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), red-winged blackbird (*Agelaius phoeniceus*), lesser goldfinch (*Spinus psaltria*), blue grosbeak (*Passerina caerulea*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), and bushtit (*Psaltriparus minimus*). Portions of the proposed program area that are largely unvegetated or sparsely vegetated can also support nests of species like killdeer (*Charadrius vociferus*), lesser nighthawk (*Chordeiles acutipennis*), burrowing owl, and black-necked stilts (*Himantopus mexicanus*). Concrete structures can also provide suitable nesting habitat for species like black phoebe (*Sayornis nigricans*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), and burrowing owl.

Wildlife Corridors and Habitat Linkages

The BTR (Appendix E) relies largely on existing sources from the California Department of Transportation (Caltrans), CDFW, and South Coast Wildlands for presenting potential habitat linkages and wildlife corridors in San Bernardino County. Caltrans and CDFW joined efforts and identified at a broad scale large, relatively natural habitat blocks that support native biodiversity and areas essential for ecological connectivity between them (Spencer et al. 2010). In addition, this analysis consulted South Coast Wildlands, a non-profit organization working to maintain and restore essential wildlife corridors connecting wildlands throughout California. South Coast Wildlands has studied and modeled wildlife movement in several areas within San Bernardino County with four major efforts: South Coast Missing Linkages Project, Joshua Tree–Twentynine Palms Connection, California Desert Connectivity Project, and California Essential Habitat Connectivity.

The Valley Region is largely developed; however, existing resources have identified several habitat patches (open spaces) and wildlife corridors within the Region. Additionally, flood control facilities frequently function as wildlife corridors as by their nature they are linear features providing opportunities for unconstrained movement and resources such as food and cover when vegetation is present. Mapped linkages that partially overlap the proposed program area include the San Gabriel–San Bernardino Connection and San Bernardino–San Jacinto Connection. In addition, San Bernardino County has numerous open space overlay features within the Valley Region such as Cajon Wash, Lytle Creek, and Plunge Creek.

Conservation Plans

Several regional habitat conservation plans (HCPs) have been prepared or are in development within the Valley Region including the North Fontana Conservation Program, Upper Santa Ana River HCP, Upper Santa Ana Wash Land Management and Habitat Conservation Plan Wash Plan (Wash Plan), and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The District will only be a Permittee under the Wash Plan and is proposed as a Permittee for the Upper Santa Ana River HCP (which is in development). Under CEQA, the District must confirm that the proposed program is not in conflict with existing plans.

There are two facilities that fall within the boundary of the North Fontana Conservation Program: Hawker-Crawford Channel (Facility No. 1-806-1A) and San Sevaine Spreading Grounds – East Levee (Facility No. 1-802-5D); however, they are not within proposed conservation areas.

The entire Valley Region falls within the boundary of the Upper Santa Ana River HCP. Based on the Final Phase 1 Report (ICF 2014), the Upper Santa Ana River HCP will include District routine maintenance activities within the HCP area.

The Wash Plan will primarily cover expanded gravel mining in an area downstream of the Seven Oaks Dam, in the southern extent of the City of Highland and the northern extent of the City of Redlands. Implementation of the fee schedule and avoidance and minimization measures within the Wash Plan for the District's routine maintenance activities will compensate for impacts to species covered under the Wash Plan. Finalization of all documents in relation to the Wash Plan, including the Implementation Agreements, is currently scheduled for 2018.

The Western Riverside County MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in Western Riverside County. There are three facilities that fall within the Western Riverside MSHCP boundary: Cucamonga Channel (Facility No. 1-301-1I), Riverside Basin (Facility No. 1-604-4A), and Declez Basin (Facility No. 1-814-3A). Declez Basin falls within a Criteria Cell and therefore has to demonstrate consistency with MSHCP plan documents, including Reserve Assembly goals. The other facilities do not occur in Criteria Cells, but are within MSHCP survey requirement areas for burrowing owl and narrow endemic plant species.

4.3.4.2 Mountain Region

Climate

Annual rainfall amounts for the San Bernardino Mountains can reach up to 40 inches in some areas, with the wettest months being November through March. Summers are relatively dry with few thunderstorms. In winter months, snow typically occurs above 3,000 feet amsl and is very common above 5,000 feet amsl. The average annual snowfall amount in Big Bear Lake is 72.3 inches. Rainfall in this region is a crucial rain source for the regional streams and rivers that feed the Santa Ana River. In the summer months, average high temperatures in Big Bear Lake are 81°F, with a low of 48°F. During the winter, average temperatures range between 47°F and 21°F (NOAA 2015). Annual rainfall in Big Bear Lake is 20.05 inches, with most of the precipitation occurring November through March.

Soil

The Mountain Region has a variety of soil types and is constantly undergoing change due to geologically active uplift and fault activity. The majority of the area contains shallow soils consisting primarily of decomposed granite and sandy loam (USDA 2017). An endemic feature of this area is the presence of pebble plains, which are a unique soil composition with a very limited distribution in the northeastern San Bernardino Mountains, occurring between elevations of 6,000 and 7,500 feet amsl (Stephenson and Calcarone 1999). Pebble plains support a rare suite of plants, including three federally threatened (FT) plants: Bear Valley sandwort (*Arenaria ursina*), southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*), and ash-gray paintbrush (*Castilleja cinerea*).

Watersheds

Although there are smaller watersheds within the Mountain Region, most of the water flow including snow melt and natural seeps and springs subsidizes the Santa Ana and Mojave Watersheds. The southern and western portions of this region flow southerly and are part of the Santa Ana River watershed. The northern portion flows northerly into the Mojave River watershed. The Mountain Region also has several large lakes: Big Bear Lake, Lake Arrowhead, and Silverwood Lake. The District mapped the following 12 watersheds within the proposed program area of the Mountain Region: Lucerne Storm Drain, Big Bear/Headwaters of Santa Ana River, San Timoteo Watershed, City Creek/Plunge Creek/Mill Creek Watershed, Upper Santa Ana Watershed, Twin/Warm Watershed, Upper Mojave, Sheep Creek, Lytle Creek/Cajon Creek, Day Creek/Etiwanda–San Sevaine, Cucamonga/West Cucamonga Creek, and San Antonio Creek. Descriptions and geographic extent of these watersheds can be found in the BTR (Appendix E).

Topography and Geomorphology

The Mountain Region is composed of the San Bernardino and the San Gabriel Mountains, which are part of the Transverse Ranges of the Southern California mountain chain. The Mountain Region consists of steep, mountainous terrain, with multiple peaks exceeding 10,000 feet amsl. The San Bernardino Mountains are bounded by a series of faults named the North-Frontal System (Miller 1987), with the mountain range interior traversing the Santa Ana faults. The southeastern and southwestern portions of the San Bernardino and San Gabriel Mountains are traversed by the San Andreas Fault Zone and bound the Santa Ana Basin to the north (USGS 2006). The Mountain Region is composed of steep canyons of unstable hillslope rock debris. This debris is constantly stripped away by slope failures and erosion. Debris sediment is then deposited on alluvial fan channels and surfaces (USGS 2006).

Vegetation Communities/Land Cover Types

Vegetation communities and land covers identified in the proposed program area of the Mountain Region include the following generalized habitat types: California bay forests and woodlands, coastal scrub, eucalyptus naturalized forest, Great Basin scrub, incense cedar forests, marsh, oak woodlands and forests, pine forests and woodlands, riparian forest and woodland, Riversidean alluvial fan sage scrub, undifferentiated chaparral scrubs, grasslands, open water, waterway, and non-natural land covers. Table 4.3-3 provides a summary of acreages for each vegetation community and land cover identified in the proposed program area in the Mountain Region. As discussed in Chapter 3, Methods, of the BTR (Appendix E to this EIR), there are limitations to vegetation community mapping on a programmatic level, and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status vegetation communities present within the program area that are not captured in Table 4.3-3, or acreages may vary from existing conditions at the time maintenance would occur. As described in the Maintenance Plan (Appendix A to this EIR), special-status communities will be mapped prior to maintenance activities to accurately capture special-status communities present within maintenance areas.

Table 4.3-3
Vegetation Communities and Land Cover Types in the Mountain Region

Generalized Habitat Type (*Macrogroup*) (CDFG 2010)	Alliance Land Cover Type	Total Acres in Program Area
California bay forests and woodlands (*California forest and woodland*)	California bay forests and woodlands*	0.8
	California bay forests and woodlands subtotal	*0.8*
Coastal scrub (*California coastal scrub and Mojavean–Sonoran desert scrub*)	Brittle bush scrub alliance*	0.6
	California buckwheat scrub alliance	29.8

Table 4.3-3
Vegetation Communities and Land Cover Types in the Mountain Region

Generalized Habitat Type (*Macrogroup*) (CDFG 2010)	Alliance Land Cover Type	Total Acres in Program Area
	California sagebrush scrub alliance	6.5
	California sagebrush–California buckwheat scrub alliance*	8.7
	Disturbed California buckwheat scrub alliance	0.0
	Coastal scrub subtotal	*45.5*
Eucalyptus naturalized forest (*Introduced North American Mediterranean woodland and forest*)	Eucalyptus groves alliance	1.0
	Eucalyptus naturalized forest subtotal	*1.0*
Great Basin scrub (*cool semi-desert wash and disturbance scrub and western North America tall sage shrubland and steppe*)	Big sagebrush scrub alliance	4.2
	Disturbed big sagebrush scrub alliance	0.3
	Rubber rabbitbrush scrub alliance	0.2
	Great Basin scrub subtotal	*4.7*
Incense-cedar forests (*Californian–Vancouverian montane and foothill forest*)	Disturbed incense cedar forest*	0.4
	Incense-cedar forests subtotal	*0.4*
Marsh (*Western North American freshwater marsh*)	Cattail marshes alliance*	0.2
	Marsh subtotal	*0.2*
Oak woodlands and forests (*California forest and woodland*)	Canyon live oak forest alliance*	6.3
	Oak woodlands and forests subtotal	*6.3*
Open water	Open water	0.7
	Open water subtotal	*0.7*
Pine forests and woodlands (*Californian–Vancouverian montane and foothill forest*)	Jeffrey pine forest alliance	32.7
	Pine forests and woodlands subtotal	*32.7*
Riparian forest and woodland (*Southwestern North American riparian, flooded and swamp forest and western Cordilleran montane–boreal riparian scrub*)	Arroyo willow thickets alliance	3.7
	California sycamore woodlands alliance*	3.8
	Disturbed white alder groves alliance	2.8
	Fremont cottonwood forest alliance*	0.5
	White alder groves alliance	3.3
	Riparian forest and woodland subtotal	*14.3*

Table 4.3-3
Vegetation Communities and Land Cover Types in the Mountain Region

Generalized Habitat Type (*Macrogroup*) (CDFG 2010)	Alliance Land Cover Type	Total Acres in Program Area
Riversidean alluvial fan sage scrub (*Madrean warm semi-desert wash woodland/scrub*)	Disturbed scale broom scrub alliance*	11.6
	Scale broom scrub alliance*	17.7
	Riversidean alluvial fan sage scrub subtotal	*29.2*
Undifferentiated chaparral scrub (*California chaparral*)	Scrub oak chaparral alliance	2.4
	Undifferentiated chaparral scrub subtotal	*2.4*
Waterway	Concrete channel	2.6
	Unvegetated channel	33.0
	Unvegetated wash	14.6
	Waterway subtotal	*50.2*
Grassland (*California annual and perennial grassland*)	Non-native grasslands	1.3
	Grassland subtotal	*1.3*
Non-natural land covers	Basin	28.6
	Disturbed land	54.5
	Agriculture	0.4
	Urban	29.7
	Non-natural land covers subtotal	113.2
	Total	**302.9**

Source: CDFG 2010.
Notes: As discussed in Chapter 3, Methods, of the BTR (Appendix E), there are limitations to vegetation community mapping on a programmatic level and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status communities present that are not captured in this table or acreages may vary from existing conditions.
* Denotes a special-status plant community. Due to the limitations of the vegetation mapping, there may be special-status vegetation communities that were not captured on this table or acreages may vary from existing conditions. As described in the Maintenance Plan (Appendix A), special-status communities will be mapped prior to maintenance activities. Impacts and mitigation for special-status communities will be based on actual conditions at time of maintenance.

Critical Habitat

USFWS has designated critical habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, and Sana Ana sucker. The acreage of critical habitat in the proposed program area in the Mountain Region is summarized in Table 4.3-4. It is important to note that San Bernardino kangaroo rat does not historically occur within the Mountain Region; however, a small portion of critical habitat for this species is mapped within the lower-elevation region of the foothill reaches of Lytle Creek in the Mountain Region. Due to this overlap, this species is being analyzed in the Mountain Region as well as the Valley Region.

Table 4.3-4
Critical Habitat in the Mountain Region

Critical Habitat Species		Total Critical Habitat in Program Area in Mountain Region (Acres)	Total Critical Habitat Identified as Suitable in Program Area in Mountain Region (Acres)*
Common Name	***Scientific Name***		
Santa Ana sucker	*Catostomus santaanae*	4.7	N/A
Southwestern willow flycatcher	*Empidonax traillii extimus*	6.5	0.0
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	41.1	0.0

Source: USFWS 2017.
Notes: N/A = not applicable.
* Acreages only provided for those species for which habitat assessments were conducted; N/A indicates that a habitat assessment was not conducted for that species.

Plant Species

A literature review identified 89 special-status plant species documented within the Mountain Region, 30 of which have a moderate potential to occur within the proposed program area in the Mountain Region. Of those 30 species, 5 are federally and/or state-listed species with a moderate potential to occur: ash-gray paintbrush (FT/None/CRPR 1B.2), San Bernardino bluegrass (*Poa atropurpurea*) (FE/None/CRPR 1B.2), California dandelion (*Taraxacum californicum*) (FE/None/CRPR 1B.1), bird-foot checkerbloom (*Sidalcea pedata*) (FE/SE/CRPR 1B.1), and slender-petaled thelypodium (*Thelypodium stenopetalum*) (FE/SE/CRPR 1B.1).

The following 20 non-listed species-status plant species have a moderate potential to occur in the proposed program area: Cienega Seca oxytheca (*Acanthoscyphus parishii* var. *cienegensis*) (CRPR 1B.3), rock sandwort (*Arenaria lanuginosa* var. *saxosa*) (CRPR 2B.3), Big Bear Valley milk-vetch (*Astragalus lentiginosus* var. *sierra*) (CRPR 1B.2), Big Bear Valley woollypod (*Astragalus leucolobus*) (CRPR 1B.2), Parish's rockcress (*Boechera parishii*) (CRPR 1B.2), Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*) (CRPR 1B.2), western sedge (*Carex occidentalis*) (CRPR 2B.3), San Bernardino Mountains owl's-clover (*Castilleja lasiorhyncha*) (CRPR 1B.2), vanishing wild buckwheat (*Eriogonum evanidum*) (CRPR 1B.1), Bear Lake buckwheat (*Eriogonum microthecum* var. *lacus-ursi*) (CRPR 1B.1), San Bernardino gilia (*Gilia leptantha* ssp. *leptantha*) (CRPR 1B.3), Parish's alumroot (*Heuchera parishii*) (CRPR 1B.3), silver-haired ivesia (*Ivesia argyrocoma* var. *argyrocoma*) (CRPR 1B.2), short-sepaled lewisia (*Lewisia brachycalyx*) (CRPR 2B.2), lemon lily (*Lilium parryi*) (CRPR 1B.2), San Bernardino Mountains monkeyflower (*Mimulus exiguus*) (CRPR 1B.2), little purple monkeyflower (*M. purpureus*) (CRPR 1B.2), Baja navarretia (*Navarretia peninsularis*) (CRPR 1B.2), San Bernardino ragwort (*Packera bernardina*) (CRPR 1B.2), Parish's yampah (*Perideridia parishii* ssp. *parishii*) (CRPR 2B.2), Big Bear Valley phlox (*Phlox dolichantha*) (CRPR 1B.2), Bear Valley pyrrocoma (*Pyrrocoma uniflora* var. *gossypina*) (CRPR 1B.2), Bear Valley checkerbloom (*Sidalcea malviflora* ssp. *dolosa*) (CRPR

1B.2), southern jewel-flower (*Streptanthus campestris*) (CRPR 1B.3), and San Bernardino aster (*Symphyotrichum defoliatum*) (CRPR 1B.2).

The remaining species are non-listed special-status species with a low potential to occur. The analysis does not further analyze the non-listed special-status plant species with low potential to occur because the proposed program would not cause direct, indirect, or cumulative impacts on them.

Wildlife Species

A total of 42 special-status animal species have been documented in the Mountain Region. No listed species have a high potential to occur in the proposed program area in the Mountain Region. The only listed species with moderate potential to occur in the proposed program area is the state-listed threatened southern rubber boa. Listed species with low potential to occur are the southwestern willow flycatcher and the state endangered and state fully protected bald eagle.

A total of 10 non-listed special-status wildlife species have a moderate or greater potential to occur in the proposed program area in the Mountain Region. These include large-blotched salamander (*Ensatina eschscholtzii klauberi*), California mountain kingsnake (San Bernardino population; *Lampropeltis zonata*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), Blainville's horned lizard, two-striped gartersnake (*Thamnophis hammondii*), loggerhead shrike, olive-sided flycatcher (*Contopus cooperi*), western red bat, San Bernardino flying squirrel (*Glaucomys sabrinus californicus*), and western mastiff bat (*Eumops perotis*). Two state fully protected species, ringtail (*Bassariscus astutus*) and white-tailed kite, have a low potential to occur within the proposed program area.

The remaining species have a low potential to occur. This analysis does not further discuss the non-listed special-status species with low potential to occur because the proposed program would not cause direct, indirect, or cumulative impacts on them.

Wildlife Corridors and Habitat Linkages

The Mountain Region contains many habitat linkages that allow wildlife to move through open space associated with the San Bernardino or San Gabriel Mountains. Although the majority of the Mountain Region is undeveloped and therefore does not pose a constraint to wildlife movement, several prominent features within the Mountain Region include canyons in the lower elevation areas where the headwaters to Birch Creek and Oak Glen Creek begin, as well as Mill Creek west of Forest Falls.

Although there are a number of documented wildlife corridors and habitat linkages that overlap the San Bernardino Mountains and San Gabriel Mountains, the proposed program area in the Mountain Region is largely associated with urban areas and does not overlap these wildlife

corridors. However, the proposed program area does overlap one wildlife corridor, Mill Creek, identified on the San Bernardino County Open Space Overlay Map. This 1,778.2-acre wildlife corridor follows the alignment of Mill Creek from Forest Falls to its confluence with the Santa Ana River. Mill Creek supports riparian and alluvial fan habitat. Special-status species known to occur here include southwestern willow flycatcher and San Bernardino kangaroo rat.

Conservation Plans

The southwestern portion of the Mountain Region falls within the boundary of the Upper Santa Ana River HCP. Based on the Final Phase 1 Report (ICF 2014), the Upper Santa Ana River HCP will include District routine maintenance activities within the HCP area.

4.3.4.3 Desert Region

Climate

The Desert Region is characterized by hot, dry summers accompanied by mild to cold winters. Rain events, while typically spread out in frequency, are derived from winter frontal storms coming off the Pacific Ocean and intermittent summer convective monsoons. There are three distinct ecoregions within the Desert Region of the County: the Mojave Desert, the Sonoran Desert, and the foothills. The Mojave Desert covers a large portion of Santa Bernardino County in the central, northern, and eastern portions of the County. This region traditionally experiences most of its rain during the winter months (Redmond 2009). The Mojave Desert is situated northwest of the Sonoran Desert and is bounded on the west by the Sierra Nevada, as well as by the San Bernardino, Tehachapi, and San Gabriel mountain ranges. The Sonoran Desert is bounded on the west by the Peninsular Ranges and on the east by the Colorado River. This desert has a lower average elevation than the Mojave Desert and as a result is typically hotter and drier. This region also experiences two distinct wet seasons (NOAA 2004). A result of these large mountain ranges is the creation of a rain-shadow effect that creates the arid desert climate. The foothills encompass the northern edges of the San Gabriel, San Bernardino, and Western Transverse mountain ranges. This region has relatively cool winters and warm summers (WRCC 2011).

Soils

The Desert Region is predominantly composed of sandy gravel. This soil type is characterized by high runoff and fast percolation. Additionally, various mountain ranges have exposed bedrock and mineral deposits in granite rock. Distinctive geologic types include the formation of Aeolian sand dunes, desert pavement, and dry alkaline lake beds.

Aeolian sand dunes can be found in various portions of the Desert Region, particularly the areas of Barstow, Lenwood, Yermo, and Daggett. This soil type is composed of fine-grained particles

loosely stacked and often blown by wind. This soil type is critical for the Mojave fringe-toed lizard (*Uma scoparia*), which typically burrows beneath the fine sand. There are also numerous rare plant species whose primary habitat associations consist of sandy dunes.

Watersheds

The Mojave River is the primary geographic and surface hydrologic feature of the Desert Region, with its headwaters in the San Bernardino Mountains and traversing northeast through the Desert Region for approximately 120 miles until it reaches Soda Dry Lake, near the community of Baker. Many of the subwatersheds in the Desert Region contribute to the Mojave River watershed; however, the Desert Region also supports isolated water features that terminate in dry lakes characteristic of the Desert Region. The District mapped the following 10 watersheds within the proposed program area of the Desert Region: Yucca Creek, Little Morongo Creek, Lucerne Storm Drain, Upper Mojave, Middle Mojave, Lower Mojave, Mojave–Baker, Needles–Sacramento Wash, Sheep Creek, and Trona. Descriptions and geographic extent of these watersheds can be found in the BTR (Appendix E).

Topography and Geomorphology

The Desert Region is characterized by shorter remote mountain ranges surrounded by desert plains. These mountains ranges often have alluvial fans associated with them; these are fan-shaped aprons of earthen materials wrapping the base of mountains. These landforms originate from flashflood debris and stream sediment accretion (Harden 2004). When an alluvial fan becomes larger and the paths become more integrated, it is referred to as a *bajada*. Other significant landforms within the desert include mountains, plateaus, basins, playas, and dunes. The space between the mountainous areas is often characterized by playas and basins, which form dry lakes.

The majority of the Desert Region ranges from 1,000 to 5,000 feet amsl, with some areas falling below 1,000 feet amsl within valleys and washes. The Desert Region is bounded on the south by the San Bernardino and San Gabriel mountain ranges. The foothills on the northern side level off quickly, with the southern part of the desert lying relatively flat with elevations around 1,000 feet amsl and scattered low-elevation mountains ranging between 2,000 and 4,000 feet amsl.

Vegetation Communities/Land Cover Types

Vegetation communities and land covers identified in the proposed program area include the following generalized habitat types: chenopod scrub, desert dry wash woodland, desert dunes, desert sink scrub, grasslands, Great Basin scrub, Joshua tree woodland, juniper woodlands, marsh, open water, riparian forest and woodland, riparian scrub, Sonoran and Mojavean desert scrub, waterways, and non-natural land covers. Table 4.3-5 provides a summary of acreages for each vegetation community and land cover identified within the proposed program area in the

Desert Region. As discussed in Chapter 3, Methods, of the BTR (Appendix E to this EIR), there are limitations to vegetation community mapping on a programmatic level, and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status vegetation communities present within the program area that are not captured in Table 4.3-5, or acreages may vary from existing conditions at the time maintenance would occur. As described in the Maintenance Plan (Appendix A to this EIR), special-status communities will be mapped prior to maintenance activities to accurately capture special-status communities present within maintenance areas.

Table 4.3-5
Vegetation Communities and Land Cover Types within the Desert Region

Generalized Habitat Type (*Macrogroup*) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
Chenopod scrub (*Cool semi-desert alkali–saline flats, Mojavean–Sonoran desert scrub, and warm semi-desert/Mediterranean alkali–saline wetland*)	Allscale scrub alliance	312.1
	Disturbed allscale scrub alliance	37.0
	Disturbed fourwing saltbush scrub alliance	40.0
	Fourwing saltbush scrub alliance	529.6
	Quailbush scrub alliance	0.8
	Shadscale scrub alliance	2.2
	Chenopod scrub subtotal	*921.6*
Desert dry wash woodland (*Madrean warm semi-desert wash woodland/scrub*)	Desert willow woodland alliance*	21.6
	Disturbed smoke tree woodland alliance*	17.6
	Mesquite bosque, mesquite thicket alliance*	10.1
	Smoke tree woodland alliance*	0.0
	Desert dry wash woodland subtotal	*49.3*
Desert dunes (*North American warm semi-desert cliff, scree, and other rock vegetation*)	Desert panic grass patches*	79.2
	North American warm desert dunes and sand flats*	5.6
	Desert dunes subtotal	*84.8*
Desert sink scrub (*Warm semi-desert/Mediterranean alkali–saline wetland*)	Bush seepweed scrub alliance*	5.3
	Desert sink scrub subtotal	*5.3*
Grassland (*California annual and perennial grassland*)	Non-native grasslands	31.4
	Grassland subtotal	*31.4*

Table 4.3-5
Vegetation Communities and Land Cover Types within the Desert Region

Generalized Habitat Type (*Macrogroup*) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
Great Basin scrub (*Cool semi-desert wash and disturbance scrub*)	Disturbed rubber rabbitbrush scrub alliance	0.6
	Rubber rabbitbrush scrub alliance	254.7
	Great Basin scrub subtotal	*255.3*
Joshua tree woodland (*Mojavean–Sonoran desert scrub*)	Disturbed Joshua tree woodland*	1.8
	Joshua tree woodland*	11.4
	Joshua tree woodland subtotal	*13.2*
Juniper woodlands (*California forest and woodland*)	California juniper woodland alliance	3.5
	Disturbed California juniper woodland alliance	0.2
	Juniper woodlands subtotal	*3.8*
Marsh (*Western North American freshwater marsh*)	Cattail marshes alliance*	1.4
	Marsh subtotal	*1.4*
Riparian forest and woodland (*Southwestern North American riparian, flooded and swamp forest*)	Fremont cottonwood forest alliance*	223.6
	Red willow thickets alliance*	19.3
	Sandbar willow thickets alliance	34.9
	Riparian forest and woodland subtotal	*277.8*
Riparian scrub (*Southwestern North American riparian, flooded and swamp forest*)	Mulefat thickets alliance	46.1
	Tamarisk thickets semi-natural stands	1,658.3
	Riparian scrub subtotal	*1,704.4*
Sonoran and Mojavean desert scrub (*Mojavean–Sonoran desert scrub and Madrean warm semi-desert wash woodland/scrub*)	California joint fir scrub alliance*	8.2
	Catclaw acacia thorn scrub alliance	60.2
	Cheesebush scrub alliance	0.2
	Creosote bush scrub alliance	99.9
	Creosote bush–white burr sage scrub alliance	217.7
	Disturbed catclaw acacia thorn scrub alliance	2.8
	Disturbed creosote bush scrub alliance	92.4
	Disturbed creosote bush-white burr sage scrub alliance	3.7
	Disturbed Mojave yucca scrub alliance*	1.1

Table 4.3-5
Vegetation Communities and Land Cover Types within the Desert Region

Generalized Habitat Type (*Macrogroup*) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
	Mojave yucca scrub alliance*	3.8
	Parish's goldeneye scrub alliance	0.1
	Scale broom scrub alliance*	95.8
	Sonoran and Mojavean desert scrub subtotal	*585.8*
Waterway	Concrete channel	7.6
	Dry lake bed	0.2
	Unvegetated channel	563.8
	Unvegetated wash	4,075.1
	Waterway subtotal	*4,646.7*
Non-natural land covers	Deciduous orchard, vineyard	0.4
	Disturbed land	371.9
	Irrigated row and field crops	5.2
	Ornamental plantings	0.0
	Ruderal	0.0
	Urban	115.6
	Non-natural land covers subtotal	*493.2*
	Total	**9,074.1**

Notes: As discussed in Chapter 3, Methods, of the BTR (Appendix E), there are limitations to vegetation community mapping on a programmatic level, and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status communities present that are not captured on this table or acreages may vary from existing conditions.

* Denotes a special-status plant community. Due to the limitations of the vegetation mapping, there may be special-status vegetation communities that were not captured on this table or acreages may vary from existing conditions. As described in the Maintenance Plan (Appendix A), special-status communities will be mapped prior to maintenance activities. Impacts and mitigation for special-status communities will be based on actual conditions at time of maintenance.

Critical Habitat

Within the proposed program area in the Desert Region, the USFWS has designated critical habitat for two federally threatened and endangered species: desert tortoise and southwestern willow flycatcher. The acreage of critical habitat in the Desert Region is summarized in Table 4.3-6.

Table 4.3-6
Critical Habitat in the Desert Region

Critical Habitat Species		Total Critical Habitat in Program Area in Desert Region (Acres)	Total Critical Habitat Identified as Suitable in Program Area in Desert Region (Acres)
Common Name	***Scientific Name***		
Desert tortoise	*Gopherus agassizii*	38.5	19.3
Southwestern willow flycatcher	*Empidonax traillii extimus*	1,109.0	197.9

Source: USFWS 2017.

Plant Species

A literature review identified 46 special-status plant species documented in the Desert Region, of which a total of 25 have potential to occur within the proposed program area in the Desert Region.

There are two federally listed plant species that have a low potential to occur within the proposed program area in the Desert Region: Parish's daisy (*Erigeron parishii*) (FT/None/CRPR 1B.1) and triple-ribbed milkvetch (*Astragalus tricarinatus*) (FE/None/CRPR 1B.1).

A total of 23 non-listed special-status plant species have a moderate potential to occur in the proposed program area in the Desert Region: alkali mariposa lily (*Calochortus striatus*) (CRPR 1B.2), Barstow woolly sunflower (*Eriophyllum mohavense*) (CRPR 1B.2), Beaver Dam breadroot (*Pediomelum castoreum*) (CRPR 1B.2), Booth's evening-primrose (*Eremothera boothii* ssp. *boothii*) (CRPR 2B.3), creamy blazing star (*Mentzelia tridentata*) (CRPR 1B.3), Emory's crucifixion-thorn (*Castela emoryi*) (CRPR 2B.2), jackass-clover (*Wislizenia refracta* ssp. *refracta*) (CRPR 2B.2), Latimer's woodland-gilia (*Saltugilia latimeri*) (CRPR 1B.2), little San Bernardino Mtns. linanthus (*Linanthus maculatus*) (CRPR 1B.2), Mojave menodora (*Menodora spinescens* var. *mohavensis*) (CRPR 1B.2), Mojave monkeyflower (*Diplacus mohavensis*) (CRPR 1B.2), Parish's alkali grass (*Puccinellia parishii*) (CRPR 1B.1), Parish's club-cholla (*Grusonia parishii*) (CRPR 2B.2), Parish's phacelia (*Phacelia parishii*) (CRPR 1B.1), Parish's popcorn-flower (*Plagiobothrys parishii*) (CRPR 1B.1), pinyon rockcress (*Boechera dispar*) (CRPR 2B.3), Pioneertown linanthus (*Linanthus bernardinus*) (CRPR 1B.2), purple-nerve cymopterus (*Cymopterus multinervatus*) (CRPR 2B.2), salt spring checkerbloom (*Sidalcea neomexicana*) (CRPR 2B.2), San Bernardino milk-vetch (*Astragalus bernardinus*) (CRPR 1B.2), short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) (CRPR 1B.2), spiny-hair blazing star (*Mentzelia tricuspis*) (CRPR 2B.1), and Wright's jaffueliobryum moss *Jaffueliobryum wrightii*) (CRPR 2B.3).

This analysis does not further discuss the non-listed special-status plant species with low potential to occur because the proposed program would not cause direct, indirect, or cumulative impacts on them.

Wildlife Species

A total of 54 special-status animal species have been documented in the Desert Region. Listed species with a high potential to occur in the proposed program area include Mohave ground squirrel, desert tortoise, least Bell's vireo, and southwestern willow flycatcher. Tricolored blackbird, a state endangered species, has a moderate potential to occur. Arroyo toad, a federal endangered species, has a low potential to occur in the proposed program area; however, it has been documented in the Mojave River immediately upstream of the Mojave Forks Dam and approximately 0.5 miles downstream of the southern extent of the proposed program area. Yellow-

billed cuckoo (*Coccyzus americanus*), a listed species, although not documented in the proposed program area, has been reported as a migrant in the proposed program area.

A total of 15 non-listed special-status wildlife species have a moderate or greater potential to occur in the proposed program area within the Desert Region. These include western pond turtle (*Actinemys marmorata*), Blainville's horned lizard, Mojave fringe-toed lizard, burrowing owl, loggerhead shrike, yellow warbler, yellow-breasted chat, Bendire's thrasher (*Toxostoma bendirei*), crissal thrasher (*T. crissale*), summer tanager (*Piranga rubra*), vermilion flycatcher (*Pyrocephalus rubinus*), American badger (*Taxidea taxus*), Mojave river vole (*Microtus californicus mohavensis*), and pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*).

Wildlife Corridors and Habitat Linkages

A number of wildlife corridors and habitat linkages overlap the proposed program area. The South Coast Missing Linkages Project (South Coast Wildlands 2008) identifies the San Bernardino–Little San Bernardino Connection that occurs near the proposed program area in Morongo and Yucca Valleys. This linkage connects San Bernardino National Forest with Joshua Tree National Park. Penrod et al. (2008) identified the Joshua Tree–Twentynine Palms Connection, which occurs near the proposed program area in the vicinity of Yucca Valley, Joshua Tree, and Twentynine Palms.

In addition, the County of San Bernardino has identified the Mojave River and Deep Creek as wildlife corridors in their San Bernardino County Open Space Overlay Map.

Conservation Plans

Several regional HCPs have been prepared within the Desert Region. The District is not a Permittee under any of these plans; however, under CEQA the District must confirm that the proposed program is not in conflict with existing plans. Conservation plans within the Desert Region include the Town of Apple Valley MSHCP/Natural Community Conservation Plan (NCCP), Desert Renewable Energy Conservation Plan (DRECP), and the Lower Colorado River Multi-Species Conservation Program (MSCP).

The military installations within the Desert Region (e.g., Twentynine Palms Marine Corps Air Ground Combat Center, Fort Irwin National Training Center) have adopted Integrated Natural Resource Management Plans that govern conservation of species and habitats on those installations; however, they do not include any preservation or other conservation activities outside the boundaries of the military installations.

The Apple Valley MSHCP/NCCP is an ongoing planning effort to develop an MSHCP for the Town of Apple Valley and its sphere of influence. It proposes conservation to benefit 21

sensitive natural communities. At this time the MSHCP/NCCP's conservation strategy has not been made public, but the Planning Agreement between Apple Valley, the USFWS, and the CDFW states that the MSHCP/NCCP proposes to conserve approximately 44,400 acres of identified wildlife linkages connecting to existing preserved land in the Mojave Desert.

The DRECP was originally developed as an HCP/NCCP and a BLM Land Use Plan Amendment covering both public and private lands across seven counties, including the entire Desert Region of San Bernardino County. In October 2015, the DRECP BLM Land Use Plan Amendment and Final Environmental Impact Statement (which addresses renewable energy, land use, and conservation on BLM lands only) was released (BLM 2015). The DRECP does not provide HCP/NCCP coverage for private lands in San Bernardino County.

The Lower Colorado River MSCP was created to balance the use of Colorado River water resources with the conservation of native species and their habitats. It was finalized in 2004. However, the proposed program area does not overlap the Lower Colorado River MSCP plan area, and the nearest boundary is more than 100 miles from the proposed program area.

4.3.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The SOPs were developed from existing and historic permit conditions and District procedures developed through coordination with the agencies on existing projects. The following SOPs from the Maintenance Plan are relevant to the biological resources analysis. Their relevance to specific impact topics is detailed in Section 4.3.6, Impacts Analysis.

SOP-BIO-1 **Least Bell's Vireo.** To avoid direct harm to least Bell's vireo (*Vireo bellii pusillus*), maintenance activities within suitable riparian areas occur outside the typical nesting period for this species (approximately March 15–August 15). If maintenance activities in riparian areas must be conducted during this period, a pre-activity survey is conducted by a qualified biologist within 3 days of the start of the activity. If a least Bell's vireo nest or territorial individuals are identified, a minimum 300-foot activity-free buffer is established to avoid direct and indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting the active nest.

SOP-BIO-2 **Coastal California Gnatcatcher.** To avoid direct harm to coastal California gnatcatcher (*Polioptila californica californica*), maintenance activities within suitable sage scrub areas occur outside the typical nesting period for this species (approximately February 15–August 31). If maintenance activities are required in suitable habitat for coastal California gnatcatcher during the

nesting period, a pre-activity survey is conducted by a qualified biologist within 3 days prior to the activity. If coastal California gnatcatcher nests are identified, a minimum 300-foot buffer is established where no maintenance activities could occur to avoid potential indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting active nests.

SOP-BIO-3 **Southwestern Willow Flycatcher.** To avoid impacts to southwestern willow flycatcher (*Empidonax traillii extimus*), maintenance activities within suitable riparian habitat occur outside the typical nesting period for this species (approximately May 1–August 31). If maintenance activities in suitable riparian areas are required during the nesting period, a pre-activity survey is conducted by a qualified biologist within 3 days of the start of the activity. If southwestern willow flycatcher nests are identified, a minimum 1,000-foot buffer is established where no maintenance activities may occur to avoid potential direct and indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting active nests.

To determine southwestern willow flycatcher presence or absence within suitable habitat, protocol focused surveys for southwestern willow flycatcher are conducted prior to maintenance events within suitable habitat or as determined by the proposed program's resource agency permits.

SOP-BIO-4 **Native Fish Avoidance.** Maintenance activities within the facilities suitable for native fish occur when the applicable portion of the facility is dry to the maximum extent practicable. If activities occur when water is present, a water diversion plan is developed that includes measures to avoid impacts to native fish.

SOP-BIO-5 **Nesting Birds.** Potential impacts to nesting birds are avoided through implementation of the District's Nesting Bird and Burrowing Owl Management Plan. Generally, no more than 3 days prior to implementation of maintenance activities during the nesting bird season (defined broadly to include January 15–August 31) a qualified biologist completes a nesting bird survey within the maintenance footprint and appropriate buffer for nesting bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code. If active nests are found, they are protected in place with an adequate activity-free buffer until the nest is determined by a qualified biologist to be inactive. Limits of the buffer are established in the field with stakes, flagging, or other highly visible method. Maintenance personnel are instructed on the sensitivity of nest areas and are made aware of flagging that

demarks buffers. Summary results of the nesting bird surveys are provided to the CDFW in an annual report.

SOP-BIO-6 **Burrowing Owl.** Prior to implementation of maintenance activities in suitable burrowing owl (*Athene cunicularia*) habitat, the District implements the measures described in the District Nesting Bird and Burrowing Owl Management Plan, which states that if burrowing owls are present, the District will consult with CDFW prior to any maintenance and any agreed-upon measures will be implemented. Measures include establishment of an activity-free buffer zone; eviction, if required and approved by CDFW; and/or creation of permanent artificial burrows to replace any occupied burrows that have been removed. Replacement of occupied burrows is typically completed at a minimum 2:1 ratio. If eviction and/or replacement of burrows is required, a management plan is prepared and approved by CDFW. The management plan includes forced dispersal (eviction) methods, post-eviction data, and construction timing/specifications/requirements for creating permanent artificial burrows.

SOP-BIO-7 **Bat Roosts.** Maintenance activities in suitable bat roost habitat, including bridges and mature riparian forests and woodlands, generally occur outside the bat maternity season (generally between April 1 and July 31) or pre-activity surveys are conducted to confirm absence of bat roosts.

SOP-BIO-8 **Western Spadefoot.** Implementation of maintenance activities within basins and other temporary pools that are considered suitable for western spadefoot (*Spea hammondii*) breeding (i.e., basins/pools that hold water temporarily and have adjacent native habitats) occurs only when the basins are completely dry to minimize the potential for direct harm to eggs, tadpoles, metamorphs, or adults. If avoidance is not practicable, an avoidance plan is prepared and coordinated with CDFW prior to implementation of maintenance activity.

SOP-BIO-9 **Arroyo Toad.** To avoid potential direct harm to arroyo toad (*Anaxyrus californicus*) adults, juveniles, and larvae that may be within surface waters from upstream occupied areas, maintenance activities along the upper Mojave River (generally upstream of Hesperia Lake Park) occur either when no surface waters are present or outside the breeding window (approximately March–July) and the period when tadpoles or metamorphs could be present (approximately April–September).

SOP-BIO-10 **Desert Tortoise.** Within 24 hours prior to initiation of maintenance activities in desert tortoise (*Gopherus agassizii*) habitat, a pre-activity survey is

conducted by a qualified desert tortoise biologist. Any occupied or potentially suitable desert tortoise burrows are flagged and avoided. If individuals or other sign of desert tortoise are observed during the pre-activity survey, a biological monitor is present at all times during all maintenance activities unless exclusion fencing is utilized.

SOP-BIO-11 **Mojave Fringe-Toed Lizard.** To reduce the potential for any impacts to Mojave fringe-toed lizard (*Uma scoparia*) or their eggs or hibernating individuals, maintenance activities in desert dune habitat are scheduled to occur in April, or between August and October, when individuals are most likely to be active on the surface. If maintenance activities are required in suitable habitat from April to October, a qualified biologist familiar with Mojave fringe-toed lizard conducts a pre-activity survey no more than 24 hours prior to the maintenance activity. If individuals or sign of Mojave fringe-toed lizard are detected during the survey, biological monitoring of the maintenance activity is conducted to reduce the potential for direct harm.

SOP-BIO-12 **Western Pond Turtle.** Prior to the initiation of any maintenance activities, areas where ponded waters occur and have the potential to support western pond turtle (*Actinemys marmorata*) on the Mojave River are mapped and documented as described in the Maintenance Plan. For maintenance activities within documented ponded areas, a biological monitor is present to ensure that the pond is first drained and that any western pond turtles that may be present are able to leave the area that is to be maintained.

SOP-BIO-13 **Southern Rubber Boa.** To avoid the potential for direct harm to southern rubber boa (*Charina umbratica*), the District completes maintenance activities within suitable habitat between approximately November 1 and April 1, when boas are likely in hibernation and deep in the ground within upland rock outcrops or in association with large, down logs.

To avoid the potential for direct harm and permanent loss of habitat for southern rubber boa, riparian vegetation within suitable habitat is removed by hand crews only between approximately November 1 and April 1. By restricting the work to this time frame, the District helps ensure that the habitat is suitable for southern rubber boa by the summer.

To further minimize potential harm to southern rubber boa during vegetation management activities, hand crews receive training specific to southern rubber boa prior to beginning work in habitat suitable for southern rubber boa.

SOP-BIO-14 **Special-Status Plants Pre-Activity Surveys and Avoidance.** Prior to maintenance activities within facilities that provide suitable habitat for special-status plant species, the District completes pre-activity surveys for special-status plant species during the blooming period prior to the anticipated maintenance activity. Due to the proposed maintenance schedule of maintenance occurring on average at 30% of facilities each year, special-status plant surveys are anticipated approximately every 3 years for facilities supporting suitable habitat.

Surveys are conducted by a qualified botanist during a time when the plant species with potential to occur are identifiable (i.e., during their blooming period for annual species) within the maintenance area that would be subject to direct or indirect impacts. Surveys conform to the California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFG 2009), and the Endangered Species Recovery Program's General Rare Plant Survey Guidelines (Cypher 2002) or the most current accepted protocol. Plant species encountered during the field surveys are identified to subspecies or variety, if applicable, to determine sensitivity status.

Populations and individuals of any special-status plant species found during pre-activity surveys are mapped with GPS and documented in accordance with the Maintenance Plan. Mapped populations of listed species are avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants are avoided during maintenance activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, is implemented to protect special-status plant populations found near maintenance sites.

SOP-BIO-15 **Worker Environmental Awareness Program.** If special-status biological resources are determined to potentially occur within or immediately adjacent to any of the maintenance activities during the environmental compliance review described in the Maintenance Plan, a qualified biologist conducts a training/education session for operations staff members and/or District contractors. The biologist addresses any resources that could occur within avoided habitat and measures to minimize adverse impacts to avoided habitat areas. The biologist gives direction outlining actions to be taken should any special-status species or community be observed within or adjacent to maintenance areas. As applicable, the biologist reviews and/or designates the vegetation management area in the field with maintenance personnel. The

biologist discusses with maintenance personnel that any vehicles or equipment driven and/or operated adjacent to natural open space areas is to be checked and maintained daily to prevent leaks of materials/liquids into these areas.

SOP-BIO-16 **Best Management Practices.** The District uses best management practices to ensure that no trash, debris, oil, petroleum products, or other organic material from any maintenance activity is allowed to enter into watercourses or is placed where it may be washed by rainfall or runoff into adjacent natural habitat areas or watercourses. When maintenance operations are completed, any debris or excess materials are removed from work areas.

SOP-BIO-17 **Monitoring.** As described in the Maintenance Plan, qualified District staff (or their designee) confirm implementation of SOPs and other relevant mitigation measures and permit conditions as described in the Maintenance Plan.

SOP-BIO-18 **Restoration of Temporary Impacts.** Temporary impacts to special-status vegetation communities from bank stabilization are revegetated as determined by District ecologists with an application of a native seed mix to promote passive restoration of the area to pre-project conditions. Prior to seeding temporary ground-disturbance areas, District ecologists review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory, occurs.

SOP-BIO-19 **Herbicide Application.** The District applies pesticides, herbicides, and related surfactants within its facilities in accordance with the District's Vegetation Management Plan, which complies with the Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG990005, Order No. 2013-0002-DWQ (Permit), dated 2013, and the District Weed Control Aquatic Pesticide Application Plan, dated 2014. The District's Vegetation Management Plan seeks to reduce the amount of herbicides used by using selective herbicides and application techniques, timing applications for maximum effect, avoiding fixed application schedules, using mechanical control techniques where appropriate, and encouraging natural controls. For areas within USFWS-designated critical habitat for desert tortoise or areas identified as suitable for desert tortoise by a qualified biologist, herbicide use is coordinated with a qualified desert tortoise biologist prior to application. Any measures identified by the qualified biologist, including avoidance or biological monitoring, are implemented.

SOP-BIO-20 **Jurisdictional Waters Avoidance.** The District avoids impacts to jurisdictional waters as defined under state or federal law from stockpiles by placing stockpile material outside of jurisdictional waters as practicable.

The following SOPs, although intended to reduce impacts relating to hydrology and water quality (see Section 4.8, Hydrology and Water Quality, for full text of the SOPs), are also relevant to the biological resources analysis. Their relevance to specific biological resources impact topics is detailed in Section 4.3.6.

- **SOP-HYD-1** (Scheduling)
- **SOP-HYD-2** (Vegetation Management)
- **SOP-HYD-3** (Minimization of Controllable Discharge of Sediment)
- **SOP-HYD-4** (Minimization of Controllable Discharge of Pollutants)

4.3.6 Impacts Analysis

4.3.6.1 Methods of Analysis

This section evaluates the potential impacts on special-status biological resources that would result from the proposed program. Data regarding special-status biological resources present on and adjacent to the proposed program were obtained through an extensive data and literature review, desktop aerial interpretation, field reconnaissance, and focused limited field surveys as described in Section 4.3.4.

Jurisdictional Delineation

A formal delineation of waters of the United States, waters of the state, and streambeds under CDFW jurisdiction ("jurisdictional waters") was completed for the proposed program area (Dudek 2017). The delineation of jurisdictional waters was conducted through a combination of desktop mapping and field verification. Methods for identifying jurisdictional waters were developed in coordination with the resource agencies.

4.3.6.2 Analysis

As discussed in the introduction to Chapter 4, Environmental Analysis, most analyses in this EIR are organized into three categories of maintenance activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, for Impacts BIO-4, BIO-5, and BIO-6 in this section all proposed program activities were combined in the analysis because impacts would not vary by activity but would depend on the region.

Additionally, Impact BIO-5 combines the regional discussions under one heading because local policies and/or ordinances do not vary across the three geographical regions of the County.

The District created a GIS layer of ground-disturbing maintenance activities included in the proposed program. Many of the maintenance activities overlap with each other; therefore, an impact footprint was created to capture the cumulative geographic extent of maintenance activities. When impacts in this document are identified by maintenance layer, the acreage for each layer represents the portion of that maintenance layer that does not overlap other maintenance layers. In order to calculate these acreages without counting impacts more than once, overlapping maintenance layers were clipped such that there was no overlap. In determining which maintenance layer had the largest geographic extent, overlapping areas were removed in the following order: federal maintenance, mechanized land clearing, stockpiles, vegetation management, ingress/egress, herbicide, and bank repair. For example, the impacts provided for mechanized land clearing include only impacts that do not overlap the federal maintenance layer; the vegetation management impacts include only those that do not overlap the federal maintenance, mechanized land clearing, or stockpiles layers.

Some of the facilities maintained by the District are subject to the local overlapping permitting processes (LOPPs), as described in Section 3.3.3 of this EIR. Activities under these LOPPs would impact biological resources within the proposed program area. Where a facility is subject to a LOPP, the environmental clearance (including mitigation) for permanent direct impacts from maintenance activities within the proposed program would be conducted through the respective LOPP. Permanent direct impacts to biological resources from LOPPs are described herein; however, mitigation for these impacts would be incorporated from the respective LOPP.

Impact BIO-1

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

Valley Region

Ground-Disturbing Activities

Critical Habitat

The USFWS has designated critical habitat within the Valley Region for several wildlife species including California gnatcatcher, least Bell's vireo, Santa Ana sucker, San Bernardino kangaroo

rat, and southwestern willow flycatcher. Impacts to designated critical habitat from proposed program implementation are described below.

Program Impacts Within LOPPs

As detailed in Table 4.3-7, LOPPs that fall within the proposed program area would result in direct impacts to least Bell's vireo and San Bernardino kangaroo rat critical habitat. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained. Mitigation Measure (MM) BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, Mitigation Measures, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation required by USFWS for effects to critical habitat. Implementation of MM-BIO-1 would reduce potentially significant impacts to critical habitat within LOPP areas to less than significant.

Table 4.3-7
Program Ground-Disturbing Activity Impacts
to Critical Habitat in the Valley Region Within LOPPs

Species Critical Habitat	El Niño Area Impacts (Acres)	FLOD Impacts (Acres)	Wash Plan Impacts (Acres)
Least Bell's vireo	21.1	N/A	N/A
San Bernardino kangaroo rat	20.7	81.1	107.0

Notes: LOPP = local overlapping permitting process; FLOD = First Line of Defense; N/A = not applicable.

Program Impacts Not Within LOPPs

As detailed in Table 4.3-8, ground-disturbing maintenance activities in the Valley Region would result in direct impacts to designated critical habitat for the following species: California gnatcatcher, least Bell's vireo, San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher. Section 7(a) of the ESA requires that federal agencies (like USACE) consult with USFWS regarding actions that may affect listed species or critical habitat to ensure that the actions they authorize do not destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. Implementation of MM-BIO-2 (Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat), which requires incorporation of any conditions resulting from consultation with the USFWS into the Maintenance Plan, would reduce potentially significant impacts to less than significant.

In advance of anticipated consultation under Section 7 of the federal ESA, the District has undertaken a preliminary review of potential impacts to critical habitat to determine whether there would be significant impacts to suitable or occupied habitat for each species within respective designated critical habitat. There is no suitable habitat for Santa Ana sucker within the maintenance footprint; therefore, direct impacts to Santa Ana sucker critical habitat would not result in adverse effects to this species. For southwestern willow flycatcher, there are approximately 16 acres of habitat suitable for this species within designated critical habitat. Removal of this habitat would be significant. Implementation of MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher) and MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region) would reduce potential impacts to less than significant. Approximately 2.7 acres of coastal California gnatcatcher critical habitat would be impacted; however, only 0.05 acres of this area is composed of coastal sage scrub and approximately half of that is disturbed. Due to the small area of coastal sage scrub removed, impacts to coastal California gnatcatcher habitat would be less than significant. Approximately 1.6 acres of habitat suitable for least Bell's vireo would be impacted within designated critical habitat. Removal of this habitat would be significant. Implementation of MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher) and MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region) would reduce potential impacts to less than significant. Approximately 79.8 acres of San Bernardino kangaroo rat habitat would be impacted within critical habitat. Removal of this habitat would be significant. Implementation of MM-BIO-4 (Mitigation for San Bernardino Kangaroo Rat) and MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region) would reduce potential impacts to less than significant.

Table 4.3-8
Program Ground-Disturbing Activity Impacts
to Critical Habitat in the Valley Region Not Within LOPPs

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)[a]	Suitable Habitat within Impacted Critical Habitat (Acres)[a]
Santa Ana sucker	Bank repair	52.7	0.0
	Federal maintenance layer	46.9	0.0
	Ingress/egress	12.2	0.0
	Mechanized land clearing	253.4	0.0
	Stockpile locations	3.0	0.0
	Vegetation management	24.7	0.0
	Total direct impacts	**392.9**	**0.0**
Southwestern willow flycatcher	Bank repair	32.5	3.1
	Federal maintenance layer	42.1	4.0
	Ingress/egress	12.9	0.0
	Mechanized land clearing	160.7	1.88
	Stockpile locations	0.9	0.0

Table 4.3-8
Program Ground-Disturbing Activity Impacts to Critical Habitat in the Valley Region Not Within LOPPs

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)[a]	Suitable Habitat within Impacted Critical Habitat (Acres)[a]
	Vegetation management	13.6	6.9
	Total direct impacts	**262.7**	**15.9**
California gnatcatcher	Bank repair	0.1	0.0
	Federal maintenance	0.1	0.0
	Ingress/egress	1.5	0.0
	Mechanized land clearing	1.0	0.0
	Total direct impacts	**2.7**	**0.0**
Least Bell's vireo	Federal maintenance	2.5	1.0
	Ingress/egress	0.6	0.0
	Mechanized land clearing	1.6	0.3
	Total direct impacts	**4.7**	**1.6**
San Bernardino kangaroo rat	Bank repair	*60.5*	7.1
	Federal maintenance	390.2	37.3
	Ingress/egress	86.7	0.7
	Mechanized land clearing	216.5	28.1
	Stockpile locations	76.8	0.0
	Vegetation management	77.6	6.6
	Total direct impacts	**908.3**	**79.8**

Source: USFWS 2017.
Notes: LOPP = local overlapping permitting process; N/A = not applicable (habitat was not assessed).
[a] Totals may not sum precisely due to rounding.

Long-term indirect impacts to critical habitat for these five species during ground-disturbing maintenance activities would primarily result from changes in hydrology, downstream erosion, and the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. As described in the Maintenance Plan, facilities currently have a high percentage of non-native invasive species. Proposed program vegetation management activities include the removal of invasive species and the vegetation management plan (incorporated as a component of the Maintenance Plan) provides methods for conducting vegetation management in a manner that limits spread of invasive species. Therefore, although maintenance activities can create edge conditions in which invasive plants can establish, the proposed program would result in the overall reduction of invasive species through its vegetation management practices. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect

to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are included in Section 4.8, Hydrology and Water Quality, of this EIR would be implemented; therefore, long-term indirect impacts to critical habitat from changes in hydrology would be less than significant.

Short-term indirect impacts to critical habitat from ground-disturbing activities would primarily result from the generation of fugitive dust, increased turbidity downstream, increased human activity, and the introduction of chemical pollutants. Increased human activity could result in temporal loss of habitat near the ground-disturbing activity and temporal loss of nesting sites for southwestern willow flycatcher, California gnatcatcher, and least Bell's vireo. With respect to fugitive dust, maintenance activities under the proposed program must adhere to Mojave Desert Air Quality Management District (MDAQMD) and South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

Special-Status Plant Species

Special-status plant species could be directly impacted during ground-disturbing activities associated with implementation of the proposed program. Direct impacts could include removal of individual plants, changes in plant substrate, removal of cryptogamic crusts that stabilize the soils, and other changes in the microhabitats that support special-status plants. For the purpose of this analysis, ground-disturbing direct impacts are considered to be permanent for special-status plants. The District implements avoidance and minimization measures for special-status plants as described in SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance); however, permanent direct impacts to special-status plant species that could not be avoided would be significant absent mitigation. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant.

Long-term indirect impacts to special-status plants during ground-disturbing maintenance activities would primarily result from changes in hydrology from vegetation management and would

potentially cause the introduction of non-native species. Changes in hydrology, including changes in water velocity as a result of mechanized land clearing, could potentially result in impacts to special-status plant populations within the proposed program area. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants), would reduce impacts to special-status plants to less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact of reducing invasive species and long-term indirect impacts associated with the establishment of invasive species would be less than significant. Changes in hydrology from vegetation management could also result in localized erosion, which affects special-status plants, and channelization, which affects the off-site transport of special-status plant seeds. SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are included in Section 4.8.5 of this EIR, would be implemented; therefore, long-term indirect impacts to special-status plant species from changes in hydrology would be less than significant.

Short-term indirect impacts to special-status plant species from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, temporary increases in downstream sediment deposition, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

Potential impacts to listed species with a potential to occur in the proposed program area are described in detail below. Potential impacts to non-listed special-status wildlife species with a moderate or higher potential to occur are also summarized in this analysis.

San Bernardino Kangaroo Rat

Program Impacts Within LOPPs

Proposed program activities covered by the Wash Plan (a LOPP, as described in Section 3.3.3 of this EIR) would result in direct impacts to 4.4 acres of low suitability habitat, 0.2 acres of moderate suitability habitat, and 0.9 acres of high suitability habitat for San Bernardino kangaroo rat. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained for this LOPP. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation required by USFWS. Implementation of MM-BIO-1 would reduce potentially significant impacts to critical habitat within LOPP areas to less than significant.

Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program would result in direct impacts to San Bernardino kangaroo rat, a federally endangered species, on 87.0 acres of potentially suitable habitat as detailed in Table 4.3-9. These impacts would be significant because this species is not regionally widespread and is critically imperiled in the state.

Table 4.3-9
Program Ground-Disturbing Activity Impacts
to San Bernardino Kangaroo Rat Habitat in the Valley Region

Maintenance Activity	Impacts by San Bernardino Kangaroo Rat Suitability Classification (Acres)			
	Low	*Moderate*	*High*	*Total*
Federal maintenance	14.0 (11.5 CH)	23.4 (23.4 CH)	2.4 (2.4 CH)	39.8 (37.3 CH)
Mechanized land clearing	23.6 (23.6 CH)	0.4 (0.4 CH)	4.1 (4.1 CH)	28.1 (28.1 CH)
Vegetation management	6.9 (3.0 CH)	3.1 (3.1 CH)	0.6 (0.6 CH)	10.6 (6.7 CH)
Ingress/egress	0.8 (0.7 CH)	0.2 (0.2 CH)	0.3 (0.3 CH)	1.3 (1.2 CH)
Stockpile	0	0	0	0
Bank repair	1.7 (1.7 CH)	1.1 (1.1 CH)	4.4 (4.4 CH)	7.2 (7.2 CH)
Total impacts	**47.0 (40.5 CH)**	**28.2 (28.2 CH)**	**11.8 (11.8 CH)**	**87.0 (80.5 CH)**

Notes: CH = USFWS-designated critical habitat.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Potential long-term indirect impacts from ground-disturbing maintenance activities in the Valley Region could include changes in hydrology that would affect habitat for the species, such as vegetation type conversion resulting in loss of habitat. As discussed in Section 4.8 of

this EIR, substantial changes to hydrology are not expected as a result of maintenance activities. The occasional minor changes in flow patterns or shifts in habitat quality in braided channels resulting from ground-disturbing maintenance activities would not result in substantial effects to the habitat for this species, which is adapted to periodic flooding and temporal variability in plant production. Therefore, long-term indirect impacts to San Bernardino kangaroo rat from ground-disturbing maintenance activities, if present downstream of the maintenance area, would be less than significant.

Short-term indirect impacts to San Bernardino kangaroo rat, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, short-term increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to San Bernardino kangaroo rat would be less than significant.

Least Bell's Vireo

Program Impacts Within LOPPs

Proposed program activities covered by LOPPs would result in direct impacts to approximately 1.0 acres of high suitability habitat for least Bell's vireo. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained for this LOPP. MM-BIO-1 (Minimization of Impacts under LOPPs) requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation required by USFWS. Implementation of MM-BIO-1 would reduce significant impacts to critical habitat within LOPP areas to less than significant.

Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program would result in direct impacts to least Bell's vireo habitat, a state and federally endangered species (see breakdown of low–high suitability in Table 4.3-10).

Table 4.3-10
Program Ground-Disturbing Activity Impacts
to Least Bell's Vireo Habitat and Critical Habitat in the Valley Region

Maintenance Activity	Impacts by Least Bell's Vireo Suitability Classification (Acres)			
	Low	*Moderate*	*High*	*Total*
Federal maintenance	0.3	0.1	6.1 (1.0 CH)	6.5 (1.0 CH)
Mechanized land clearing	7.0	5.0	22.6 (0.3 CH)	33.6 (0.3 CH)
Vegetation management	7.0	3.0	10.5	20.5
Ingress/egress	0.1	0.1	0.1	0.3
Stockpile	0	0	0.1	0.1
Bank repair	1.1	1.3	2.7	5.1
Total impacts	**15.4**	**9.5**	**41.1 (1.3 CH)**	**66.0 (1.3 CH)**

Notes: CH = USFWS-designated critical habitat
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Direct impacts to least Bell's vireo and its habitat would be significant because this species is considered imperiled in the state due to a very restricted range. Implementation of SOP-BIO-1 (Least Bell's Vireo) would avoid direct impacts to least Bell's vireo individuals and their nests. Additionally, maintenance activities in riparian areas would be limited on average to once every 3 years, allowing riparian scrub habitat to regenerate in between maintenance events. Temporal losses would be potentially significant requiring mitigation. Riparian woodland is not likely to regenerate in that time period and loss of this habitat would be a potentially significant impact to least Bell's vireo. Implementation of MM-BIO-5 (Mitigation for Least Bell's Vireo) would reduce impacts to less than significant.

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to least Bell's vireo. Short-term indirect impacts to least Bell's vireo, if least Bell's vireo is present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent

natural habitat areas. With implementation of these SOPs, short-term indirect impacts to least Bell's vireo would be less than significant.

Delhi Sands Flower-Loving Fly

Ground-disturbing maintenance activities under the proposed program may result in direct impacts to Delhi sands flower-loving fly, a federally endangered species as detailed in Table 4.3-11. Any impact to this species would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range.

Direct impacts to 1.1 acres of suitable habitat for Delhi sands flower-loving fly are potentially significant. Implementation of MM-BIO-6 (Mitigation for Delhi Sands Flower-Loving Fly) would reduce this impact to less than significant.

Table 4.3-11
Program Ground-Disturbing Activity Impacts
to Delhi Sands Flower-Loving Fly Habitat in the Valley Region

Maintenance Activity	Impacts by Delhi Sands Flower-Loving Fly Suitability Classification (Acres)		
	Restorable–Low Quality: Rank 3	***Moderate Quality: Rank 4***	***High Quality: Rank 5***
Ingress/egress	0.5	0.6	0
Total impacts	**0.5**	**0.6**	**0.0**

Note: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Long-term indirect impacts to Delhi sands flower-loving fly during ground-disturbing maintenance activities would primarily result from the introduction of non-native invasive species. These non-native species could compete with the plant species upon which the Delhi sands flower-loving depends, and convert otherwise suitable habitat; however, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species. Another potential long-term indirect impact to Delhi sands flower-loving fly would be related to changes in topography from maintenance activities, as well as soil compaction from vehicle traffic and footpaths. These changes could reduce, isolate, or remove windblown sand deposition, altering the habitat of Delhi sand flower-loving fly. However, such changes would be highly speculative and it is also possible that changes in topography could improve deposition of sand. Therefore, long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to Delhi sands flower-loving fly, if present near the maintenance footprint, would primarily result from the generation of fugitive dust and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to Delhi sands flower-loving fly would be less than significant.

Coastal California Gnatcatcher

Ground-disturbing activities at flood control facilities near the Redlands Airport have the potential to result in direct impacts to coastal California gnatcatcher, a federally threatened species. However, District focused surveys have not found breeding individuals to be present within its facilities. Additionally, the proposed program area is on the northern fringe of this species known range. Despite a low potential for this species to be present, any impact to California gnatcatcher breeding territories would be significant because this species is imperiled in the state. In addition, a total of 2.7 acres of critical habitat overlaps the maintenance footprint. However, only 0.1 acres of the proposed program area overlaps potentially suitable breeding habitat (brittle bush scrub and disturbed brittlebush scrub) and 0.8 acres overlaps potentially suitable foraging habitat (non-native grasslands, unvegetated wash, and disturbed land). The remaining 1.8 acres of critical habitat consists of unsuitable land cover types for the species, such as concrete channel and urban. Implementation of SOP-BIO-2 (Coastal California Gnatcatcher) would avoid direct impacts to coastal California gnatcatcher individuals and nests. Potentially significant direct impacts to coastal California gnatcatcher resulting from ground-disturbing activities would be reduced to less than significant with implementation of MM-BIO-7 (Mitigation for Coastal California Gnatcatcher).

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to California gnatcatcher. Short-term indirect impacts to California gnatcatcher, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-

BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to California gnatcatcher would be less than significant.

Southwestern Willow Flycatcher

Ground-disturbing activities in riparian habitat under the proposed program may result in direct impacts to southwestern willow flycatcher, a federally and state listed threatened species. However, focused surveys in the Santa Ana River, as well as surveys in San Timoteo Canyon, have not found breeding individuals to be present within the proposed program area. Additionally, this species is in severe decline in the region such that even the core areas (such as Prado Dam) only support one or two breeding territories with no confirmed successful nests in recent years. The maintenance footprint overlaps 262.7 acres of designated critical habitat. However, only 15.9 acres of critical habitat occurs where riparian habitat could be suitable for southwestern willow flycatcher. The remaining 246.8 acres of critical habitat does not support vegetation that would provide suitable nesting habitat for this species. Despite a low potential for this species to be present, any impact to southwestern willow flycatcher breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. Implementation of SOP-BIO-3 (Southwestern Willow Flycatcher) would avoid direct impacts to individuals of this species and their nests. Impacts to suitable habitat would be avoided, minimized, and mitigated as described under the least Bell's vireo analysis above. With implementation of MM-BIO-5 (Mitigation for Least Bell's Vireo) and MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher), direct impacts to southwestern willow flycatcher from ground-disturbing activities would be less than significant.

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to southwestern willow flycatcher. Short-term indirect impacts to southwestern willow flycatcher, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated

maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to southwestern willow flycatcher would be less than significant.

Tricolored Blackbird

Ground-disturbing maintenance activities under the proposed program would impact both breeding and foraging habitat for tricolored blackbird, a state endangered species. Impacts to tricolored blackbird foraging habitat would be less than significant because foraging opportunities would remain during and after the maintenance activity is completed. In addition, tricolored blackbirds tend to forage in agricultural or open fields adjacent to the proposed program area rather than within facilities. The species has been documented as breeding in Wineville Basin and suitable nesting habitat could be present in Jurupa Basin, Chris Basin, and portions of the lower Cucamonga Spreading Grounds. Any impact to the ability of tricolored to breed at a site would be significant because this species is critically imperiled in the state due to extreme rarity. Implementation of MM-BIO-9 (Mitigation for Tricolored Blackbird) would reduce impacts to tricolored blackbird breeding habitat to less than significant.

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to tricolored blackbird. Short-term indirect impacts to tricolored blackbird, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to tricolored blackbird would be less than significant.

Santa Ana Sucker

Occupied and suitable breeding habitat for Santa Ana sucker occurs within the Santa Ana River downstream of the Rialto Channel and within the Rialto Channel. The maintenance program has been designed such that no ground-disturbing activities under the proposed program would occur

within these areas. Ground-disturbing maintenance activities occur in portions of the Santa Ana River upstream of the Rialto Channel and La Cadena Drive, but these are only temporarily wetted during the rainy season and do not support spawning grounds. SOP-BIO-4 (Native Fish Avoidance) would be implemented so that maintenance activities would only occur within portions of the Santa Ana River suitable for the species when the river is dry or implement a plan to avoid impacts to the species. Therefore, there would be no direct impacts to Santa Ana sucker as a result of ground-disturbing activities.

The program has the potential to result in indirect impacts to Santa Ana sucker habitat. As a result of mechanized land clearing, the District would remove sediment in the Santa Ana River upstream of Waterman Avenue as well upstream tributaries (including City Creek, Twin Creek, and Mill Creek). The material removed from the channel bottoms may include sand, gravel, cobble, boulders, and other similar material that are important constituents of Santa Ana sucker spawning habitat. If this material is not transported downstream where suitable hydrology occurs for Santa Ana sucker spawning, it could result in indirect impacts to Santa Ana sucker. The District has been conducting maintenance removal, including sediment removal, throughout the Santa Ana River system periodically since the establishment of the District in 1939, and suitable spawning habitat currently occurs downstream of Rialto Channel; therefore, it is reasonable to conclude that current sediment-removal practices are not negatively impacting spawning habitat. By way of example, emergency maintenance work was conducted by the District in the Santa Ana River in November of 2015 in anticipation of El Niño storms. Approximately 175,000 cubic yards of sediment was removed from the Santa Ana River. The U.S. Geological Survey conducted population studies of the Santa Ana sucker in 2015 and 2016 (Wulff et al. 2017a, 2017b). These studies show that the number of Santa Ana sucker increased between 2015 and 2016, and that the gravel/cobble substrate condition was improved in the January 2016 sample when compared with the January 2015 sample. Although multiple factors affect fish populations and habitat conditions, the sediment removal conducted in November 2015 did not negatively affect the downstream habitat, as indicated by improved habitat conditions in January 2016.

Additionally, the amount of material removed as a result of maintenance activities would be limited to the facility's maintenance baseline for flood control purposes; sediment would remain within the channels and be available for transport downstream to sucker spawning areas during suitable flow conditions. Further, accumulation of sand over downstream gravel and cobble may negatively impact otherwise suitable spawning habitat; therefore, the removal of accumulated sediment upstream may have a benefit to the Santa Ana sucker habitat downstream. Due to the relatively small amount of sediment removal when compared to the overall system, combined with the fact that sediment removal practices have not negatively affected Santa Ana sucker habitat and may slightly improve the habitat, indirect impacts to downstream reaches occupied by Santa Ana sucker would be less than significant.

Non-Listed Special-Status Wildlife Species

Burrowing Owl

Ground-disturbing activities under the proposed program may result in direct impacts to burrowing owl burrow sites, a California species of special concern. Burrow sites where this species is known to nest have been recorded within the proposed program area. Any impact to burrowing owl burrow sites or individuals would be significant because of their restricted range, small populations, and recent declines in the Valley Region. Maintenance activities could also result in a slight benefit to burrowing owl breeding and foraging habitat due to the reduction in vegetation density and height, which is preferred by this species. The District implements standard avoidance and minimization practices for burrowing owl as described in SOP-BIO-6 (Burrowing Owl), which would result in less than significant impacts to burrowing owl.

Western Spadefoot

Western spadefoot is a California species of special concern and is very rare, with few populations known in San Bernardino County. Some basins within the proposed program area that temporarily hold water may be used by this species for breeding; therefore, ground-disturbing activities may result in direct impacts to western spadefoot toad if maintenance activities occur during the breeding cycle (generally January through March although can occur at other times if rain criteria are met). This impact would be significant because substantial direct impacts to individuals would occur during a critical period of this species' life cycles and would result in reduced reproductive success. However, the District implements avoidance measures as described in SOP-BIO-8 (Western Spadefoot); therefore, impacts to western spadefoot would be less than significant.

Nesting Birds

Ground-disturbing activities during the nesting season (generally between January 15 and August 31) could result in direct impacts to non-listed special-status birds with potential to nest in the maintenance footprint, and indirect impacts to special-status birds with potential to nest adjacent to the maintenance footprint. Non-listed special-status species with moderate or high potential to nest in the maintenance footprint include loggerhead shrike, yellow warbler, cactus wren, and yellow-breasted chat. Species with a low potential to nest include least bittern (*Ixobrychus exilis*), long-eared owl (*Asio otus*), and white-tailed kite. Direct impacts could include injury or mortality of adults and the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between January 15 and August 31). This impact would be significant because substantial direct impacts to individuals of non-listed special-status species would occur during a critical period of these species' life cycles and would result in reduced reproductive success. In addition, direct impacts that cause nest failure would also be a violation of the Migratory Bird Treaty Act and California

Fish and Game Code. The District implements avoidance measures as described in SOP-BIO-5 (Nesting Birds); therefore, impacts to nesting birds would be less than significant.

Western Red Bat and Western Yellow Bat

Ground-disturbing activities under the proposed program could result in direct impacts to tree foliage roosting bats (western red bat and western yellow bat) that have moderate potential to use habitat for maternity sites within the maintenance footprint. Direct impacts could include injury or mortality of adults and the loss of pups if vegetation clearing of preferred habitat (mature riparian forests and woodlands) occurs during the bat maternity season (generally between April 1 and July 31). This impact would be significant because substantial harm to individuals could occur during the breeding period and would result in reduced reproductive success. However, the overall effect of loss of roosting habitat for these non-listed species would be less than significant, because the minimal degree of habitat loss would not result in measurable local or regional population declines. The District implements avoidance measures as described in SOP-BIO-7 (Bat Roosts); therefore, impacts to bats would be less than significant.

Other Special-Status Wildlife

There are a number of non-listed special-status wildlife species that have a moderate or greater potential to occur within the proposed program area; however, impacts would be less than significant due to one or more of the following: maintenance activities would have impacts on few individuals, the species is relatively abundant on a regional scale such that maintenance activities would not threaten the continued existence of these species locally or regionally, and some of these species are mobile and can avoid direct harm by moving away from the maintenance activity. Adverse impacts would be less than significant for the following non-listed special-status wildlife species: Belding's orange-throated whiptail, California glossy snake, silvery legless lizard, south coast gartersnake, Blainville's horned lizard, arroyo chub, Los Angeles pocket mouse, northwestern San Diego pocket mouse, San Diego desert woodrat, and San Diego black-tailed jackrabbit. In addition, mitigation measures for San Bernardino kangaroo rat and least Bell's vireo would also benefit these species. Short-term indirect impacts to non-nesting special-status wildlife species during proposed program implementation, such as noise and vibration, would be brief in duration and would have a minimal potential for adverse effects. Therefore, short-term indirect impacts to other special-status wildlife species would be less than significant.

Non-Ground-Disturbing Vegetation Management

Critical Habitat

Non-ground-disturbing vegetation management in the Valley Region would occur within critical habitat for least Bell's vireo, San Bernardino kangaroo rat, Santa Ana sucker, and southwestern

willow flycatcher; however, this would not result in impacts to habitat for these species, because this activity is limited to pruning and thinning with hand tools and would not result in habitat removal. These impacts would not constitute destruction or adverse modification of critical habitat and would be less than significant.

Similarly, indirect impacts to critical habitat from non-ground-disturbing vegetation management would be minimal, limited to short-term indirect impacts from vehicle access to the maintenance site and the effects of the additional human presence on the nearby maintenance footprint. These impacts would be less than significant.

Special-Status Plant Species

Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to special-status plant species.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status plant species. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Short-term indirect impacts to special-status plant species from non-ground-disturbing activities could primarily result from increased human activity and the introduction of chemical pollutants. These short-term indirect impacts to special-status plant species could be significant absent SOPs. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plants would be less than significant.

Special-Status Wildlife Species

Non-ground-disturbing vegetation management in the Valley Region would not result in habitat removal for special-status wildlife species; therefore, there would be no permanent direct impacts to these species. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from additional human presence and vehicle access to the maintenance footprint. Additionally, implementation of SOPs would ensure that no direct harm to individual animals would occur.

Short-term indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would primarily result from increased human activity and the introduction of chemical pollutants. These short-term indirect impacts to special-status wildlife species could be significant absent SOPs. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status wildlife would be less than significant.

Non-Ground-Disturbing Activities

Critical Habitat

Table 4.3-12 summarizes direct impacts to critical habitat from non-ground-disturbing activities. Non-ground-disturbing activities in the Valley Region would result in direct impacts to designated critical habitat for the San Bernardino kangaroo rat. However, only 0.2 acres of impacted critical habitat is suitable for San Bernardino kangaroo rat; therefore, this impact would be less than significant. Non-ground-disturbing activities in the Valley Region would also result in direct impacts to designated critical habitat for southwestern willow flycatcher, Santa Ana sucker, and coastal California gnatcatcher; however, no habitat suitable for these species would be impacted within critical habitat. Therefore, there would be a less than significant impact to critical habitat from non-ground-disturbing activities. Nevertheless, Section 7(a) of the ESA requires federal agencies (like USACE) to consult with USFWS with respect to actions that may affect listed species or critical habitat to minimize the potential that the actions they authorize could destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. Implementation of MM-BIO-2 (Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat), which requires incorporation of any conditions resulting from consultation with the USFWS into the Maintenance Plan, would reduce this potentially significant impact to less than significant.

Table 4.3-12
Program Non-Ground-Disturbing Activity Impacts to Critical Habitat in the Valley Region

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)	Suitable Habitat within Impacted Critical Habitat (Acres)
San Bernardino kangaroo rat	Herbicide vector control	30.8	0.2
Southwestern willow flycatcher	Herbicide vector control	7.1	0.0
Coastal California gnatcatcher	Herbicide vector control	0.1	0.0
Santa Ana sucker	Herbicide vector control	8.2	0.0

Source: USFWS 2017.

Long-term indirect impacts to critical habitat from herbicide vector control would primarily result from the potential introduction of non-native invasive species within areas treated with herbicide. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts to critical habitat associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to critical habitat from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to critical habitat from herbicides would be less than significant. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

Special-Status Plant Species

Special-status plant species could be directly impacted during non-ground-disturbing activities (herbicide vector control) associated with implementation of the proposed program. Application of herbicide to special-status plant species could be a potentially significant impact. Implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance) would avoid and minimize direct impacts to special-status plants. However, without mitigation, permanent direct impacts to special-status plant species would be significant. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant.

Short-term indirect impacts to special-status plants from herbicide vector control would result from the potential to introduce non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide overspray. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

San Bernardino Kangaroo Rat

Non-ground-disturbing activities under the proposed program could result in temporary direct impacts to San Bernardino kangaroo rat on a total of approximately 0.2 acres of habitat (Table 4.3-13). The herbicides used under the proposed program would not have toxic effects to San Bernardino kangaroo rat. Additionally, as described in Section 1.2.2 of Appendix E, rodenticide used in areas containing protected rodents such as the San Bernardino kangaroo rat is applied using special traps, and in accordance with applicable federal and state laws, regulations, and policies and the County's agency-approved Integrated Pest Management Plan. Therefore, impacts to San Bernardino kangaroo rat from herbicide and rodenticide would be less than significant.

Table 4.3-13
Program Non-Ground-Disturbing Activity Impacts
to San Bernardino Kangaroo Rat Habitat in the Valley Region

Program Activity	Impacts by San Bernardino Kangaroo Rat Habitat Suitability Classification (Acres)				Temporary or Permanent?
	Not Suitable	*Low*	*Moderate*	*High*	
Herbicide vector control	0.01	0.1	0.1	0.03	Temporary

Note: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Long-term indirect impacts to San Bernardino kangaroo rat from herbicide vector control would primarily result from the introduction of non-native invasive species within the treated areas, which could degrade San Bernardino kangaroo rat habitat. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to San Bernardino kangaroo rat from non-ground-disturbing activities would primarily result from increased human activity and from overspray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to San Bernardino kangaroo rat would be less than significant.

Least Bell's Vireo

Non-ground-disturbing activities under the proposed program would not directly impact least Bell's vireo habitat. Short-term indirect impacts to critical habitat from non-ground-disturbing activities could result from increased human activity at a site near least Bell's vireo habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to least Bell's vireo habitat from herbicides would be less than significant.

Delhi Sands Flower-Loving Fly

Non-ground-disturbing activities under the proposed program could result in temporary direct impacts to Delhi sands flower-loving fly on a total of approximately 7.3 acres of habitat, including only 1.8 acres of moderately or highly suitable habitat (Table 4.3-14). With implementation of SOP-BIO-19 (Herbicide Application), the herbicides used under the proposed program would not have toxic effects to Delhi sands flower-loving fly. Impacts would be less than significant due to the small disturbance area and the temporary nature of disturbance.

Table 4.3-14
Program Non-Ground-Disturbing Activity Impacts to Delhi Sands Flower-Loving Fly Habitat in the Valley Region

Program Activity	Impacts by Delhi Sands Flower-Loving Fly Habitat Suitability Classification (Acres)				Temporary or Permanent?
	Not Suitable	*Low*	*Moderate*	*High*	
Herbicide vector control	20.8	5.5	1.5	0.3	Temporary

Note: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Long-term indirect impacts to Delhi sands flower-loving fly from herbicide vector control would primarily result from the introduction of non-native invasive species within areas treated with herbicide, which could remove the Delhi sands flower-loving fly host plants in favor or invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to Delhi sands flower-loving fly from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to Delhi sands flower-loving fly would be less than significant.

Coastal California Gnatcatcher

Non-ground-disturbing activities under the proposed program would not directly impact coastal California gnatcatcher habitat. Short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near coastal California gnatcatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to coastal California gnatcatcher habitat from herbicides would be less than significant.

Southwestern Willow Flycatcher

Non-ground-disturbing activities under the proposed program would not directly impact southwestern willow flycatcher habitat. Short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near southwestern willow flycatcher habitat and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to southwestern willow flycatcher habitat from herbicides would be less than significant.

Tricolored Blackbird

Non-ground-disturbing activities under the proposed program could result in permanent direct impacts to tricolored blackbird if the herbicides remove tricolored blackbird breeding habitat. That habitat could include freshwater marsh vegetation such as tules and cattails, or invasive non-native vegetation such as Himalayan blackberry or various thistle species. However, because herbicide would not remove the root structure of these communities and these communities are fast growing, they would expect to reestablish within a season. Implementation of SOP-BIO-5 (Nesting Birds) would ensure there would be no direct impacts to tricolored blackbird nests. Short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near tricolored blackbird habitat. Herbicide spray drift outside the maintenance footprint could result in long-term indirect impacts to the same types of tricolored blackbird habitat outside the maintenance areas. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to tricolored blackbird habitat from herbicides would be less than significant.

Santa Ana Sucker

Use of herbicide could result in short-term indirect impacts to any Santa Ana sucker located within the maintenance footprint, and short-term indirect impacts to downstream Santa Ana sucker. Some herbicides, such as triclopyr, are known to affect the physiology and behavior of fish. Herbicides could enter the water through direct overspray as well as through percolation, runoff, sediment transport, or wind erosion. Impacts to Santa Ana sucker would be minimized through incorporation of SOP-BIO-19 (Herbicide Application). With implementation of that SOP, impacts to Santa Ana sucker from non-ground-disturbing activities would be less than significant.

Non-Listed Special-Status Wildlife Species

Non-ground-disturbing activities under the proposed program would not cause long-term direct impacts to non-listed special-status wildlife species. Short-term indirect impacts to these species

from non-ground-disturbing activities could result from increased human activity at a site near occupied habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to species habitat from herbicides would be less than significant.

Mountain Region

Ground-Disturbing Activities

Critical Habitat

Program Impacts Within LOPPs

Proposed program activities as part of the First Line of Defense (FLOD) project (a LOPP, as described in Section 3.3.3 of this EIR) would result in direct impacts to 13.2 acres of San Bernardino kangaroo rat critical habitat, none of which is suitable for San Bernardino kangaroo rat, and 60.9 acres of southwestern willow flycatcher critical habitat, none of which is suitable for breeding for the species. Although impacts to the species would be less than significant due to the lack of suitability of the habitat for the species, Section 7(a) of the ESA requires that federal agencies (like USACE) consult with USFWS with respect to actions that may affect listed species or critical habitat to ensure that the actions they authorize do not destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation required by USFWS. Implementation of MM-BIO-1 would reduce potentially significant impacts to critical habitat within LOPP areas to less than significant.

Program Impacts Not Within LOPPs

Ground-disturbing maintenance activities in the Mountain Region would result in permanent and temporary direct impacts to designated critical habitat for the San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher (Table 4.3-15). Section 7(a) of the ESA requires federal agencies (like USACE) to consult with USFWS to minimize the potential that actions they authorize could destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. Implementation of MM-BIO-2

(Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat), which requires incorporation of any conditions resulting from consultation with USFWS into the Maintenance Plan, would reduce potentially significant impacts to less than significant.

In advance of anticipated consultation under Section 7 of the federal ESA, the District has undertaken a preliminary review of potential impacts to critical habitat to determine whether there would be significant impacts to suitable or occupied habitat for each species within respective designated critical habitat. There is no suitable habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, or Santa Ana sucker within the maintenance footprint within designated critical habitat; therefore, direct impacts to critical habitat would not result in adverse effects to these species.

Table 4.3-15
Program Ground-Disturbing Activity Direct Impacts to Critical Habitat in the Study Area in the Mountain Region

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)	Suitable Habitat within Impacted Critical Habitat (Acres)
Southwestern willow flycatcher	Bank repair	2.2	0.0
	Total direct impacts	**2.2**	**0.0**
San Bernardino kangaroo rat	Federal maintenance layer	2.1	0.0
	Ingress/egress	0.6	0.0
	Mechanized land clearing	0.8	0.0
	Stockpile locations	6.9	0.0
	Vegetation management	5.0	0.0
	Total direct impacts	**15.4**	**0.0**
Santa Ana sucker	Bank repair	1.7	0.0

Source: USFWS 2017.

Long-term indirect impacts to critical habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, and Santa Ana sucker during ground-disturbing maintenance activities would primarily result from changes in hydrology, downstream erosion, and the introduction of non-native invasive species. The proposed program would actively focus on the removal of invasive species. Therefore, long-term indirect impacts to critical habitat associated with the establishment of invasive species would be less than significant, as the program would have the beneficial effect of removing invasive species. SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8.5) would be implemented; therefore, long-term indirect impacts to critical habitat from changes in hydrology would be less than significant.

Long-term indirect impacts to Santa Ana sucker critical habitat could also occur from loss of sediment (including sand, gravel, cobble, boulders, and other similar material that are important constituents of Santa Ana sucker spawning habitat) to downstream reaches of suitable critical habitat. However, there are few facilities within the Mountain Region within which sediment removal would occur, totaling approximately 61 acres. The area is an inconsequential amount of sediment removal compared with sediment transport within the system as a whole; therefore, potential long-term indirect impacts to Santa Ana sucker critical habitat as a result of sediment removal would be less than significant.

Short-term indirect impacts to critical habitat from ground-disturbing activities would primarily result from the generation of fugitive dust, increased turbidity downstream, increased human activity, and the introduction of chemical pollutants. Increased human activity could result in temporal loss of habitat near the ground-disturbing activity, temporal loss of nesting sites for southwestern willow flycatcher and bald eagle. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to critical habitat for San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher would be less than significant.

Special-Status Plant Species

Special-status plant species could be directly impacted during ground-disturbing activities associated with implementation of the proposed program. Direct impacts could include removal of individual plants, changes in plant substrate, removal of cryptogamic crusts that stabilize the soils, and other changes in the microhabitats that support special-status plants. For purposes of this analysis, ground-disturbing direct impacts are considered to be permanent impacts to special-status plants. Permanent direct impacts to potentially occurring special-status plant species would be significant absent mitigation. The District implements avoidance and minimization measures for special-status plants as described in SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance). Impacts to special-status plants that could not be avoided would be significant. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants), described in Section 4.3.7, would reduce impacts to special-status plants to less than significant.

Long-term indirect impacts to special-status plants during ground-disturbing maintenance activities would primarily result from changes in hydrology from vegetation management and could potentially cause the introduction of non-native species. Changes in hydrology, including changes in water velocity as a result of mechanized land clearing, could potentially result in impacts to special-status plant populations within the proposed program area. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are included in Section 4.8 of this EIR, would be implemented; therefore, long-term indirect impacts to special-status plant species from changes in hydrology would be less than significant.

Short-term indirect impacts to special-status plant species from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, temporary increases in downstream sediment deposition, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

Southern Rubber Boa

Ground-disturbing maintenance activities in the Mountain Region could result in direct impacts to southern rubber boa, a state-listed threatened species, and its potentially suitable habitat. This impact would be significant because this species is imperiled in the state due to its very restricted range. However, the proposed program includes SOP-BIO-13 (Southern Rubber Boa), which

avoids direct impacts to southern rubber boa individuals by conducting maintenance activities between November 1 and April 1, when boas are likely in hibernation and deep in the ground. The District would also restrict vegetation management to manual vegetation management, as described in SOP-BIO-13, within suitable habitat for southern rubber boa. With implementation of SOP-BIO-13, short-term direct impacts to southern rubber boa would be less than significant because harm to individuals would be avoided by timing maintenance activities, using hand crews, and providing educational training to workers about southern rubber boa. In addition, by hand-trimming riparian habitat within Green Valley Creek and Grout Creek, no permanent loss of potential habitat would occur; therefore, permanent direct impacts to southern rubber boa would be less than significant.

The ground-disturbing maintenance activities in the Mountain Region would not result in long-term indirect impacts to southern rubber boa. Short-term indirect impacts to southern rubber boa, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to southern rubber boa would be less than significant.

Southwestern Willow Flycatcher

Ground-disturbing maintenance activities in the Mountain Region may result in direct impacts to southwestern willow flycatcher, a federally and state-listed threatened species. Approximately 0.7 acres of habitat with moderate or low suitability for this species would be directly impacted by vegetation management and mechanized land clearing. Despite a low potential for this species to be present, any impact to southwestern willow flycatcher breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. The proposed program includes SOP-BIO-3 (Southwestern Willow Flycatcher), which would avoid direct impacts to individuals of this species and their nests. With the additional implementation of MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher), which requires consultation with the USFWS prior to implementation of activities within suitable habitat for this species, direct impacts to this species would be less than significant.

The ground-disturbing maintenance activities in the Mountain Region would not result in long-term indirect impacts to southwestern willow flycatcher. Short-term indirect impacts to southwestern willow flycatcher, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to southwestern willow flycatcher would be less than significant.

Bald Eagle

Ground-disturbing maintenance activities in the Mountain Region would not result in permanent direct impacts to bald eagles. The one bald eagle nest that has been recorded near Big Bear Lake occurs in Grout Bay and is approximately 2,000 feet south of the proposed program's maintenance footprint in Grout Creek. Although bald eagle have a low potential to occur in the maintenance footprint, maintenance activities would not include removal of trees that could be used by this species for nesting or as hunting perches. Therefore, permanent direct impacts to bald eagle would be less than significant.

The ground-disturbing maintenance activities in the Mountain Region would not result in long-term indirect impacts to bald eagle. Short-term indirect impacts to bald eagles, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to bald eagle would be less than significant.

Non-Listed Special-Status Wildlife Species

Nesting Birds

Ground-disturbing activities during the nesting season (generally between January 15 and August 31) could result in direct impacts to non-listed special-status birds with potential to nest in the maintenance footprint, and indirect impacts to special-status birds with potential to nest adjacent to the maintenance footprint. Direct impacts could include injury or mortality of adults and the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between January 15 and August 31). This impact would be significant because substantial direct impacts to individuals of non-listed special-status species would occur during a critical period of these species' life cycles and would result in reduced reproductive success. In addition, direct impacts that cause nest failure would also be a violation of the Migratory Bird Treaty Act and California Fish and Game Code. The District implements avoidance measures as described in SOP-BIO-5 (Nesting Birds); therefore, impacts to nesting birds would be less than significant.

Western Mastiff Bat and Western Red Bat

While the ground-disturbing activity maintenance footprint could support maternal roosts for western mastiff bat and maternity habitat for western red bat, suitable habitat, such as trees with cavities or a mature canopy, would not be removed. Therefore, direct impacts to bats during the maternity season would be less than significant. Indirect impacts to these species could result from human presence in one area for an extended period of time and from operation of heavy equipment and resultant noise near maternity roosts. The proposed program includes implementation of SOP-BIO-7 (Bat Roosts) to avoid the maternity season for bats; therefore, impacts to bats would be less than significant.

Other Special-Status Wildlife

There are a number of non-listed special-status wildlife species that have a moderate or greater potential to occur within the proposed program area; however, impacts would be less than significant due to one or more of the following: maintenance activities may not be removing habitat for that species (such as mature trees with cavities for San Bernardino flying squirrel), maintenance activities would have impacts on few individuals and the species is relatively abundant on a regional scale such that maintenance activities do not threaten the continued existence of these species locally or regionally, and some of these species are mobile and can avoid direct harm by moving away from the maintenance activity. Adverse impacts would be less than significant for the following non-listed special-status wildlife species: ringtail, large-blotched salamander, California mountain kingsnake, coast patch-nosed snake, Blainville's horned lizard, two-striped gartersnake, and San Bernardino flying squirrel.

Short-term indirect impacts to non-nesting special-status wildlife species during implementation of the proposed program, such as noise and vibration, would be brief in duration, and would have minimal adverse effects. Therefore, short-term indirect impacts to other special-status wildlife species would be less than significant.

The potential for ground-disturbing activities to result in long-term indirect impacts from altered hydrology is minimal based on the capacity of these systems to scour, erode, and deposit sediments. Therefore, long-term indirect impacts to special-status wildlife species would be less than significant. Some maintenance activities could result in a slight lowering for the potential of catastrophic fire, which would be slightly beneficial to the special-status wildlife species, as most are not reliant on fire for habitat creation.

Non-Ground-Disturbing Vegetation Management

Critical Habitat

Non-ground-disturbing vegetation management in the Mountain Region would not result in significant impacts to critical habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, or Santa Ana sucker. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from the additional human presence and vehicle access to the maintenance footprint. These impacts would not constitute destruction or adverse modification of critical habitat and would be less than significant.

Similarly, indirect impacts to critical habitat from non-ground-disturbing vegetation management would be minimal, limited to short-term indirect impacts from vehicle access to the maintenance site and the effects of the additional human presence on the nearby maintenance footprint. These impacts would not constitute destruction or adverse modification of critical habitat and would be less than significant.

Special-Status Plant Species

Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to special-status plant species.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status plant species. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Short-term indirect impacts to special-status plant species from non-ground-disturbing vegetation management would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 (Worker Environmental Awareness

Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plants would be less than significant.

Special-Status Wildlife Species

Non-ground-disturbing vegetation management in the Mountain Region would not result in significant impacts to special-status wildlife species. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from additional human presence and vehicle access to the maintenance footprint, and implementation of SOPs would minimize the potential for direct harm to individual animals. Direct impacts to special-status wildlife species from non-ground-disturbing vegetation management would be less than significant.

Short-term indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status wildlife species would be less than significant.

Non-Ground-Disturbing Activities

Critical Habitat

<u>Impacts Within LOPPs</u>

Proposed program activities under the FLOD project (a LOPP, as described in Section 3.3.3 of this EIR) would result in temporary direct impacts to 1.6 acres of San Bernardino kangaroo rat critical habitat and 2.0 acres of southwestern willow flycatcher critical habitat. The areas impacted do not fall within suitable habitat for either species; therefore, there would be a less than significant impact to critical habitat from non-ground-disturbing activities. Nevertheless, Section 7(a) of the ESA requires federal agencies (like USACE) to consult with USFWS with respect to actions that may affect listed species or critical habitat

to minimize the potential that the actions they authorize could destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation required by USFWS. Implementation of MM-BIO-1 would reduce potentially significant impacts to critical habitat within LOPP areas to less than significant.

Impacts Not Within LOPPs

Non-ground-disturbing activities in the Mountain Region would result in a small area of direct impacts to designated critical habitat for San Bernardino kangaroo rat; however, no habitat suitable for this species within critical habitat would be impacted (Table 4.3-16). Therefore, there would be a less than significant impact to critical habitat from non-ground-disturbing activities. Nevertheless, Section 7(a) of the ESA requires federal agencies (like USACE) to consult with USFWS with respect to actions that may affect listed species or critical habitat to minimize the potential that the actions they authorize could destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. Implementation of MM-BIO-2 (Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat), which requires incorporation of any conditions resulting from consultation with USFWS into the Maintenance Plan, would reduce this potentially significant impact to less than significant.

Table 4.3-16
Program Non-Ground-Disturbing Activity Direct Impacts to Critical Habitat in the Study Area in the Mountain Region

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)	Suitable Habitat within Impacted Critical Habitat (Acres)
San Bernardino kangaroo rat	Herbicide vector control	0.1	0.0

Source: USFWS 2017.

Long-term indirect impacts to critical habitat from herbicide vector control would primarily result from the introduction of non-native invasive species within areas treated with herbicide. However, the proposed program actively focuses on the removal of invasive species; therefore, long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to critical habitat from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

Special-Status Plant Species

Special-status plant species could be directly impacted during non-ground-disturbing activities (herbicide vector control) associated with implementation of the proposed program. Application of herbicide to special-status plant species could be a significant impact. Implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance) would avoid and minimize direct impacts to special-status plants. However, without mitigation, permanent direct impacts to special-status plant species would be significant. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant.

Short-term indirect impacts to special-status plants from herbicide vector control could result from the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide overspray. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 so that trash and debris are disposed of properly. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

Southern Rubber Boa

Non-ground-disturbing activities under the proposed program would not directly affect southern rubber boa or the species' habitat. Potential habitat within Green Valley Creek and Grout Creek would be hand trimmed rather than chemically treated, minimizing the likelihood of temporary direct or short-term indirect effects in and near the maintenance footprint. Therefore, impacts to southern rubber boa from non-ground-disturbing activities would be less than significant.

Southwestern Willow Flycatcher

Non-ground-disturbing activities under the proposed program would not directly impact southwestern willow flycatcher habitat. Short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near southwestern willow flycatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to southwestern willow flycatcher habitat from herbicides would be less than significant.

Bald Eagle

Non-ground-disturbing activities under the proposed program would not directly impact bald eagles or occupied bald eagle habitat. Short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near bald eagle nests, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift, and long-term indirect impacts to bald eagle habitat from herbicides would be less than significant.

Santa Ana Sucker

Use of herbicide could result in short-term indirect impacts to downstream Santa Ana sucker. Some herbicides, such as triclopyr, are known to affect the physiology and behavior of fish. Herbicides could enter the water through direct overspray as well as through percolation, runoff, sediment transport, or wind erosion. The proposed program includes SOP-BIO-19 (Herbicide Application), which requires appropriate use of herbicide in aquatic sites; therefore, impacts to Santa Ana sucker would be minimized. Impacts to Santa Ana sucker from non-ground-disturbing activities would be less than significant.

Non-Listed Special-Status Wildlife Species

Non-ground-disturbing activities under the proposed program would not cause long-term direct impacts to non-listed special-status wildlife species. Short-term indirect impacts to these species from non-ground-disturbing activities could result from increased human activity at a site near occupied habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift, and long-term indirect impacts to species habitat from herbicides would be less than significant.

Desert Region

Ground-Disturbing Activities

Critical Habitat

Ground-disturbing maintenance activities in the Desert Region would result in permanent and temporary direct impacts to designated critical habitat for the desert tortoise and southwestern willow flycatcher (Table 4.3-17). Section 7(a) of the ESA requires federal agencies (like USACE) to consult with USFWS with respect to actions that may affect listed species or critical habitat to minimize the potential that the actions they authorize could destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. Implementation of MM-BIO-2 (Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat), which requires incorporation of any conditions resulting from consultation with USFWS into the Maintenance Plan, would reduce potentially significant impacts to less than significant.

In advance of anticipated consultation under Section 7 of the federal ESA, the District has undertaken a preliminary review of potential impacts to critical habitat to determine whether there would be significant impacts to suitable or occupied habitat for each species within respective designated critical habitat. There is no suitable habitat for Santa Ana sucker within the maintenance footprint; therefore, direct impacts to Santa Ana sucker critical habitat would not result in adverse effects to this species. As noted in the analysis of impacts to desert tortoise below, only a small portion of the impacted critical habitat is moderately or highly suitable for the species (0.6 acres). Therefore, the impacts to desert tortoise critical habitat would be less than significant. Of the 249.2 acres of impact to southwestern willow flycatcher critical habitat, 24.3 acres is moderately or highly suitable for the species. Removal of this habitat would be a significant impact. Implementation of MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher), MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed

Cuckoo in the Desert Region), and MM-BIO-17 (Compensation for Special-Status Vegetation Communities in the Desert Region) would reduce potential impacts to less than significant.

Table 4.3-17
Program Ground-Disturbing Activity Impacts to Critical Habitat in the Desert Region

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)	Suitable Habitat within Impacted Critical Habitat (Acres)
Desert tortoise	Bank repair	5.1	0.1
	Ingress/egress	6.8	0.5
	Mechanized land clearing	7.6	0
	Stockpile locations	0.4	0
	Total direct impacts	**19.9**	**0.6**
Southwestern willow flycatcher	Bank repair	58.4	3.0
	Ingress/egress	9.9	0.1
	Mechanized land clearing	180.3	21.2
	Stockpile locations	0.6	0.0
	Total direct impacts	**249.2**	**24.3**

Source: USFWS 2017.

Long-term indirect impacts to critical habitat for desert tortoise and southwestern willow flycatcher during ground-disturbing maintenance activities would primarily result from changes in hydrology, downstream erosion, and the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. As described in the Maintenance Plan (Appendix A), facilities currently have a high percentage of non-native invasive species. Proposed program vegetation management activities include the removal of invasive species and the vegetation management plan (incorporated as a component of the Maintenance Plan) provides methods for conducting vegetation management in a manner which limits spread of invasive species. Therefore, while maintenance activities can create edge conditions in which invasive plants can establish, the proposed program would result in the overall reduction of invasive species through its vegetation management practices. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are included in Section 4.8.5 of this EIR, would be implemented; therefore, long-term indirect impacts to critical habitat from changes in hydrology would be less than significant.

Short-term indirect impacts to critical habitat from ground-disturbing activities would primarily result from the generation of fugitive dust, increased turbidity downstream, increased human activity, and the introduction of chemical pollutants. Increased human activity could result in temporal loss of habitat near the ground-disturbing activity and temporal loss of nesting sites for southwestern willow flycatcher, tricolored blackbird, yellow-billed cuckoo, and least Bell's vireo. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 (Best Management Practices) would ensure that trash and debris are disposed of properly. The District would minimize the potential impact from chemical pollutants with implementation of SOP-BIO-16, which minimizes the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to critical habitat for desert tortoise and southwestern willow flycatcher would be less than significant.

Special-Status Plant Species

Special-status plant species could be directly impacted during ground-disturbing activities associated with implementation of the proposed program. Direct impacts could include removal of individual plants, changes in plant substrate, removal of cryptogamic crusts that stabilize the soils, and other changes in the microhabitats that support special-status plants. For purposes of this analysis, ground-disturbing direct impacts are considered to be permanent for special-status plants. Permanent direct impacts to potentially occurring special-status plant species would be significant absent mitigation. The District implements avoidance and minimization measures for special-status plants as described in SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance); however, permanent direct impacts to special-status plant species that could not be avoided would be significant absent mitigation. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant.

Long-term indirect impacts to special-status plants during ground-disturbing maintenance activities would primarily result from changes in hydrology from vegetation management and could potentially cause the introduction of non-native species. Changes in hydrology, including changes in water velocity as a result of mechanized land clearing, would potentially result in impacts to special-status plant populations within the proposed program area. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant. With respect to the introduction of non-native invasive species, the proposed program

includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. Changes in hydrology from vegetation management could also result in localized erosion, which affects special-status plants, and channelization, which affects the off-site transport of special-status plant seeds. However, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would be implemented; therefore, long-term indirect impacts to special-status plant species from changes in hydrology would be less than significant.

Short-term indirect impacts to special-status plant species from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, temporary increases in downstream sediment deposition, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 (Best Management Practices) would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District would implement SOP-BIO-16, which minimizes the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

Mohave Ground Squirrel

Program Impacts Within LOPPs

Proposed program activities within the Lenwood facilities (a LOPP, as described in Section 3.3.3 of this EIR) would result in direct impacts on Mohave ground squirrel habitat, as detailed in Table 4.3-18. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by this LOPP. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, which requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation. Implementation of MM-BIO-1 would reduce significant impacts to critical habitat within LOPP areas to less than significant.

Table 4.3-18
Program Ground-Disturbing Activity Impacts
to Mohave Ground Squirrel Habitat in the Desert Region Within LOPPs

Program Activity	Impacts by Mohave Ground Squirrel Habitat Suitability Classification (Acres)				Temporary or Permanent?
	Unlikely to Support		*Likely to Support*		
	Poor	*Fair*	*Good*	*Excellent*	
Federal maintenance	9.9	5.1	5.0	—	Permanent
Mechanized land clearing	—	10.1	4.8	—	Permanent
Ingress/egress	0.2	1.5	1.7	—	Permanent
Stockpile	—	—	—	—	Permanent
Bank repair	—	—	—	—	Temporary
Subtotal permanent direct impacts	*10.1*	*16.7*	*11.5*	—	*N/A*
Subtotal temporary direct impacts	—	—	—	—	*N/A*
Total direct impacts	**10.1**	**16.7**	**11.5**	**—**	**N/A**

Notes: LOPP = local overlapping permitting process; N/A = not applicable.

Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program could result in permanent and temporary direct impacts to Mohave ground squirrel, a state threatened species, as shown in Table 4.3-19. Direct impacts to Mohave ground squirrel, if present, would include direct mortality of individuals due to vehicle strikes, crushing of burrows, and removal of habitat. This impact would be significant because this species is imperiled in the state due to a restricted range and relatively few populations. Implementation of MM-BIO-12 (Mitigation for Mohave Ground Squirrel) would reduce impacts to less than significant.

Table 4.3-19
Program Ground-Disturbing Activity Impacts
to Mohave Ground Squirrel Habitat in the Desert Region Not Within LOPPs

Program Activity	Impacts by Mohave Ground Squirrel Habitat Suitability Classification (Acres)				Temporary or Permanent?
	Unlikely to Support		*Likely to Support*		
	Poor	*Fair*	*Good*	*Excellent*	
Federal maintenance	4.6	8.7	2.5	0	Permanent
Mechanized land clearing	2.3	5.3	9.4	0.3	Permanent
Ingress/egress	10.9	8.2	5.0	0.5	Permanent
Stockpile	0.3	0.5	0.3	0	Permanent
Bank repair	15.3	11.4	11.4	0.2	Temporary

Table 4.3-19
Program Ground-Disturbing Activity Impacts
to Mohave Ground Squirrel Habitat in the Desert Region Not Within LOPPs

Program Activity	Impacts by Mohave Ground Squirrel Habitat Suitability Classification (Acres)				Temporary or Permanent?
	Unlikely to Support		*Likely to Support*		
	Poor	*Fair*	*Good*	*Excellent*	
Subtotal permanent direct impacts	*18.1*	*22.7*	*17.2*	*0.8*	*N/A*
Subtotal temporary direct impacts	*15.3*	*11.4*	*11.4*	*0.2*	*N/A*
Total direct impacts	**33.4**	**34.1**	**28.6**	**1.0**	**N/A**

Notes: LOPP = local overlapping permitting process; N/A = not applicable.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Long-term indirect impacts could result from the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Mohave ground squirrels outside the maintenance footprint would also be subject to disturbance from noise, vibration, and dust from ground-disturbing maintenance activities. Human presence during ground-disturbing activities would also indirectly impact Mohave ground squirrel outside the maintenance footprint. However, the potential for indirect impacts to Mohave ground squirrel would be of short duration and limited to once every 3 years; therefore, indirect impacts to Mohave ground squirrel would be less than significant.

Desert Tortoise

Program Impacts Within LOPPs

Proposed program activities within the Lenwood facilities (a LOPP, as described in Section 3.3.3 of this EIR) would result in direct impacts desert tortoise habitat as detailed in Table 4.3-20. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by this LOPP. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained, including the incorporation of any conditions or mitigation required by USFWS. Implementation of MM-BIO-1 would reduce significant impacts to critical habitat within LOPP areas to less than significant.

Table 4.3-20
Program Ground-Disturbing Activity Impacts
to Desert Tortoise and Critical Habitat in the Desert Region Within LOPPs

Program Activity	Impacts by Desert Tortoise Habitat Suitability Classification (Acres)			Temporary or Permanent?
	Low	*Moderate*	*High*	
Federal maintenance	—	20.3	0.7	Permanent
Mechanized land clearing[a]	—	—	—	Permanent
Ingress/egress	—	0.6	10.8	Permanent
Stockpile	—	—	—	Permanent
Bank repair	—	—	—	Temporary
Vegetation management	—	—	—	Permanent
Subtotal permanent direct impacts	—	*20.9*	*11.5*	*N/A*
Subtotal temporary direct impacts	—	—	—	*N/A*
Total direct impacts	—	**20.9**	**11.5**	**N/A**

Notes: LOPP = local overlapping permitting process; N/A = not applicable.

[a] This analysis assumes that mechanized land clearing would be limited to channel and basin bottoms, which only provide move-through habitat for desert tortoise. This assumption is subject to review by the USFWS and the CDFW, the outcome of which could result in increased impact calculations for this proposed program activity.

Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program would result in permanent and temporary direct impacts to desert tortoise, a federally and state-listed threatened species, as detailed in Table 4.3-21. Impacts to habitat likely to support the species (moderate and high suitability) would be significant because they would result in the degradation of a substantial area of suitable habitat for an imperiled species. Impacts to low-quality habitat would have less than significant effects to desert tortoise because populations are absent or low and these areas are not essential to maintenance of viable populations. Direct impacts to tortoise individuals could also be caused due to collisions with vehicles or heavy equipment and crushing of burrows within the maintenance footprint. The District implements avoidance and minimization measures for desert tortoise as described in SOP-BIO-10 (Desert Tortoise); however, permanent direct impacts to desert tortoise that could not be avoided would be significant absent mitigation. Implementation of MM-BIO-13 (Mitigation for Desert Tortoise) would reduce impacts to desert tortoise to less than significant.

Table 4.3-21
Program Ground-Disturbing Activity Impacts
to Desert Tortoise and Critical Habitat in the Desert Region Not Within LOPPs

Program Activity	Impacts by Desert Tortoise Habitat Suitability Classification (Acres)			Temporary or Permanent?
	Low	*Moderate*	*High*	
Federal maintenance	4.3	5.1	4.3	Permanent
Mechanized land clearing[a]	—	—	—	Permanent
Ingress/egress	15.3 (1.8 CH)	5.2	2.6 (0.5 CH)	Permanent
Stockpile	1.4	0.2	25.3	Permanent
Bank repair	58.3 (1.1 CH)	4.7	0.6 (0.1 CH)	Temporary
Vegetation management	5.9	0.2	6.3	Permanent
Subtotal permanent direct impacts	*26.9 (2.9 CH)*	*10.7*	*38.5 (0.5 CH)*	*N/A*
Subtotal temporary direct impacts	*58.3 (1.1 CH)*	*4.7*	*0.6 (0.1 CH)*	*N/A*
Total direct impacts	**85.2 (4.0 CH)**	**15.4**	**39.1 (0.6 CH)**	**N/A**

Notes: LOPP = local overlapping permitting process; CH = amount of total that is critical habitat; N/A = not applicable.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

[a] This analysis assumes that mechanized land clearing is limited to channel and basin bottoms, which only provide move through habitat for desert tortoise. This assumption is subject to review by the USFWS and the CDFW, the outcome of which could result in increased impact calculations for this proposed program activity.

Long-term indirect impacts to desert tortoise habitat could be caused by introduction of non-native plant species. The proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to desert tortoise could result from fugitive dust, human presence, and increased noise levels outside the maintenance footprint. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to desert tortoise would be less than significant.

Least Bell's Vireo

Ground-disturbing activities under the proposed program would result in permanent and temporary direct impacts in the Desert Region to 38.6 acres of potentially suitable riparian habitat for least Bell's vireo, a federally and state-listed endangered species. Indirect temporary direct impacts to least Bell's vireo could include disruption of breeding activity due to increased noise and human presence within the maintenance footprint associated with ground-disturbing maintenance activities (see Table 4.3-22). Impact to this species would be significant because this species is considered imperiled in the state due to a very restricted range. The District implements avoidance and minimization measures for least Bell's vireo as described in SOP-BIO-1 (Least Bell's Vireo); however, permanent direct impacts to least Bell's vireo that could not be avoided would be significant absent mitigation. Implementation of MM-BIO-14 (Mitigation for Least Bell's Vireo Habitat in the Desert Region) would reduce impacts resulting from habitat loss to less than significant.

Table 4.3-22
Program Ground-Disturbing Activity Impacts to Least Bell's Vireo Habitat in the Desert Region

Program Activity	Impacts by Least Bell's Vireo Habitat Suitability Classification (Acres)			Temporary or Permanent?
	Low	*Moderate*	*High*	
Federal maintenance	0	0	0	Permanent
Mechanized land clearing	5.4	4.2	17.0	Permanent
Ingress/egress	0.0	0	0.1	Permanent
Stockpile	0	0	0	Permanent
Bank repair	8.8	0	3.1	Temporary
Vegetation management	0	0	0	Permanent
Subtotal permanent direct impacts	*5.4*	*4.2*	*17.1*	*N/A*
Subtotal temporary direct impacts	*8.8*	*0*	*3.1*	*N/A*
Total direct impacts	**14.2**	**4.2**	**20.2**	**N/A**

Notes: LOPP = local overlapping permitting process; N/A = not applicable.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Short-term indirect impacts to least Bell's vireo could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Implementation of SOP-BIO-1 (Least Bell's Vireo) would avoid impacts to breeding least Bell's vireo adjacent to the maintenance footprint.

Long-term indirect impacts to least Bell's vireo from ground-disturbing maintenance activities would primarily result from changes in hydrology resulting from vegetation management and would

potentially result in the introduction of non-native invasive species that would reduce habitat quality for least Bell's vireo. The proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would be implemented. With implementation of these SOPs, long-term indirect impacts to least Bell's vireo from changes in hydrology would be less than significant.

Southwestern Willow Flycatcher

Ground-disturbing activities under the proposed program would result in permanent and temporary direct impacts in the Desert Region to 38.6 acres of potentially suitable riparian habitat for southwestern willow flycatcher, a federally and state-listed threatened species (see Table 4.3-23). Previous focused surveys in the Mojave River have not found breeding individuals to be present within the maintenance footprint. However, a southwestern willow flycatcher was documented in 2012 just downstream of the maintenance footprint, and the maintenance footprint for ground-disturbing activities overlaps potentially suitable riparian habitat. The District implements avoidance and minimization measures for southwestern willow flycatcher as described in SOP-BIO-3 (Southwestern Willow Flycatcher); however, any impact to southwestern willow flycatcher breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. Implementation of MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo) would reduce impacts to southwestern willow flycatcher to less than significant.

Table 4.3-23
Program Ground-Disturbing Activity Impacts
to Southwestern Willow Flycatcher Habitat in the Desert Region

Program Activity	Impacts by Southwestern Willow Flycatcher Habitat Suitability Classification (Acres)			Temporary or Permanent?
	Low	*Moderate*	*High*	
Federal maintenance	0	0	0	Permanent
Mechanized land clearing	5.4 (5.4 CH)	4.2 (4.2 CH)	17.0 (17.0 CH)	Permanent
Ingress/egress	0.0	0	0.1 (0.1 CH)	Permanent
Stockpile	0	0	0	Permanent
Bank repair	8.8 (8.1 CH)	0	3.1 (3.0 CH)	Temporary
Vegetation management	0	0	0	Permanent

Table 4.3-23
Program Ground-Disturbing Activity Impacts
to Southwestern Willow Flycatcher Habitat in the Desert Region

Program Activity	Impacts by Southwestern Willow Flycatcher Habitat Suitability Classification (Acres)			Temporary or Permanent?
	Low	*Moderate*	*High*	
Subtotal permanent direct impacts	*5.4 (5.4 CH)*	*4.2 (4.2 CH)*	*17.1 (17.1 CH)*	*N/A*
Subtotal temporary direct impacts	*8.8 (8.1 CH)*	*0*	*3.1 (3.0 CH)*	*N/A*
Total direct impacts	**14.2 (13.5 CH)**	**4.2 (4.2 CH)**	**20.2 (20.1 CH)**	**N/A**

Notes: CH = amount of total that is critical habitat; N/A = not applicable.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Short-term indirect impacts to southwestern willow flycatcher could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Implementation of SOP-BIO-3 (Southwestern Willow Flycatcher) would avoid potential impacts to breeding southwestern willow flycatcher adjacent to the maintenance footprint.

Long-term indirect impacts to southwestern willow flycatcher from ground-disturbing maintenance activities would primarily result from changes in hydrology resulting from vegetation management and could potentially result in the introduction of non-native invasive species that would reduce habitat quality for southwestern willow flycatcher. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would be implemented. With implementation of these SOPs, long-term indirect impacts to southwestern willow flycatcher would be less than significant.

Tricolored Blackbird

Ground-disturbing maintenance activities under the proposed program could result in impacts to both breeding and foraging habitat for tricolored blackbird, a state endangered species. Impacts to tricolored blackbird foraging habitat would be less than significant because foraging opportunities would remain after the maintenance activity is completed. In addition, tricolored

blackbirds tend to forage in agricultural or open fields adjacent to the proposed program area rather than within facilities. Ground-disturbing activities under the proposed program could result in removal of potentially suitable breeding habitat within the Mojave River upstream and downstream of Interstate 15 (I-15). Any impact to the ability of tricolored blackbird to breed at a site would be significant because this species is experiencing substantial population declines across its range. Implementation of MM-BIO-9 (Mitigation for Tricolored Blackbird) would reduce impacts to tricolored blackbird to less than significant.

Long-term indirect effects to tricolored blackbird could result from diversion or modification of water flows in their breeding habitat or the establishment of non-native invasive plants within aquatic habitat that make the habitat unsuitable. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, implementation of SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would result in less than significant long-term indirect impacts from changes in hydrology.

Short-term indirect impacts to tricolored blackbird could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Implementation of SOP-BIO-5 (Nesting Birds) would avoid indirect impacts to nesting tricolored blackbird.

Yellow-Billed Cuckoo (Western DPS)

Focused surveys in the Mojave River found a transient individual of yellow-billed cuckoo (western distinct population segment (DPS)) near the I-15 bridge (Sims, pers. comm. 2017), but breeding has not been documented for this species west of the Colorado River in decades. However, the maintenance footprint for ground-disturbing activities overlaps potentially suitable riparian habitat for this species. Impacts to this species would be the same as described for southwestern willow flycatcher because they occupy similar habitat. Any impact to yellow-billed cuckoo breeding territories would be significant because this species is critically imperiled in the state due to its extreme rarity and very restricted range. Implementation of MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo) would reduce impacts to less than significant.

Arroyo Toad

Ground-disturbing activities under the proposed program may result in direct harm to arroyo toad, a federally listed endangered species, along the upper Mojave River when surface waters are present (generally upstream of Hesperia Lake Park). Direct harm could occur to adults, metamorphs, or egg masses. All life stages of this species are small and cryptic, so avoidance during activities can be difficult. Any direct harm to arroyo toad would be significant because this species is imperiled in the state due to a restricted range and relatively few populations. Implementation of SOP-BIO-9 (Arroyo Toad) would avoid direct harm to this species. Due to the nature of the maintenance activities, permanent removal of suitable arroyo toad breeding habitat would not occur, and the site would remain usable by breeding arroyo toad; therefore, direct impacts to arroyo toad habitat would be less than significant.

Short-term indirect impacts to arroyo toad could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Short-term increases in sedimentation could also temporarily reduce downstream habitat quality for arroyo toad that may be present in those locations. However, these impacts would be temporary and of limited intensity, and surveys have not indicated that arroyo toad are present downstream from the maintenance footprint.

Long-term indirect impacts to arroyo toad from ground-disturbing maintenance activities would primarily result from changes in hydrology. Vegetation management could impact hydrology and may result in the introduction of non-native invasive species reducing habitat quality. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would be implemented. With implementation of these SOPs, long-term indirect impacts to arroyo toad would be less than significant.

Non-Listed Special-Status Wildlife Species

Mojave Fringe-Toed Lizard

Ground-disturbing activities may result in direct harm to Mojave fringe-toed lizard, a CDFW species of special concern, where wind-blown sands overlap the proposed program area. Direct impacts

could include injury or mortality of juveniles and adults when they are not active at the surface; they tend to be active when its internal body temperature is between 79°F and 112°F (Hollingsworth and Beaman 1999, as cited in 76 FR 61321–61330) and they hibernate November to February (Mayhew 1966, as cited in 76 FR 61321–61330). Proposed program activities from May to July, when eggs may be present in sands, may negatively impact reproduction. Harm to Mojave fringe-toed lizard would be significant because the species is vulnerable in the state and has a restricted range and relatively few populations. However, implementation of SOP-BIO-11 (Mojave Fringe-Toed Lizard) would avoid direct harm to Mojave fringe-toed lizard; therefore, direct impacts from ground-disturbing activities would be less than significant. Due to the nature of the maintenance activities and because wind-blown sands naturally shift, direct impacts to suitable Mojave fringe-toed lizard habitat would be less than significant.

Mojave River Vole

Ground-disturbing activities would result in direct harm to Mojave River vole, a CDFW species of special concern, where saturated wetland and riparian habitat overlap the maintenance footprint. A portion of this area was previously determined to support at least 414 voles (Kindt et al. 2003). This species is tied to wetland areas and does not have the mobility to flee a large area where suitable habitat is being removed. Removal of suitable habitat for Mojave River vole could be significant because this species is critically imperiled in the state. There are limited locations along the Mojave River that are known to support occupied habitat for this species, and it is not known if the current distribution includes non-contiguous patches of suitable habitat (such as near the Victor Valley wastewater treatment plant). Previously, disconnected wetland patches, such as at National Trails Highway, were determined to be unoccupied (Kindt et al. 2003). In addition, the frequency of proposed maintenance activities could result in an overall reduction of habitat quality. Implementation of MM-BIO-16 (Mitigation for Mojave River Vole) would reduce impacts to Mojave River vole to less than significant.

Western Pond Turtle

Ground-disturbing activities may result in impacts to western pond turtle, a CDFW species of special concern. There may be pools within the Mojave River maintenance footprint; however, the potential for impacts would be low because the majority of the proposed program area has flowing water, not pools. Removal of pools could reduce the amount of suitable habitat for western pond turtle. Direct impacts to individuals from ground-disturbing activities would be avoided through implementation of SOP-BIO-12 (Western Pond Turtle).

Burrowing Owl

Ground-disturbing activities may result in direct impacts to burrowing owl burrow sites, a California species of special concern. Burrow sites where this species is known to nest have been

recorded, in small numbers, within the proposed program area. Any impact to burrowing owl burrow sites or burrowing owl individuals would be significant because of restricted range, relatively few populations, and recent range-wide declines. Maintenance activities could result in a slight benefit to burrowing owl breeding and foraging habitat due to the reduction in vegetation density and height, which is preferred by this species. The District implements standard avoidance and minimization practices for burrowing owl as described in SOP-BIO-6 (Burrowing Owl), which would result in less than significant impacts to burrowing owl.

Nesting Birds

Ground-disturbing activities during the nesting season (generally between January 15 and August 31) could result in direct impacts to non-listed special-status birds with potential to nest in the maintenance footprint, and indirect impacts to special-status birds with potential to nest adjacent to the maintenance footprint. Non-listed special-status birds with potential to nest in the Desert Region include loggerhead shrike, yellow warbler, yellow-breasted chat, Bendire's thrasher, crissal thrasher, summer tanager, and vermilion flycatcher. Direct impacts could include injury or mortality of adults and the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between January 15 and August 31). This impact would be significant because direct impacts to nesting individuals could occur during a critical period of these species' life cycles and would result in reduced reproductive success. In addition, direct impacts that cause nest failure would also be a violation of the Migratory Bird Treaty Act and California Fish and Game Code. Implementation of SOP-BIO-5 (Nesting Birds) would avoid direct impacts to nesting birds.

Other Special-Status Wildlife

There are a number of non-listed special-status wildlife species that have a moderate or greater potential to occur within the proposed program area; however, direct impacts would be less than significant due to one or more of the following: maintenance activity may not be removing habitat specifically suitable for that species, maintenance activities would impacts on few individuals and the species is relatively abundant on a regional scale such that maintenance activities do not threaten the continued existence of these species locally or regionally, and some of these species are mobile and can avoid direct harm by moving away from the maintenance activity. Adverse impacts would be less than significant for the following non-listed special-status: Blainville's horned lizard, American badger, and pallid San Diego pocket mouse. Short-term indirect impacts to non-nesting special-status wildlife species during implementation of the proposed program, such as noise and vibration impacts, would be brief in duration and would have a minimal amount of adverse effects. Therefore, short-term indirect impacts to other special-status wildlife species would be less than significant.

Non-Ground-Disturbing Vegetation Management

Critical Habitat

Non-ground-disturbing vegetation management in the Desert Region would not result in significant direct impacts to critical habitat for desert tortoise and southwestern willow flycatcher. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from the additional human presence and vehicle access to the maintenance footprint. These impacts would not constitute destruction or adverse modification of critical habitat and would be less than significant.

Similarly, indirect impacts to critical habitat from non-ground-disturbing vegetation management would be minimal, limited to short-term indirect impacts from vehicle access to the maintenance site and the effects of the additional human presence. Indirect impacts to critical habitat from non-ground-disturbing vegetation management would be less than significant.

Special-Status Plant Species

Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to special-status plant species.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status plant species. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not encourage the establishment of non-native invasive species. Long-term indirect impacts to special-status plant species from non-ground-disturbing activities would be less than significant.

Short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the introduction of chemical pollutants. These short-term indirect impacts to special-status plant species would be significant absent SOPs. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plants would be less than significant.

Special-Status Wildlife Species

Non-ground-disturbing vegetation management in the Desert Region would not result in significant impacts to special-status wildlife species. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from additional human presence and vehicle access to the maintenance footprint. Implementation of SOPs would minimize the potential for direct harm to individual animals and direct impacts would be less than significant.

Similarly, indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would be minimal, limited to short-term indirect impacts from vehicle access to the maintenance site and the incremental effects of additional human presence. Indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would be less than significant.

Non-Ground-Disturbing Activities

Critical Habitat

Non-ground-disturbing activities in the Desert Region would result in a small area of direct impacts to designated critical habitat for the southwestern willow flycatcher (Table 4.3-24). This habitat is not suitable for the species and there would be a less than significant impact to critical habitat from non-ground-disturbing activities. Nevertheless, Section 7(a) of the ESA requires federal agencies (like USACE) to consult with USFWS with respect to actions that may affect listed species or critical habitat to minimize the potential that the actions they authorize could destroy or adversely modify critical habitat. It is outside the District's purview to determine whether there would be adverse modification to critical habitat, because this determination can only be made by the federal agency undertaking consultation with USFWS. Therefore, for the purposes of CEQA, in the absence of a determination from the federal agency, any impacts to critical habitat are considered a significant impact. Implementation of MM-BIO-2 (Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat), which requires incorporation of any conditions resulting from consultation with the USFWS into the Maintenance Plan, would reduce this potentially significant impact to less than significant.

Table 4.3-24
Program Non-Ground-Disturbing Activity Impacts to Critical Habitat in the Desert Region

Species Critical Habitat	Program Activity	Total Critical Habitat within Maintenance Footprint (Acres)	Suitable Habitat within Impacted Critical Habitat (Acres)
Southwestern willow flycatcher	Herbicide vector control	0.3	0.0

Source: USFWS 2017.

Long-term indirect impacts to southwestern willow flycatcher critical habitat from herbicide vector control could primarily result from the introduction of non-native invasive species within areas treated with herbicide. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and indirect impacts related to spread of invasive species would be less than significant.

Short-term indirect impacts to critical habitat from non-ground-disturbing activities could primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. In addition, SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift and reduce long-term indirect impacts to critical habitat from herbicides to less than significant levels. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

Special-Status Plant Species

Special-status plant species could be directly impacted during non-ground-disturbing activities (herbicide vector control) associated with implementation of the proposed program. Twenty-five special-status plants have a moderate potential to occur (or low potential to occur for the two federally listed plants) within the proposed program area in the Desert Region. Application of herbicide to special-status plant species could be a significant impact. Implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance) would avoid and minimize direct impacts to special-status plants. However, without mitigation, permanent direct impacts to special-status plant species would be significant. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant.

Short-term indirect impacts to special-status plants from herbicide vector control could result from the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide overspray. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the

short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. In addition, the District implements SOP-BIO-19 (Herbicide Application) to minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

Mohave Ground Squirrel

Non-ground-disturbing activities under the proposed program could result in temporary direct impacts to Mohave ground squirrel, a state threatened species, on a total of 1.7 acres of habitat, including 0.8 acres of habitat likely to support the species (Table 4.3-25). The herbicides used under the proposed program would not have toxic effects to Mohave ground squirrel. Additionally, as described in Chapter 3, Program Description, rodenticide used in areas containing protected rodents such as the Mohave ground squirrel is applied using special traps, and in accordance with applicable federal and state laws, regulations, and policies and the County's agency-approved Integrated Pest Management Plan. Therefore, impacts to Mohave ground squirrel from herbicide and rodenticide would be less than significant.

Table 4.3-25
Program Non-Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat in the Desert Region

Program Activity	Impacts by Mohave Ground Squirrel Habitat Suitability Classification (Acres)				Temporary or Permanent?
	Unlikely to Support		*Likely to Support*		
	Poor	*Fair*	*Good*	*Excellent*	
Herbicide vector control	0.7	0.2	0.8	0.0	Temporary

Note: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Long-term indirect impacts to Mohave ground squirrel from herbicide vector control would primarily result from the introduction of non-native invasive species within the treated areas, which could degrade Mohave ground squirrel habitat. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to Mohave ground squirrel from non-ground-disturbing activities would primarily result from increased human activity and overspray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain in the designated maintenance area. In addition, the District implements SOP-BIO-19 (Herbicide Application) to minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to Mohave ground squirrel would be less than significant.

Desert Tortoise

Non-ground-disturbing activities under the proposed program would not result in direct impacts to desert tortoise. SOP-BIO-19 (Herbicide Application) requires the District to avoid using any herbicides in areas identified as having low, moderate, or high suitability for desert tortoise

Long-term indirect impacts to desert tortoise from herbicide vector control would primarily result from the introduction of non-native invasive species within areas treated with herbicide, outside of desert tortoise habitat. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts to desert tortoise associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to critical habitat from non-ground-disturbing activities would primarily result from potential for drift of herbicide overspray applied outside desert tortoise habitat. The District implements SOP-BIO-19 (Herbicide Application) to minimize the risk of herbicide spray drift. With implementation of this SOP, short-term indirect impacts to desert tortoise would be less than significant.

Least Bell's Vireo

Non-ground-disturbing activities under the proposed program would not directly impact least Bell's vireo habitat. Short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near least Bell's vireo habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-1 (Least Bell's Vireo), would avoid impacts to nesting least Bell's vireo adjacent to the maintenance areas. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to least Bell's vireo habitat would be less than significant.

Southwestern Willow Flycatcher

Non-ground-disturbing activities under the proposed program would not directly impact southwestern willow flycatcher habitat. Short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near southwestern willow flycatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-3 (Southwestern Willow Flycatcher) would avoid impacts to nesting southwestern willow flycatcher adjacent to the maintenance areas. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to southwestern willow flycatcher habitat would be less than significant.

Tricolored Blackbird

Non-ground-disturbing activities under the proposed program could result in permanent direct impacts to tricolored blackbird if the herbicides removed tricolored blackbird breeding habitat. That habitat could include freshwater marsh vegetation such as tules and cattails, or invasive non-native vegetation such as Himalayan blackberry or various thistle species. Implementation of MM-BIO-9 (Mitigation for Tricolored Blackbird) would reduce impacts to tricolored blackbird habitat to less than significant.

Short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near tricolored blackbird habitat. Implementation of SOP-BIO-5 (Nesting Birds) would avoid impacts to nesting tricolored blackbirds adjacent to the maintenance area. Herbicide spray drift outside the maintenance footprint could result in long-term indirect impacts to the same types of tricolored blackbird habitat outside the maintenance areas. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to tricolored blackbird habitat would be less than significant.

Yellow-Billed Cuckoo

Non-ground-disturbing activities under the proposed program would not directly impact yellow-billed cuckoo habitat. Short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near occupied habitat, and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-5 (Nesting Birds) would avoid impacts to nesting yellow-billed cuckoo adjacent to the maintenance area. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to yellow-billed cuckoo would be less than significant.

Arroyo Toad

Herbicide treatments under the proposed program could cause temporary direct impacts to the arroyo toad. Short-term indirect impacts to arroyo toad from non-ground-disturbing activities could result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain in the designated maintenance area. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPS, long-term indirect impacts to arroyo toad habitat would be less than significant.

Non-Listed Special-Status Wildlife Species

Non-ground-disturbing activities under the proposed program would not cause long-term direct impacts to non-listed special-status wildlife species.

Impact BIO-2

Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Valley Region

Ground-Disturbing Activities

Program Impacts Within LOPPs

As detailed in Table 4.3-26, LOPPs that fall within the proposed program area would result in direct impacts to special-status vegetation communities. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained. Implementation of MM-BIO-1 would reduce significant impacts to special-status vegetation communities within LOPP areas to less than significant.

Table 4.3-26
Program Ground-Disturbing Activity Impacts
to Special-Status Vegetation Communities in the Valley Region Within LOPPs

Program/Plan Name	Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Impacts (Acres)	
			Permanent	*Temporary*
El Niño Maintenance Area	Riparian forest and woodland	Fremont cottonwood forest alliance	10.5	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	10.8	<0.05
		El Niño Maintenance Area subtotal	*21.3*	*<0.05*
First Line of Defense	Coastal scrub	California sagebrush–California buckwheat scrub alliance	19.3	0.5
	Marsh	Cattail marshes alliance	4.4	1.6
	Oak woodlands and forests	Coast live oak woodland alliance	0.0	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	3.0	0.1
		First Line of Defense subtotal	*26.7*	*2.2*
Wash Plan	Coastal scrub	California sagebrush–California buckwheat scrub alliance	3.7	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	13.6	7.0
		Wash Plan subtotal	*17.3*	*7.0*
		Total	**65.3**	**9.2**

Note: LOPP = local overlapping permitting process.

Program Impacts Not Within LOPPs

Table 4.3-27 quantifies the permanent and temporary direct impacts to special-status vegetation communities that would occur as a result of implementation of ground-disturbing maintenance activities in the Valley Region. The following ground-disturbing activities were considered to have permanent impacts to special-status vegetation communities as the intent of the activity is to maintain the area free of vegetation or the activity would sufficiently remove the root structure such that natural revegetation is not expected: federal maintenance, ingress/egress, mechanized land clearing, and stockpiles. Vegetation management was considered a permanent impact for vegetation communities that would not reestablish within 3 years (time period between maintenance events). Bank repair was considered a temporary impact as was vegetation management for communities that would reestablish within 3 years. Permanent and temporary impacts that would result from ground-disturbing activities are defined and described in more detail on the following pages.

Table 4.3-27
Program Ground-Disturbing Activity Impacts
to Special-Status Vegetation Communities in the Valley Region Not Within LOPPs

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Impacts (Acres)	
		Permanent	*Temporary*
Coastal scrub	Brittle bush scrub alliance	5.7	1.2
	California sagebrush–California buckwheat scrub alliance	134.4	0.5
	Coastal scrub subtotal	*140.1*	*1.7*
Marsh	Cattail marshes alliance	4.3	<0.05
	Marsh subtotal	*4.3*	*<0.05*
Oak woodlands and forests	Coast live oak woodland alliance	2.5	0.9
	Disturbed coast live oak woodland alliance	2.6	0.2
	Oak woodlands and forests subtotal	*5.1*	*1.1*
Riparian forest and woodland	Black willow thickets alliance	4.3	
	California sycamore woodlands alliance	1.1	0.1
	Fremont cottonwood forest alliance	28.6	18.8
	Red willow thickets alliance	<0.05	—
	Riparian forest and woodland subtotal	*34.0*	*18.9*
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	297.1	26.8
	Riversidean alluvial fan sage scrub subtotal	*297.1*	*26.8*
	Total	**480.6**	**48.5**

Notes: LOPP = local overlapping permitting process.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Ground-disturbing vegetation management is considered a permanent impact to coastal scrub communities, oak woodlands and forest, riparian forest and woodlands, and Riversidean alluvial fan sage scrub because these vegetation communities are not likely to passively revegetate within 3 years. Thus, ground-disturbing maintenance activities, including mechanized land clearing, ingress/egress roads, federal maintenance, and ground-disturbing vegetation management, would result in permanent direct impacts to the following special-status vegetation alliances: brittle bush scrub, California sagebrush–California buckwheat scrub, coast live oak woodland (including disturbed), black willow thickets, California sycamore woodlands, Fremont cottonwood, red willow thickets, and scale broom scrub. Permanent direct impacts to these sensitive vegetation communities would be significant absent mitigation. However, implementation of MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region) shall be required and would mitigate these impacts to less than significant levels.

Ground-disturbing vegetation management is considered a temporary impact for the cattail marsh alliance. The cattail marsh alliance typically passively revegetates within 6 months of vegetation management and can often function as suitable habitat the summer after being removed.

Bank repairs are considered a temporary impact. Temporary direct impacts associated with bank repair involve native soil being placed along facility banks for stabilization. Bank repairs would result in temporary direct impacts to the following special-status vegetation alliances: brittle bush scrub, California sagebrush–California buckwheat scrub, cattail marsh, coast live oak woodland (including disturbed), California sycamore woodlands, Fremont cottonwood, and scale broom scrub. Bank repair would result in minimal compaction of understory species in woodland communities and potential loss and minimal compaction of shrubs and herbaceous species within the shrub communities. Additionally, the District implements SOP-BIO-18 (Restoration of Temporary Impacts); therefore, temporary impacts to special-status vegetation communities would be less than significant.

Accidental maintenance activities outside designated maintenance areas may occur for various reasons. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize temporary direct impacts of accidental impacts by designating the vegetation management area in the field so that maintenance activities are conducted within the maintenance footprint. SOP-BIO-15 would also provide training to maintenance workers on sensitive resources, including special-status vegetation communities, and necessary avoidance measures. With implementation of these SOPs, temporary direct impacts to special-status vegetation communities would be less than significant.

Long-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from changes in hydrology which occurs when vegetation is removed. In addition, the introduction of non-native invasive species may occur. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species are less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would be implemented; therefore, long-term indirect impacts to special-status vegetation communities from changes in hydrology would be less than significant.

Short-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker

Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. The proposed program, with implementation of these SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Because these impacts would not substantially change the vegetation community, they are considered temporary. Non-ground-disturbing vegetation management would not result in permanent direct impacts to special-status vegetation communities.

Manual pruning and other types of vegetation trimming would not substantially affect special-status vegetation communities because the foliage of the plants pruned would be allowed to regrow between maintenance activities. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the potential for accidental impacts by designating the vegetation trimming area in the field so that maintenance activities are limited to the designated maintenance area. With implementation of SOP-BIO-15, temporary direct impacts to special-status vegetation communities from non-ground-disturbing maintenance activities would be less than significant.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status vegetation communities. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would be less than significant.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance would not result in direct or indirect impacts to special-status vegetation communities. Sand and gravel operations would occur on existing permitted facilities. Additionally, herbicide application areas and vector control areas were quantified. Table 4.3-28 shows the temporary impacts that could result from herbicide application and vector control.

Table 4.3-28
Program Non-Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Valley Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Temporary Impacts (Acres)[a]
Coastal scrub	Brittle bush scrub alliance	0.1
	California sagebrush–California buckwheat scrub alliance	1.8
	Coastal scrub subtotal	*1.9*
Oak woodlands and forests	Coast live oak woodland alliance	<0.05
	Oak woodlands and forests subtotal	*<0.05*
Riparian forest and woodland	California sycamore woodlands alliance	<0.05
	Fremont cottonwood forest alliance	0.5
	Riparian forest and woodland subtotal	*0.5*
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	3.3
	Riversidean alluvial fan sage scrub subtotal	*3.3*
	Total	**5.8**

Notes: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

[a] Totals may not sum due to rounding.

Non-ground-disturbing activities would not result in permanent direct impacts to special-status vegetation communities.

Herbicide application would result in a total of 5.8 acres of temporary impacts to the following special-status vegetation alliances: brittle bush scrub, California sagebrush–California buckwheat scrub, coast live oak woodland, California sycamore woodlands, Fremont cottonwood, and scale broom scrub. Due to the small area of impact, this would be a less than significant impact.

With respect to vector control, introduction of mosquito-larva-eating fish would not affect special-status vegetation communities. Pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. Pesticide applications would be performed by a contractor with a valid Qualified Applicator License and a valid Pest Control Business License. A licensed Pest Control Adviser would be consulted if specific pest control

recommendations are required. Therefore, temporary direct impacts to special-status vegetation communities from the use of pesticides would be less than significant.

Indirect impacts to special-status vegetation communities from non-ground-disturbing activities would include the improper use of pesticides and herbicide drift. As described previously, pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. Therefore, long-term indirect impacts to special-status vegetation communities from the use of pesticides would be less than significant. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, indirect impacts to special-status vegetation communities from herbicides would be less than significant.

Indirect impacts to special-status vegetation communities from sand and gravel operations include increased vehicle traffic, non-native soil introduction, and non-native plant species introduction. Increased traffic would be temporary and of short duration; therefore, this indirect impact would be less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and there would be a less than significant impact with respect to introduction of invasive species. To minimize the impact from non-native soil, the District would implement SOP-BIO-16 (Best Management Practices) to minimize the potential for organic material to enter into adjacent natural habitat areas; therefore, indirect impacts to special-status vegetation communities would be less than significant.

Mountain Region

Ground-Disturbing Activities

Impacts Within LOPPs

As detailed in Table 4.3-29, proposed program activities within LOPPs would result in direct impacts to special-status vegetation communities. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained for the LOPPs. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained. Implementation of MM-BIO-1 would reduce significant impacts to special-status vegetation communities within LOPP areas to less than significant.

Table 4.3-29
Program Ground-Disturbing Activity Impacts
to Special-Status Vegetation Communities within LOPPs in the Mountain Region

Program/Plan Name	Generalized Habitat Type	Alliance Land Cover Type (CDFG 2010)	Impact (Acres)	
			Permanent	*Temporary*
First Line of Defense	Coastal scrub	Brittle bush scrub alliance	0.2	—
	Coastal scrub	California sagebrush–California buckwheat scrub alliance	3.7	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	5.8	0.1
		Total	**9.7**	**0.1**

Note: LOPP = local overlapping permitting process.

Impacts Not Within LOPPs

Table 4.3-30 quantifies the permanent and temporary direct impacts to special-status vegetation communities that would occur as a result of implementation of ground-disturbing maintenance activities in the Mountain Region. The following ground-disturbing activities were considered to have permanent impacts to special-status vegetation communities because the intent of the activity is to maintain the area free of vegetation or the activity would sufficiently remove the root structure such that natural revegetation is not expected: federal maintenance, ingress/egress, mechanized land clearing, and stockpiles. Vegetation management was considered a permanent impact for vegetation communities that would not reestablish within 3 years (the time period between maintenance events). Bank repair was considered a temporary impact, as was vegetation management for communities that would reestablish within 3 years. Permanent and temporary impacts that would result from ground-disturbing activities are defined and described in more detail below.

Table 4.3-30
Program Ground-Disturbing Activity Impacts
to Special-Status Vegetation Communities in the Mountain Region Not Within LOPPs

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Impacts (Acres)[a]	
		Permanent	*Temporary*
California bay forests and woodlands	California bay forests and woodlands	0.3	0.1
	California bay forests and woodlands subtotal	*0.3*	*0.1*
Coastal scrub	Brittle bush scrub alliance	<0.05	<0.05
	California sagebrush–California buckwheat scrub alliance	1.9	0.1
	Coastal scrub subtotal	*1.9*	*0.1*

Table 4.3-30
Program Ground-Disturbing Activity Impacts
to Special-Status Vegetation Communities in the Mountain Region Not Within LOPPs

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Impacts (Acres)[a]	
		Permanent	*Temporary*
Marsh	Cattail marshes alliance	0.2	—
	Marsh subtotal	*0.2*	—
Oak woodlands and forests	Canyon live oak forest alliance	2.1	0.4
	Oak woodlands and forests subtotal	*2.1*	*0.4*
Riparian forest and woodland	California sycamore woodlands alliance	2.8	0.1
	Fremont cottonwood forest alliance	0.1	0.1
	Riparian forest and woodland subtotal	*2.9*	*0.2*
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	0.4	—
	Riversidean alluvial fan sage scrub subtotal	*0.4*	—
	Total	**7.7**	**0.8**

Notes: LOPP = local overlapping permitting process.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.
[a] Totals may not sum due to rounding.

Ground-disturbing vegetation management is considered a permanent impact to California bay forests and woodlands, coastal scrub communities, oak woodlands and forest, and riparian forest and woodlands because these vegetation communities are not likely to passively revegetate within 3 years. Thus, ground-disturbing maintenance activities, including mechanized land clearing, ingress/egress roads, federal maintenance, and ground-disturbing vegetation management, would result in permanent direct impacts to the following special-status vegetation alliances: California bay forests and woodlands, brittle bush scrub, California sagebrush–California buckwheat scrub, canyon live oak forest, California sycamore woodlands, Fremont cottonwood, and scale broom scrub. Permanent direct impacts to these vegetation communities would be significant absent mitigation. However, implementation of MM-BIO-11 (Compensation for Special-Status Vegetation Communities in the Mountain Region) shall be required and would mitigate these impacts to less than significant levels.

Ground-disturbing vegetation management is considered a temporary impact for the cattail marsh alliance. The cattail marsh alliance typically passively revegetates within 6 months of vegetation management and can often function as suitable habitat the summer after being removed.

Bank repairs are considered a temporary impact. Temporary direct impacts associated with bank repair involve native soil being placed along facility banks for stabilization. This would result in minimal compaction of understory species in woodland communities and potential loss and

minimal compaction of shrubs and herbaceous species within the shrub communities. Bank repairs would result in temporary direct impacts to the following special-status vegetation alliances: California bay forests and woodlands; brittle bush scrub; California sagebrush–California buckwheat scrub; canyon live oak forest; California sycamore woodlands; and Fremont cottonwood. Bank repair would result in minimal compaction of understory species in woodland communities and minimal compaction of shrubs and herbaceous species within the shrub communities. Additionally, the District implements SOP-BIO-18 (Restoration of Temporary Impacts) to restore temporarily disturbed areas as needed.

Accidental maintenance activities outside designated maintenance areas may occur for various reasons. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the potential for temporary direct accidental impacts by designating the vegetation management area in the field so that maintenance activities remain within the designated maintenance area. SOP-BIO-15 would also train maintenance workers on sensitive resources, including special-status vegetation communities, and necessary avoidance measures. With implementation of these SOPs, temporary direct impacts to special-status vegetation communities would be less than significant.

Long-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from changes in hydrology which occurs when vegetation is removed. In addition, the introduction of non-native invasive species may occur. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR, would be implemented; therefore, long-term indirect impacts to special-status vegetation communities from changes in hydrology would be less than significant.

Short-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that

maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. The proposed program, with implementation of SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Because these impacts would not substantially change the vegetation community, they are considered temporary. Non-ground-disturbing vegetation management would not result in permanent direct impacts to special-status vegetation communities.

Manual pruning and other types of vegetation trimming would not substantially affect special-status vegetation communities because the foliage of the plants pruned would regrow between maintenance activities. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the temporary direct impacts of accidental impacts by designating the vegetation trimming area in the field so that maintenance activities remain within the maintenance area. With implementation of this SOP, temporary direct impacts to special-status vegetation communities from non-ground-disturbing maintenance activities would be less than significant.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status vegetation communities. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Short-term indirect impacts to special-status vegetation communities from non-ground-disturbing vegetation management would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status vegetation communities from non-ground-disturbing vegetation management would be less than significant.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities, such as fencing and gate repairs, graffiti removal, and stream gauge maintenance, would not result in direct or indirect impacts to special-status vegetation communities. Sand and gravel operations would occur on disturbed areas and would not result in permanent or temporary direct impacts to special-status vegetation communities. Additionally, herbicide application areas and vector control areas were quantified. Table 4.3-31 shows the temporary impacts that could result from herbicide application and vector control.

Table 4.3-31
Program Non-Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Mountain Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Temporary Impacts (Acres)[a]
Coastal scrub	Brittle bush scrub alliance	<0.05
	California sagebrush–California buckwheat scrub alliance	<0.05
	Coastal scrub subtotal	*<0.05*
Oak woodlands and forests	Canyon live oak forest alliance	<0.05
	Oak woodlands and forests subtotal	*<0.05*
Riparian forest and woodland	California sycamore woodlands alliance	<0.05
	Riparian forest and woodland subtotal	*<0.05*
	Total	**0.1**

Notes: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

[a] Totals may not sum due to rounding.

Non-ground-disturbing activities would not result in permanent direct impacts to special-status vegetation communities.

Herbicide application would occur in the following special-status vegetation alliances: brittle bush scrub, California sagebrush–California buckwheat scrub, canyon live oak forest, and California sycamore woodlands. Due to the small area of impact, this would be a less than significant impact.

With respect to vector control, introduction of mosquito-larva-eating fish would not affect special-status vegetation communities. Pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. All pesticide applications would be performed by a contractor with a valid Qualified Applicator License and a valid Pest Control Business License. A licensed Pest Control Adviser would be consulted if specific pest control recommendations are required. Only non-native species would be targeted for treatment.

Therefore, temporary direct impacts to special-status vegetation communities from the use of pesticides would be less than significant.

Long-term and short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would include improper use of pesticides and herbicide drift. As described previously, pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. Therefore, indirect impacts to special-status vegetation communities from the use of pesticides would be less than significant. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, indirect impacts to special-status vegetation communities from herbicides would be less than significant.

Indirect impacts to special-status vegetation communities from sand and gravel operations include increased vehicle traffic, non-native soil introduction, and non-native plant species introduction. Increased traffic would be temporary and of short duration; therefore, this indirect impact would be less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and there would be a less than significant impact with respect to introduction of invasive species. The District would implement SOP-BIO-16 (Best Management Practices) to minimize the potential for organic material to enter into adjacent natural habitat areas; therefore, indirect impacts to special-status vegetation communities would be less than significant.

Desert Region

Ground-Disturbing Activities

Program Impacts Within LOPPs

As detailed in Table 4.3-32, LOPPs that fall within the proposed program area would result in direct impacts to special-status vegetation communities. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained for the LOPPs. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained. Implementation of MM-BIO-1 would reduce significant impacts to special-status vegetation communities within LOPP areas to less than significant.

Table 4.3-32
Program Ground-Disturbing Activity Impacts
to Special-Status Vegetation Communities in the Desert Region Within LOPPs

LOPP Name	Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Impacts (Acres)	
			Permanent	*Temporary*
Lenwood	Desert dunes	North American warm desert dunes and sand flats	1.9	0.1
Total	—	—	**1.9**	**0.1**

Note: LOPP = local overlapping permitting process.

Program Impacts Not Within LOPPs

Table 4.3-33 quantifies the permanent and temporary direct impacts to special-status vegetation communities that could occur as a result of implementation of ground-disturbing maintenance activities in the Desert Region. The following ground-disturbing activities were considered to have permanent impacts to special-status vegetation communities as the intent of the activity is to maintain the area free of vegetation or the activity would sufficiently remove the root structure such that natural revegetation is not expected: federal maintenance, ingress/egress, mechanized land clearing, and stockpiles. Vegetation management was considered a permanent impact for vegetation communities that would not reestablish between maintenance events (within 3 years for most facilities). Bank repair was considered a temporary impact, as was vegetation management for communities that would reestablish within 3 years. Permanent and temporary impacts that would result from ground-disturbing maintenance are defined and described in more detail below.

Table 4.3-33
Program Ground-Disturbing Impacts
to Special-Status Vegetation Communities in the Desert Region Not Within LOPPs

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Impacts (Acres)[a]	
		Permanent	*Temporary*
Desert dry wash woodland	Desert willow woodland alliance	9.6	1.9
	Mesquite bosque, mesquite thicket alliance	—	1.0
	Desert dry wash woodland subtotal	*9.6*	*3.0*
Desert dunes	Desert panic grass patches	6.0	2.7
	North American warm desert dunes and sand flats	0.4	—
	Desert dunes subtotal	*6.3*	*2.7*
Desert sink scrub	Bush seepweed scrub alliance	0.2	0.4
	Desert sink scrub subtotal	*0.2*	*0.4*

Table 4.3-33
Program Ground-Disturbing Impacts
to Special-Status Vegetation Communities in the Desert Region Not Within LOPPs

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Impacts (Acres)[a]	
		Permanent	*Temporary*
Joshua tree woodland	Disturbed Joshua tree woodland	0.6	0.2
	Joshua tree woodland	1.7	2.6
	Joshua Tree woodland subtotal	*2.3*	*2.8*
Marsh	Cattail marshes alliance	0.1	*<0.05*
	Marsh subtotal	*0.1*	*<0.05*
Riparian forest and woodland	Fremont cottonwood forest alliance	14.3	18.0
	Red willow thickets alliance	1.1	0.1
	Riparian forest and woodland subtotal	*15.5*	*18.0*
Sonoran and Mojavean desert scrub	California joint fir scrub alliance	0.4	—
	Disturbed Mojave yucca scrub alliance	0.5	0.2
	Mojave yucca scrub alliance	1.2	0.4
	Scale broom scrub alliance	12.6	7.3
	Sonoran and Mojavean desert scrub subtotal	*14.7*	*7.9*
	Total	**48.7**	**34.7**

Notes: LOPP = local overlapping permitting process.
Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.
[a] Totals may not sum due to rounding.

Ground-disturbing vegetation management is considered a permanent impact to desert dry wash woodland, desert dunes, desert sink scrub, Joshua tree woodland, riparian forest and woodland, and Sonoran and Mojavean desert scrub communities because these vegetation communities are not likely to passively revegetate within 3 years. Thus, ground-disturbing maintenance activities, including mechanized land clearing, ingress/egress roads, federal maintenance, and ground-disturbing vegetation management, would result in permanent direct impacts to the following special-status vegetation alliances: desert willow woodland alliance; desert panic grass patches; North American warm desert dunes and sand flats; bush seepweed scrub alliance; Joshua tree woodland (including disturbed forms); Fremont cottonwood forest alliance; red willow thickets alliance; scale broom scrub alliance; California joint fir scrub alliance; and Mojave yucca scrub alliance, including disturbed forms. Permanent direct impacts to these vegetation communities would be significant absent mitigation. However, implementation of MM-BIO-17 (Compensation for Special-Status Vegetation Communities in the Desert Region) would mitigate these impacts to less than significant levels.

Ground-disturbing vegetation management is considered a temporary impact for the cattail marsh alliance. The cattail marsh alliance typically passively revegetates within 6 months of vegetation management and can often function as suitable habitat the summer after being removed.

Bank repairs are considered a temporary impact. Bank repairs would result in temporary direct impacts to the following special-status vegetation alliances: desert willow woodland alliance; mesquite bosque; mesquite thicket alliance; desert panic grass patches; North American warm desert dunes and sand flats; bush seepweed scrub alliance; Joshua tree woodland (including disturbed forms); cattail marshes alliance; Fremont cottonwood forest alliance; red willow thickets alliance; scale broom scrub alliance; and Mojave yucca scrub alliance, including disturbed forms. Temporary direct impacts associated with bank repair involve native soil being placed along facility banks for stabilization. This would result in minimal compaction of understory species in woodland communities and minimal compaction of shrubs and herbaceous species within the shrub communities. Additionally, the District implements SOP-BIO-18 (Restoration of Temporary Impacts); therefore, temporary impacts to special-status vegetation communities would be less than significant.

Incorporation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the potential temporary direct impacts of accidental impacts by designating the vegetation management area in the field so that maintenance activities remain within the designated maintenance area. SOP-BIO-15 training for maintenance field managers would also confirm compliance with the SOPs and other mitigation measures. With implementation of SOP-BIO-15, temporary direct impacts to special-status vegetation communities would be less than significant.

Long-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from changes in hydrology which occurs when vegetation is removed. In addition, the introduction of non-native invasive species may occur. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, the District implements SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), which are described in Section 4.8.5 of this EIR. With implementation of these SOPs, long-term indirect impacts to special-status vegetation communities from changes in hydrology would be less than significant

Short-term indirect impacts to special-status vegetation communities from ground-disturbing activities could primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities

under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. The proposed program, with implementation of District SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Because these impacts would not substantially change the vegetation community, they are considered temporary. Non-ground-disturbing vegetation management would not result in permanent direct impacts to special-status vegetation communities.

Manual pruning and other types of vegetation trimming would not substantially affect special-status vegetation communities because the foliage of the plants pruned would be allowed to regrow between maintenance activities. Incorporation of SOP-BIO-15 (Worker Environmental Awareness Program) in the proposed program would minimize the potential temporary direct impacts of accidental impacts by designating the vegetation trimming area in the field so that maintenance activities remain in the designated work area. SOP-BIO-15 training for maintenance field managers would confirm compliance with the SOPs and other mitigation measures. With incorporation of SOP-BIO-15, temporary direct impacts to special-status vegetation communities from non-ground-disturbing vegetation management would be less than significant.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status vegetation communities. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Short-term indirect impacts to special-status vegetation communities from non-ground-disturbing vegetation management would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist so that maintenance activities remain within the designated maintenance area. The District implements SOP-BIO-16 (Best Management

Practices) so that trash and debris are disposed of properly. Implementation of SOP-BIO-16 would minimize the potential for debris, oil, petroleum products, or other organic material to enter into adjacent natural habitat areas. The proposed program, with implementation of SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance would not result in direct or indirect impacts to special-status vegetation communities. Sand and gravel operations would occur on disturbed areas and would not result in permanent or temporary direct impacts to special-status vegetation communities. Additionally, herbicide application areas and vector control areas were quantified. Table 4.3-34 shows the temporary impacts that could result from herbicide application and vector control.

Table 4.3-34
Program Non-Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities in the Desert Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Temporary Impacts (Acres)[a]
Desert dry wash woodland	Desert willow woodland alliance	<0.05
	Desert dry wash woodland subtotal	*<0.05*
Desert dunes	Desert panic grass patches	0.2
	North American warm desert dunes and sand flats	<0.05
	Desert dunes subtotal	*0.2*
Desert sink scrub	Bush seepweed scrub alliance	<0.05
	Desert sink scrub subtotal	*<0.05*
Joshua tree woodland	Disturbed Joshua tree woodland	<0.05
	Joshua tree woodland	0.1
	Joshua tree woodland subtotal	*0.1*
Riparian forest and woodland	Fremont cottonwood forest alliance	<0.05
	Riparian forest and woodland subtotal	*<0.05*
Sonoran and Mojavean desert scrub	California joint fir scrub alliance	<0.05
	Scale broom scrub alliance	<0.05
	Sonoran and Mojavean desert scrub subtotal	*<0.10*
	Total	**0.4**

Notes: Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

[a] Totals may not sum due to rounding.

Non-ground-disturbing activities would not result in permanent direct impacts to special-status vegetation communities.

Herbicide application would occur in the following special-status vegetation alliances: desert willow woodland alliance; desert panic grass patches; North American warm desert dunes and sand flats; bush seepweed scrub alliance; Joshua tree woodland (including disturbed forms); Fremont cottonwood forest alliance; scale broom scrub alliance; and California joint fir scrub alliance. Due to the small area of impact, this would be a less than significant impact.

With respect to vector control, introduction of mosquito-larva-eating fish would not affect special-status vegetation communities. Pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. Pesticide applications would be performed by a contractor with a valid Qualified Applicator License and a valid Pest Control Business License. A licensed Pest Control Adviser would be consulted if specific pest control recommendations are required. Only non-native species would be targeted for treatment. Therefore, temporary direct impacts to special-status vegetation communities from the use of pesticides would be less than significant.

Indirect impacts to special-status vegetation communities from non-ground- disturbing activities would include the improper use of pesticides and herbicide drift. As described previously, pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. Therefore, long-term indirect impacts to special-status vegetation communities from the use of pesticides would be less than significant. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift; therefore, indirect impacts to species habitat from herbicides would be less than significant.

Indirect impacts to special-status vegetation communities from sand and gravel operations include increased vehicle traffic, non-native soil introduction, and non-native plant species introduction. Increased traffic would be temporary and of short duration; therefore, this indirect impact would be less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and there would be a less than significant impact with respect to introduction of invasive species. The District would implement SOP-BIO-16 (Best Management Practices) to minimize the potential for organic material to enter into adjacent natural habitat areas; therefore, indirect impacts to special-status vegetation communities would be less than significant.

Short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would be limited to the improper use of pesticides. As described previously, pest control activities would comply with all applicable laws, regulations, safety precautions, and label directions. Therefore, short-term indirect impacts to special-status vegetation communities from the use of pesticides would be less than significant.

Impact BIO-3

Would the program have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Under this impact threshold, potential impacts to jurisdictional waters, including waters of the United States under USACE jurisdiction, waters of the state under SWRCB jurisdiction, and streambeds under CDFW jurisdiction are analyzed. Table 4.3-35 summarizes the type of impact each maintenance activity would have on jurisdictional waters. Further details are provided in the following regional subsections.

Table 4.3-35
Summary of Impact Types to Jurisdictional Waters

Maintenance Activity	Impact Type and Jurisdiction		
	Waters of the United States and State (USACE/SWRCB/CDFW Jurisdiction)	***Unvegetated Streambed (CDFW Jurisdiction)***	***Riparian Vegetation Associated with Streambeds (CDFW Jurisdiction)***
Ingress/egress	Temporary	No impact	Permanent
Stockpiles	Permanent	Permanent	Permanent
Federal maintenance	Temporary	Temporary	Permanent
Vegetation management	Temporary	Temporary	Permanent for communities that do not regenerate in 3 years Temporary for communities that regenerate in 3 years.
Mechanized land clearing	Temporary	Temporary	Permanent
Bank repair	Temporary	Temporary	Temporary

Notes: USACE = U.S. Army Corps of Engineers; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.

Valley Region

Ground-Disturbing Activities

Program Impacts Within LOPPs

As detailed in Tables 4.3-36 and 4.3-37, LOPPs that fall within the proposed program area would result in direct impacts to jurisdictional waters. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained. Implementation of MM-BIO-1 would reduce significant impacts to jurisdictional waters within LOPP areas to less than significant.

Table 4.3-36
Program Ground-Disturbing Activity Impacts to Waters of the United States in the Valley Region Within LOPPs

LOPP Name	Facility Type	Permanent Impacts (Acres)		Temporary Impacts (Acres)	
		Wetland WOUS (USACE/ SWRCB/CDFW)	*Non-Wetland WOUS (USACE/ SWRCB/CDFW)*	*Wetland WOUS (USACE/ SWRCB/CDFW)*	*Non-Wetland WOUS (USACE/ SWRCB/CDFW)*
El Niño Maintenance Area	Natural channel	0	0	0	6.65
	Trapezoid engineered channel	0	0	0	8.82
El Niño Maintenance Area subtotal		*0*	*0*	*0*	*15.48*
First Line of Defense	Basin	0	0.99	2.42	93.29
	Spreading grounds	0	0.52	1.60	75.27
First Line of Defense subtotal		*0*	*1.51*	*4.02*	*168.56*
Wash Plan	Trapezoid engineered channel	0	0	0.21	19.50
	Natural channel	0	0	0	2.94
	Spreading grounds	0	0	0	0.39
Wash Plan subtotal		*0*	*0*	*0.21*	*22.83*

Notes: LOPP = local overlapping permitting process; WOUS = Waters of the United States; USACE = U.S. Army Corps of Engineers; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.

Table 4.3-37
Program Ground-Disturbing Activity Impacts to Jurisdictional Streambeds in the Valley Region Within LOPPs

LOPP Name	Facility Type	Permanent Impacts (Acres)[a]		Temporary Impacts (Acres)[a]	
		Unvegetated Streambed	*Associated Riparian Vegetation*	*Unvegetated Streambed*	*Associated Riparian Vegetation*
El Niño Maintenance Area	Natural channel	0	3.35	0	0
	Trapezoid engineered channel	0	2.84	0	0
El Niño Maintenance Area subtotal		*0*	*6.19*	*0*	*0*
First Line of Defense	Basin	0	16.00	41.78	1.41
First Line of Defense subtotal		*0*	*16.00*	*41.78*	*1.41*
Wash Plan	Trapezoid engineered channel	0	1.62	4.38	2.34
	Spreading grounds	0	0	0	0.04
Wash Plan subtotal		*0*	*1.62*	*4.38*	*2.34*

Notes: LOPP = local overlapping permitting process.

[a] Acreages represent impacts to jurisdictional streambed outside of waters of the United States.

Program Impacts Outside of LOPPs

Waters of the United States and State Direct Impacts

Ingress/egress and stockpiles have the potential to result in permanent direct impacts to waters of the United States and state. Ingress/egress involves the repair and maintenance of existing access roads, and grading of roads has the potential to result in placement of native earth within existing waters of the United States. Stockpiles consist of placement of native earth and would constitute fill of waters of the United States; however, stockpiles are generally situated outside waters of the United States as described in SOP-BIO-20 (Jurisdictional Waters Avoidance).

The remaining ground-disturbing activities would result in temporary direct impacts to waters of the United States and state. Federal maintenance and vegetation management could result in temporary disturbances due to ground disturbance associated with mowing and disking. Mechanized land clearing involves the creation of a centerflow through clearing sediment and vegetation within the center of the channel or clearing sediment and vegetation from the bottom of a basin and does not involve placement of fill. This activity would result in temporary disturbances to waters of the United States. Bank repair would typically occur on the banks of the streambed outside waters of the United States. It includes placement of dirt on the banks for erosion control, as well as incidental riprap and gabion placement and/or repair. This activity also includes removal of excess sediment or sand from channel or basin bottoms and applying it to the banks, which could result in temporary impacts to waters of the United States.

Table 4.3-38 quantifies the permanent and temporary direct impacts to waters of the United States and state that would occur as a result of implementation of ground-disturbing maintenance activities in the Valley Region.

Table 4.3-38
Program Ground-Disturbing Activity Impacts
to Waters of the United States and State in the Valley Region

Facility Type	Permanent Impacts (Acres)[a,b]		Temporary Impacts (Acres)[a,b]	
	Wetland WOUS (USACE/SWRCB/ CDFW)	*Non-Wetland WOUS (USACE/SWRCB/ CDFW)*	*Wetland WOUS (USACE/SWRCB/ CDFW)*	*Non-Wetland WOUS (USACE/SWRCB/ CDFW)*
Spreading ground	0	4.1	0.03	50.89
Basin	0	11.75	9.61	696.01
Natural channel	0	1.16	1.01	64.96
Cross walls	0	0.45	0	0
Levee	0	0	0	3.71
Trapezoid engineered channel	0	0.29	1.21	561.92

Table 4.3-38
Program Ground-Disturbing Activity Impacts
to Waters of the United States and State in the Valley Region

Facility Type	Permanent Impacts (Acres)[a,b]		Temporary Impacts (Acres)[a,b]	
	Wetland WOUS (USACE/SWRCB/ CDFW)	*Non-Wetland WOUS (USACE/SWRCB/ CDFW)*	*Wetland WOUS (USACE/SWRCB/ CDFW)*	*Non-Wetland WOUS (USACE/SWRCB/ CDFW)*
Rectangular engineered channel	0	1.00	0.08	270.35
Total	**0**	**18.75**	**11.95**	**1,647.84**

Notes: WOUS = Waters of the United States; USACE = U.S. Army Corps of Engineers; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.

[a] Acreages may not sum due to rounding.

[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

A permit under Section 404 of the Clean Water Act is required for any placement of fill within waters of the United States. The maintenance of existing access roads may result in the placement of fill where the roads cross waters of the United States. However, any fill would replace in kind materials currently present within the access road, typically native dirt; therefore, the maintenance of existing access roads within engineered facilities (including basins, spreading grounds, and engineered channels) would not change the functions and values of waters of the United States or state and would not result in significant impacts to jurisdictional waters. If maintenance of existing access roads results in impacts to the functions and values of jurisdictional waters, as determined through annual reporting described in the Maintenance Plan, this would be a significant impact. Where stockpiles are placed outside of or adjacent to waters of the United States and state, a significant impact to jurisdictional waters would occur. However, implementation of MM-BIO-18 (Compensation for Jurisdictional Waters) shall be required and would mitigate these impacts to less than significant levels.

Jurisdictional Streambeds Direct Impacts

Only one of the ground-disturbing maintenance activities, stockpiles, would result in the permanent loss of jurisdictional streambeds; however, some of the activities would result in the permanent loss of riparian vegetation associated with a jurisdictional streambed. Impacts to jurisdictional streambeds from ground-disturbing activities are described below.

Stockpiles involves the placement of native earth that has been removed from facilities as a result of maintenance activities. Although the District implements avoidance measures to site stockpiles outside of jurisdictional waters, where avoidance is not practicable, placement of stockpile material would result in a permanent impact to jurisdictional streambed.

Federal maintenance consists of vegetation management conducted in accordance with federal standards where they apply to certain facilities. This activity would not alter the bed or bank of channels or basins; therefore, it would not result in permanent impacts to the bed or bank of jurisdictional streambeds. Mechanized vegetation management, such as disking, could result in temporary impacts to the bed or bank of jurisdictional streambeds. Additionally, vegetation associated with a streambed and under CDFW jurisdiction would be permanently removed as a result of this activity.

Vegetation management consists of mowing, disking, and manual pruning of vegetation and would not permanently alter the bed or bank of channels or basins; therefore, it would result in temporary impacts to the bed or bank of jurisdictional streambeds. Additionally, vegetation associated with a streambed and under CDFW jurisdiction would be permanently removed as a result of this activity.

Mechanized land clearing involves the creation of a centerflow through clearing sediment and vegetation and would not permanently remove the bed or bank of channels or basins; therefore, would result in temporary impacts to the bed and/or bank of jurisdictional streambeds. Vegetation associated with a streambed and under CDFW jurisdiction would be permanently removed as a result of this activity.

Bank repair primarily involves removal of excess sediment or sand from basin and channel bottoms and applying it to the banks. It may also include incidental riprap placement and/or repair. This activity would not result in the permanent loss of streambeds. This activity would not permanently remove riparian vegetation, because vegetation would continue to grow through any native earth placed on the banks; therefore, this activity would not result in permanent impacts to jurisdictional streambeds or associated riparian vegetation.

Ingress/egress involves the repair and maintenance of existing access roads, including grading and asphalt repair. This activity would not result in the creation of new roads and would not result in the alteration of the bed or bank of a streamed; therefore, it would not result in permanent or temporary impacts to the bed or bank of jurisdictional streambeds. However, vegetation associated with a streambed and under CDFW jurisdiction would be permanently removed as a result of this activity.

Table 4.3-39 quantifies the permanent and temporary direct impacts to vegetation associated with jurisdictional streambeds in the Valley Region.

A Streambed Alteration Agreement from CDFW is required for the alteration of the bed and bank of a streambed; however, temporary impacts to jurisdictional streambeds under the proposed program would be less than significant. Permanent direct impacts to riparian vegetation associated with jurisdictional streambeds would be significant absent mitigation. However,

implementation of MM-BIO-18 (Compensation for Jurisdictional Waters) shall be required and would mitigate these impacts to less than significant levels.

Table 4.3-39
Program Ground-Disturbing Activity Impacts
to Jurisdictional Streambeds in the Valley Region

Facility Type	Permanent Impacts (Acres)[a,b,c]		Temporary Impacts (Acres)[a,b,c]	
	Unvegetated Streambed	*Associated Riparian Vegetation*	*Unvegetated Streambed*	*Associated Riparian Vegetation*
Spreading ground	0	1.70	1.78	4.20
Basin	11.86	7.47	184.63	1.07
Natural channel	0	12.78	7.61	4.32
Cross walls	0	0.07	0	0
Levee	0	3.53	2.03	0
Trapezoid engineered channel	0	19.40	138.10	34.38
Rectangular engineered channel	0	0.07	14.91	0.01
Total	**11.86**	**45.02**	**349.06**	**43.98**

[a] Acreages may not sum due to rounding.
[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.
[c] Acreages represent impacts to jurisdictional streambed outside of waters of the United States.

Jurisdictional Waters Indirect Impacts

Indirect impacts to jurisdictional waters could result from erosion or accidental spill of debris, oil, petroleum or other hazardous material. The District would routinely implement standard water quality SOPs, as described in Section 4.8.5. During the rainy season, October through April, work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment or with implementation of a water diversion plan, thus minimizing the potential for increased erosion-induced sedimentation of waterways. During the dry season, impacts would be minimal due to the lack of runoff and water in the basins. SOP-HYD-1 (Scheduling) provides the District's approach to scheduling work in a manner that minimizes the potential for work to coincide with wet weather. SOP-HYD-1, SOP-HYD-2 (Vegetation Management), and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment) would be implemented and would minimize erosion-induced sedimentation of creeks and drainages in the vicinity of individual proposed program activities. With regard to incidental spills of petroleum products and hazardous substances, SOP-HYD-1, SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), and SOP-BIO-16 (Best Management Practices) would be implemented during ground-disturbing activities. The components of these SOPs would minimize incidental spill-related impacts to creeks and drainages near individual proposed program activities.

In addition to the hydrology and water quality SOPs described in Section 4.8.5, the District would comply with conditions identified in the resource agency permits issued by USACE, SWRCB, and/or CDFW for the proposed program.

The proposed program, with implementation of these SOPs, would not result in significant indirect impacts to jurisdictional waters.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to jurisdictional waters.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to jurisdictional waters. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not result in erosion or sedimentation indirect effects.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance would not result in direct or indirect impacts to jurisdictional waters. Sand and gravel operations would occur on existing permitted facilities and outside of jurisdictional waters. Vector control would not result in permanent or temporary direct impacts to waters of the United States. Herbicide application could result in permanent impacts to riparian vegetation associated with jurisdictional streambeds if the vegetation does not have sufficient time to regenerate. A total of 0.09 acres of riparian vegetation associated with jurisdictional streambeds would be permanently impacted. This would be a less than significant impact on jurisdictional streambeds.

Indirect impacts to jurisdictional waters from non-ground-disturbing activities could result from herbicide drift. As described previously, pest control and herbicide application activities would comply with all applicable laws, regulations, safety precautions, and label directions. Indirect impacts on jurisdictional waters from non-ground-disturbing activities would be less than significant.

Mountain Region

Ground-Disturbing Activities

Program Impacts Within LOPPs

As detailed in Tables 4.3-40 and 4.3-41, LOPPs that fall within the proposed program area would result in direct impacts to jurisdictional waters. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained. Implementation of MM-BIO-1 would reduce significant impacts to jurisdictional waters within LOPP areas to less than significant.

Table 4.3-40
Program Ground-Disturbing Activity Impacts
to Waters of the United States in the Mountain Region Within LOPPs

LOPP Name	Facility Type	Permanent Impacts (Acres)		Temporary Impacts (Acres)	
		Wetland WOUS (USACE/ SWRCB/CDFW)	*Non-Wetland WOUS (USACE/ SWRCB/CDFW)*	*Wetland WOUS (USACE/ SWRCB/CDFW)*	*Non-Wetland WOUS (USACE/ SWRCB/CDFW)*
First Line of Defense	Basin	0	0.27	0	24.32
First Line of Defense subtotal		*0*	*0.27*	*0*	*24.32*

Notes: LOPP = local overlapping permitting process; WOUS = waters of the United States; USACE = U.S. Army Corps of Engineers; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.

Table 4.3-41
Program Ground-Disturbing Activity Impacts
to Jurisdictional Streambeds in the Mountain Region Within LOPPs

LOPP Name	Facility Type	Permanent Impacts (Acres)[a]		Temporary Impacts (Acres)[a]	
		Unvegetated Streambed	*Associated Riparian Vegetation*	*Unvegetated Streambed*	*Associated Riparian Vegetation*
First Line of Defense	Basin	0	2.24	10.68	0
First Line of Defense subtotal		*0*	*2.24*	*10.68*	*0*

Notes: LOPP = local overlapping permitting process.
[a] Acreages represent impacts to jurisdictional streambed outside of waters of the United States.

Program Impacts Not Within LOPPs

Waters of the United States and State Direct Impacts

Ingress/egress and stockpiles have the potential to result in permanent direct impacts to waters of the United States and state. Ingress/egress involves the repair and maintenance of existing access roads and grading of roads has the potential to result in placement of native earth within existing waters of the United States. Stockpiles consist of placement of native earth and would constitute fill of waters of the United States. Within the Mountain Region, these activities do not occur within waters of the United States; therefore, there would be no permanent impacts to waters of the United States in the Mountain Region.

The remaining ground-disturbing activities would result in temporary direct impacts to waters of the United States and state. Federal maintenance and vegetation management could result in temporary disturbances due to ground disturbance associated with mowing and disking. Mechanized land clearing involves the creation of a centerflow through clearing sediment and vegetation within the center of the channel or bed of a basin and does not involve placement of fill. This activity would result in temporary disturbances to waters of the United States. Bank repair would typically occur on the banks of the streambed outside waters of the United States. It includes placement of dirt on the banks for erosion control, as well as incidental riprap and gabion placement and/or repair. This activity also includes removal of excess sediment or sand from basin or channel bottoms and applying it to the banks, which could result in temporary impacts to waters of the United States.

Table 4.3-42 quantifies the permanent and temporary direct impacts to waters of the United States and state that would occur as a result of implementation of ground-disturbing maintenance activities in the Mountain Region.

Table 4.3-42
Program Ground-Disturbing Activity Impacts
to Waters of the United States and State in the Mountain Region

Facility Type	Temporary Impacts (Acres)[a,b]			
	Wetland Waters of the State (SWRCB/CDFW)	*Non-Wetland Waters of the State (SWRCB/CDFW)*	*Wetland WOUS (USACE/SWRCB/ CDFW)*	*Non-Wetland WOUS (USACE/SWRCB/ CDFW)*
Spreading ground	0	0	0	0.45
Natural channel	0	0	0	6.71
Trapezoid engineered channel	0	10.59	0	4.9

Table 4.3-42
Program Ground-Disturbing Activity Impacts
to Waters of the United States and State in the Mountain Region

Facility Type	Temporary Impacts (Acres)[a,b]			
	Wetland Waters of the State (SWRCB/CDFW)	*Non-Wetland Waters of the State (SWRCB/CDFW)*	*Wetland WOUS (USACE/SWRCB/ CDFW)*	*Non-Wetland WOUS (USACE/SWRCB/ CDFW)*
Rectangular engineered channel	0	0	0	0.57
Total	**0**	**10.59**	**0**	**12.63**

Notes: SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife; WOUS = waters of the United States; USACE = U.S. Army Corps of Engineers.

[a] Acreages may not sum due to rounding

[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Permits in compliance with the Clean Water Act are required for any placement of fill within waters of the United States or discharge to waters of the state; however, temporary impacts to jurisdictional waters would not change the functions and values of waters of the United States or state and would not result in significant impacts to jurisdictional waters.

Jurisdictional Streambeds Direct Impacts

None of the ground-disturbing maintenance activities would result in the permanent loss of jurisdictional streambeds; however, some of the activities would result in the permanent loss of riparian vegetation associated with a jurisdictional streambed. As described in the Valley Region, permanent impacts to riparian vegetation associated with jurisdictional streambeds would occur from federal maintenance, vegetation management, mechanized land clearing, and ingress/egress.

Table 4.3-43 quantifies the permanent and temporary direct impacts to vegetation associated with jurisdictional streambeds in the Mountain Region.

Table 4.3-43
Program Ground-Disturbing Activity Impacts
to Jurisdictional Streambeds in the Mountain Region

Facility Type	Permanent Impacts (Acres)[a,b,c]		Temporary Impacts (Acres)[a,b,c]	
	Unvegetated Streambed	*Associated Riparian Vegetation*	*Unvegetated Streambed*	*Associated Riparian Vegetation*
Natural channel	0	0.92	1.64	1.84
Trapezoid engineered channel	0	0.47	19.30	0.66
Total	**0**	**1.39**	**20.94**	**2.5**

[a] Acreages may not sum due to rounding.

[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

[c] Acreages represent impacts to jurisdictional streambed outside of waters of the United States.

A Streambed Alteration Agreement from CDFW is required for the alteration of the bed and bank of a streambed; however, temporary impacts to jurisdictional streambeds under the proposed program would be less than significant. Permanent direct impacts to riparian vegetation associated with jurisdictional streambeds would be significant absent mitigation. However, implementation of MM-BIO-18 (Compensation for Jurisdictional Waters) shall be required and would mitigate these impacts to less than significant levels.

Jurisdictional Waters Indirect Impacts

Indirect impacts to jurisdictional waters could result from erosion or accidental spill of debris, oil, petroleum, or other hazardous material. The District would routinely implement standard water quality SOPs as described in Section 4.8.5. During the rainy season, October through April, work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment or with implementation of a water diversion plan, thus minimizing the potential for increased erosion-induced sedimentation of waterways. During the dry season, impacts would be minimal due to the lack of runoff and water in the basins. SOP-HYD-1 (Scheduling) provides the District's approach to scheduling work in a manner that minimizes the potential for work to coincide with wet weather. SOP-HYD-1, SOP-HYD-2 (Vegetation Management), and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment) would be implemented and would minimize erosion-induced sedimentation of creeks and drainages in the vicinity of individual proposed program activities. With regard to incidental spills of petroleum products and hazardous substances, SOP-HYD-1, SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), and SOP-BIO-16 (Best Management Practices) would be implemented during ground-disturbing activities. The components of these SOPs would minimize incidental spill-related impacts to creeks and drainages near individual proposed program activities.

In addition to the hydrology and water quality SOPs described in Section 4.8.5, the District would comply with conditions identified in the resource agency permits issued by USACE, SWRCB, and/or CDFW for the proposed program.

The proposed program, with implementation of these SOPs, would not result in significant indirect impacts to jurisdictional waters.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to jurisdictional waters.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to jurisdictional waters. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not result in erosion or sedimentation indirect effects.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance would not result in direct or indirect impacts to jurisdictional waters. Sand and gravel operations would occur on existing permitted facilities and outside of jurisdictional waters. Herbicide and vector control would not result in permanent or temporary direct impacts to jurisdictional waters within the Mountain Region.

Indirect impacts to jurisdictional waters from non-ground-disturbing activities could result from herbicide drift. As described previously, pest control and herbicide application activities would comply with all applicable laws, regulations, safety precautions, and label directions. Indirect impacts to jurisdictional waters from non-ground-disturbing activities would be less than significant.

Desert Region

Ground-Disturbing Activities

Program Impacts Within LOPPs

As detailed in Tables 4.3-44 and 4.3-45, LOPPs that fall within the proposed program area would result in direct impacts to jurisdictional waters. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. MM-BIO-1 (Minimization of Impacts under LOPPs), described in Section 4.3.7, requires that maintenance activities not be initiated within LOPP areas until the required permits and environmental clearance have been obtained. Implementation of MM-BIO-1 would reduce significant impacts to jurisdictional waters within LOPP areas to less than significant.

Table 4.3-44
Program Ground-Disturbing Activity Impacts
to Waters of the United States in the Desert Region Within LOPPs

LOPP Name	Facility Type	Permanent Impacts (Acres)		Temporary Impacts (Acres)	
		Wetland WOUS (USACE/ SWRCB/CDFW)	*Non-Wetland WOUS (USACE/ SWRCB/CDFW)*	*Wetland WOUS (USACE/ SWRCB/CDFW)*	*Non-Wetland WOUS (USACE/ SWRCB/CDFW)*
Lenwood Facilities	Spreading grounds	0	0	0	40.76
	Trapezoid engineered channel	0	0	0	6.77
Lenwood Facilities subtotal		*0*	*0*	*0*	*47.53*

Notes: LOPP = local overlapping permitting process; WOUS = waters of the United States; USACE = U.S. Army Corps of Engineers; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.

Table 4.3-45
Program Ground-Disturbing Activity Impacts
to Jurisdictional Streambeds in the Desert Region Within LOPPs

LOPP Name	Facility Type	Permanent Impacts (Acres)[a]		Temporary Impacts (Acres)[a]	
		Unvegetated Streambed	*Associated Riparian Vegetation*	*Unvegetated Streambed*	*Associated Riparian Vegetation*
Lenwood Facilities	Trapezoid engineered channel	0	0	4.34	0
Lenwood Facilities subtotal		*0*	*0*	*4.34*	*0*

Notes: LOPP = local overlapping permitting process.
[a] Acreages represent impacts to jurisdictional streambed outside of waters of the United States.

Program Impacts Not Within LOPPs

Waters of the United States and State Direct Impacts

Ingress/egress and stockpiles have the potential to result in permanent direct impacts to waters of the United States and state. Ingress/egress involves the repair and maintenance of existing access roads and grading of roads has the potential to result in placement of native earth within existing waters of the United States. Stockpiles consist of placement of native earth and would constitute fill of waters of the United States; however, stockpiles are generally situated outside waters of the United States, as described in SOP-BIO-20 (Jurisdictional Waters Avoidance).

The remaining ground-disturbing activities would result in temporary direct impacts to waters of the United States and state. Federal maintenance and vegetation management could result in temporary disturbances due to ground disturbance associated with mowing and disking.

Mechanized land clearing involves the creation of a centerflow through clearing sediment and vegetation within the center of the channel or bed of a basin and does not involve placement of fill. This activity would result in temporary disturbances to waters of the United States. Bank repair would typically occur on the banks of the streambed outside waters of the United States. It includes placement of dirt on the banks for erosion control, and incidental riprap and gabion placement and/or repair. This activity also includes removal of excess sediment or sand from channel or basin bottoms and applying it to the banks, which could result in temporary impacts to waters of the United States.

Tables 4.3-46 and 4.3-47 quantify the permanent and temporary direct impacts to waters of the United States and state that would occur as a result of implementation of ground-disturbing maintenance activities in the Desert Region.

Table 4.3-46
Program Ground-Disturbing Activity Impacts
to Waters of the United States in the Desert Region

Facility Type	Permanent Impacts (Acres)[a,b]		Temporary Impacts (Acres)[a,b]	
	Wetland WOUS (USACE/SWRCB/ CDFW)	***Non-Wetland WOUS (USACE/SWRCB/ CDFW)***	***Wetland WOUS (USACE/SWRCB/ CDFW)***	***Non-Wetland WOUS (USACE/SWRCB/ CDFW)***
Basin	0	0.05	0	14.22
Natural channel	0	1.81	24.24	1,145.28
Levee	0	0.18	0	10.10
Trapezoid engineered channel	0	0.25	0.11	92.84
Rectangular engineered channel	0	0	0	2.11
Total	**0**	**2.29**	**24.35**	**1,264.55**

Notes: WOUS = Waters of the United States; USACE = U.S. Army Corps of Engineers; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.

[a] Acreages may not sum due to rounding.

[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Table 4.3-47
Program Ground-Disturbing Activity Impacts to Waters of the State in the Desert Region

Facility Type	Permanent Impacts (Acres)[a,b]		Temporary Impacts (Acres)[a,b]	
	Wetland WOS (SWRCB/CDFW)	*Non-Wetland WOS (SWRCB/CDFW)*	*Wetland WOS (SWRCB/CDFW)*	*Non-Wetland WOS (SWRCB/CDFW)*
Spreading ground	0	0	0	11.18
Basin	0	0.12	0	7.18
Natural channel	0	0	0	2.21
Trapezoid engineered channel	0	0.03	0	95.93
Rectangular engineered channel	0	0	0	1.64
Total	**0**	**0.15**	**0**	**118.14**

Notes: WOS = waters of the state; SWRCB = State Water Resources Control Board; CDFW = California Department of Fish and Wildlife.
[a] Acreages may not sum due to rounding.
[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Permits in compliance with the Clean Water Act are required for any placement of fill within waters of the United States or discharge to waters of the state; however, the maintenance of existing access roads within engineered facilities (including basins, spreading grounds, and engineered channels) would not change the functions and values of waters of the United States or state and would not result in significant impacts to jurisdictional waters. If maintenance of existing access roads results in impacts to the functions and values of jurisdictional waters, as determined through annual reporting described in the Maintenance Plan, this would be a significant impact. Where stockpiles cannot be situated outside of waters of the United States and state, a significant impact to jurisdictional waters would occur. Implementation of MM-BIO-18 (Compensation for Jurisdictional Waters) shall be required and would mitigate these impacts to less than significant levels.

Jurisdictional Streambeds Direct Impacts

None of the ground-disturbing maintenance activities would result in the permanent loss of jurisdictional streambeds; however, some of the activities would result in the permanent loss of riparian vegetation associated with a jurisdictional streambed. As described in the Valley Region, permanent impacts to riparian vegetation associated with jurisdictional streambeds would occur from federal maintenance, vegetation management, mechanized land clearing, and ingress/egress.

Table 4.3-48 quantifies the permanent and temporary direct impacts to vegetation associated with jurisdictional streambeds in the Desert Region.

Table 4.3-48
Program Ground-Disturbing Activity Impacts
to Jurisdictional Streambeds in the Desert Region

Facility Type	Permanent Impacts (Acres)[a,b,c]		Temporary Impacts (Acres)[a,b,c]	
	Unvegetated Streambed	*Associated Riparian Vegetation*	*Unvegetated Streambed*	*Associated Riparian Vegetation*
Spreading ground	0	0	0	0
Basin	0	0.02	40.98	0
Natural channel	0	15.56	48.15	69.16
Cross walls	0	0	0	0
Levee	0	0	0	0
Trapezoid engineered channel	0	0.44	162.94	0.14
Rectangular engineered channel	0	0.06	0.65	0
Total	**0**	**16.08**	**252.72**	**69.3**

[a] Acreages may not sum due to rounding.
[b] Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.
[c] Acreages represent impacts to jurisdictional streambed outside of waters of the United States.

A Streambed Alteration Agreement from CDFW is required for the alteration of the bed and bank of a streambed; however, temporary impacts to jurisdictional streambeds under the proposed program would be less than significant. Permanent direct impacts to riparian vegetation associated with jurisdictional streambeds would be significant absent mitigation. However, implementation of MM-BIO-18 (Compensation for Jurisdictional Waters) shall be required and would mitigate these impacts to less than significant levels.

Jurisdictional Waters Indirect Impacts

Indirect impacts to jurisdictional waters could result from erosion or accidental spill of debris, oil, petroleum or other hazardous material. The District would routinely implement standard water quality SOPs, as described in Section 4.8.5. During the rainy season, October through April, work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment or with implementation of a water diversion plan, thus minimizing the potential for increased erosion-induced sedimentation of waterways. During the dry season, impacts would be minimal due to the lack of runoff and water in the basins. SOP-HYD-1 (Scheduling) provides the District's approach to scheduling work in a manner that minimizes the potential for work to coincide with wet weather. SOP-HYD-1, SOP-HYD-2 (Vegetation Management), and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment) would be implemented and would minimize erosion-induced sedimentation of creeks and drainages in the vicinity of individual proposed program activities. With regard to incidental spills of petroleum

products and hazardous substances, SOP-HYD-1, SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), and SOP-BIO-16 (Best Management Practices) would be implemented during ground-disturbing activities. The components of these SOPs would minimize incidental spill-related impacts to creeks and drainages near individual proposed program activities.

In addition to the hydrology and water quality SOPs described in Section 4.8.5, the District would comply with conditions identified in the resource agency permits issued by USACE, SWRCB, and/or CDFW for the proposed program.

The proposed program, with implementation of these SOPs, would not result in significant indirect impacts to jurisdictional waters.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to jurisdictional waters.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to jurisdictional waters. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not result in erosion or sedimentation indirect effects.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance would not result in direct or indirect impacts to jurisdictional waters. Sand and gravel operations would occur on existing permitted facilities and outside of jurisdictional waters. Vector control would not result in permanent or temporary direct impacts to waters of the United States. Herbicide application could result in permanent impacts to riparian vegetation associated with jurisdictional streambeds if the vegetation does not have sufficient time to regenerate. A total of 0.22 acres of riparian vegetation associated with jurisdictional streambeds would be impacted. This would be a less than significant impact to jurisdictional streambeds.

Indirect impacts to jurisdictional waters from non-ground-disturbing activities could result from herbicide drift. As described previously, pest control and herbicide application activities would comply with all applicable laws, regulations, safety precautions, and label directions. Indirect impacts to jurisdictional waters from non-ground-disturbing activities would be less than significant.

Impact BIO-4

Would the program 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?

Valley Region

All Program Activities

Maintenance activities would occur within several of the wildlife corridors and linkages that occur in the Valley Region. However, because maintenance activities would only remove a small portion of the habitat in these facilities, the result of these activities would not preclude use by dispersing wildlife. Therefore, permanent direct impacts to wildlife corridors and habitat linkages would be less than significant. Temporary direct and short-term indirect impacts to wildlife corridors would occur as a result of human presence, noise, and dust during maintenance activities. These impacts would be low intensity and would only occur once every 3 years; therefore, impacts to wildlife corridors would be less than significant.

Mountain Region

All Program Activities

Maintenance activities would occur within several wildlife corridors in the Mountain Region. These include Mill Creek and several of the foothill canyons also included in the Mountain Region (e.g., City Creek, Waterman Creek, and Twin Creek). However, because maintenance activities would only remove a small portion of the habitat in these facilities, the result of these activities would not preclude use by dispersing wildlife. Therefore, permanent direct impacts to wildlife corridors and habitat linkages would be less than significant. Temporary direct and short-term indirect impacts to wildlife corridors would occur as a result of human presence, noise, and dust during maintenance activities. These impacts would be low intensity and would only occur once every 3 years; therefore, impacts to wildlife corridors would be less than significant.

Desert Region

All Program Activities

Maintenance activities would occur within one identified wildlife corridor (Mojave River) in the Desert Region. However, because maintenance activities would only remove or degrade a small portion of the habitat in the Mojave River, the result of these activities would not preclude use by dispersing wildlife. Therefore, permanent direct impacts to wildlife corridors and habitat linkages would be less than significant. Temporary direct and short-term indirect impacts to the

Mojave River wildlife corridor would occur as a result of human presence, noise, and dust during maintenance activities. These impacts would be low intensity and would only occur once every 3 years; therefore, impacts to wildlife corridors would be less than significant.

Impact BIO-5

Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Valley, Mountain, and Desert Regions

All Program Activities

By definition in the San Bernardino County Development Code, Chapter 88.01, Plant Protection and Management, local governmental entities, such as the District, are exempt from the Development Code. Therefore, maintenance activities are not in conflict with the San Bernardino County Development Code and no impact would occur. Nevertheless, as part of their environmentally sensitive practice, the District avoids and minimizes impacts to the extent practicable to species covered by the Development Code including oak woodlands, Joshua trees, and riparian habitat.

Impact BIO-6

Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Valley Region

All Program Activities

As described in the following paragraphs, the proposed program would not conflict with adopted or approved local, regional, or state HCPs and impacts would be less than significant.

North Fontana Conservation Program

Under the approved North Fontana Conservation Program, the City of Fontana has collected mitigation fees for 12 years to offset the loss of Riversidean alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with the USFWS and the CDFW to identify conservation properties for acquisition. The proposed program would also be required to mitigate for the loss of Riversidean alluvial fan sage scrub habitat as identified in MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region); therefore, the

proposed program could complete with the North Fontana Conservation Program for suitable Riversidean alluvial fan sage scrub habitat acquisitions. However, the District proposes to mitigate for Riversidean alluvial fan sage scrub habitat through District-owned lands or easements or other District-managed instruments not available to the North Fontana Conservation Program; therefore, the proposed program would not conflict with the North Fontana Conservation Program.

Western Riverside County MSHCP

There are three facilities that fall within the Western Riverside County MSHCP boundary: Cucamonga Channel (Facility No. 1-301-1I), Riverside Basin (Facility No. 1-604-4A), and Declez Basin (Facility No. 1-814-3A). Although the District is not a Permittee under the Western Riverside County MSHCP, this section's analyses are consistent with the Western Riverside County MSHCP for compliance with this CEQA threshold.

As described in Section 4.3.4.1, Valley Region, Declez Basin falls within Criteria Cell 10 of Cell Group B. As described in the MSHCP, conservation within this Cell Group will focus on coastal sage scrub and grassland habitat focusing in the northeastern portion of the Cell Group. Declez Basin has been routinely maintained and activities covered under the proposed program would not substantially alter the vegetation communities or land use of the basin from existing conditions. Additionally, Declez Basin is located in the northwestern portion of the Cell Group; therefore, the proposed program would not be in conflict with the conservation goals of this criteria cell.

All three facilities fall within the Burrowing Owl Survey Area of the Western Riverside County MSHCP. The District implements burrowing owl avoidance measures as described in SOP-BIO-6 (Burrowing Owl); therefore, the proposed program would not result in impacts to burrowing owl and would not be in conflict with the goals of this survey area.

Riverside Basin and Declez Basin are within the Narrow Endemic Plant Survey Area 7 for Brand's phacelia, San Diego ambrosia, and San Miguel savory. With implementation of SOP-BIO-14 (Special Status Plants Pre-Activity Surveys and Avoidance) and MM-BIO-3 (Mitigation for Special-Status Plant Species), the proposed program would not be in conflict with the goals of this survey area.

In addition, Declez Basin falls within Mammal Survey Area 3, which requires habitat assessments for San Bernardino kangaroo rat and Los Angeles pocket mouse. The proposed program has conducted an analysis of potential impacts to these small mammals and would not be in conflict with the goals of this survey area.

The Western Riverside County MSHCP also requires that projects review the potential for impacts to riparian/riverine habitat. All three facilities would meet the definition of riparian/

riverine habitat; however, with implementation of avoidance, minimization, and mitigation measures for riparian communities described under Impact BIO-2, the proposed program would not be in conflict with the riparian/riverine guidelines of the Western Riverside County MSHCP.

The Western Riverside County MSHCP also requires a review for vernal pool and/or listed fairy shrimp habitat. The three facilities are composed of well-drained soils typical of flood control facilities. Soils mapped within these facilities include silt loam, rocky sandy loam, sandy loam, fine sandy loam, fine sand, loamy sand, loamy fine sand, very fine sand, gravel pits, and riverwash. None of these soil types is conducive to supporting vernal pools or ephemerally ponded areas that would support fairy shrimp species; therefore, the proposed program would not be in conflict with the vernal pool guidelines of the Western Riverside County MSHCP.

Mountain Region

As described in the following paragraphs, the proposed program would not conflict with adopted or approved local, regional, or state HCPs and impacts would be less than significant.

All Program Activities

The Upper Santa Ana River HCP is the only HCP that overlaps the Mountain Region. This HCP is currently in development. Although the Upper Santa Ana River HCP will include District routine maintenance activities within the HCP area, the proposed program would cover impacts to maintenance activities located within the HCP boundaries while the HCP is still in the planning stages. Because the District is part of the HCP team, the District will have input on the HCP; therefore, the proposed program would be consistent with the HCP through this collaborative effort and proposed program impacts would be less than significant.

Desert Region

All Program Activities

The proposed program would not impede the achievement of the biological goals and measurable objectives of existing or future conservation plans in the Desert Region. Proposed program impacts to the three plans already adopted or in development within the Desert Region are described below and would be less than significant.

Town of Apple Valley MSHCP

The Town of Apple Valley MSHCP/NCCP is still in development. Therefore, it is not possible to identify any conflicts with the plan at this time. However, Covered Activities under the Apple Valley MSHCP/NCCP are proposed to be limited to land uses over which the Town has land use

authority and will include planning authorizations within its Sphere of Influence; therefore, District maintenance activities would not be in conflict with this MSHCP/NCCP.

Desert Renewable Energy Conservation Plan

Although the DRECP area includes the Desert Region, the DRECP currently only applies to renewable energy projects and would not be applicable to the proposed program. It is possible that renewable energy projects could compete with the proposed program for mitigation lands; however, that possibility exists regardless of the DRECP. The proposed program is not in conflict with the goals and policies of the DRECP.

Lower Colorado River MSCP

The Lower Colorado MSCP area is far from the program area. Therefore, no impacts to the implementation of the MSCP would result from the proposed program.

4.3.7 Mitigation Measures

District standard practices SOP-BIO-1 through SOP-BIO-20 would be incorporated in the proposed program; however, potential impacts on biological resources would remain significant. Therefore, the following mitigation measures would be required:

MM-BIO-1 **Minimization of Impacts under LOPPs.** Maintenance activities shall not occur within areas covered by local overlapping permitting processes (LOPPs) (including the Wash Plan, First Line of Defense (FLOD) project area, El Niño project area, and Lenwood facilities) until the relevant permits and environmental clearance have been obtained for these LOPPs. Any measures (including mitigation measures in California Environmental Quality Act (CEQA) documents, conditions in permits for impacts to jurisdictional waters, and conditions in federal and/or state Incidental Take Permits (ITPs)) from the LOPPs shall be incorporated into the Maintenance Plan for implementation with other standard operating procedures (SOPs), mitigation measures, and permit conditions as applicable to reduce any impacts due to adverse modification to critical habitat to below USFWS thresholds.

Should the District decide to conduct maintenance activities within LOPP areas in advance of environmental clearance being obtained through the LOPPs, the District shall implement mitigation measures and obtain relevant permits as described in this EIR for impacts within the LOPPs.

MM-BIO-2 **Minimization of Impacts to Critical Habitat and Mitigation for Loss of Habitat.** Maintenance activities shall not occur within areas designated by U.S. Fish and Wildlife Service (USFWS) as critical habitat until the District receives confirmation from USFWS that either (1) the action may affect, but is not likely to adversely affect, critical habitat or (2) the District will receive authorization from USFWS for adverse modification to critical habitat through an informal consultation, a Biological Opinion under the federal Endangered Species Act (ESA), a habitat conservation plan, or other suitable mechanism. All conditions from USFWS for potential adverse modification to critical habitat shall be incorporated into the Maintenance Plan and implemented with other SOPs and mitigation measures of this proposed program. The plan shall include all methods, conditions, practices, and mitigation required by USFWS. Permanent impacts to occupied habitat and/or designated critical habitat shall include off-site acquisition and preservation of occupied habitat or designated critical habitat per the species-specific mitigation measures MM-BIO-4 through MM-BIO-9 and MM-BIO-12 through MM-BIO-16, or as otherwise required by USFWS to reduce any impacts due to adverse modification to critical habitat to below USFWS thresholds.

MM-BIO-3 **Mitigation for Special-Status Plants.** In cases where significant impacts to special-status plant species cannot be avoided during implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), the following mitigation shall be implemented. For species federally and/or state listed as threatened or endangered, prior to maintenance activities that would occur within occupied habitat and that may affect the respective species, a mitigation and monitoring plan shall be submitted to and approved by USFWS (for federally listed plants) and/or the California Department of Fish and Wildlife (CDFW) (for state-listed plants). Upon approval, the plan shall be implemented by the District or its designee. For non-listed plant species, prior to maintenance activities occurring within occupied habitat, District Ecological Resource Specialists shall determine if potential impacts would be significant to the long term viability of the local population of that plant species. For significant impacts, the District shall develop and implement a translocation plan for that species.

The mitigation and monitoring plan for the transplanted special-status plant(s) shall describe the following as needed based on plant species: (1) the location of mitigation sites; (2) site preparation measures as needed such as topsoil treatment, soil decompaction, erosion control, temporary irrigation systems, or removal of non-native species; (3) a schedule and action plan to maintain and

monitor the mitigation areas; (4) adaptive management measures such as replanting, weed control, or erosion control to be implemented if habitat improvement/restoration efforts are not successful; (5) success criteria; and (6) annual monitoring and reporting requirements.

Take of any listed species, or collection and transplantation of any individuals and populations of any listed species, will require approval by the USFWS and/or CDFW and issuance of an ITP.

MM-BIO-4 **Mitigation for San Bernardino Kangaroo Rat.** Compensatory mitigation ratios for San Bernardino kangaroo rat shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by the applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.

Prior to direct impacts to suitable habitat for San Bernardino kangaroo rat, the District shall receive authorization from the USFWS through the ESA ITP process, including the preparation of a Biological Assessment, for take of San Bernardino kangaroo rat and adverse modification of designated critical habitat. Any measures determined to be necessary through the Incidental Take Permit process to offset impacts to San Bernardino kangaroo rat may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

Proposed Mitigation Ratios and Estimated Mitigation Acreage for San Bernardino Kangaroo Rat Habitat in the Valley Region

Habitat Quality	Estimated Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Low quality	47.0	1:1	47
Moderate quality	28.2	2:1	56.4
High quality	11.8	3:1	35.4
Total	**87**	**—**	**138.8**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation would be completed as determined by actual impact acreages.

[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-5 **Mitigation for Least Bell's Vireo**. Compensatory mitigation ratios for least Bell's vireo shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by applicable

resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.

Proposed Mitigation Ratios and Estimated Mitigation Acreage for Least Bell's Vireo Habitat in the Valley Region

Habitat Quality	Estimated Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Low quality	15.4	1:1	15.4
Moderate quality	9.5	2:1	19
High quality	41.1	3:1	123.3
Total	**66.0**	**—**	**157.7**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

[b] Mitigation ratios may be modified by the applicable resource agency permit.

Prior to removal of suitable least Bell's vireo habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through the California Endangered Species Act (CESA) Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to least Bell's vireo and adverse modification of designated critical habitat as applicable. Any measures determined to be necessary through the Incidental Take Permit process may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

MM-BIO-6 **Mitigation for Delhi Sands Flower-Loving Fly.** The District shall compensate for impacts to Delhi sands flower-loving fly habitat through replacement ratios of 1:1 for low-quality habitat and 2:1 for moderate-quality habitat or as otherwise required by applicable resource agency permits.

Prior to impacting suitable habitat for Delhi sands flower-loving fly, the District shall receive authorization from the USFWS through the ESA ITP process. The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to Delhi sands flower-loving fly. Any conditions required by the ITP may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

MM-BIO-7 **Mitigation for Coastal California Gnatcatcher.** The District shall compensate impacts to up to three coastal California gnatcatcher breeding territories by preserving and/or enhancing 25.2 acres of sage scrub habitat or as otherwise required by the applicable resource agency permits.

Prior to impacting suitable habitat for California gnatcatcher, the District shall receive authorization from the USFWS through the ESA ITP process. The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to California gnatcatcher. Any measures determined to be necessary through the ITP process may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

MM-BIO-8 **Mitigation for Southwestern Willow Flycatcher.** Prior to removal of suitable habitat for southwestern willow flycatcher, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize adverse modification of designated critical habitat. Any conditions required by the ITP may supersede mitigation measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

MM-BIO-9 **Mitigation for Tricolored Blackbird.** If suitable nesting habitat for tricolored blackbird is present in Wineville Basin, Jurupa Basin, Chris Basin, portions of the lower Cucamonga Spreading Grounds, or other identified habitat to be removed, three breeding surveys for tricolored blackbird shall be conducted in April and May, separated by a minimum of 10 days, to determine whether a breeding colony is present prior to any maintenance activities being conducted.

If the results of the survey are positive, avoidance of 100% of the occupied habitat and adjacent habitat suitable for nesting shall be avoided. If 100% avoidance is not feasible due to flood protection requirements, consultation with the CDFW shall be initiated prior to implementation of any activities that may impact habitat occupied by tricolored blackbird. The District shall submit a 2081 application to the CDFW for any maintenance activities that impact tricolored blackbird breeding habitat.

MM-BIO-10 **Compensation for Special-Status Vegetation Communities in the Valley Region.** Direct impacts to special-status vegetation communities shall be mitigated at the ratios included in the following table or as otherwise required in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) the mitigation type (e.g., preservation, creation); (2) location of mitigation; (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated; (4) an implementation plan; (5) maintenance requirements; (6) monitoring requirements; (7) reporting requirements; (8) contingency measures; (9) long-term management; and (10) funding assurances.

Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities for the Valley Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Estimated Permanent Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Coastal scrub	Brittle bush scrub alliance	5.7	1:1	5.7
	California sagebrush–California buckwheat scrub alliance	134.4	1:1	134.4
	Coastal scrub subtotal	*140.1*	*1:1*	*140.1*
Oak woodlands and forests	Coast live oak woodland alliance	2.5	1:1	2.5
	Disturbed coast live oak woodland alliance	2.6	1:1	2.6
	Oak woodlands and forests subtotal	*5.1*	*1:1*	*5.1*
Riparian forest and woodland	Black willow thickets alliance	4.3	1:1	4.3
	California sycamore woodlands alliance	1.1	1:1	1.1
	Fremont cottonwood forest alliance	28.6	1:1	28.6
	Red willow thickets alliance	<0.05	1:1	0.05
	Riparian forest and woodland subtotal	*34.0*	*1:1*	*34*
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	297.1	1:1	297.1
	Riversidean alluvial fan sage scrub subtotal	*297.1*	*1:1*	*297.1*
	Total	**476.3**		**476.3**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-11 **Compensation for Special-Status Vegetation Communities in the Mountain Region.** Direct impacts to special-status vegetation communities in the Mountain Region shall be mitigated at the ratios included in the following table or as otherwise required in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement, and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) mitigation type (e.g., preservation, creation), (2) location of mitigation, (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated, (4) an implementation plan, (5) maintenance requirements, (6) monitoring requirements, (7) reporting requirements, (8) contingency measures, (9) long-term management, and (10) funding assurances.

Proposed Mitigation Ratios and Estimated Acreages for Special-Status Vegetation Communities for the Mountain Region

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Estimated Permanent Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
California bay forests and woodlands	California bay forests and woodlands	0.3	1:1	0.3
	California bay forests and woodlands subtotal	*0.3*	—	*0.3*
Coastal scrub	Brittle bush scrub alliance	<0.05	1:1	0.05
	California sagebrush–California buckwheat scrub alliance	1.9	1:1	1.9
	Coastal scrub subtotal	*1.9*	—	*1.9*
Oak woodlands and forests	Canyon live oak forest alliance	2.1	1:1	2.1
	Oak woodlands and forests subtotal	*2.1*	—	*2.1*
Riparian forest and woodland	California sycamore woodlands alliance	2.8	1:1	2.8
	Fremont cottonwood forest alliance	0.1	1:1	0.1
	Riparian forest and woodland subtotal	*2.9*	—	*2.9*
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	0.4	1:1	0.4
	Riversidean alluvial fan sage scrub subtotal	*0.4*	—	*0.4*
	Total	**7.7**	**—**	**7.7**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-12 **Mitigation for Mohave Ground Squirrel.** Compensatory mitigation ratios for Mohave ground squirrel shall be at a ratio of 2:1 for permanent direct impacts to Good quality habitat and 3:1 for permanent direct impacts to Excellent quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with CDFW as part of the ITP.

Prior to impacts of potentially occupied Mohave ground squirrel habitat, the District shall receive authorization from the CDFW through CESA Sections 2081(b) and (c). Any measures determined to be necessary through the ITP process to offset impacts to Mohave ground squirrel may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

Proposed Mitigation Ratios and Estimated Mitigation Acreage for Mohave Ground Squirrel in the Desert Region

Habitat Quality	Estimated Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Good	28.7	1:1	28.7
Excellent	0.8	1.5:1	1.2
Total	**29.5**	**—**	**29.9**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-13 **Mitigation for Desert Tortoise.** Compensatory mitigation ratios for desert tortoise shall be at a ratio of 0.5:1 for permanent direct impacts to moderate-quality habitat and 1:1 for permanent direct impacts to high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS and CDFW as part of the ITP.

Prior to impacts of potentially occupied desert tortoise habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize removal of desert tortoise habitat and adverse modification of designated critical habitat. Any measures determined to be necessary through the ITP process to offset impacts to desert tortoise may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

Proposed Mitigation Ratios and Estimated Mitigation Acreage for Desert Tortoise in the Desert Region

Habitat Quality	Estimated Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Moderate	78.7	0.5:1	39.4
High	209.1	1:1	209.1
Total	**287.8**	**—**	**248.5**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.
[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-14 **Mitigation for Least Bell's Vireo Habitat in the Desert Region.** Compensatory mitigation ratios for least Bell's vireo shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of habitat preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.

Proposed Mitigation Ratios and Acreage for Least Bell's Vireo Habitat in the Desert Region

Habitat Quality	Estimated Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Low quality	5.4	1:1	5.4
Moderate quality	4.2	2:1	8.4
High quality	17.1	3:1	51.3
Total	**26.7**	**—**	**65.1**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.
[b] Mitigation ratios may be modified by the applicable resource agency permit.

Prior to removal of suitable least Bell's vireo habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS shall issue a Biological Opinion under the ESA that will authorize harm to least Bell's vireo, including adverse modification of designated critical habitat as applicable. Any measures determined to be necessary through the ITP process may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

MM-BIO-15 **Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo in the Desert Region.** Due to the presence of moderately suitable southwestern willow flycatcher and yellow-billed cuckoo habitat within the Mojave River maintenance footprint, focused protocol surveys shall be completed for these species prior to initiation of maintenance activities in this area and repeated every 5 years to determine the presence/absence of these species.

If the results of the survey are positive, occupied areas shall be avoided to the maximum extent practicable. If 100% avoidance is not feasible due to flood protection requirements, consultation with USFWS and CDFW shall be initiated prior to implementation of any activities that may impact occupied habitat, directly or indirectly.

Authorization for removal of occupied southwestern willow flycatcher and/or yellow-billed cuckoo habitat and critical habitat shall be obtained from USFWS through the ESA ITP process and from CDFW through CESA Sections 2081(b) and (c) prior to initiating maintenance activities in occupied areas. Any conditions required by the ITP process may supersede mitigation measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

MM-BIO-16 **Mitigation for Mojave River Vole.** Prior to implementation of maintenance activities in suitable Mojave River vole habitat upstream and downstream of I-15, a Mojave River vole management plan shall be prepared, submitted, and approved by CDFW. At a minimum, the Mojave River vole management plan shall address methodologies and timing to phase removal of occupied habitat so that suitable patches are sustained through time, as well as height of mowing to achieve flood protection goals. In addition, it will analyze the feasibility of relocating Mojave River vole from removal areas to areas confirmed to be unoccupied. The Mojave River vole management plan will include a process for identifying and confirming potentially unoccupied sites (such as areas downstream of Victor Valley or areas downstream of the Mojave Dam), need and timing of trapping surveys, relocation techniques, monitoring, and reporting.

MM-BIO-17 **Compensation for Special-Status Vegetation Communities in the Desert Region.** Direct impacts to special-status vegetation communities shall be mitigated at the ratios included in the following table or as otherwise determined in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement and/or rehabilitation or restoration of

impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) the mitigation type (e.g., preservation, creation); (2) location of mitigation; (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated; (4) an implementation plan; (5) maintenance requirements; (6) monitoring requirements; (7) reporting requirements; (8) contingency measures; (9) long-term management; and (10) funding assurances.

Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities in the Desert Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Estimated Permanent Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
Desert dry wash woodland	Desert willow woodland alliance	9.6	1:1	9.6
	Mesquite bosque, mesquite thicket alliance	—		—
	Desert dry wash woodland subtotal	*9.6*		*9.6*
Desert dunes	Desert panic grass patches	6.0	1:1	6.0
	North American warm desert dunes and sand flats	2.2	1:1	2.2
	Desert dunes subtotal	*8.2*		*8.2*
Desert sink scrub	Bush seepweed scrub alliance	0.2	1:1	0.2
	Desert sink scrub subtotal	*0.2*		*0.2*
Joshua tree woodland	Disturbed Joshua tree woodland	0.6	1:1	0.6
	Joshua tree woodland	1.7	1:1	1.7
	Joshua tree woodland subtotal	*2.3*		*2.3*
Riparian forest and woodland	Fremont cottonwood forest alliance	14.3	1:1	14.3
	Red willow thickets alliance	1.1	1:1	1.1
	Riparian forest and woodland subtotal	*15.5*		*15.5*
Sonoran and Mojavean desert scrub	California joint fir scrub alliance	0.4	1:1	0.4
	Disturbed Mojave yucca scrub alliance	0.5	1:1	0.5

Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities in the Desert Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Estimated Permanent Impacts (Acres)[a]	Proposed Mitigation Ratio[b]	Estimated Mitigation (Acres)[a]
	Mojave yucca scrub alliance	1.2	1:1	1.2
	Scale broom scrub alliance	12.6	1:1	12.6
Sonoran and Mojavean desert scrub subtotal		*14.7*		*14.7*
Total		**50.5**	**—**	**50.5**

[a] Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan (Appendix A); therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

[b] Mitigation ratios may be modified by the applicable resource agency permit.

MM-BIO-18 **Compensation for Jurisdictional Waters.** Significant permanent direct impacts to waters of the United States and state shall be mitigated at a 1:1 ratio or as otherwise determined in applicable resource agency permits. Permanent direct impacts to riparian vegetation associated with jurisdictional streambeds shall be mitigated at a 1:1 ratio or as otherwise determined in applicable resource agency permits. Mitigation for special-status vegetation communities may overlap with mitigation for jurisdictional waters and will be included as part of the total mitigation obligation for jurisdictional waters such that the District is not mitigating twice for the same resource. Mitigation shall include preservation, creation, enhancement, and/or rehabilitation or restoration of jurisdictional waters or as otherwise determined in applicable resource agency permits. Mitigation shall be completed through use of an agency-approved in lieu fee program, a mitigation bank, or applicant-proposed mitigation. For the latter, a Habitat Mitigation and Monitoring Plan shall be prepared in accordance with USACE and State Water Resources Control Board guidelines and approved by the agencies in accordance with the proposed program permits.

4.3.8 Level of Significance After Mitigation

In addition to incorporation of District standard practices SOP-BIO-1 through SOP-BIO-20 (see Section 4.3.5) and SOP-HYD-1 through SOP-HYD-4 (see Section 4.8.5), implementation of MM-BIO-1 through MM-BIO-18 (see Section 4.3.7) would reduce impacts from the proposed program to less than significant levels. Table 4.3-49 summarizes the impacts from proposed program activities under each impact threshold analyzed in this section of the EIR.

Table 4.3-49
Biological Resources Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact BIO-1: Would the program have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				
Valley Region				
Ground-Disturbing Activities	SOP-BIO-1 through SOP-BIO-8 SOP-BIO-14 through SOP-BIO-16 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 through MM-BIO-10	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-BIO-15 SOP-BIO-16	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-BIO-5 SOP-BIO-14 through SOP-BIO-16 SOP-BIO-19	Significant	MM-BIO-2 MM-BIO-3	Less than significant
Mountain Region				
Ground-Disturbing Activities	SOP-BIO-3 SOP-BIO-5 SOP-BIO-7 SOP-BIO-13 through SOP-BIO-16 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 through MM-BIO-3 MM-BIO-8	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-BIO-15 SOP-BIO-16	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-BIO-14 through SOP-BIO-16 SOP-BIO-19	Significant	MM-BIO-1 through MM-BIO-3	Less than significant
Desert Region				
Ground-Disturbing Activities	SOP-BIO-1 SOP-BIO-3 SOP-BIO-5 SOP-BIO-6 SOP-BIO-9	Significant	MM-BIO-1 through MM-BIO-3 MM-BIO-8 MM-BIO-9	Less than significant

Table 4.3-49
Biological Resources Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	through SOP-BIO-12 SOP-BIO-14 through SOP-BIO-16 SOP-HYD-1 through SOP-HYD-4		MM-BIO-12 through MM-BIO-17	
Non-Ground-Disturbing Vegetation Management	SOP-BIO-15 SOP-BIO-16	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-BIO-1 SOP-BIO-3 SOP-BIO-5 SOP-BIO-14 through SOP-BIO-16 SOP-BIO-19	Significant	MM-BIO-2 MM-BIO-3 MM-BIO-9	Less than significant
Impact BIO-2: Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				
Valley Region				
Ground-Disturbing Activities	SOP-BIO-15 SOP-BIO-16 SOP-BIO-18 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-10	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-BIO-15 SOP-BIO-16	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-BIO-16 SOP-BIO-19	Less than significant	—	Less than significant
Mountain Region				
Ground-Disturbing Activities	SOP-BIO-15 SOP-BIO-16 SOP-BIO-18 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-11	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-BIO-15 SOP-BIO-16	Less than significant	—	Less than significant

Table 4.3-49
Biological Resources Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Non-Ground-Disturbing Activities	SOP-BIO-16 SOP-BIO-19	Less than significant	—	Less than significant
Desert Region				
Ground-Disturbing Activities	SOP-BIO-15 SOP-BIO-16 SOP-BIO-18 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-17	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-BIO-15 SOP-BIO-16	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-BIO-16 SOP-BIO-19	Less than significant	—	Less than significant
Impact BIO-3: Would the program have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				
Valley Region				
Ground-Disturbing Activities	SOP-BIO-16 SOP-BIO-20 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-18	Less than significant
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	Less than significant	—	Less than significant
Mountain Region				
Ground-Disturbing Activities	SOP-BIO-16 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-18	Less than significant
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	Less than significant	—	Less than significant
Desert Region				
Ground-Disturbing Activities	SOP-BIO-16 SOP-BIO-20 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-18	Less than significant

Table 4.3-49
Biological Resources Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	Less than significant	—	Less than significant
Impact BIO-4: Would the program 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?				
Valley Region				
All Program Activities	—	Less than significant	—	Less than significant
Mountain Region				
All Program Activities	—	Less than significant	—	Less than significant
Desert Region				
All Program Activities	—	Less than significant	—	Less than significant
Impact BIO-5: Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				
Valley, Mountain, and Desert Regions				
All Program Activities	—	No impact	—	No impact
Impact BIO-6: Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				
Valley Region				
All Program Activities	SOP-BIO-6 SOP-BIO-14 through SOP-BIO-16 SOP BIO-18 SOP-BIO-19 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-1 MM-BIO-3 MM-BIO-10	Less than significant
Mountain Region				
All Program Activities	—	Less than significant	—	Less than significant
Desert Region				
All Program Activities	—	Less than significant	—	Less than significant

4.3.9 Cumulative Impacts

The introduction to Chapter 4, Environmental Analysis, of this EIR contains a list of approved or planned future projects within the County, including cities, other public agencies, and the District. According to the CEQA Guidelines, determining whether to include a related project in

a cumulative analysis should include the nature of each environmental resource being examined, the location of the project, and its type.

For biological resources, the list of projects was reviewed for those projects within the County that affect waterways and projects with impacts to similar biological resources as those potentially affected by the proposed program. Cumulative projects were reviewed by region because biological resources vary between the regions and impacts could be cumulatively considerable within one region while potentially not being cumulatively considerable when viewed at the County level. From the list of projects, the following were determined to meet the criteria in the Valley Region: Harmony Specific Plan, Pepper Avenue Specific Plan, North Eastern Sphere Annexation Proposal (NESAP), and Renaissance Specific Plan. Two projects were identified in the Desert Region: Bandicoot Basin and Oak Hills Basin. The proposed program would have limited impacts to biological resources in the Mountain Region. No projects were identified in the Mountain Region that, when combined with the proposed program, would contribute to cumulatively considerable impacts to biological resources in the Mountain Region; therefore, cumulative impacts in the Mountain Region are not further analyzed in this section.

4.3.9.1 Valley Region

The following paragraphs summarize the relevant biological impacts from reasonably foreseeable projects in the Valley Region.

The Harmony Specific Plan project is located on approximately 1,657 acres in the eastern portion of the City of Highland, with Mill Creek forming the southern and southeastern boundary (City of Highland 2016). The project impacts include loss of 61.0 acres of Riversidean alluvial fan sage scrub (RAFSS) habitat, which would be mitigated through preservation and/or restoration and enhancement of a minimum of 85.3 acres of low-quality RAFSS habitat to high-quality RAFSS habitat. Potential mitigation sites include areas southwest of the Harmony Specific Plan project and within Mill Creek. Impacts to 2.4 acres of least Bell's vireo habitat would be mitigated through the acquisition, preservation, and management of 2.4 acres of biologically equivalent least Bell's vireo habitat within the project boundaries or in the project vicinity. The project would impact 14.3 acres of southern willow scrub/mulefat habitat, which would be mitigated at a 2:1 ratio through payment to an approved mitigation bank or in-lieu fee program, or restoration and enhancement of riparian vegetation.

The Pepper Avenue Specific Plan will guide development of approximately 101.7 acres in the City of Rialto, south of State Route 210 along Pepper Avenue (City of Rialto 2017). The project site includes approximately 36 acres of RAFSS occupied by San Bernardino kangaroo rat, within critical habitat. The majority (at least 30 acres, depending on the development scenario) of the habitat would be avoided. Permanent impacts would be

mitigated at a 3:1 ratio through purchase of credits from the Vulcan Materials mitigation land bank or equivalent preserved RAFSS habitat.

The Renaissance Specific Plan would impact approximately 63 acres of RAFSS habitat (City of Rialto 2016). This habitat is low quality and cut off from fluvial processes. Focused surveys for San Bernardino kangaroo rat will be conducted prior to issuance of grading permits and occupied habitat, if present, will be mitigated at a minimum 1:1 ratio through conservation of off-site suitable habitat.

The NESAP contains approximately 4,115 acres of land proposed for annexation to the City of Rancho Cucamonga. Based on the description in the City of Rancho Cucamonga Staff Report to the Planning Commission dated October 25, 2017, the initial design proposes 2,915 acres in the northern portion of NESAP as a Conservation Priority Area and the southern 1,200 acres as Development Priority Area (City of Rancho Cucamonga 2017). The Development Priority Area also includes conservation areas as depicted on Exhibit B of the Staff Report. Environmental documents are not yet available for the NESAP; however, the majority of the project site is designated as Flood Control and Public Utilities Land on the City of Rancho Cucamonga General Plan and portions are pre-zoned by the Etiwanda North Specific Plan as Flood Control, Resource Conservation, and Hillside Residential. Based on a review of Google Earth aerials, the project site sits on a historic flood plain and supports potentially jurisdictional waters and RAFSS habitat. The proposed conservation area within the Development Priority Area would conserve a substantial portion of these resources. According to the Staff Report, focused surveys were conducted for San Bernardino kangaroo rat and were negative. It is reasonable to assume that any impacts to RAFSS habitat as a result of this project would be mitigated in a similar fashion as other approved projects and would involve a minimum of 1:1 mitigation ratio of preservation and enhancement of existing RAFSS.

The proposed program would impact approximately 297 acres of RAFSS habitat in the Valley Region, including approximately 87 acres suitable for San Bernardino kangaroo rat. Impacts to habitat suitable for San Bernardino kangaroo rat would be mitigated through preservation, enhancement, and/or creation of 138.8 acres of suitable RAFSS habitat, and the remaining RAFSS habitat would be mitigated at a 1:1 ratio. Implementation of the proposed program in conjunction with other projects would reduce the net acreage of RAFSS habitat in the Valley Region. However, mitigation ratios for each project is greater than 1:1 and enhancement of preserved habitat would result in preserved habitat with higher functions and values than the habitat lost. Therefore, impacts to the functions and values of RAFSS habitat would not be cumulatively considerable.

4.3.9.2 Desert Region

The Bandicoot Basin and Oak Hills Basin were analyzed together through a mitigated negative declaration. Together these projects would impact approximately 95 acres of habitat suitable for Mohave ground squirrel (District 2014). The year prior to initiation of construction activities for each construction phase, a focused Mohave ground squirrel survey will be conducted and occupied habitat mitigated at a minimum 1:1 ratio. The proposed program would mitigate for impacts to 29.5 acres of suitable Mohave ground squirrel habitat at a minimum 1:1 ratio. With incorporation of mitigation measures, potential impacts in the Desert Region would not be cumulatively considerable.

The proposed program impacts associated with biological resources were found to be less than significant with incorporation of the mitigation measures in Section 4.3.7 and the SOPs in Sections 4.3.5 and 4.8.5. In addition, the proposed program would be required to comply with all applicable federal, state, and local requirements related to special-status plants, animals, and habitats, as well as to jurisdictional waters. Therefore, the proposed program would not have a significant cumulative impact on biological resources.

4.3.10 References

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4.4 CULTURAL RESOURCES

4.4.1 Introduction

This section of the environmental impact report (EIR) describes the existing cultural setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce cultural resources impacts, and evaluates potential impacts related to implementation of the proposed program.

For the purpose of this cultural resources analysis, the term "cultural resources" refers to all built environment resources (e.g., structures, bridges, railroads, water conveyance systems) and archaeological resources both prehistoric and historic. "Cultural resources" also refers to paleontological resources. Paleontological resources are fossilized remains of ancient plants and animals, typically more than 5,000 years old (older than recorded human history) and usually preserved in sedimentary rock.

The information in this section is based on the following reports and documents:

- Cultural Resources Inventory for the First Line of Defense (FLOD) Project near the Foothills of the San Gabriel and San Bernardino Mountains, ECORP 2015.
- Cultural Resources Compliance Report for the Master Stormwater System Maintenance Program, County of San Bernardino, California, PCR Services 2016.
- Cultural Resources Compliance Report (Compliance Report) for the Master Storm Water System Maintenance Program (Draft; Dudek 2017 – see Appendix F to this EIR)
- Systemwide Programmatic Agreement (Programmatic Agreement) for Compliance with Section 106 of the National Historic Preservation Act for Routine Maintenance and Repair Operations of the County of San Bernardino Master Storm Water System Maintenance Program (Draft; Dudek 2017)
- Preliminary Paleontological Resources Assessment: Literature and Records Review (Dudek 2017 – see Appendix F to this EIR)
- Paleontological Resources Impact Mitigation Program for the Master Storm Water System Maintenance Program (Dudek 2017 – see Appendix F to this EIR)

The Compliance Report and Programmatic Agreement are draft documents that are currently under review by the U.S. Army Corps of Engineers (USACE). These are key documents and the information contained therein is used throughout this Cultural Resources section of the EIR. These documents are linked to the current EIR, because USACE has allowed preparation of a

joint National Environmental Policy Act (NEPA)/Section 106 Compliance Report, Programmatic Agreement, and California Environmental Quality Act (CEQA) cultural resources report for review by the State Historic Preservation Officer (SHPO). The conclusions reached in the Programmatic Agreement or other document, as determined through consultation with the SHPO, will amend any CEQA conclusions. Citations for other documents referred to during preparation of this EIR section are provided in Section 4.4.10, References.

The analysis is based on whether the proposed program would result in impacts to historical, archaeological, or paleontological resources. To determine if impacts would occur to historical and archaeological resources, results from past inventories and evaluations were used for the Compliance Report to demonstrate the efficacy of a cultural resources screening process developed to determine the level of cultural resources analysis required to support routine maintenance and repair activities under the proposed program. In addition to past inventory and evaluation efforts, full-coverage surveys were completed for a sample of 29 facilities, partial coverage surveys were completed for 7 facilities, and brief site visits were completed at 6 facilities.

To determine whether impacts would occur to paleontological resources, a review of the mapped geologic units of the proposed program facilities was conducted as part of the Preliminary Paleontological Resources Assessment (Paleontological Assessment; see Appendix F).

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed routine maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through Figure 3-3L.

4.4.2 Regulatory Framework

Federal

National Environmental Policy Act of 1969

NEPA directs federal agencies to prepare a detailed statement of the environmental impacts of any “major federal action significantly affecting the quality of the human environment.” These statements are usually known as environmental assessments or environmental impact statements. The “human environment” consists of many aspects, including what NEPA terms “cultural resources.” Under NEPA, cultural resources include historic properties as defined under Section

106 of the National Historic Preservation Act of 1966 (NHPA), which is described in more detail in the next section. Cultural resources also include the cultural use of the physical and natural environment, social institutions, lifeways, religious practices, and other cultural institutions.

Section 106 of the National Historic Preservation Act

Compliance with Section 106 requires a sequence of steps, often referred to as the "Section 106 process." The steps include (1) identification of the area that will be affected by the proposed undertaking (area of potential effect (APE)); (2) identification of historic or archaeological properties; (3) evaluation of the eligibility of the properties for listing on the National Register of Historic Places (National Register); (4) determination of the level of effect of the undertaking on eligible properties; and (5) consultation with concerned parties and agreement in the form of a Memorandum of Agreement on avoidance, minimization, or mitigation of adverse effects on eligible properties. These steps are described in more detail in the following paragraphs.

As defined in the NHPA, an APE "is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The area of potential effect is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR 800.16(d)). Federal agencies define the cultural resources APE in consultation with the SHPO. The APE may or may not match the footprint of the project area.

Identification of historic or archaeological properties is done by means of pedestrian survey and research in appropriate historical and archaeological archives. The Secretary of the Interior has guidelines for qualifications for archaeologists and historians responsible for identifying, evaluating, recording, and providing treatment for historical and archaeological resources (36 CFR, Part 61). These guidelines are updated and published by the National Park Service (68 FR 43159–43162).

Evaluation of archaeological and historical property significance follows the significance criteria of the National Register. The National Register was established by the NHPA in 1966 to serve as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR, Part 60.2). The National Register recognizes properties that are significant at the national, state, and local levels. Guidelines for nomination (36 CFR, Part 60.4) require that significant resources exhibit aspects of important themes in American history, architecture, archaeology, engineering, and culture and possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

a. That are associated with events that have made a significant contribution to the broad patterns of our history; or

b. That are associated with the lives of persons significant in our past; or

c. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. That have yielded, or may be likely to yield, information important in prehistory or history.

The National Register Criteria for Evaluation provided the basis for evaluation and subsequent management recommendations for cultural resources identified in the APE.

In addition to meeting the National Register Criteria for Evaluation, a property must have integrity. "Integrity is the ability of a property to convey its significance" (NPS 1997, p. 44). According to National Register Bulletin 15, 'How to Apply the National Register Criteria for Evaluation' (NPS 1997), the National Register recognizes seven aspects or qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. In assessing a property's integrity, the National Register criteria recognize that properties change over time, therefore, it is not necessary for a property to retain all its historic physical features or characteristics. The property must retain, however, the essential physical features that enable it to convey its historic identity (NPS 1997, p. 46):

> A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character. Because feeling and association depend on individual perceptions, their retention alone is never sufficient to support eligibility of a property for the National Register.

For properties that are considered significant under National Register Criteria A and B, National Register Bulletin 15 states that a property that is significant for its historic association is eligible if it retains the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person(s) (NPS 1997).

In assessing the integrity of properties that are considered significant under National Register Criterion C, National Register Bulletin 15 (NPS 1997, p. 46) provides that a property important for illustrating a particular architectural style or construction technique must retain most of the physical features that constitute that style or technique:

> A property that has lost some historic materials or details can be eligible *if* it retains the majority of the features that illustrate its style in terms of the massing,

> spatial relationships, proportion, pattern of windows and doors, texture of materials, and ornamentation. The property is not eligible, however, if it retains some basic features conveying massing but has lost the majority of the features that once characterized its style.

Archaeological sites, in contrast to historical resources, are most often eligible under Criterion D for their "information potential." For properties eligible under Criterion D, less attention is given to their overall condition than if they were being considered under Criteria A, B, or C. Archaeological sites, in particular, do not exist today exactly as they were formed because there are always cultural and natural processes that alter the deposited materials and their spatial relationships. For properties eligible under Criterion D, integrity is based on the property's potential to yield specific data that address important research questions (NPS 1997, p. 46).

Effects of the proposed undertaking on eligible properties are determined by analysis and agreement between federal agencies, the SHPO, and other concerned parties. The California SHPO, the Office of Historic Preservation (OHP), established by the NHPA to implement historic preservation management at the state level, is mandated to review National Register nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review. Concurrence of the OHP on site evaluations and recommendations with respect to National Register eligibility and project effects will be required.

Memoranda of Agreement on avoidance, minimization, or mitigation of adverse effects on eligible properties are developed through the course of the project by federal agencies, the SHPO, and other parties concerned with the preservation and disposition of cultural resources, including Native American groups with affiliation to the APE.

The Section 106 review process should run parallel and be integrated with the NEPA process, and the results of Section 106 compliance should be completed and incorporated into the final NEPA environmental assessment.

Traditional Cultural Properties

The National Register contains a wide range of historic property types, reflecting the diversity of the nation's history and culture. Buildings, structures, and sites; groups of buildings, structures, or sites forming historic districts; landscapes; and individual objects are all included in the National Register if they meet the criteria specified in the National Register's Criteria for Evaluation, as discussed in the previous section. Such properties reflect many kinds of significance in architecture, history, archaeology, engineering, and culture.

One type of cultural significance a property may possess, and that may make it eligible for inclusion in the National Register, is traditional cultural significance. "Traditional" in this

context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices. Examples of properties possessing such significance include the following:

- A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world
- A rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents
- An urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices
- A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice
- A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity

A traditional cultural property, then, can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history and (b) are important in maintaining the continuing cultural identity of the community. Various kinds of traditional cultural properties will be discussed, illustrated, and related specifically to the National Register Criteria for Evaluation (NPS 1998, p. 1).

The primary data used to identify, document, and evaluate traditional cultural properties is obtained through ethnographic, ethnohistorical, historical, and archaeological studies, and consultation with knowledgeable informants. As part of the cultural resources review under Section 106 for the project, USACE shall take into consideration the identification and evaluation of traditional cultural properties.

State

California Environmental Quality Act

Archaeological Resources

CEQA is the principal statute governing environmental review of projects occurring in the state. CEQA requires lead agencies to determine whether a proposed project would have a significant

effect on archaeological resources (California Public Resources Code, Section 21000 et seq.). As defined in Section 21083.2 of the California Public Resources Code:

> "Unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition, CEQA Guidelines, Section 15064.5, broadens the approach to CEQA by using the term "historical resource" instead of "unique archaeological resource." The CEQA Guidelines recognize that certain historical resources may also have significance. According to the CEQA Guidelines a historical resource includes (1) a resource in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in California Public Resources Code, Section 5020.1(k), or identified as significant in a historical resource survey meeting the requirements of California Public Resources Code, Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of the California Public Resources Code and Section 15064.5 of the CEQA Guidelines apply. If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines (14 CCR 15000 et seq.), then the site is to be treated in accordance with the provisions of California Public Resources Code, Section 21083, which provides guidance for treatment of a unique archaeological resource. The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (14 CCR 15064.5(c)(4)).

Paleontological Resources

CEQA requires lead agencies to determine whether a proposed program would have a significant impact on paleontological resources. In particular, Appendix G (Part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that "a Program will normally result in a significant impact on the environment if it will … directly or indirectly destroy a unique paleontological resource or site or unique geologic feature." According to the Standard Environmental Reference for Paleontology prepared by the California Department of Transportation (Caltrans) (2008), the significance of a paleontological resource may be stated for a particular fossil species, fossil assemblage, or for a rock unit as a whole. There are two generally recognized types of paleontological significance:

- **National**: A National Natural Landmark-eligible paleontological resource is an area of national significance (as defined under 36 CFR, Part 62) that contains an outstanding example of fossil evidence of the development of life on earth.
- **Scientific**: Definitions of a scientifically significant paleontological resource can vary by jurisdictional agency and paleontological practitioner.

Generally, scientifically significant paleontological resources are identified sites or geological deposits containing individual fossils or assemblages of fossils that are unique or unusual, are diagnostically or stratigraphically important, and add to the existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (SVP 2010). Particularly important are fossils found in situ (undisturbed) in primary context (i.e., fossils that have not been subjected to disturbance subsequent to their burial and fossilization). As such, they aid in stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, paleoclimatology, the relationships between aquatic and terrestrial species, and evolution in general. Discovery of in situ fossil-bearing deposits is rare for many species, especially vertebrates. Terrestrial vertebrate fossils are often assigned greater significance than other fossils because they are rarer than other types of fossils.

The Society of Vertebrate Paleontology (SVP 2010, 1995) provides the following definitions of significance:

Significant Nonrenewable Paleontological Resources are fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate and botanic fossils except when present within a given vertebrate assemblage. Certain plant and invertebrate fossils or assemblages may be defined as significant by a project paleontologist, local paleontologist, specialist, or special interest groups, or by lead agencies or local governments.

A **Significant Fossiliferous Deposit** is a rock unit or formation that contains significant nonrenewable paleontological resources, here defined as comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces, and other data that provide taphonomic, taxonomic, phylogenetic, ecologic, and stratigraphic information (ichnites and trace fossils generated by vertebrate animals (e.g., trackways or nests and middens, which provide datable material and climatic information)). Paleontological resources are considered to be older than recorded history and/or older than 5,000 years before present (BP).

According to Caltrans (2008), scientifically significant paleontological resources are identified sites or geologic deposits containing individual fossils or assemblages of fossils that are unique or unusual, are diagnostically or stratigraphically important, and add to the existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (Reynolds 1990, p. 6, as cited in Caltrans 2008). Particularly important are fossils found in situ in primary context (e.g., fossils that have not been subjected to disturbance subsequent to their burial and fossilization). As such, they aid in stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphological evolution, paleoclimatology, the relationships between aquatic and terrestrial species, and evolution in general. Discovery of in situ fossil-bearing deposits is rare for many species, especially vertebrates.

California Register of Historical Resources

The California OHP, as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdiction.

Created by Assembly Bill 2881, which was signed into law on September 27, 1992, the California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code, Section 5024.1(a)). The criteria for eligibility for the California Register are based on the National Register criteria (California Public Resources Code, Section 5024.1(b)). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register (California Public Resources Code, Section 5024.1(d)).

To be eligible for the California Register, a prehistoric or historic property must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

2. Is associated with the lives of persons important in our past
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4. Has yielded, or may be likely to yield, information important in prehistory or history

A resource eligible for the California Register must meet one of the significance criteria described above and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historical resource may not retain sufficient integrity to meet the criteria for listing in the National Register but may still be eligible for listing in the California Register.

Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. The resource must also be judged with reference to the particular criteria under which it is proposed for eligibility (California Public Resources Code, Section 5024.1(d)).

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register
- California Registered Historical Landmarks from No. 770 onward
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Resources Commission for inclusion on the California Register

Other resources that may be nominated to the California Register include the following:

- Historical resources with a significance rating of Category 3 through Category 5[1]
- Individual historical resources
- Historical resources contributing to historic districts
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as a historic preservation overlay zone

[1] Those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register.

California Health and Safety Code

California Health and Safety Code, Section 7050.5 et seq., requires that if human remains are discovered in any place other that a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains.

Assembly Bill 52

Assembly Bill 52 (Chapter 532, Statutes of 2014) establishes a formal consultation process for California tribes as part of CEQA. Although Assembly Bill 52 became law on January 1, 2015, it only applies to projects that have a notice of preparation (NOP) or notice of negative declaration/mitigated negative declaration filed on or after July 1, 2015. The recirculated NOP for the proposed program was filed on June 30, 2014; therefore, tribal consultation under Assembly Bill 52 is not required.

Local

County of San Bernardino General Plan

The Conservation Element within Section V of the County's General Plan (adopted 2007) states the policies and goals for the identification and protection of cultural and paleontological resources within the County. The goals and policies relevant to the proposed program are provided below:

GOAL CO 3 The County will preserve and promote its historic and prehistoric cultural heritage.

Policy CO 3.1 Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity.

Policy CO 3.2 Identify and protect important archaeological and historic cultural resources in all lands that involves disturbance of previously undisturbed ground.

Policy CO 3.3 Establish programs to preserve the information and heritage value of cultural and historical resources.

Policy CO 3.4 The County will comply with Government Code Section 65352.2 (SB 18) by consulting with tribes as identified by the

California Native American Heritage Commission on all General Plan and specific plan actions.

Policy CO 3.5 Ensure that important cultural resources are avoided or minimized to protect Native American beliefs and traditions.

Other General Plans

General plans serve to guide and direct local government decision making for cultural resources. Generally, conservation or environmental resources elements in local jurisdictions' general plans focus on managing protection and curation of cultural resources. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding cultural resources. However, the proposed program would not conflict with these general plan policies.

4.4.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to cultural resources are based on criteria in Appendix G of the 2014 CEQA Guidelines, which is when the recirculated NOP was published. In 2017, Appendix G was updated to include questions about impacts to tribal cultural resources. Because the recirculation of the NOP pre-dates Assembly Bill 52 and the latest update to the CEQA Guidelines, tribal cultural resources questions are not included in this analysis. According to Appendix G, a significant impact related to cultural resources would occur if the project would meet or exceed any of the following impact thresholds:

Impact CR-1 ***Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?***

Impact CR-2 ***Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?***

Impact CR-3 ***Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Impact CR-4 ***Would the project disturb any human remains, including those interred outside of formal cemeteries?***

In June 2014, the District recirculated an NOP and Initial Study (see Appendix B of this EIR), which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. However, because further study was needed and had not been completed at the time the Initial Study was circulated for public review, all impact thresholds

(Impacts CR-1 through CR-4) were carried forward for further evaluation in this EIR section (see Section 4.4.6, Impacts Analysis).

4.4.4 Existing Conditions

4.4.4.1 History of the San Bernardino County Flood Control District

In the arid climate of San Bernardino County, flood control has played an important part in patterns of development across the region in the nineteenth and twentieth centuries. The water of the Santa Ana River Basin begins in the San Bernardino and San Gabriel Mountains and flows down the San Bernardino Valley. The major rivers and tributaries of the County have long affected agricultural and population growth, providing both a necessary resource and the potential for dangerous flooding. As development began to increase in the County, the damage caused by flooding increased dramatically and eventually led to the effort to try to control the floodwaters (Blumel et al. 2014, as cited in the Compliance Report (see Appendix F)). The following discussion primarily focuses on the history of flood control efforts in the Santa Ana River Basin, with an emphasis on the County and the development of the District.

Early Settlement

Flooding in the Santa Ana River Basin is recorded as far back as 1769 and the days of the Spanish Missions. Between 1769 and 1859 the area flooded at least 16 times, with one great flood in 1825. The 1825 flood was so powerful that it altered the course of the Santa Ana River and created a new entry point for the river into the Pacific Ocean. The largest flood on record occurred in 1862 and is referred to as the "Noachian Deluge." This great flood was brought on by a prolonged period of rain lasting nearly a month (from Christmas 1861 to January 18, 1862). On January 18, 1862, heavy rain fell for a full 24 hours. Large stretches of land along the Santa Ana River were underwater and in some places, water completely filled the valley. A flood of similar magnitude hit the area in 1867, but caused less damage. 1883 to 1884 was the wettest season in County history, with a recorded rainfall of 36.5 inches. The dramatic rainfall produced a flood in March of 1884, called "the Great Flood of Later Times," damaging new railroad structure and changing the course of the Santa Ana River. Another large flood came down the Santa Ana River in 1891, followed by lesser flood events in 1910 and 1916. These floods caused millions of dollars of damage, and in one case swept away 20 families along Plunge Creek. During these early twentieth century floods, the Santa Ana River's width could increase to 2 miles or more, with a depth of 20 feet (District 2010, as cited in the Compliance Report (see Appendix F)).

Late Nineteenth and Early Twentieth Century Flood Control Efforts

During the late nineteenth and early twentieth centuries, flood control was a major issue for the County, especially along Lytle Creek. The flooding around Lytle Creek was so devastating that it

threatened to render the fertile land around it useless for agriculture. Residents were eager for the County to pay for the necessary infrastructure to protect their lands, although this was well before the creation of the District. Flood control in this period was typically undertaken on an as-needed basis and no single entity was responsible for constructing flood control infrastructure. Flood protection was built and paid for by a variety of groups and individuals, including municipalities, private citizens, water companies, and railroad companies. In this period directly preceding the formation of the District, there was pressure from citizens for some organization to be created to deal with the problem of flooding in the region. In 1891, the County formed a committee to oversee the construction of flood control along Lytle Creek and create flood protection for Old San Bernardino, but it took several years for any infrastructure to be built (Blumel et al. 2014, as cited in the Compliance Report (see Appendix F)).

Efforts to create a more centralized approach to flood control in the County in the early twentieth century came about in the attempted formation of local stormwater protection districts. The passage of the Storm Water District Act of 1909 by the California State Legislature allowed for the creation of such districts. However, the districts proved politically contentious and never got the backing they needed to be effective in stemming the destruction of the area's floods. The only district in the County that appears to have been formed was the Cucamonga Storm Water Protection District, formed in 1910. In the rest of the County, the County government ended up levying taxes and utilizing other County departments to put flood control infrastructure in place where possible. County road construction workers were often put to work repairing damaged flood infrastructure in emergency situations, sometimes with the help of local citizens and railway workers (Blumel et al. 2014, as cited in the Compliance Report).

With the continued problems of flooding affecting large swaths of the County, a new County-wide storm protection district was proposed in 1916. The passage of the Conservancy Act in 1919 allowed for the creation of such districts across multiple counties, and a district combining San Bernardino, Riverside, and Orange Counties was discussed. However, as in the past, this combined district never came to be and the laissez-faire flood control policies continued. The lack of centralized effort left the County to cope with emergency flood control through whatever means available. This often meant relying on cities and major railroads within the County who had a vested interest in the control of the flood waters. The two decades directly preceding the creation of the District saw the creation of storm protection walls, check dams, debris basins, spreading grounds, and runoff channels. Many such projects were completed by the unemployed during the Great Depression through organizations such as the State Emergency Relief Administration and the Works Progress Administration (Blumel et al. 2014, as cited in the Compliance Report).

Early Years: San Bernardino County Flood Control District

The event that finally led to the creation of the District was the flood of March 1938. That spring, one of the worst floods in County history devastated the region. The flood resulted in the loss of numerous lives, left more than 1,500 people homeless, shut down schools, and resulted in the temporary loss of gas and water services. The flood caused $15 million in damage, a figure that included the loss of personal property as well as damage to public infrastructure. The flood was less powerful than the floods of the mid-1800s, but caused more damage due to development in the vicinity of the Santa Ana River. Following the flooding, federal and state funds were allocated to increase and improve the flood control infrastructure in Southern California. The inefficiency that previously characterized flood control in the region gave way to vigorous effort in the wake of the destruction brought by the March 1938 floods. In San Bernardino County, the new zeal for flood control brought plans for dams, dikes, and drains across the County.

The state legislature created the District in early May of 1939 and C.E. Grier was named chairman. The purpose of the District was to prevent and mitigate damage in subsequent floods. The powers granted to the District at its formation extended beyond flood control and prevention to water supply protection, development, and conservation, as well as watershed and watercourse protection. The boundaries of the District mirror that of San Bernardino County and include the Santa Ana River Basin, San Bernardino Valley, San Gabriel and San Bernardino Mountains, Mojave River Valley and Basin, and Colorado River Valley (District 2010 and Los Angeles Times 1939, both as cited in the Compliance Report (see Appendix F)).

After the creation of the District, San Bernardino County experienced a lull in extreme flood activity for a period of over 30 years. During this relatively quiet period, flood control infrastructure in the County continued to be developed. By April of 1940, the Prado Dam was under construction on the Santa Ana River to prevent future disastrous floods like the one that had occurred in 1938.

World War II Era

With the push of resources to the Pacific Theater following the Allied victory in Europe toward the end of World War II, additional money became available for District projects that were considered important to the war effort. Congress became intensely interested in floods in Lytle and Cajon Creeks within the District. These two flood-prone creeks were located near three transcontinental rail lines, and in 1943 flooding in the area washed out railroad trestles, causing a chain-reaction delay in freight-train traffic stretching all the way back to Chicago. In the midst of World War II, Congress deemed this an unacceptable risk to transportation of wartime goods to the West Coast and then on to the Pacific Theater. In 1945, funds were allocated for a 14-mile-long drainage basin for flood control in Lytle and Cajon Creeks in order to prevent railroad lines

from washing out in the event of a flood. Control of the creek, which leads into the Santa Ana River, was instrumental in preventing future flood disasters. Work on the project continued at high intensity even after the end of the war. By early 1946, the main channel of the Lytle and Cajon Creek drainage improvement was nearing completion. The channel was 40 feet wide with concrete walls 22 to 25 feet high. The secondary 11 miles of levees, groins, and bypasses soon followed the main channel to protect the residents of San Bernardino and Colton (Los Angeles Times 1945 and 1946, both as cited in the Compliance Report (see Appendix F)).

Postwar Expansion

Development of flood control infrastructure continued after the war. An easement granted to the District in the spring of 1953 allowed for the construction of check dams, basins, and other flood control facilities to deal with runoff from the Cucamonga watershed. This new project was designed to augment the existing basins and channels in the area. Collected runoff was conserved in basins, with surplus allowed to flow into the Santa Ana River. The Cucamonga Creek flood control project was in the works by April 1967.

Following the winter floods of 1966, the U.S. Office of Emergency Planning gave the District a grant of $752,670 to repair damaged flood control facilities, although the money was not allocated until the following spring. In 1968, the largest flood control project in the County to date was approved by the U.S. Senate after 12 years of lobbying. A total of $26.3 million in federal funds was distributed between four projects in the region, including the District project to redirect runoff from the San Gabriel Mountains through Cucamonga Creek to the Prado Reservoir. Congress was only persuaded to grant funds to the project when plans for increased growth and development, including the construction of Ontario International Airport, convinced them of its importance. The District added an additional $9 million in funds to the project, which would protect three freeways and three rail lines from flood damage (Los Angeles Times 1967 and 1968, both as cited in the Compliance Report (see Appendix F)).

Eclipsing, in many respects, the flood of 1938 were the two floods of January and February 1969, which occurred only a month apart. Rainfall intensities and amounts and runoff peaks, except for the Mojave River and its tributaries, were generally greater during the two 1969 floods than in 1938. Although flood control facilities functioned well during the January flood period, there was insufficient time to perform necessary repairs and maintenance before the late February storm struck, causing nearly twice as much damage. Financial losses in San Bernardino County alone amounted to more than $23 million from the January storm and more than $31 million from the February storm (District 2010, as cited in the Compliance Report).

Late Twentieth Century to the Present

Ten years later, in 1978, another substantial flood occurred in the County and damaged existing flood control facilities. The earth levees at Cucamonga Channel eroded enough during the flood to warrant the evacuation of Rancho Cucamonga. The Cucamonga Creek USACE Channel was completed the next year to provide flood protection for cities on the west end. District facilities had already taken $750,000 in damage 2 years previously, during intense localized rainfall in the eastern portion of the County in 1976. Storms in the San Bernardino Mountains in the 1980s caused additional problems. In 1980, heavy rain in the mountains caused mud and debris to flow into the Harrison Basin, which subsequently overflowed and destroyed 25 to 30 homes and damaged 25 more in a nearby neighborhood. Small Canyon Basin also overflowed, causing damage to houses along the Small Canyon Outlet Channel and Highland Avenue. Flooding in the first part of 1980 caused $8 million in damages to District facilities. Later that year the District received $5 million in federal funding to over-excavate its basins (District 2010, as cited in the Compliance Report (see Appendix F)).

An unexpected and unusual storm event struck in the early morning hours of October 7, 1997, over the Sand Creek and Little Sand Creek watersheds, causing flash flooding through portions of the cities of San Bernardino and Highland and San Bernardino County Service Area 38. The major cause of the flooding was the vast amount of floatable (organic) debris and mud produced from the burned watersheds of the Hemlock Fire, which had occurred in July 1997 (District 2010, as cited in the Compliance Report)). In October 2003, the San Bernardino Valley experienced two large fires (the Grand Prix Fire and the Old Fire) that charred most of the foothill watershed. Not long after the fires, on December 25 and 26, 2003, a Pacific storm system moved through Southern California. Heavy rain fell over much of the mountains and foothills, causing flash flooding, with debris washing across several highways and roads. In a few locations, including Lytle Creek and south of Crestline, rainfall rates of up to an inch per hour were recorded causing debris slides. There was heavy damage and loss of life in Waterman Canyon and Cable Canyon (District 2010, as cited in the Compliance Report). Most recently, in December 2010, flooding hit the Highland region, resulting in major damage to homes, roads, and bridges.

Historical Summary Statement

Water and storm protection projects were at the center of agricultural growth and town building in the San Bernardino Valley from the early 1880s, stimulating the creation of many cooperative irrigation districts in the late nineteenth and early twentieth centuries. Early efforts to control flooding, although often supported by the Board of Supervisors, were sporadic and were generally carried out by County road crews, often in cooperation with cities and railroad companies. During the Great Depression, again with the support of the Board of Supervisors, government work programs like the State Emergency Relief Administration, the Civil Works

Administration, and its successor, the Works Progress Administration, resulted in considerably larger and more organized flood control improvements. However, despite decades of effort by legislators to create a central agency specifically to address flood control, none existed until after the flood of 1938. The formation of the San Bernardino County Flood Control District in 1939 initiated a period of unprecedented activity in water conservation and flood control construction, originally focused primarily on the San Bernardino Valley, for almost two decades. In 1949, the County began purchasing imported water from the Colorado River, ending the total dependency on rainfall and stored local water. By the middle of the 1950s, much of the construction activity that had been centered on the San Bernardino Valley was beginning to shift to the Mojave Desert portion of the County, mostly along the Mojave River channel near Barstow and Victorville.

From the beginning, the District has cooperated with the U.S. Bureau of Reclamation and USACE. Major projects, such as Prado Dam (1941), the Lytle–Cajon flood channel and levees (1948), the Santa Ana River levees through Riverside (1950), San Antonio Dam (1956), the Mill Creek Levees (1960), and Seven Oaks Dam (2000) have been carried out by USACE, in cooperation with all three county/local flood control agencies (San Bernardino, Riverside, and Orange). In the San Bernardino Valley and surrounding areas, the District has completed hundreds of smaller-scale undertakings, including stream channelization, levees, small dams and debris basins, and spreading grounds for artificial groundwater recharge (District 2010 and Scott 1977, both as cited in the Compliance Report (see Appendix F)). Today, using a professional group of engineers and planners, the District continues to build new facilities, as well as improving and maintaining all types of existing flood control facilities across the County in the interest of public safety.

4.4.4.2 Cultural Context

Prehistory is most easily discussed chronologically, in terms of environmental change and recognized cultural developments. Several chronologies have been proposed for the Mojave Desert region and Southern California (or the San Bernardino Valley region), which are presented in this section.

San Bernardino Valley Area

The most widely accepted chronology for Southern California that will be applied, for the current analysis to the San Bernardino Valley area, is Wallace's four-part Horizon format (Wallace 1955, as cited in the Compliance Report (see Appendix F)), which was later updated and revised by Claude Warren (1968, as cited in the Compliance Report). The advantages and weaknesses of Southern California chronological sequences are reviewed by Warren (in Moratto 1984), Chartkoff and Chartkoff (1984), and Heizer (1978) (all as cited in the Compliance Report). The following

discussion is based on Warren's sequence (1968, as cited in the Compliance Report) and the more recent Byrd and Raab sequence (2007, as cited in the Compliance Report).

Paleo-Indian Period/Terminal Pleistocene (ca. 13,000–10,000 YBP)

Little is known of Paleo-Indian peoples in inland Southern California, and the cultural history of this period follows that of North America in general. Recent discoveries in the Americas have challenged the theory that the first Americans migrated from Siberia, following a route from the Bering Strait into Canada and the Northwest Coast sometime after the Wisconsin Ice Sheet receded (ca. 14,000 years before present (YBP)), and before the Bering Land Bridge was submerged (ca. 12,000 YBP). A coastal migration route somewhat before that time is also possible. The timing, manner, and location of this crossing are a matter of debate among archaeologists, but the initial migration probably occurred as the Laurentide Ice Sheet melted along the Alaskan Coast and interior Yukon. The earliest radiocarbon dates from the Paleo-Indian Period in North America come from the Arlington Springs Woman site on Santa Rosa Island. These human remains date to approximately 13,000 YBP (Johnson et al. 2002, as cited in the Compliance Report). Other early Paleo-Indian sites include the Monte Verde Creek site in Chile (Meltzer et al. 1997, as cited in the Compliance Report) and the controversial Meadowcroft Rockshelter in Pennsylvania. Both sites have early levels dated roughly at 12,000 YBP. Life during the Paleo-Indian Period was characterized by highly mobile hunting and gathering. Prey included megafauna such as mammoth and technology included a distinctive flaked-stone toolkit that has been identified across much of North America and into Central America. They likely used some plant foods, but the Paleo-Indian toolkit recovered archaeologically does not include many tools that can be identified as designed specifically for plant processing.

The megafauna that appear to have been the focus of Paleo-Indian life went extinct during a warming trend that began approximately 10,000 years ago, and both the extinction and climatic change (which included warmer temperatures in desert valleys and reduced precipitation in mountain areas) were factors in widespread cultural change. Subsistence and social practices continued to be organized around hunting and gathering, but the resource base was expanded to include a wider range of plant and game resources. Technological traditions also became more localized and included tools specifically for the processing of plants and other materials. This constellation of characteristics has been given the name "Archaic" and it was the most enduring of cultural adaptations to the North American environment.

Early Archaic/Early Holocene (ca. 10,000–8,000 YBP)

The earliest Archaic Period life in inland Southern California has been given the name San Dieguito tradition, after the San Diego area where it was first identified and studied (Warren 1968, as cited in the Compliance Report). Characteristic artifacts include stemmed projectile

points, crescents and leaf-shaped knives, which suggest a continued subsistence, focus on large game, although not megafauna of the earlier Paleo-Indian period. Milling equipment appears in the archaeological record at approximately 7,500 years ago (Moratto 1984, p. 158, as cited in the Compliance Report). Artifact assemblages with this equipment include basin milling stones and unshaped manos, projectile points, flexed burials under cairns, and cogged stones, and have been given the name La Jolla Complex (7,500–3,000 YBP). The transition from San Dieguito life to La Jolla life appears to have been an adaptation to drying of the climate after 8,000 YBP, which may have stimulated movements of desert peoples to the coastal regions, bringing milling stone technology with them. Groups in the coastal regions focused on mollusks, while inland groups relied on wild-seed gathering and acorn collecting.

Archaic or Milling Stone Period/Middle Holocene (ca. 8,000–3,000 YBP)

In Central and Southern California, "millingstone" cultures appeared around 8,000 to 7,000 YBP. These cultures focused on the collection and processing of plant seeds and the hunting of a variety of medium and small game animals. The most common artifacts are manos and milling stones (metates) and large core-cobble chopping tools. Other artifacts include hammerstones, large flake tools including scraper-planes and scrapers, worked bone, beads, cogged stones, discoidals, doughnut stones, and stone balls. Projectile points (usually large leaf-shaped points and Elko points) are not plentiful, but faunal remains indicate deer and rabbits were hunted. Sites near bays and estuaries contain abundant shell and fish remains (Byrd and Raab 2007, as cited in the Compliance Report).

Intermediate Period/Late Holocene (ca. 3,000–1,350 YBP)

The intermediate period is characterized by the initial use of the mortar and pestle to process food stuffs such as seeds, acorns, and greens. Large projectile points, including Elko points, indicate that hunting was probably accomplished with the atlatl (spear thrower). The settlement pattern may have been semi-sedentary with winter residential bases near a permanent water source and use of temporary camps for resource collection during the rest of the year.

Late Prehistoric Period/Late Holocene (ca. 1,350 YBP–AD 1769)

The bow and arrow is introduced at the beginning of the Late Prehistoric Period, which made hunting more efficient and productive while ceramics were adopted after AD 1000. Many scholars believe that migrations occurring at this time resulted in new forms of social expression (such as cremations replacing inhumations) and in the creation of the linguistic and cultural landscape at European contact (Byrd and Raab 2007, as cited in the Compliance Report). An important food resources for inland groups was acorns gathered from oak groves in canyons, drainages, and foothills. Acorn processing was labor intensive, requiring grinding in a mortar and leaching with water to remove tannic acid.

The Medieval Climatic Anomaly (1,050–600 YBP) was a warmer, drier period that occurred during the Late Prehistoric Period that may have resulted in more intensive use of resources and settlement in permanent villages near water sources in inland areas such as the San Bernardino Valley. In San Diego County, Meighan (1954, as cited in the Compliance Report) identified the period after AD 1400 as the San Luis Rey complex. San Luis Rey I (AD 1400–1750) is associated with bedrock mortars and milling stones, cremations, small triangular projectile points with concave bases, and Olivella beads. The San Luis Rey II period (AD 1750–1850) is marked by the addition of pottery, red and black pictographs, cremation urns, steatite arrow straighteners, and non-aboriginal materials (Meighan 1954, p. 223, and Keller and McCarthy 1989, p. 6, both as cited in the Compliance Report). Work at Cole Canyon and other sites in Southern California suggests that this complex, and the ethnographically described life of the native people of the region, were well established by at least 1000 YBP (Keller and McCarthy 1989, p. 80, as cited in the Compliance Report).

Mojave Desert Region

Table 4.4-1 summarizes a regional chronology and associated cultural complexes for the Mojave Desert region.

Table 4.4-1
Temporal Periods and Complexes in the Mojave Desert

Temporal Period	Cultural Complex	Approximate Dating	Previously Known As	Marker Artifacts
Pleistocene	Pre-Clovis (hypothetical)	Pre-10,000 BC	Early Man Early Humans Pre-Projectile Point	Unclear
	Paleo-Indian	10,000–8000 BC	Clovis Early Systems Big Game Hunting Tradition Malpais	Fluted points (Clovis)
Early Holocene	Lake Mojave Pinto	8000–6000 BC	Western Pluvial Lakes Tradition Western Lithic Co-tradition Western Stemmed Tradition Playa Complex San Dieguito Complex Lake Mohave Complex Early Archaic Death Valley I Period I	Stemmed points (e.g., Lake Mojave, Silver Lake)
Middle Holocene		7000–3000 BC	Little Lake Amargosa I Period II Death Valley II	Pinto Series points
	Deadman Lake		N/A	Contracting stemmed and leaf-shaped points

Table 4.4-1
Temporal Periods and Complexes in the Mojave Desert

Temporal Period	Cultural Complex	Approximate Dating	Previously Known As	Marker Artifacts
Late Holocene	Gypsum	2000 BC–AD 200	Newberry Elko Amargosa II Period II Death Valley II	Gypsum and Elko Series points
	Rose Spring	AD 200–1100	Saratoga Springs I Period III, Phase II Late Rose Spring Haiwee Death Valley III Period III Saratoga Amargosa I Amargosa III	Rose Spring and Eastgate Series points
	Late Prehistoric	AD 1100–Contact	Yuman Hakataya Patayan Period IV Prehistoric Shoshonean Protohistoric Shoshonean Marana Cottonwood	Desert Series points, ceramics

Source: Sutton et al. 2007, as cited in the Compliance Report (see Appendix F).

Ethnohistory

The proposed program area lies within an area where several ethnographic groups claim affiliation. These groups include the Cahuilla, Chemehuevi, Gabrielino, and Serrano. Therefore, the existing conditions as they relate to archaeology are organized by tribal settlement area rather than by geographic region (Valley, Mountain, and Desert).

Cahuilla

The Cahuilla occupied a large area in the geographic center of Southern California that was bisected by the Cocopa–Maricopa Trail in addition to Santa Fe and Yuman Trails. They occupied an area from the summit of the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, portions of the Colorado Desert west of the Orocopia Mountains to the east, and the San Jacinto Plain near Riverside and the eastern slopes of Palomar Mountain to the west (Bean 1978, as cited in the Compliance Report (see Appendix F)). The Cahuilla hunted with throwing sticks, clubs, nets, traps, deadfalls with seed triggers,

spring-poled snares, and arrows (often poison-tipped) and self-backed and sinew-backed bows. They sometimes ignited bush clumps to drive game out in the open, and lit flares to attract birds at night. Baskets of various kinds were used for winnowing, leaching, grinding, transporting, parching, storing, and cooking. Pottery vessels were used for carrying water, storage, cooking, and serving food and drink. Cahuilla tools included mortars and pestles; manos and metates; fire drills; awls; arrow-straighteners; flint knives; wood, horn, and bone spoons and stirrers; scrapers; and hammerstones. Woven rabbitskin blankets served to keep people warm in cold weather. Feathered costumes were worn for ceremonial events, and at these events the Cahuilla used rattles derived from insect cocoons, turtle and tortoise shell, and deer hooves, along with wood rasps, bone whistles, bull-roarers, and flutes, to make music. They wove bags, storage pouches, cords, and nets from the fibers of yucca, agave, and other plants (Bean and Vane 2002).

Chemehuevi

The Chemehuevi ranged from the Mojave River to the San Bernardino Mountains, which were, according to Laird (1976, p. 7, as cited in Bean and Vane 2002 (as cited in the Compliance Report)) a "familiar hunting ground, well-sprinkled with Chemehuevi place names." The material culture practiced by the Chemehuevi is similar to that of their Mojave, Serrano, and Cahuilla neighbors. The women were skilled basket makers, but made little pottery. Their coiled baskets resembled those of the San Joaquin Valley rather than those of Southern California, often having constricted necks. Caps, triangular trays, and carrying baskets were diagonally twined. They usually painted designs on the baskets, rather than weaving them into the basket. The Chemehuevi often stored food, after drying or cooking it, in granaries or ceramic jars at their homes, or, on trips through the desert, by burying it in the ground or putting it in caves in pots or baskets. Edible seeds were often stored in baskets covered with potsherds and greasewood gum. The hearts of mescal and other plant resources were boiled and pounded into slabs for storage. Meat and the pulps of melon and squashes were dried. The need for caches of food and other goods was sufficiently important that stealing food from someone else's cache was enough to bring on a war (Laird 1976, p. 6, as cited in Bean and Vane 2002 (as cited in the Compliance Report)). Trafzer et al. (1997, as cited in Bean and Vane 2002 (as cited in the Compliance Report)) note that Chemehuevis had lived at the oasis of Twentynine Palms (Oasis of Mara) many times before the 1860s, as had other Indian groups. The "Serranos had previously inhabited the area in the 1850s and early 1860s, but when they returned to [Twentynine] Palms in 1867–1868, they found Chemehuevis living there" (Trafzer et al. 1997, p. 67, as cited in Bean and Vane 2002 (as cited in the Compliance Report)).

Gabrielino

The Gabrielino (or Gabrieleño, Tongva, or Kizh) occupied territory that included the Los Angeles Basin, the coast of Aliso Creek in Orange County in the south to Topanga Canyon in the

north, the four southern Channel Islands, and watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. Their name is derived from their association with Mission San Gabriel Arcángel, which is 25 miles west of the proposed program area. The Gabrielino were not the first inhabitants of the Los Angeles Basin, but arrived around 500 BC. The language of the Gabrielino people has been identified as a Cupan language within the Takic family, which is part of the larger Uto-Aztecan language family. Uto-Aztecan speakers arrived in Southern California in what is known as the Shoshonean migration, which current archaeological and linguistic evidence suggests originated in the Great Basin and displaced the already established Hokan speakers. The Gabrielino were advanced in their culture, social organization, religious beliefs, and art and material production. Class differentiation, inherited chieftainship, and intervillage alliances were all components of Gabrielino society.

At the time of European contact, the Gabrielino were actively involved in trade using shell and beads as currency. The Gabrielino were known for excellent artisanship in the form of pipes, ornaments, cooking implements, inlay work, and basketry. The Gabrielinos evolved an effective economic system that managed food reserves (storage and processing), exchanged goods, and distributed resources. Otherwise, few specifics are known of Gabrielino lifeways. Data collected and presented by Kroeber in 1925 indicate that homes were made of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925, as cited in the Compliance Report). Basketry and steatite vessels were used rather than ceramics; ceramics became common only toward the end of the mission period in the nineteenth century. The Gabrielino held some practices in common with other groups in Southern California, such as using jimsonweed in ceremonies as did the Luiseño and Juaneño, but details of the practices and the nature of cultural interaction between the Gabrielino and other groups in Southern California are unknown.

Serrano

According to Bean and Smith (1978, as cited in the Compliance Report), it is not possible to delineate the tribal territory of the Serrano given the lack of reliable information and sociopolitical organizational features. However, many researchers agree that the Serrano occupied areas of the San Bernardino Mountains east of the Cajon Pass, at the base and north of these mountains in the desert near Victorville and east toward Twentynine Palms, and south to and in the Yucaipa Valley. The Serrano gathered various plant foods for subsistence, including acorn nuts, piñon nuts, yucca roots, mesquite, cactus fruits, and chia. They hunted various game resources, including deer, mountain sheep, antelope, rabbits and other small rodents, and various birds. Settlement patterns were determined by availability and accessibility to water and many villages were situated near reliable water sources (Bean and Smith 1978, as cited in the Compliance Report).

4.4.4.3 Archaeology and Built Environment

Due to the large number of facilities and maintenance activities within the proposed program, a project-specific analysis of all cultural resources was not feasible. Instead, the County completed an extensive sampling process that included a systemwide records search and pedestrian surveys of a large number of flood control facility types. Moreover, in-depth NEPA/Section 106 inventories and evaluations were conducted of select First Line of Defense (FLOD) Project flood control facilities. These studies were sufficient to develop a screening process that determines whether maintenance activities are exempt from further cultural resources review, or have the potential to adversely impact cultural resources and therefore require additional work for Section 106 compliance. The screening process is a tool to be used by County staff to augment the list of routine maintenance and repair activities that are considered exempt from further cultural resources review. The screening process may be amended through consultation with the SHPO.

A systemwide cultural resources records search and sample inventory of facilities was completed by Michael Brandman Associates (MBA) for the FLOD Project (Dice et al. 2012, as cited in the Compliance Report (see Appendix F)), as defined in Chapter 3. ECORP Consulting Inc. (ECORP) completed an additional records search and inventory for the FLOD Project (Garcia et al. 2016, as cited in the Compliance Report).

The records search results indicated that 1,042 cultural resources have been recorded in or within a quarter-mile radius of the proposed program's facilities. The resources include all cultural resource types, including built-environment resources, prehistoric archaeological resources, and historic archaeological resources. A more detailed discussion of the results of MBA's records searches by facility is provided in Dice et al. (2012, as cited in the Compliance Report) and is reproduced in Appendix C of the Compliance Report (see Appendix F).

Dudek reviewed the Dice et al. (2012) and Garcia et al. (2016) reports (both as cited in the Compliance Report), and completed cultural resources surveys and built environment evaluations for a sample of 42 facilities.

The sample analysis of 42 facilities indicated that many of the proposed maintenance activities would not require further cultural resource review, and that certain routine maintenance or repair activities would not require review regardless of the condition of the facility. Please refer to Table 4.4-2 (see Section 4.4.6.2, Analysis) for a listing of maintenance activities exempt from further cultural resources review.

Considering archaeological resources, routine maintenance activities associated with the proposed program that include ground-disturbing activities (e.g., grubbing/clearing/blading, grading, disking, and mechanized land clearing) in native (or virgin) soils are activities that have potential to impact archaeological resources. However, if these activities are conducted in

artificial fill or engineered soils or in areas of the facility where the past disturbance was so severe as to preclude the existence of intact archaeological deposits (e.g., the original construction and subsequent/continued alteration, modification, and maintenance of the facilities), then these activities would not require additional cultural resources review in regard to archaeological resources. For instance, storm drains are typically underground, have been constructed from fill materials, and are located in heavily disturbed contexts since they are typically found in developed areas. Levees are aboveground features that are typically located near high-energy watercourses such as large washes and rivers and are constructed from artificial fill, engineered earth materials, or locally sourced material from the adjacent wash deposits. Lastly, many basin and channel facilities (and other facility types) have typically undergone deep excavation to build the facilities, which has displaced native soils.

Maintenance activities associated with the proposed program that include alterations or repair (e.g., bank repair, flood control structure repair, graffiti removal) of existing facilities or a structure or built-environment feature that are 50 years of age or older at the time of the maintenance are activities that could materially change, and therefore potentially impact, built environment resources. However, if these maintenance activities are conducted at facilities that are less than 50 years of age, or in areas of the facility where the activity will not alter the facility's character-defining features (i.e., the features of the facility that convey its historic significance), or are located within the limits of previous maintenance activities, then these activities would therefore not require cultural resources review. The majority of the proposed maintenance activities do not require the physical alteration of the features of the facility. To have an impact, a maintenance activity would have the potential to diminish one of the seven aspects of integrity (location, setting, design, workmanship, materials, feeling, and association) of the facility. Activities that do not impact the built environment, such as vegetation management, herbicide and rodenticide application, fuel modification maintenance, and sediment/debris removal in areas that have been routinely maintained would not be a threat to built environment resources. Many facilities are younger than 50 years in age; therefore, the proposed maintenance activities would not require additional review for impacts to built environment resources.

There is a potential for other built environment resources to be present within the proposed program area that are not part of the current working facility. These resources may be previously identified or potential unevaluated resources. The potential impact to these resources must also be considered. As stated above, many maintenance activities would not physically alter these resources or potential resources, and would therefore not require cultural resource review. However, because the District cannot repair, alter, remove, or replace flood control appurtenances without review by a qualified architectural historian or cultural resources specialist, these resources would also be analyzed during the screening process.

Table 4.4-2 (see Section 4.4.6.2) describes other maintenance and repair activities that would cause no impact to archaeological or built environment resources.

4.4.4.4 Paleontology

The general geology and brief reference to paleontological resources known from each geographical region of the County are described in this section and characterized by watershed.

Valley Region

Chino Hills: The Chino Hills area consists of Miocene marine sediments including the Soquel, Yorba, and Sycamore Canyon members of the Puente Formation (Morton and Miller 2006; Durham and Yerkes 1959; Reynolds 1985, 1989a, 1989b; and Kinoshita 1992; all as cited in the Paleontological Assessment (see Appendix F)). These marine sediments are very fossiliferous, containing fossil remains of whales, porpoise, birds, fish, sharks, mollusks, seaweed, and leaves of plants from the adjacent continent (Reynolds, pers. obs. n.d.a, as cited in the Paleontological Assessment). Canyons incised into the marine sediments contain late Pleistocene fill with Ice Age vertebrate fossils. At the Carbon Canyon Wastewater Facility in the Chino Hills, giant ground sloth and camel fossils were discovered 11 feet below surface (Reynolds and Reynolds 1991a, as cited in the Paleontological Assessment). The marine and Pleistocene sediments are covered by a thin layer of recent soil.

Chino: The Chino area is located on flat lands east of the Chino Hills that consist of a thin layer of Holocene (recent) sediments overlying fossiliferous sediments at shallow depth. Ice Age bison, mammoth, and horse fossils have been recovered north of the intersection of Euclid and Pine Avenues (Roeder, pers. comm. 2014, as cited in the Paleontological Assessment).

Literature review indicates that paleontological resource localities are known from this portion of the western San Bernardino Basin (Reynolds and Reynolds 1991a, as cited in the Paleontological Assessment). A fossil of the saber-tooth cat *Smilodon* sp. was reported from Declezville (western Fontana), 5 feet below surface on the north side of the Jurupa Hills. Near Banana Street, in western Fontana, a mastodon fossil was located at shallow depth. At the site of Champagne, on the east side of Interstate 15 (I-15), a mammoth fossil was recovered from a 5-foot depth in a flood control basin. These localities suggest that there is a high potential for significant vertebrate fossils to be encountered by excavation below a depth of 3 feet in the San Bernardino Basin (Reynolds and Reynolds 1991a, as cited in the Paleontological Assessment).

Upland – Rancho Cucamonga: The area south of I-210 contains yellowish silty sands at depths between 1 and 5 feet. The KB Home Lexington and Brighton Tracts 16454 and 16455 are located immediately north of the KB Home Tract 16643 on Emma Lane. The excavation monitoring program for these tracts (Reynolds 2004a, as cited in the Paleontological Assessment) located the

first Pleistocene fossils known from Rancho Cucamonga. These included fossil remains of pocket gopher (*Thomomys* sp.; cf. *T. bottae*, Botta's pocket gopher) and woodrat (*Neotoma* sp.; cf. *N. lepida*, desert woodrat). Excavations in Rancho Cucamonga along or north of Base Line Road (Reynolds 2004b, 2004c, and 2004d, all as cited in the Paleontological Assessment) exposed yellow silty sand at a depth of 2 to 3 feet below coarse topsoil. Geotechnical reports from parcels along Archibald Avenue (Riddell and Bartee 2003, as cited in the Paleontological Assessment) indicated that yellow sandy clay and clayey sand occur between depths of 1 to 5 feet or more below the surface of the parcel and are recorded in boring logs.

Cajon/Lytle Creeks: This northern portion of Zone 2 contains Lytle Creek and Cajon Creek. Headward erosion along the latter has exposed the Cretaceous Cosy Dell Formation, containing fossil elasmosaurs and invertebrates (Lucas and Reynolds 1991, as cited in the Paleontological Assessment) and the late Oligocene Vaqueros Formation, containing fossil dolphin, sharks, and mollusks (Barnes and Reynolds 2008, as cited in the Paleontological Assessment). Early Miocene continental sediments west of the Squaw Peak Fault are the Cajon Valley Beds that contain fossil horses, rhinos, chalicotheres, camels, peccaries, and rodents (Woodburne and Golz 1972; Reynolds 1991; and Coombs and Reynolds 2015; all as cited in the Paleontological Assessment). To the east is the Crowder Formation, which contains a variety of large and small Miocene land mammal fossils (Reynolds et al. 2008, as cited in the Paleontological Assessment).

San Bernardino: The central San Bernardino Basin has been filled with a thick layer of Holocene sediment that is too recent to contain vertebrate fossils in a meaningful stratigraphic context. As noted, vertebrate fossils have been found at relatively shallow depth south of I-10 and north of the Jurupa Hills. A fossil of the saber-tooth cat, *Smilodon*, was reported from Declezville (western Fontana), 5 feet below surface on the north side of the Jurupa Hills (Reynolds and Reynolds 1991a, as cited in the Paleontological Assessment). Near Banana Street, in western Fontana, a mastodon fossil was located at shallow depth. East of I-15, the Champagne flood control basin produced a mammoth fossil from a depth of 5 feet below the ground surface (Reynolds and Reynolds 1991a, as cited in the Paleontological Assessment).

The Miocene Santa Ana Sandstone in the San Andreas Fault Zone and along Mill Creek has produced fossil vertebrates and plants (Reynolds, pers. obs. n.d.b, and Dibblee and Minch 2004a, 2004b, all as cited in the Paleontological Assessment).

Reche Canyon Area: The Reche Canyon area has exposures of the Upper (Reche) Member of the San Timoteo Formation. This formation spans the late Miocene, Pliocene, and most of the Pleistocene epoch. The age of the deposit was initially estimated by the contained vertebrate fossils, including camel, gomphothere, horse, bear, giant sloth, rodents, and reptiles (Frick 1921, 1933; Reynolds and Reeder 1991; and Albright 1999; all as cited in the Paleontological Assessment). Recent excavations have produced sloth skulls, complete horse skeletons, and the

large cats *Smilodon gracilis* and *Homotherium* sp. (Reynolds et al. 2013, as cited in the Paleontological Assessment).

San Bernardino East Basin and South Mountain Slopes: The northeastern portion of this area contains the Santa Ana River and Mill Creek drainages, which expose the Santa Ana Sandstone and Potato Sandstone of Miocene age that contain vertebrate and plant fossils (Reynolds, pers. obs. n.d.c; Dibblee and Minch 2003a, 2003b, 2004c; and Morton and Miller 2006; all as cited in the Paleontological Assessment).

San Timoteo Badlands: These fossiliferous sediments are drained by San Timoteo Creek from Beaumont to the Redlands/Loma Linda area. The badlands consist of the San Timoteo Formation that spans the late Miocene, Pliocene, and most of the Pleistocene. The age of the deposit was initially estimated by the contained vertebrate fossils, including camel, gomphothere, horse, bear, giant sloth, rodents, and reptiles (Frick 1921, 1933; Reynolds and Reeder 1991; and Albright 1999, as cited in the Paleontological Assessment). Recent excavations have produced sloth skulls, complete horse skeletons, and the large cats *Smilodon gracilis* and *Homotherium* sp. (Reynolds et al. 2013, as cited in the Paleontological Assessment).

Mountain Region

Sheep Creek Drainage: This drainage is located on fanglomerates (sedimentary rock consisting of slightly waterworn, heterogeneous fragments of all sizes deposited in an alluvial fan[2] and later cemented into firm rock) spreading north from the San Gabriel Mountains in western San Bernardino County. Vertebrate fossils have been noted to the west at Barrel Spring near Palmdale and to the east in Adelanto (Cox and Tinsley 1999 and Reynolds 1989c, as cited in the Paleontological Assessment (see Appendix F)).

Mojave Forks – Horsethief and Little Horsethief Canyons: Erosion along these drainages has exposed outcrops of the Miocene Crowder Formation (Reynolds et al. 2008, as cited in the Paleontological Assessment).

Mojave River West Fork: Outcrops of the Miocene Crowder Formation (Reynolds et al. 2008, as cited in the Paleontological Assessment) are exposed along the West Fork.

Miller Canyon – East Fork: Sediments exposed along this drainage have produced Miocene bird fossils from sediments referred to as the Crowder Formation (Reynolds, pers. obs. n.d.d, as cited in the Paleontological Assessment).

[2] A fan-shaped buildup of earthen materials formed at the base of hills or foothills.

Zone 6

Central San Bernardino County

Big Bear Lake: A giant ground sloth was reported from Pan Hot Springs on the north side of Big Bear Lake (San Bernardino County Museum records).

Desert Region

Upper Mojave River – Hesperia: Terraces along the west and east sides of the Mojave River in Hesperia and south Victorville have produced temporally diagnostic fossils of early Pleistocene age (Reynolds and Reynolds 1994 and Cox and Tinsley 1999, as cited in the Paleontological Assessment).

South-Central Mojave River – Victorville/Helendale: Terraces along the Mojave River east of Adelanto have produced remains of Ice Age mammoth, horse, and camel (Romero and Hilburn 2006, as cited in the Paleontological Assessment).

Central Mojave River – Lenwood/Barstow/Yermo/Afton: The Lenwood anticline in the west Barstow/Lenwood area has a core of Barstow Formation sediments that extends north to the community of Grandview. Petrified palm wood verifies the age and potential for the sediments to contain Miocene fossils (Reynolds, pers. obs. 2016, as cited in the Paleontological Assessment).

Pleistocene terrace deposits along the Mojave River in this area contain vertebrate fossils at the interchange of I-15 and (new) State Route 58 (SR-58) (Lake, pers. comm. 2016, as cited in the Paleontological Assessment). A fossil mammoth from Daggett is responsible for the naming of Elephant Mountain (Schoffstall 2010, as cited in the Paleontological Assessment). An Ice Age horse skull was recovered from the southwest corner of the intersection of Ghost Town Road and I-15 (Reynolds, pers. obs. 1996, as cited in the Paleontological Assessment).

Ponding of the Mojave River on the west side of the Calico Fault in the latest Pleistocene (12,000 to 9,000 years ago) trapped the remains of abundant Ice Age mammals, birds, reptiles, fish, and mollusks (Reynolds 1987 and Reynolds and Reynolds 1984, 1985a, 1985b, and 1991b, all as cited in the Paleontological Assessment).

The late Pleistocene Lake Manix Formation exposed along the Mojave River and its prolific Ice Age fossil fauna has been previously described (Jefferson 2003, as cited in the Paleontological Assessment).

Terminal Mojave River – Soda/Silver Lakes: After the Mojave River filled the Manix, Coyote, and Troy basins with deltaic sand, it broke through the Afton barrier and allowed water to flow into Soda and Silver Lakes, respectively, north and south of Baker, on I-15. Late Pleistocene fossils found in lacustrine sediments at Silver Lake include deer, gophers, kangaroo

rats, woodrats, pocket mice, squirrels, rabbits, snakes, lizards, frogs, and fish (Reynolds 2004e, as cited in the Paleontological Assessment).

Northwestern Mojave Desert

Searles Lake: Shoreline sediments from the Ice Age high stand of Searles Lake are located on slopes along the west side of the lake (Jennings et al. 1962, as cited in the Paleontological Assessment).

Eastern Mojave Desert

Arrowhead Junction/Piute Wash: Red Miocene sediments at Kleinfelter, on the west side of Piute Wash and south of I-40, have produced a small fossil horse jaw (Reynolds et al. 2016a, as cited in the Paleontological Assessment).

Needles: Terraces around the town of Needles contain exposures of the fossiliferous early Pliocene Bouse Formation (Reynolds et al. 2016a and 2016b, as cited in the Paleontological Assessment), which is overlain by the Pliocene Bullhead Alluvium and the Pleistocene Chemehuevi Formation, the latter producing fossil mammoth and antelope (Agenbroad et al. 1992 and Reynolds et al. 2016c, as cited in the Paleontological Assessment).

Southern Mojave Desert

Twentynine Palms: Sediments on Campbell Hill and outcrops south of SR-62 are approximately 700,000 years old and contain a suite of Ice Age mammals (Jefferson 1986, 1991). Surprise Spring, west of Twentynine Palms, has produced a late Pleistocene mammal fossil (Jefferson 1991, 1992, as cited in the Paleontological Assessment).

Yucca Valley: Sediments uplifted on the south side of the Pinto Mountain Fault, southwest of Copper Mountain, contain fossil camel and rodents of Pleistocene age (Reynolds, pers. obs. n.d.e, as cited in the Paleontological Assessment).

At the summit of SR-62 in western Yucca Valley, mid-Pleistocene sediments have produced a fossil horse tooth (San Bernardino County Museum collections and Reynolds, pers. obs. n.d.e, as cited in the Paleontological Assessment). This area also contains sediments of the Pioneertown Miocene sequence that have been offset from the main outcrops of fossiliferous sediments to the north at Pioneer Town (Grimes, pers. comm. 1986, and Reynolds 1992, as cited in the Paleontological Assessment).

Central San Bernardino County

Lucerne Valley: Pleistocene horse bones were found at Rabbit Springs in the scarp of the Helendale Fault at the west margin of Lucerne Dry Lake (Reynolds, pers. obs. n.d.f; Jefferson 1989; and Reynolds 2012, all as cited in the Paleontological Assessment).

4.4.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects to cultural resources for typical County maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The following SOPs are applied to the broad range of cultural resources analysis by the District. Their relevance to specific Master Storm Water System Maintenance Program routine maintenance impact topics is detailed in Section 4.4.6.2, Analysis.

SOP-CR-1 **Project-Specific APE.** An area of potential effect (APE) is established as needed on a project-specific basis for County projects, to facilitate implementing cultural resource and paleontological studies. The APE is defined by various means including but not limited to maps, aerials, plot plans, and/or a written description. APEs may be either contiguous or noncontiguous. In the absence of any defined APE boundary, the APE for maintenance projects consists of previously disturbed soils. No project-specific work outside of any APE boundary is performed without survey by a qualified cultural consultant. It is understood that recommendations for conducting cultural surveys within any defined APE vary on a project-specific basis, including survey methods, evaluation protocols, and report preparation formats and guidelines.

SOP-CR-2 **Impacts to Archaeological/Built Environment Resources.** Should unanticipated or inadvertent surface and/or subsurface prehistoric or historic archaeological resources, and/or built environment resources, appear to be encountered during a maintenance activity associated with any County project, then all work within the immediate vicinity of the discovery halts until a qualified professional can evaluate the discovery. If the finds are archaeological or historic in nature, then an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and/or historic archaeology evaluates the significance of the find. This archaeologist has the authority to modify the no-work radius as appropriate, using professional judgment. The following apply, depending on the nature of the find:

- If the professional archaeologist determines that the find *does not* represent a cultural resource, then work may resume immediately.

- If the professional archaeologist determines that the find *does* represent a cultural resource from any historical period or cultural affiliation, appropriate treatment measures are developed, depending on the nature of the discovery.

If the find represents a Native American or potentially Native American resource that does not include human remains, which may or may not include a Tribal Cultural Resource, then the archaeologist establishes an appropriate "no-work" buffer and consults with appropriate Tribe(s) on whether the resource represents a Tribal Cultural Resource, a Historical Resource, or both, and if so, consults on appropriate treatment measures. Preservation in place is the preferred treatment, if feasible. Work cannot resume within the no-work radius until the County, through consultation as appropriate, determines that either (1) the site is not a Tribal Cultural Resource or Historical Resource or (2) the treatment measures for the Tribal Cultural Resource or Historical Resource have been completed.

SOP-CR-3 **Human Remains.** If a find during a maintenance activity includes human remains, or remains that are potentially human, the archaeologist ensures that reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill 2641). The archaeologist notifies the San Bernardino County Coroner (per Section 7050.5 of the California Health and Safety Code). The Coroner's Office may be contacted at Coroner's Division, County of San Bernardino, 175 South Lena Road, San Bernardino, California 92415 or by calling 909.387.2978. The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 are implemented. If the Coroner determines the remains are Native American and not the result of a crime, the Coroner notifies the Native American Heritage Commission (NAHC), which then designates a Native American Most Likely Descendant (MLD) for the project (Section 5097.98 of the California Public Resources Code). The designated MLD has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the California Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the California Public Resources Code). This also includes recording the site with either the NAHC or the appropriate Information Center, using an open space or conservation zoning designation or easement, or recording a reinterment document with the county in which the property is located (Assembly Bill 2641). Work may not resume within the no-work radius until the County, through

consultation as appropriate, determines that the treatment measures have been completed to its satisfaction.

SOP-CR-4 **Changes Based on Consultation and Legal Requirements.** As necessary, and in accordance with project-specific consultations conducted with the NAHC and various Tribal entities in association with Assembly Bill 52, Senate Bill 18, and/or any other legal guidelines relating to Native American consultations, the specific language noted in SOP-CR-2 and SOP-CR-3 may change to reflect project-specific needs and requirements.

4.4.6 Impacts Analysis

4.4.6.1 Methods of Analysis

Archaeological and Historical Resources

Due to the large number of facilities and maintenance activities within the proposed program, a project-specific analysis of cultural resources was not feasible; therefore, the County hired multiple firms to implement a sampling process that included a massive records search and pedestrian site visits and surveys of a large and varied number of flood control facility types. More in-depth studies and National Register and NEPA/Section 106 evaluations were conducted on select FLOD flood control facilities. Therefore, the sampling process is here considered as sufficient to develop a screening process that allows flood control facilities to be screened prior to conducting routine maintenance activities for the potential for maintenance activities to affect cultural resources. This screening process is a tool used to determine which maintenance activities are exempt from cultural resources review and which have the potential to adversely impact cultural resources and therefore require evaluation.

Although the County is a lead agency for purposes of CEQA compliance, the proposed program also requires permits from the USACE, which requires compliance with federal cultural resources guidelines under Section 106 of the NHPA. Pursuant to satisfying the requirements of Section 106, multiple key cultural resources investigations have been completed. The screening process developed for the proposed program was developed in coordination with the USACE to assist in their Section 106 compliance review of proposed program activities. Several steps were undertaken in development of the screening process: (1) a review of existing cultural resources records searches and surveys conducted for the District, (2) field surveys of a sample set of facilities, and (3) a test of the screening process on the sample set of facilities.

The review of cultural resources records and surveys conducted for the proposed program are described in Section 4.4.4.3, Archaeology and Built Environment. Next, field surveys were conducted at a sample set of 42 facilities. Per District guidance, a range of facilities was selected

to survey based on certain criteria that were established by the District. One of these criteria included the need to survey a sample of facilities that had already been surveyed/visited by MBA in order to verify MBA's site visit/survey findings and recommendations. As a result, seven facilities were inventoried that had already been visited by MBA. Another selection criterion was the need to survey a representative sample of facility types, which would include levees, channels (soft and hard bottom), basins, storm drains, dams, spreading grounds, and natural watercourses (e.g., washes, rivers, and creeks).

A major goal of the surveys was to understand the nature and condition of the various facility types to support development of the screening process. Pedestrian surveys and site visits were also conducted to identify new cultural resources and revisit previously recorded resources to determine any potential impacts to them from the proposed program, and to determine their potential for containing buried cultural resources. The sample analysis of 42 facilities indicated that many of the proposed maintenance activities would not require further cultural resource review, and that certain routine maintenance or repair activities would not require review regardless of the condition of the facility.[3]

MBA also conducted site visits at 91 facilities, including 66 facilities that have at least one cultural resource recorded within (or that intersect with) the boundary of the facility and/or within a 1/8-mile radius. The purpose of MBA's site visits was to determine whether certain facilities had the potential to impact cultural resources based on the proposed maintenance activities and the existing conditions of a given facility. MBA also determined whether maintenance activities could cause an adverse effect to known resources that were recorded within or in the immediate vicinity of a given facility based on the existing conditions of a respective facility. They compiled this information, along with information regarding the facility's location, surrounding uses, geology and soils, topography, disturbance, and vegetation, into a form. One of these forms was completed for each of the 91 facilities they visited. These forms are provided in Appendix C of the Compliance Report (see Appendix F).

For the purposes of the proposed program, MBA survey results were reviewed to verify their methods and findings. MBA identified no new cultural resources during their survey of the 91 facilities, but "several were spotted in and near the sampled facilities" (Dice et al. 2012, p. 109,

[3] Full-coverage surveys were completed for 29 facilities, partial-coverage surveys for 7 facilities, and brief site visits for 6 facilities, for a total of 42 facilities visited. Full-coverage surveys included a 100% survey of a given facility APE, whereas a partial-coverage survey included a survey of a portion (or less than 100%) of a given facility APE. A site visit included a brief visit to a given facility where the facility was viewed from one particular location. No formal survey transects were conducted during site visits. Surveys were conducted within the fenced areas of the facilities, which typically delineated the APE boundaries of each facility. Where access and ground surface visibility permitted, the ground surfaces in these areas were examined for the presence of archaeological and historical resources (e.g., artifacts, archaeological features, remains of built environment resources). The facilities were surveyed using parallel pedestrian transects spaced not more than 10 to 15 meters (33 to 49 feet) apart. Digital photographs were taken of each facility and the surrounding vicinity.

as cited in the Compliance Report (see Appendix F)). In addition, MBA suggests that "since all facilities that had recorded cultural resources adjacent to them were examined during the [fieldwork], [they] are confident that no additional recorded historic properties have gone unnoticed during [their] study" (Dice et al. 2012, p. 109, as cited in the Compliance Report). A large amount of data was gathered by MBA, and these data have been used along with the current field survey data to provide sufficient information for developing and justifying the recommendations contained in the Compliance Report (see Appendix F).

The facilities that were visited by MBA are provided in Table 2, List of Facilities Visited by MBA, in the Compliance Report.

Paleontological Resources

Dudek conducted a paleontological resources literature and map assessment to identify areas of potential impacts to paleontological resources and to develop mitigation measures to avoid, reduce, or mitigate potential impacts to paleontological resources to comply with CEQA and local regulations. The scope of work for this assessment included a review of the proposed program facilities, an analysis of potential impacts, and development of recommendations for mitigation measures in undisturbed areas that would reduce potential impacts to a less than significant level.

Personnel involved in this assessment included Sarah Siren, Dudek senior paleontologist, who served as project manager and primary author of the paleontological report provided in Appendix F to this EIR. Robert E. Reynolds conducted the paleontological literature and records search and the geologic map review and provided content for the paleontological report.

Published and unpublished literature relevant to geology, stratigraphy, and paleontology in the County was reviewed, including U.S. Geological Survey and California Division of Mines and Geology serial publications and recent research published through California State University's Desert Studies Consortium.

Mr. Reynolds reviewed geologic maps by Morton and Miller (2006), Dibblee and Minch (2003a, 2003b, 2004a, 2004b, 2004c), Bishop (1963), and Dibblee (1964) (all as cited in the Paleontological Assessment (see Appendix F)) showing geologic units at each facility. The type of geologic unit indicates whether the underlying or surrounding sediments are conducive to preservation of paleontological resources at a given facility. Facilities with concrete bottoms and sides were categorically excluded as not having potential for future earthmoving activities. The analysis focuses on channels and spreading or detention basins that have earthen substrate and earthen walls. The results of the geologic map review and literature review indicate that earthen-bottom facilities and channels require a field inspection and resource survey as a preliminary step toward developing a facility-specific paleontological resource impact mitigation program, but only if the scope of work extends beyond the limits of previous disturbance. This review

suggests that earthen-bottom facilities and channels developed in areas mapped as post-Pleistocene Holocene alluvium will not contain paleontological resources in a meaningful stratigraphic context and therefore will require no further action with regard to paleontological resources evaluation or mitigation.

4.4.6.2 Analysis

The analysis combines the Valley, Mountain, and Desert Regions of the County because the potential to encounter cultural resources is dependent on whether activities would occur in culturally sensitive areas and is not dependent on the geographic region. Culturally sensitive areas are located throughout the County regardless of the geographic region.

The following is a list of routine activities[4] that the District has determined do not require additional cultural resources work or evaluation and that would therefore not be subject to the screening process:

1. Blading, ground clearing, or sediment removal that occurs entirely within fill, where the fill itself does not contribute to the historic significance of a property
2. Blading, ground clearing, or sediment removal within areas where existing ground disturbance entirely encompasses the area that would be affected by the activity and where the past disturbance was so severe as to preclude the existence of intact cultural deposits, and no known properties are present
3. Use of existing gravel pits, including further materials extraction and stockpiling within the pit, where no lateral expansion of the previously excavated area of the pit will occur
4. Partial replacement or restoration of existing riprap within the demonstrated vertical and horizontal limits of previous construction or disturbance (does not include full replacement or restoration of riprap)
5. Adding rock fill or gravel to roads where no new ground disturbance will occur and no recorded properties are within the road bed
6. Treatment of weed infestations that does not violate the chemical label and does not involve ground disturbance, where no features (such as pictographs or petroglyphs) that might be damaged are present, and that does not occur within landscaped areas where native plant communities might be harvested
7. Encroachment thinning using hand methods to lop branches and cut small trees and brush, where material is dropped in place, stumps are left in place, and no chemical treatments are used

[4] Stockpiling is assumed to be a non-ground-disturbing activity for the purposes of the cultural analysis because there would be no soil excavation associated with the stockpiling.

8. Routine maintenance and repair to interiors or exteriors of existing buildings and structures that are less than 50 years old (subject to limitations defined above), or have been determined not eligible for the National Register in consultation with the SHPO/Tribal Historic Preservation Office (THPO), and where there are no other properties in the immediate vicinity
9. Maintenance or repair of fence lines where no ground disturbance occurs or the fence line is on fill; where there will be no movement, removal, or alteration of rock; and where the fence is not located within the boundaries of a historic property or where the property has been determined not eligible for the National Register in consultation with the SHPO/THPO.
10. Rodent control
11. Installation, repair, or replacement of signs and markers on existing buildings or structures where there is no visual intrusion to nearby historic properties
12. Installation, repair, or replacement of signs and markers where no ground disturbance will occur, or where installation is confined to disturbed areas or fill
13. Installation, repair, or replacement of monitoring equipment where no ground disturbance occurs; where there will be no movement, removal, or alteration of rock; where the activity is not located within the boundaries of a historic property; or where the property has been determined not eligible for the National Register in consultation with the SHPO/THPO
14. Maintenance of drainages, basins, levees, pipes, signs, or gates when the property or items are less than 50 years in age or have been determined not eligible in consultation with the SHPO/THPO; where they are not within or part of a historic property; and where these activities, including heavy equipment operation, occur within the demonstrated vertical and horizontal limits of previous construction and within previously surveyed areas
15. Small-bore (less than 6-inch diameter) drilling outside of known property areas
16. Repair or replacement of equipment or material that is not original to a historic structure and where the replacement will not have an effect on the historic or architectural values and defining features of historic properties
17. Maintenance of existing trails, walks, paths, sidewalks, and associated signage where work is conducted within the demonstrated vertical and horizontal limits of previous construction or disturbance, and no known properties are within the work area
18. Maintenance within existing road or parking lot profiles, such as repaving, grading, cleaning inboard ditches, repairing, brushing, signing and sign maintenance, or replacing guards and gates within the demonstrated vertical and horizontal limits of previous construction or disturbance

The checklist in Table 4.4-2 further delineates activities according to the screening process as exempt or non-exempt for archaeological and built environment resources.

Table 4.4-2
Exempt Activity Determinations for Cultural Resources on or near the Program Site

Maintenance Activity	Cultural Resource Types			
	Archaeological/ Native American		*Built Environment[a]*	
	Exempt	*Non-Exempt*	*Exempt*	*Non-Exempt*
Stockpiling				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	—	X	X	—
Mechanized land clearing				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	—	X	X	—
Vegetation Management Including Mowing and Hand Clearing				
Mechanized vegetation management (disking)				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	—	X	X	—
Manual vegetation management (power tools, chemicals, pruning, weed eaters, saws)				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	X	—	X	—
Herbicide and rodenticide	X	—	X	—
Ingress/Egress				
Maintain access roads, fencing/gate repair, signage, and pavement repair	X	—	X	—
Road grading				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	—	X	X	—
Bank repair				
Gabion/riprap repair or replacement	X	—	—	X
Removal of excess sediment from bottom (invert) of channel/basin or on-site/off-site stockpile location and placing it onto the side slopes				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	—	X	—	X
Flood control structure repair	X	—	—	X

Table 4.4-2
Exempt Activity Determinations for Cultural Resources on or near the Program Site

Maintenance Activity	Cultural Resource Types			
	Archaeological/ Native American		*Built Environment[a]*	
	Exempt	*Non-Exempt*	*Exempt*	*Non-Exempt*
Fuel Modification Maintenance (Same as Vegetation Management)				
Mechanized vegetation management (disking)				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	—	X	X	—
Manual vegetation management (power tools, chemicals, pruning, weed eaters, saws)				
On artificial or engineered fill	X	—	X	—
On existing facility footprint	X	—	X	—
On native soil	X	—	X	—
Graffiti removal	X	—	X	—
Vector control	X	—	X	—
Stream gage maintenance	X	—	X	—

Artificial or engineered fill is defined as non-native materials that were imported to the area from other sources and may include concrete debris, gravels, and other native-sediments and materials.
Native soil is defined as an area where the native ground soil (i.e., native ground surface) is either exposed on the surface or at depth.
Items in this table may be superseded by any changes from the Section 106 consultation process.
[a] Assumes facility (i.e., the built environment resource) is 50 years of age or older and has not been maintained in the last 20 years.

Impact CR-1 and Impact CR-2

Would the program cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?

Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

As described in Section 4.4.4.3, Archaeology and Built Environment, multiple efforts have been made to survey the proposed program area. As a result of the cultural resources records search and pedestrian survey, ECORP identified seven newly recorded archaeological sites and two newly recorded historic period isolates in the proposed program's APE.[5] Moreover, ECORP

[5] APEs typically have a vertical and horizontal extent. The vertical APE considers impacts from undertakings below the ground surface (e.g., depth of excavation) and above the ground surface (e.g., height of tower or building) whereas the horizontal APE considers lateral or surface area impacts at the ground surface (e.g., the surface area of grading). The APE for cultural resources has been formally defined as the APE for the footprint

field-checked and updated 10 previously recorded resources and recorded 16 historic period built environment facilities (Blumel et al. 2014, p. ii, as cited in the Compliance Report). Of these resources, two non-facility resources are located within an area that is proposed for maintenance (vegetation management) as part of the proposed program that has the potential to impact these resources. These resources are described as several pieces of historic period ceramics and bottle fragments (FE-001, identified at Harrison Basin) and an isolated historic period bottle base (FLOD-015-I, identified at Brush Canyon Basin). ECORP recommended these resources as not eligible for listing in the California Register (per CEQA) or National Register (per Section 106) because they do not meet any of the eligibility criteria and therefore any impacts to them would not be considered an adverse effect pursuant to Section 106 or a significant impact to the environment pursuant to CEQA. Moreover, the resources were found by ECORP in disturbed and isolated contexts within the already disturbed areas of their respective FLOD Project facility. It is likely that if other resources were to be identified within a proposed maintenance area, they would be found in these same contexts and therefore would not be eligible.

ECORP (Blumel et al. 2014, p. iii, as cited in the Compliance Report) also noted the following:

> The majority of the [FLOD] Project APE is located in disturbed sediments and drainage channels [and] the potential of the Project APE to contain significant subsurface prehistoric or historic archaeological material is believed to be low. However, if archaeological materials are encountered during construction, all ground-disturbing activities must be suspended in the vicinity of the find until the deposits are recorded and evaluated by a qualified archaeologist.

Maintenance activities associated with the proposed program that include ground-disturbing activities into native (or virgin) soils are activities that have potential to impact archaeological resources. However, if these activities are conducted in artificial fill or engineered soils or in areas of the facility where the past disturbance was so severe as to preclude the existence of intact archaeological deposits (e.g., the original construction and subsequent/continued alteration, modification, and maintenance of the facilities), then these activities would not require cultural resources review with regard to archaeological resources. For instance, levees are aboveground features that are typically located near high-energy watercourses, such as large washes and rivers, and are constructed from artificial fill, engineered earth materials, or locally sourced material from the adjacent wash deposits. Additionally, many basin and channel facilities (and other facility types) typically underwent deep excavation in the process of construction, and archaeological resources and native soils have been displaced as a result. Finally, the potential for mechanized land clearing associated with channel centerline clearing

for each facility. These maps have been included digitally as Appendix H of the Compliance Report. Regarding the 42 facilities, 29 were provided project-specific APEs that can be found in Appendix A of the Compliance Report (see Appendix F).

activities (e.g., removing sediment, vegetation, or debris) to impact archaeological resources in the centerline of a channel or wash is extremely low because multiple flood episodes from the prehistoric to the modern era have displaced surface and subsurface archaeological resources from these specific areas. As a result, these activities would not require cultural resource review with regard to archaeological resources.

Additionally, SOP-CR-1 (Project-Specific APE) (see Section 4.4.5, Standard Operating Procedures) would also ensure that no new work outside disturbed areas would occur without further environmental evaluation. Should significant surface and/or subsurface prehistoric or historic archaeological resources appear to have been encountered during maintenance activities, the evaluation of any such resources would proceed as described in SOP-CR-2 (Impacts to Archaeological/Built Environment Resources); incorporation of District standard practice SOP-CR-4 (Changes Based on Consultation and Legal Requirements) would ensure that the processes described in SOP-CR-2 are updated as necessary based on changes to legal requirements. Mitigation Measure (MM) CR-1 (Pre-Activity Review/Phase I Cultural Resources Survey) would require that, for areas in non-previously disturbed soils, a pre-activity review would be performed to determine if proposed activities have the potential to impact cultural or paleontological resources. If it is determined that impacts are likely to occur, then a Phase I cultural resource survey and/or a paleontological survey would be required. MM-CR-2 (Protective Measures for Cultural Resources near Work Areas) would require, for any activities within the vicinity of an archaeological resource, that protective measures be implemented. If future ground-disturbing maintenance activities in areas where archaeological resources cannot be avoided by implementation of MM-CR-2, development of a Phase II cultural resources evaluation program would be implemented by a qualified archaeologist as described in MM-CR-3 (Phase II Cultural Resources Evaluation). MM-CR-4 (Phase III Cultural Resources Mitigation Plan) would require that for archaeological resources determined to be eligible for listing in the California Register and/or the National Register, a Phase III data recovery plan will be prepared by a qualified archaeologist prior to the onset of activities with potential to affect these resources. It should be noted that the conclusions reached during consultation with the SHPO shall amend any CEQA conclusions.

In summary, because many of the facilities within the proposed program's APE have been constructed with artificial fill or engineered earth and/or their original construction or subsequent maintenance has displaced archaeological resources and native soil, many of the proposed maintenance activities would not require cultural resource review investigations with regard to archaeological resources. Those activities that would require further cultural resources review would be identified through consultation with the SHPO and handled during the pre-activity notification process as described in the Maintenance Plan (see Appendix A). Therefore, impacts would be less than significant.

Non-Ground-Disturbing Vegetation Management and Other Non-Ground-Disturbing Activities

Because there would be no excavation into soils, non-ground-disturbing activities would cause no impact to archaeological or paleontological resources. These activities include but are not limited to graffiti removal activities; vector control activities; stream gage maintenance activities; herbicide-related activities (i.e., chemical vegetation clearing); rodenticide-related activities; manual vegetation management activities, such as pruning using the following equipment: power trimmers, weed eaters, and other manual tools such as pruning loppers, saws, and clippers; flood control structure repair activities that do not impact native soils; and certain types of bank repair activities, such as pavement repair, riprap repair, and gabion/riprap placement activities, that do not impact native soils or sediments.

Maintenance activities associated with the proposed program that include alterations or repair (e.g., bank repair, flood control structure repair, graffiti removal) of existing facilities or a structure or built-environment feature that is 50 years of age or older at the time of the maintenance could materially change and therefore potentially impact built environment resources. However, if these maintenance activities are conducted at facilities that are less than 50 years of age, or in areas of the facility where the activity will not alter the facility's character-defining features (e.g., the features of the facility that convey its historic significance), or that are located within the limits of previous maintenance activities, then these activities would not require cultural resources review. The majority of the proposed maintenance activities do not require the physical alteration of the features of the facility. To have an impact, a maintenance activity would have the potential to diminish one of the seven aspects of integrity (location, setting, design, workmanship, materials, feeling, and association) of the facility. Activities that do not impact the built environment, such as vegetation management and herbicide- and rodenticide-related activities in areas that have been routinely maintained would not impact built environment resources. As a result of these factors, many of the proposed maintenance activities would not require cultural resource review investigations. Additionally, many facilities are less than 50 years in age, and activities at these facilities would not require additional cultural resources review. In addition, many facilities are likely to be found to have been significantly altered or otherwise ineligible for listing in the National Register.

There may be other built environment resources within the proposed program area that are not part of the facility proposed for maintenance. These resources may be previously identified or potential unevaluated resources. The potential impact to these resources must also be considered. As stated previously, many maintenance activities would not physically alter these resources or potential resources and therefore would not require cultural resources review. However, since flood control appurtenances cannot be repaired, altered, removed, or replaced by the District without review by a qualified architectural historian or cultural resources specialist, activities that may impact these

resources would also be identified during consultation with the SHPO, and/or covered under the pre-activity notification outlined in the Maintenance Plan (see Appendix A).

SOP-CR-1 (Project-Specific APE) would also ensure that no new work outside disturbed areas would occur without further environmental evaluation. Per SOP-CR-2 (Impacts to Archaeological/Built Environment Resources), should significant surface and/or subsurface prehistoric or historic archaeological resources and/or paleontological resources appear to be encountered during maintenance activities, the evaluation of any such resources should proceed in accordance with the criteria outlined in accordance with the CEQA Guidelines and in accordance with the County General Plan. In addition, SOP-CR-4 (Changes Based on Consultation and Legal Requirements) would ensure that SOP-CR-2 is updated according to the most recent regulatory guidelines. Therefore, impacts would be less than significant.

Impact CR-3

Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

Maintenance work within previously undisturbed Pleistocene age (9,500 YBP) and older sedimentary deposits at earthen-bottomed facilities has the potential to adversely impact paleontological resources. The remainder of the facilities either are not sited on paleontologically sensitive sediments or are hard-bottomed facilities that are not subject to ground disturbance during routine maintenance. Routine maintenance activities that only impact previously disturbed sedimentary deposits are exempt from further paleontological resources evaluation.

All maintenance projects in previously undisturbed Pleistocene age and older sedimentary deposits at earthen-bottomed facilities will be subject to a paleontological resources impact mitigation program in accordance with all appropriate legal guidelines, if routine maintenance activities extend into areas containing previously undisturbed sedimentary deposits.

If maintenance activities associated with the project extend into areas containing previously undisturbed sedimentary deposits, they have the potential to encounter unknown paleontological resources. Because the exact location and depth of sensitive paleontological resources are unknown, in the event that unexpected, intact paleontological resources are unearthed during maintenance activities, impacts would be potentially significant.

Prior to ground-disturbing maintenance activities in areas containing previously undisturbed sedimentary deposits, a worker education program shall be scheduled to inform project management and consultants of the nature and extent of paleontological monitoring and salvage that is to be accomplished (if necessary and feasible) during implementation of the proposed program. Monitoring and/or a worker education program will not be required in areas of previously disturbed sediments or fill, or for maintenance activities that extend to only 5 feet below the ground surface. Where ground-disturbing activities are undertaken in areas containing previously undisturbed sedimentary deposits proven to be rich in paleontological resources, compliance with MM-CR-5 (Paleontological Mitigation and Monitoring Plan) shall be required.

Non-Ground-Disturbing Vegetation Management and Other Non-Ground-Disturbing Activities

Because they would not include excavation into native sedimentary deposits, non-ground-disturbing activities would cause no impact to paleontological resources. These activities include but are not limited to graffiti removal activities; vector control activities; stream gage maintenance activities; herbicide-related activities (i.e., chemical vegetation clearing); rodenticide-related activities; manual vegetation management activities, such as pruning using the following equipment: power trimmers, weed eaters, and other manual tools such as pruning loppers, saws, and clippers; flood control structure repair activities that do not impact native sedimentary deposits; and certain types of bank repair activities, such as pavement repair, riprap repair, and gabion/riprap placement activities that do not impact native sedimentary deposits. As a result, these activities would have no impact and would not require cultural resource review with regard to paleontological resources.

Impact CR-4

Would the project disturb any human remains, including those interred outside of formal cemeteries?

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

Given the prehistoric and historic use of the area, human remains may be encountered during ground-disturbing activities. Existing regulations through the California Health and Safety Code, Section 7050.5 et seq., state that if human remains are discovered during proposed program activities, no further disturbance shall occur until the county coroner has made the necessary findings as to their origin. Given the District's standard practice of compliance with the existing regulations pertaining to the discovery of human remains as specified in SOP-CR-3 (Human

Remains) and SOP-CR-4 (Changes Based on Consultation and Legal Requirements), the proposed program would result in less than significant impacts to human remains.

Non-Ground-Disturbing Vegetation Management and Other Non-Ground-Disturbing Activities

Other proposed maintenance activities that would cause no impact to human remains because they would not involve ground-disturbing activities would include but are not limited to graffiti removal activities; vector control activities; stream gage maintenance activities; herbicide-related activities (i.e., chemical vegetation clearing); rodenticide-related activities; manual vegetation management activities, such as pruning using the following equipment: power trimmers, weed eaters, and other manual tools such as pruning loppers, saws, and clippers; flood control structure repair activities that do not impact native soils; and certain types of bank repair activities, such as pavement repair, riprap repair, and gabion/riprap placement activities that do not impact undisturbed soils or sediments. As a result, these activities would have less than significant impacts and would not require cultural resource review with regard to the potential to unearth human remains.

4.4.7 Mitigation Measures

Despite incorporation of District standard practices SOP-CR-1 through SOP-CR-4, potentially significant impacts relating to cultural resources were identified; therefore, the following mitigation measures are provided to reduce the potential for impacts on cultural resources:

MM-CR-1 **Pre-Activity Review/Phase I Cultural Resources Survey.** For maintenance activities in areas not already previously disturbed or surveyed, a pre-activity review shall be performed prior to future ground-disturbing activities associated with maintenance activities. For each location where these activities will take place, the proposed program footprint will first be examined by San Bernardino County Flood Control District (District) staff to determine whether the proposed ground-disturbing activities will be confined to the area of previous disturbance or if there is a potential for additional ground disturbance within intact native sediments. If it is determined that the proposed activities have the potential to impact undisturbed native sediments, then a Phase I cultural resource survey or implementation of a monitoring program, depending on the activity, will be required. The purpose of the field surveys will be to visually inspect the ground surface for evidence of archaeological remains, and to assess the flood control facility for its potential to be a historic age built environment resource requiring evaluation. All archaeological resources observed during the course of fieldwork that have the potential to be impacted by the proposed activity shall be adequately recorded at the time of discovery, observing standard documentation procedures.

MM-CR-2 **Protective Measures for Cultural Resources near Work Areas.** For future ground-disturbing maintenance activities in areas not previously disturbed and found to be in the vicinity of an archaeological or built environment resource or paleontological resource, protective measures for significant resources in close proximity to a proposed program work area shall be implemented. If the pre-activity review (MM-CR-1) identifies a known cultural or paleontological resource within a proposed program work area, the following protective measures are required as warranted:

- Exclusion fencing and flagging shall be established around any significant or potentially significant cultural or paleontological resource located within a proposed program work area.
- A qualified archaeologist or paleontologist, as appropriate, shall monitor ground-disturbing activities in proposed program work areas with significant or potentially significant resources.

MM-CR-3 **Phase II Cultural Resources Evaluation.** For future ground-disturbing maintenance activities in areas not previously disturbed where cultural or paleontological resources cannot be avoided by implementation of MM-CR-2, development of a Phase II resources evaluation program shall be implemented by a qualified archaeologist, architectural historian, or paleontologist, as appropriate. The findings of the cultural or paleontological resources evaluation program shall be presented in a technical report or reports to be submitted to the District (and the federal lead agency, if applicable) for review and approval.

MM-CR-4 **Phase III Cultural Resources Mitigation Plan.** For those cultural resources determined to be eligible for listing in the California Register of Historical Resources and/or the National Register of Historic Places and that cannot be avoided, a Phase III mitigation plan shall be prepared by a qualified archaeologist or architectural historian prior to the onset of mitigation activities. The plan shall detail the field, laboratory, and archival methods that will be used during the mitigation program; the curation of archaeological or archival materials at an appropriate facility for future research; and provisions for a report detailing the findings and significance of the cultural resources. The plan shall be submitted the District for review and approval prior to the commencement of mitigation investigations. Results of the Phase III mitigation plan shall be presented in a technical report submitted to the District for review and approval prior to the commencement of ground-disturbing activities. A final version of the report shall be submitted to the regional California Historic Resources Information System repository.

MM-CR-5 **Paleontological Mitigation and Monitoring Plan.** In the event that an unanticipated discovery is made during routine maintenance activities extending

into areas containing previously undisturbed sedimentary deposits, the District shall implement a Paleontological Mitigation and Monitoring Plan that may require one or more of the following:

- A paleontological principal investigator will provide and supervise a trained paleontological monitor who will be present during ground-disturbing activities at identified facilities with fossiliferous sediments. The monitor will be empowered to temporarily halt or redirect ground-disturbing activities to ensure avoidance of adverse impacts to paleontological resources. The monitor will be equipped to rapidly remove any large fossil specimens encountered during maintenance activities. During monitoring, samples shall be collected and processed to recover microvertebrate fossils. Processing shall include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains.
- Upon encountering a large deposit of bone, salvage of bone in the area shall be conducted with additional field staff and in accordance with modern paleontological techniques.
- All fossils collected during maintenance will be prepared to a reasonable point of identification. Excess sediment or matrix will be removed from the specimens to reduce the bulk and cost of storage. Itemized catalogs of the material collected and identified shall be provided to the museum repository along with the specimens.
- A report documenting the results of the monitoring and salvage activities and the significance of the fossils shall be prepared.
- All fossils collected during this work, along with the itemized inventory of these specimens, will be deposited in a museum repository for permanent curation and storage.

4.4.8 Level of Significance After Mitigation

Implementation of the mitigation measures in Section 4.4.7 would reduce potential impacts to less than significant levels. Table 4.4-3 summarizes the impacts for proposed activities under each impact threshold analyzed in this EIR section.

Table 4.4-3
Cultural Resources Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact CR-1: Would the program cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?				
Impact CR-2: Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	SOP-CR-1 SOP-CR-2 SOP-CR-4	Significant	MM-CR-1 through MM-CR-4	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-CR-1 SOP-CR-2 SOP-CR-4	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-CR-1 SOP-CR-2 SOP-CR-4	Less than significant	—	Less than significant
Impact CR-3: Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	—	Significant	MM-CR-5	Less than significant
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	No impact	—	No impact
Impact CR-4: Would the program disturb any human remains, including those interred outside of formal cemeteries?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	SOP-CR-3 SOP-CR-4	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	—	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	—	Less than significant	—	Less than significant

4.4.9 Cumulative Impacts

For cultural resources, the geographic extent of cumulative impacts encompasses a relatively broad area because the significance or importance of any individual resource can only be judged in terms of its regional context and relationship to other resources. Thus, the significance of impacts on any given resource or group of resources must be examined in light of the integrity of the regional resource base. Because the number of cultural resources is finite, limited, and non-renewable, any assessment of cumulative impacts must take into consideration the impacts of the proposed program on resources within the program area; the extent to which those impacts degrade the integrity of the

regional resource base; and impacts other projects may have on the regional resource base. If these effects, taken together, result in a collective degradation of the resource base, then those impacts are considered cumulatively considerable. For the proposed program, the regional archaeological resource base is defined historically, geographically, and ethnographically. The geographic scope of the cumulative impact analysis takes in a broad region encompassing the County as a whole. However, although the regional context is considered, the impacts of the program are localized to the areas where the activities of the program occur.

With inclusion of District standard practices SOP-CR-1 through SOP-CR-4 (Section 4.4.5) and implementation of MM-CR-1 through MM-CR-5 (Section 4.4.7), maintenance activities associated with the proposed program would result in less than significant impacts on cultural resources on a localized basis. The cumulative impacts analysis for cultural resources evaluates whether impacts of the proposed program and related projects, when taken as a whole, substantially diminish the number of historic, archaeological, or paleontological resources within the same or similar context or property type. As discussed throughout this section, the proposed program could have significant impacts to unknown cultural resources, and mitigation is required to reduce adverse impacts to less than significant levels. It is anticipated that cultural resources that are potentially affected by related projects would also be subject to the same requirements of CEQA as the proposed program and mitigate for their impacts, if applicable. The determinations of significance would be made on a case-by-case basis, and the effects of cumulative development on cultural resources would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the proposed program would not contribute to a cumulatively considerable impact associated with cultural resources due to the fact that all impacts to cultural resources under this program can be mitigated to a less than significant level. With District standard practices SOP-CR-1 through SOP-CR-4 and implementation of MM-CR-1 through MM-CR-5, program impacts to cultural resources in combination with other projects in the vicinity of the program would not be cumulatively considerable.

4.4.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

36 CFR, Part 60. National Register of Historic Places.

36 CFR, Part 800. National Historic Preservation Act, as amended.

68 FR 43159–43162. Notice; “Guidelines for Architectural and Engineering Documentation.” July 21, 2003.

Caltrans (California Department of Transportation). 2008. "Chapter 8 – Paleontology." In *Standard Environmental Reference (SER), Environmental Handbook, Volume I: Guidance for Compliance*. Caltrans. Published 2008; last updated August 11, 2014. http://www.dot.ca.gov/ser/vol1/sec3/physical/Ch08Paleo/chap08paleo.htm.

County of San Bernardino. 2007. *County of San Bernardino General Plan.* Adopted March 13, 2007. http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGP.pdf.

NPS (National Park Service). 1997. *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin 15. Published in 1990; last updated in 1997. https://www.nps.gov/nr/publications/bulletins/nrb15/.

NPS. 1998. *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. National Register Bulletin 38. Prepared by P.L. Parker and T.F. King for NPS. Published in 1990; last revised in 1998. https://www.nps.gov/nr/publications/bulletins/nrb38/.

SVP (Society of Vertebrate Paleontology). 1995. "Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources – Standard Guidelines: Committee Reports." *Society of Vertebrate Paleontology News Bulletin* 163:22–27.

SVP. 2010. "Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources." SVP, Impact Mitigation Guidelines Revision Committee. http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx.

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4.5 GEOLOGY AND SOILS

4.5.1 Introduction

This section of the environmental impact report (EIR) describes the existing geological setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce geology and soils impacts, and evaluates potential impacts related to implementation of the proposed program.

The analysis in this section focuses on soil stability and the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse as a result of the proposed program. Potential erosion-related impacts are discussed in Section 4.8, Hydrology and Water Quality.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The County is composed of three distinct geographic regions, the Valley, Mountain, and Desert Regions. Approximately 80% of the geographic extent of the County falls within the Desert Region; however, the Valley Region is the most developed and approximately 77% of the District facilities are in the Valley Region. The existing conditions discussion in this section is organized by these three regions because geologic conditions vary for each of these geographic regions. However, for the impact analysis, the Valley, Desert, and Mountain Regions have been combined into one analysis section because impacts would generally be the same in all three regions. The impact analysis also does not use the ground-disturbing activities, vegetation management, and non-ground-disturbing activities impact analysis categories described in the introduction to Chapter 4, Environmental Analysis. Vegetation management and non-ground-disturbing activities are not evaluated because they would have no impact on geology and soils.

The analysis in this section is based on information compiled by the District and on documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.5.10, References. A field reconnaissance survey was not completed as part of this analysis.

4.5.2 Regulatory Framework

The proposed program addresses surface water infrastructure issues along the County's existing system of natural drainages, channels, spreading grounds, dams, levees, basins, and storm drains, rather than the construction of new structures. The proposed program consists of maintenance and repair of existing surface facilities including maintenance activities related to localized replacement of flood control infrastructure such as spillways, inlets, outlets, culverts, bottom controls, water quality structures, settling basins, and channel inverts. Therefore, the portions of the California Building Code (CBC) described below would apply to the proposed program. Other federal, state, and local building standards and geologic hazard regulations related to new construction would not apply to the proposed program, because no new construction is proposed as part of the program. Basic grading and earthwork standards in the CBC (e.g., slope limits, fill compaction requirements) would be followed by the District and/or its contractors, in accordance with standard practice in the construction and engineering professions.

In addition, some maintenance projects would be located within areas of the County that are susceptible to slope failures, including shallow surficial slides/slumps, mudslides/debris flows, deep-seated landslides, or topples/falls. In the event that grading, excavating, and clearing is completed such that the toe of an adjacent slope is undercut, the soils and/or rock that currently buttress the slope would be removed and slope failure could occur. Therefore, the County Geologic Hazard Overlays are useful in determining where proposed program implementation could potentially result in temporary (i.e., during repair/replacement activities) slope instability.

Federal

No federal regulations related to geology and soils would apply to the proposed program.

State

The following state regulations pertaining to geology and soils would apply to the proposed program.

Seismic Hazards Mapping Act of 1990 (revised 2003)

The Seismic Hazards Mapping Act was created to map and address non-surface fault rupture hazards, including liquefaction and earthquake-induced landslides, pursuant to the Seismic Hazards Mapping Act (California Public Resources Code, Chapter 7.8, Section 2690 et seq.). The purpose of the Seismic Hazards Mapping Act is to reduce the threat of seismic hazards to public safety and to minimize the loss of life and property by identifying and mitigating these seismic hazards.

California Building Code

Title 24 of the California Code of Regulations, known as the California Building Standards Code, contains the regulations that govern construction in California, including excavations, grading, and slope construction/repair. The California Building Standards Commission provides a minimum standard for building design with the CBC. The portions of the CBC relevant to the proposed program's maintenance activities are described in this subsection.

Chapter 29 of the CBC regulates excavation, foundations, and retaining walls, which could apply to ground-disturbing activities under the proposed program, such as bank repair and flood control structure repair. Chapter 33 of the CBC contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. These requirements would apply to ground-disturbing activities under the proposed program, such as bank repair and flood control structure repair. Chapter 70 of the CBC regulates grading activities, including drainage and erosion control. Maintenance activities are subject to occupational safety standards for excavation, shoring, and trenching, as specified in California Occupational Health and Safety Administration (Cal/OSHA) Construction Safety Orders (8 CCR 1500–1962) and in Section A33 of the CBC. These standards would apply to ground-disturbing activities of the proposed program such as mechanized land clearance/excavation, bank repair, and flood control structure repair.

Local

The following local regulations pertaining to geology and soils would apply to the proposed program.

County of San Bernardino Development Code

Chapter 82.15, Geologic Hazard (GH) Overlay, established by Sections 82.01.020 (Land Use Plan and Land Use Zoning Districts) and 82.01.030 (Overlays), was created to provide greater public safety by establishing investigation requirements for areas that are subject to potential geologic problems, including active faulting, landsliding, debris flow/mud flow, rockfall, liquefaction, seiche, and adverse soil conditions. Geologic hazard overlays are available from the County Land Use Services (County of San Bernardino 2016).

County of San Bernardino General Plan Safety Element

Policy S 1.1 of the Safety Element of the 2007 County General Plan requires that geologic hazard information, geotechnical data, and mapping data be available to the public through the County-wide geographic information systems (GIS), as coordinated by the County Geologist.

Policy S 1.2 requires that natural hazards be continually integrated into adopted land use and overlay maps, policies, and review procedures for land use proposals and enforcement of development standards. The policy requires establishment of a countywide geotechnical information collection, storage, and retrieval system, in coordination with the U.S. Geological Survey (USGS), California Geological Survey (CGS), the County, and other local agencies. The County Geologist will maintain comprehensive mapping of geologic hazards. In addition, post-wildfire debris flow hazard evaluations will be incorporated into the Geologic Hazard Overlay when available.

Other General Plans

General plans serve to guide and direct local government decision making for geology and soils resources. Generally, hazards elements in local jurisdictions' general plans focus on mitigating and managing the negative impacts from adverse geologic conditions. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding geology and soils. However, the proposed program would not conflict with these general plan policies.

4.5.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts related to geology and soils are based on criteria in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to geology and soils would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact GEO-1 ***Would the program expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:***

- ***a. 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 based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42?***
- ***b. Strong seismic ground shaking?***
- ***c. Seismic-related ground failure, including liquefaction?***
- ***d. Landslides?***

Impact GEO-2 ***Would the program result in substantial soil erosion or the loss of topsoil?***

Impact GEO-3 ***Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?***

Impact GEO-4 ***Would the program be located on expansive soil, as defined in Table 18-1-B of the 1994 Uniform Building Code, creating substantial risks to life or property?***

Impact GEO-5 ***Would the program have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?***

In June 2014, the District recirculated a Notice of Preparation and Initial Study for the currently proposed program, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The 2014 Initial Study determined that Impact GEO-3 should be analyzed in the EIR (see Section 4.5.6.2, Analysis). All other geology and soils impacts (Impacts GEO-1, GEO-2, GEO-4, and GEO-5) were determined to be less than significant and are not discussed further in this EIR.

4.5.4 Existing Conditions

The following provides an overview of geological concepts and a discussion of existing geologic conditions, separated by geographic region, relevant to soil stability, landslide, lateral spreading, subsidence, liquefaction, and differential settlement.

4.5.4.1 Geologic Concepts

Stratigraphy

Stratigraphy is the composition and relative positions of rock strata, and the relationship of those strata to the geological time scale. The stratigraphy defines the geologic history of any given area.

Slope Stability

Slope failures typically occur as either shallow surficial (surface) slides/slumps, mudslides/debris flows, deep-seated landslides, or topples/falls. Surficial slides or slumps typically include failure of the upper 1 to 15 feet of surficial soils and upper weathered bedrock. These failures occur as a result of excessive precipitation on moderately steep to steep hillsides, earthquakes, and/or undercutting of the toe of slope, such as by excavation of a new road or any other linear excavation that is perpendicular to the slope. Surficial slides/slumps are translational failures, in that the failure surface is generally planar and the mass moves parallel to the ground surface.

These slides, which typically have a moderate to high moisture content, typically do not travel far beyond the base of slope and often terminate well before the base of slope in a lobe-like form. Mudslides or debris flows are similar to surficial slides/slumps except mudslides are viscous flows with a very high water content that can travel for great distances beyond the toe of slope.

Deep-seated landslides can include failure of greater than 100 feet (thick) of bedrock materials, and typically include downslope movement of large, relatively coherent, often recumbent blocks of bedrock, due to rotational sliding along a curved slide plane. These failures typically occur as a result of excessive precipitation percolating down to a clay-rich layer, which acts as a slide plane when the toe of slope is similarly undercut and/or the bedding orientation is such that the slide mass is unsupported at the toe of slope (i.e., unsupported bedding) by natural forces or man-made slope alterations.

Topples or falls are masses of soil or rock that dislodge from steep slopes and free-fall, bounce, or roll downslope. Such failures are common as a result of strong seismicity.

Subsidence

Subsidence is the phenomenon where the soils and other earth materials underlying a site settle or compress, resulting in a lower ground surface elevation. The three types of subsidence of major concern in San Bernardino County are tectonic subsidence, subsidence due to groundwater withdrawal, or subsidence due to addition of water. Tectonic subsidence, which can total many feet, is primarily of concern during very large earthquakes, when subsidence could occur instantaneously. Subsidence due to groundwater withdrawal can be superimposed on (i.e., added to) tectonic subsidence in large sedimentary basins in tectonically active regions, such as the Valley Region of the County. Subsidence can also occur due to extensive irrigation in arid or semi-arid regions, with very high porosity soils. Irrigation can result in hydrocompaction of the soils, which can cause subsidence of the overlying ground surface. In general, the type of subsidence that occurs as a result of groundwater extraction or extensive irrigation is uniform in nature, rather than differential, and generally does not cause damage to individual small structures. However, subsidence does affect structures sensitive to slight changes in elevation, such as highways, canals, pipelines, drains, sewers, and particularly hydraulic structures subject to high pressures (CDMG 1976).

Liquefaction and Lateral Spreading

Liquefaction is the phenomenon in which loose, saturated, granular soils lose strength due to excess pore water pressure buildup during an earthquake. Liquefaction is usually manifested by the formation of boils and mud-spouts at the ground surface, by seepage of water through ground cracks, or in some cases by the development of quicksand-like conditions. Where the latter occurs, structures or equipment may sink substantially into the ground (“dynamic settlement”) or

tilt excessively, lightweight structures may float upwards, and foundations may displace vertically or laterally, causing structural failures. The phenomenon of liquefaction generally adds to the damage that would otherwise be caused by strong ground motions alone.

Lateral spreading typically occurs in association with liquefaction. Lateral spreading occurs when liquefaction of a subsurface layer causes the mass to flow downslope, moving blocks of ground at the surface. During a liquefaction event, the soils tend to spread laterally toward the free face of the slope. This type of failure is common in over-steepened slopes composed of unconsolidated silts and sands.

Differential Settlement

Differential settlement is a process whereby soils settle non-uniformly, potentially resulting in stress and damage to overlying structures. Such movement can occur in the absence of seismically induced ground failure, due to improper grading and soil compaction or discontinuity of naturally occurring soils. However, strong ground shaking often greatly exacerbates soil conditions already potentially prone to differential settlement, resulting in distress to overlying structures. Elongated structures, such as pipelines or concrete drainage features, are especially prone to damage as a result of differential settlement. Pipe connections at storage facilities are especially vulnerable to the differing earthquake response between buried pipe and rigid structures.

4.5.4.2 Valley Region

Stratigraphy

Large amounts of alluvium were deposited at the base of the San Bernardino Mountains during the late Pleistocene (past 500,000 years), as many of the streams incised canyons into the uplifted mountain geologic blocks. These late Pleistocene alluvial fan and fluvial deposits constitute older alluvium, which is characterized by poorly sorted sand, gravel, boulders, and clay. The older alluvial fans and terraces were dissected, locally buried or uplifted, and are now found at different altitudes along the flanks and in the canyons of the foothills (Dutcher and Garrett 1963; CDMG 1976).

Younger alluvium of Holocene age (i.e., less than 11,000 years old) unconformably overlies older units throughout the Valley Region, consisting of unweathered sands, gravels, and clays. These deposits, in combination with thin river-channel deposits, are generally very permeable, thus providing avenues for rapid percolation of precipitation. Surficial deposits within the Santa Ana River bottom and other major creeks primarily consist of cobbles, stones, and boulders (Dutcher and Garrett 1963; CDMG 1976).

Slope Stability

The Valley Region of San Bernardino County is situated at the base of the San Gabriel and San Bernardino Mountains to the north, the City of Upland and the Los Angeles County line to the west, and the City of Yucaipa and the Riverside County line to the east. Only two of the USGS 7.5-minute quadrangles that cover the Valley Region include Seismic Hazard Zones Maps that identify the landslide potential for those quadrangles, as mapped by CGS (2015). However, geologic hazard overlays have been created for the Valley Region by County Land Use Services (County of San Bernardino 2016) (see Figure 4.5-1, Landslide Susceptibility). The majority of the Valley Region is relatively flat to gently sloping, with low potential for slope instability. Exceptions include the Chino Hills, in the southwestern portion of the County; the southern perimeter of the Valley Region, south of the Cities of Fontana, Colton, Loma Linda, and Redlands; and the eastern portion of the Valley Region, north of the City of Yucaipa. The landslide susceptibility in these areas varies from low to high and existing landslides have been locally mapped in these hillside areas. Proposed program sites within these hillside areas are generally located in gently sloping canyon bottoms or nearby valley areas, but are locally located immediately adjacent to moderately steep to steep hillsides.

Subsidence

The entire alluvial valley area in southwestern San Bernardino County has experienced subsidence from groundwater withdrawal. USGS estimates that a maximum of approximately 1.3 feet of subsidence occurred from about 1943 to 1969, within the Bunker Hill Groundwater Basin, immediately east of the San Jacinto Fault, near Loma Linda, due to a decline in water levels of approximately 350 feet (Muni/Western 2004; CDMG 1976).

Liquefaction and Lateral Spreading

Only two of the USGS 7.5-minute quadrangles that cover the Valley Region include Seismic Hazard Zones Maps that identify the liquefaction potential for those quadrangles, as mapped by CGS (2015). However, geologic hazard overlays created by the County (County of San Bernardino 2016) (see Figure 4.5-2, Liquefaction Susceptibility) indicate that much of the eastern Valley Region has a medium to high susceptibility to liquefaction. The most likely scenario for significant liquefaction to occur in the Valley Region would be as a result of an earthquake on the adjacent San Andreas, San Jacinto, or Cucamonga Fault (Matti and Carson 1991). Many of the proposed program sites overlie these areas of medium to high liquefaction (and associated lateral spreading) susceptibility.

Differential Settlement

Differential settlement could occur at any of the proposed program sites in the Valley Region, because the majority of these sites are underlain by alluvial, colluvial, or fluvial sediments (i.e., relatively loose sand, silt, and gravel) that are susceptible to strong seismically induced ground shaking and associated ground failure. The amount of overall settlement and differential settlement at each site would depend on the density and uniformity of the underlying soils.

4.5.4.3 Mountain Region

Stratigraphy

Geologic materials of the San Bernardino Mountains are ancient basement rocks that have been uplifted to current elevations. The basement rocks include igneous granitic rocks approximately 1.7 billion years old that locally have intruded even older rocks. These basement rocks are locally overlain by stream and lake sediments, which can be seen in the western part of the range, in the vicinity of Running Springs in road cuts of State Route 330, in the vicinity of Big Bear Lake, and in the drainage basin of the upper Santa Ana River (USGS 2006). Proposed program sites are generally located in areas of alluvial/colluvial deposition in canyon/creek bottoms and relatively flat areas, such as adjacent to Big Bear Lake and Green Valley Lake.

Slope Stability

The Mountain Region is located north of the Valley Region in the San Gabriel and San Bernardino Mountains, which are separated by the Cajon Pass, a defining feature of the San Andreas Fault Zone. Only one of the USGS 7.5-minute quadrangles that cover the Mountain Region include Seismic Hazard Zones Maps that identify the landslide potential for those quadrangles, as mapped by CGS (2015). However, geologic hazard overlays created by the County (County of San Bernardino 2016) indicate that the majority of the southern slopes of the San Bernardino and San Gabriel Mountains have a moderate to high landslide susceptibility, due to the very steep terrain (see Figure 4.5-1). Existing landslides have also been mapped in many areas.

The northern slopes of these mountains generally have a low to moderate landslide susceptibility; however, moderate to high landslide susceptibility areas and existing landslides have been locally mapped throughout these slopes. Proposed program sites within the Mountain Region are typically located in canyon bottoms adjacent to moderate to steep slopes, in areas mapped with moderate to high landslide susceptibility. However, some proposed program sites are located in areas of low to moderate slopes with low landslide susceptibility.

Subsidence

The Mountain Region is underlain primarily by granitic and metamorphic bedrock that is not susceptible to land subsidence. As a result, land subsidence has not occurred beneath proposed program sites in the Mountain Region (USGS 2016).

Liquefaction and Lateral Spreading

Only one of the USGS 7.5-minute quadrangles that cover the Mountain Region include Seismic Hazard Zones Maps that identify the liquefaction potential for those quadrangles, as mapped by the CGS (2015). However, geologic hazard overlays created by the County (County of San Bernardino 2016) (see Figure 4.5-2) indicate that none of the Mountain Region is susceptible to liquefaction (and associated lateral spreading), because this region is not underlain by alluvial sediments.

Differential Settlement

In comparison to Valley Region sites, proposed Mountain Region sites would be somewhat less susceptible to differential settlement, because some of the drainage facilities are underlain by competent bedrock rather than a thick layer of relatively soft sediments. These geologic conditions generally minimize the amount of settlement that would occur during a strong earthquake. However, many of the proposed program sites are located in canyon bottoms with underlying sediments sufficiently thick to create conditions favorable for settlement, including differential settlement. In addition, the most likely areas where differential settlement could occur would be at the transition from bedrock to fill or alluvial sediments, where there would be a substantial change in density of underlying sediments.

4.5.4.4 Desert Region

Stratigraphy

The Desert Region is characterized by an assemblage of low mountain ranges and desert floors. Most of the proposed program facilities within the Desert Region are located in the vicinity of the Mojave River or its tributaries. The surficial geologic sediments along the Mojave River primarily include Pleistocene older alluvium, undifferentiated Holocene alluvium, and Holocene (active) wash deposits. Undifferentiated alluvium deposits consist of alluvium, colluvium, some older alluvium, and fanglomerate (sedimentary rock consisting of slightly waterworn, heterogeneous fragments of all sizes deposited in an alluvial fan[1] and later cemented into firm rock). Holocene alluvium typically consists of unconsolidated silt, sand, gravel, and cobbles. Wash deposits typically consist of relatively coarse-grained sand, cobbles, and boulders. Older

[1] A fan-shaped buildup of earthen materials formed at the base of hills or foothills.

alluvium is typically more consolidated than Holocene alluvium and slope wash, and generally contains more silt and clay. These deposits are also generally mantled by a thick layer of topsoil, whereas Holocene alluvium and wash deposits would typically have a thinner or nonexistent overlying soil layer. Mesozoic granitic and metavolcanic rocks are also locally exposed at the surface along the course of the Mojave River (CDMG 1986).

Slope Stability

None of the USGS 7.5-minute quadrangles that cover the Desert Region include Seismic Hazard Zones Maps that identify the landslide potential for those quadrangles, as mapped by CGS (2015). Geologic hazard overlays prepared by the County (County of San Bernardino 2016) indicate that, with the exception of isolated areas mapped as existing landslides, the majority of the area has low landslide susceptibility. (Slope stability data for the Desert Region were not available for inclusion on Figure 4.5-1). However, mountain areas in the Desert Region may be susceptible to landslides in the event of a large earthquake (County of San Bernardino 2007). Proposed program sites within the Desert Region are generally located in areas of gently sloping topography with low landslide susceptibility.

Subsidence

Land subsidence associated with groundwater level declines has been recognized as a potential problem in parts of the Mojave Desert of San Bernardino County. Pumping of groundwater from the Mojave River and Morongo groundwater basins resulted in water level declines of more than 100 feet between the 1950s and the 1990s. Interferometric synthetic aperture radar (InSAR) methods were used to characterize vertical land surface changes in these basins during various intervals of time between 1992 and 1999. Water levels in wells proximate to the subsiding areas generally declined between 1992 and 1999 (USGS 2003). The majority of the proposed program sites in the Desert Region overlie the Mojave River Groundwater Basin.

Liquefaction and Lateral Spreading

None of the USGS 7.5-minute quadrangles that cover the Desert Region include Seismic Hazard Zones Maps that identify the liquefaction potential for those quadrangles, as mapped by the CGS (2015). However, geologic hazard overlays created by the County (County of San Bernardino 2016) (see Figure 4.5-2) indicate that the majority of the area has a low liquefaction (and associated lateral spreading) susceptibility, due to deep groundwater conditions. However, shallow groundwater conditions potentially conducive to liquefaction are present along the Mojave River (County of San Bernardino 2005). Proposed program sites within the Desert Region are generally prone to liquefaction and associated lateral spreading, because most of the sites are located along the Mojave River.

Differential Settlement

Differential settlement could occur at any of the proposed program sites in the Desert Region, because the majority of these sites are underlain by alluvial, colluvial, or fluvial sediments (i.e., relatively loose sand, silt, and gravel) that are susceptible to strong seismically induced ground shaking and associated ground failure. The amount of overall settlement and differential settlement at each site would depend on the density and uniformity of the underlying soils.

4.5.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize potential adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The SOP from the Maintenance Plan presented in this section is relevant to the analysis of geology and soils. Its relevance to specific impact topics is detailed in Section 4.5.6, Impacts Analysis.

As part of its standard practice, the District will implement the following SOP in order to minimize maintenance-related impacts to geology and soils:

SOP-GEO-1 Earthwork and Grading Best Practices. The District implements the following earthwork considerations, as applicable, during routine maintenance activities:

- *Remedial Grading*. Prior to grading, any fill zone is cleared of surface and subsurface obstructions. Voids created by removal of buried material are backfilled with properly compacted soil. Exposed subgrade in fill zones are scarified to a depth of at least 6 inches, moisture-conditioned to above optimum, and compacted to at least 90% of the ASTM D 1557-12 (modified Proctor) laboratory maximum density. In some cases, wet subgrades may need to be stabilized with crushed rock, geogrids, and/or other methods.
- *Compacted Fill/Backfill*. Fill materials are naturally occurring, well-graded soil or soil/rock combinations, free of wood, trash, and construction debris and organic, contaminated, or deleterious material.
- *Slope Gradients.* New cut and fill slopes of drainage channels, basins, levees, dams, or adjacent hillsides may not exceed a gradient of 2:1 (horizontal to vertical) unless authorized by District engineering staff.
- *Temporary Slopes*. When necessary to prevent caving and to protect adjacent structures or property, temporary steep slopes are shored, sheeted, braced, or sloped in accordance with California Code of Regulations Title 8 and the regulations of local authorities with jurisdiction.

4.5.6 Impacts Analysis

4.5.6.1 Methods of Analysis

The analysis was developed by reviewing available information on geology and soils in the proposed program vicinity, as described in Section 4.5.4, Existing Conditions, and subsequently evaluating potential soil-disturbing impacts that might occur as a result of implementation of the proposed program. A field reconnaissance was not completed as part of the impact analysis. Rather, available geologic and topographic maps and reports were reviewed in completing the analysis.

No comments related to geology and soils were received in response to the 2014 Notice of Preparation (see Appendix B).

Potential erosion-related impacts are discussed in Section 4.8, Hydrology and Water Quality, which concluded that potential erosion-related impacts would be less than significant.

4.5.6.2 Analysis

Non-ground-disturbing vegetation management and non-ground-disturbing activities are not evaluated in this section because they would have no impact on geology and soils. In addition, impacts related to the Valley, Desert, and Mountain Regions have been combined into one analysis section, because impacts would generally be the same in all three regions.

Impact GEO-3

Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Valley, Desert, and Mountain Regions

Subsidence, Liquefaction, Lateral Spreading, Differential Settlement, and Collapse

As described in Section 4.5.4 and illustrated on Figure 4.5-2, much of the eastern Valley Region has a medium to high susceptibility to liquefaction and associated lateral spreading, due to the potential for a strong earthquake on the adjacent San Andreas, San Jacinto, or Cucamonga Fault. Many of the proposed program sites overlie these areas of medium to high liquefaction (and associated lateral spreading) susceptibility. The Mountain and Desert Regions have low liquefaction susceptibility, due to subsurface conditions not conducive to this seismic phenomenon.

Regional land subsidence has historically occurred in the Bunker Hill Groundwater Basin of the Valley Region and the Mojave River Groundwater Basin of the Desert Region. Regional subsidence has not occurred in the Mountain Region. Proposed maintenance activities would not include withdrawal of subsurface water such that subsidence would be exacerbated. However, all proposed program sites in the Valley and Desert Regions would be subject to tectonically induced subsidence.

Differential settlement could occur at any of the proposed program sites in the Valley and Desert Regions, because the majority of these sites are underlain by alluvial, colluvial, or fluvial sediments (i.e., relatively loose sand, silt, and gravel) that are susceptible to strong seismically induced ground shaking and associated ground failure. The amount of overall settlement and differential settlement at each site would depend on the density and uniformity of the underlying soils.

Subsidence, liquefaction, lateral spreading, differential settlement, and associated collapse from each of these geologic phenomena may result in periodic damage to the District's surface water infrastructure. However, the proposed program does not include activities that would increase the extent, magnitude, timing, or probability of these geologic phenomena. In addition, activities proposed under the proposed program would not expose the public or adjacent properties to an increased level of risk associated with these phenomena. The proposed program would facilitate the District's ability to access its flood control facilities for maintenance and repairs, as well as facilitating the District's response to infrastructure issues resulting from an earthquake or due to subsidence. Therefore, there would be no impacts from the proposed program with respect to subsidence, liquefaction, lateral spreading, differential settlement, and associated collapse.

Slope Stability

Implementation of the proposed program would provide a comprehensive program for maintenance of various flood control channels and basins to ensure flood protection. Maintenance activities would allow District facilities to function at their current/designed capacity and would include minor alterations, such as additional bank slope rock protection, designed to increase stability. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity.

Some maintenance projects would be located within areas of the County that are susceptible to slope failures, including shallow surficial slides/slumps, mudslides/debris flows, or deep-seated landslides. In the event that grading, sediment removal, and clearing is completed such that the toe of an adjacent slope is undercut, the soils and/or rock that currently buttress the slope would be removed and slope failure could occur.

Areas of steep terrain would be most susceptible to such slope failure. In the Valley Region, areas with steep terrain include the Chino Hills, in the southwestern portion of the County; the southern perimeter, south of the Cities of Fontana, Colton, Loma Linda, and Redlands; and the eastern portion, north of the City of Yucaipa (Figure 4.5-1). The landslide susceptibility in these areas varies from low to high and existing landslides have been locally mapped in these hillside areas. In the Mountain Region, the majority of the southern slopes of the San Bernardino and San Gabriel Mountains have a moderate to high landslide susceptibility, due to the very steep terrain. Existing landslides have also been mapped in many areas. The northern slopes of these mountains generally have a low to moderate landslide susceptibility; however, moderate to high landslide susceptibility areas and existing landslides have been locally mapped throughout these slopes. In the Desert Region, with the exception of isolated areas mapped as existing landslides, the majority of the area has low landslide susceptibility. Proposed program sites within these areas of steep terrain are generally located in gently sloping canyon bottoms, but are locally located immediately adjacent to moderately steep to steep hillsides and could be susceptible to adjacent slope failure.

Similarly, in the event that slope repairs are completed improperly in an unstable area, slope instability could increase to the point of failure. Slope failure not only could damage drainage infrastructure, but could also result in delivery of excessive sediment loads to downstream waterways. The severity of the impact depends on where and how these facility repairs are performed.

However, with implementation of SOP-GEO-1 (Earthwork and Grading Best Practices) as part of the District's standard practice (see Section 4.5.5, Standard Operating Procedures), slope recontouring and excavations into hillsides would be conducted in accordance with applicable standards governing construction safety and excavations (including Cal/OSHA Construction Safety Orders and General Industry Safety Orders) and in coordination with applicable federal, state, and local agencies. Implementation of SOP-GEO-1 would ensure that impacts related to slope failures resulting from maintenance activities would be less than significant.

4.5.7 Mitigation Measures

With incorporation of District standard practice SOP-GEO-1, any potential geology and soils impacts would be less than significant. Therefore, no mitigation measures would be required.

4.5.8 Level of Significance After Mitigation

Geology and soils impacts from implementation of the proposed program would be less than significant. Table 4.5-1 summarizes the impacts for proposed activities under each impact threshold analyzed in this EIR section.

Table 4.5-1
Geology and Soils Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact GEO-3: Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				
Ground-Disturbing Activities	SOP-GEO-1	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	No impact	—	No impact

4.5.9 Cumulative Impacts

Maintenance activities associated with the proposed program would result in less than substantial impacts on geology and soils on a localized and temporary basis only. The proposed program would have no contribution to cumulative effects related to geology and soils because the impacts would be widely scattered throughout the County, minor in magnitude, and highly localized, because geologic materials and faults, minerals, and soils occur at specific locations and are unaffected by activities not acting on them directly. Any impacts of the proposed program would be site-specific.

Past and ongoing development throughout the program area has resulted in minor alterations to the natural landscape. Routine maintenance involves maintaining facilities to as-built design specifications, and no new significant impacts would be generated by the proposed program. All aspects of SOP-GEO-1 (Earthwork and Grading Best Practices) are based on conventional techniques and standards within the industry. Any geotechnical hazards as a result of slope instability, landslides, lateral spreading, subsidence, liquefaction, or collapse, rendering a flood control facility non-functional, would result in the repair or redesign of that facility by licensed District professionals who would provide guidelines and specifications to mitigate and remediate the specific hazard. In general, geology and soils impacts are localized and would not have cumulative impacts, even when combined with other projects, because the impacts would be confined to the proposed program site. As such, the cumulative geological impacts would be less than significant with incorporation of District standard practice SOP-GEO-1 and existing regulations.

4.5.10 References

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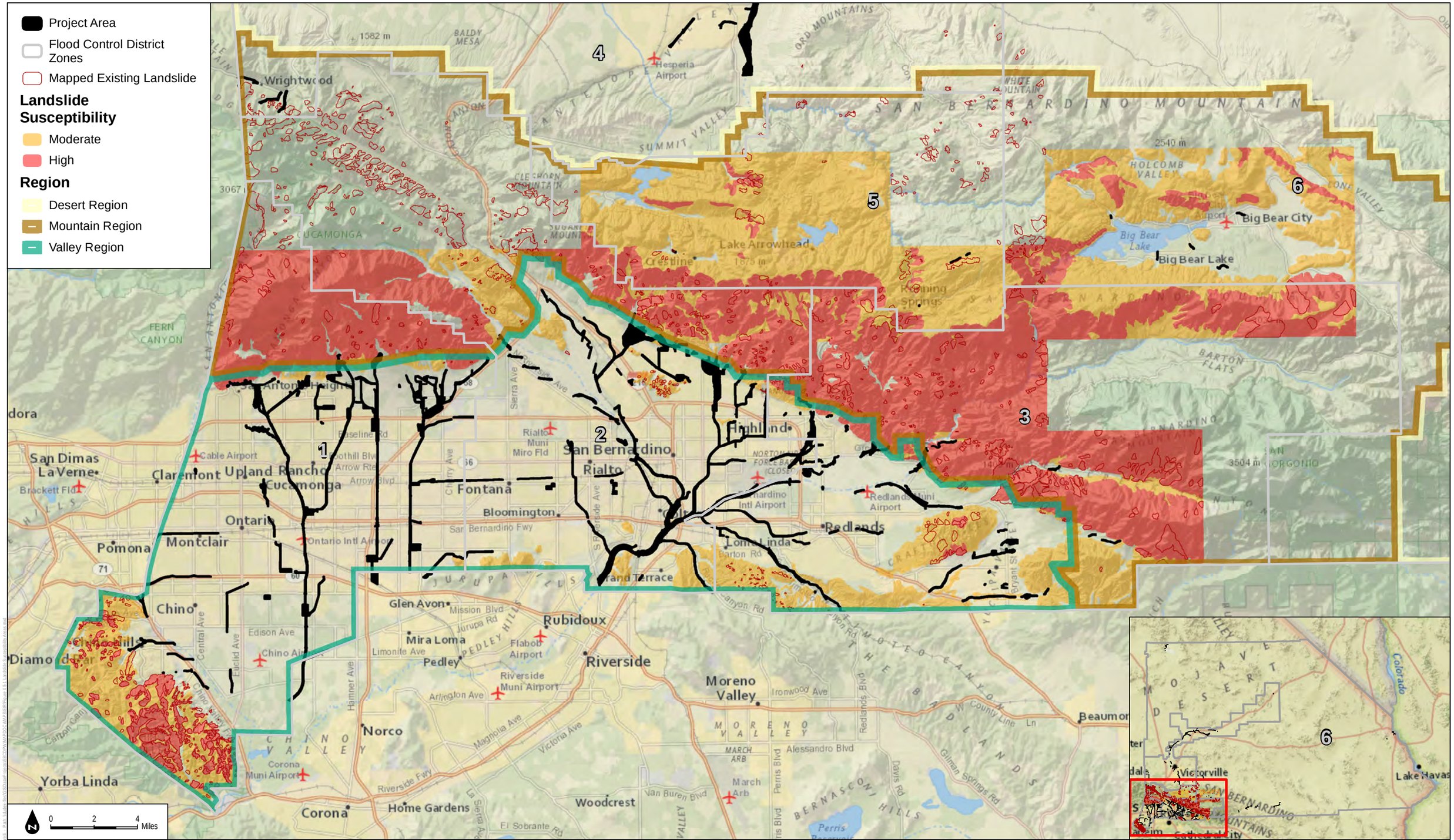

SOURCE: ArcGIS Online Basemap (Nat Geo), SBC Landslide Data

DUDEK

FIGURE 4.5-1

Landslide Susceptibility

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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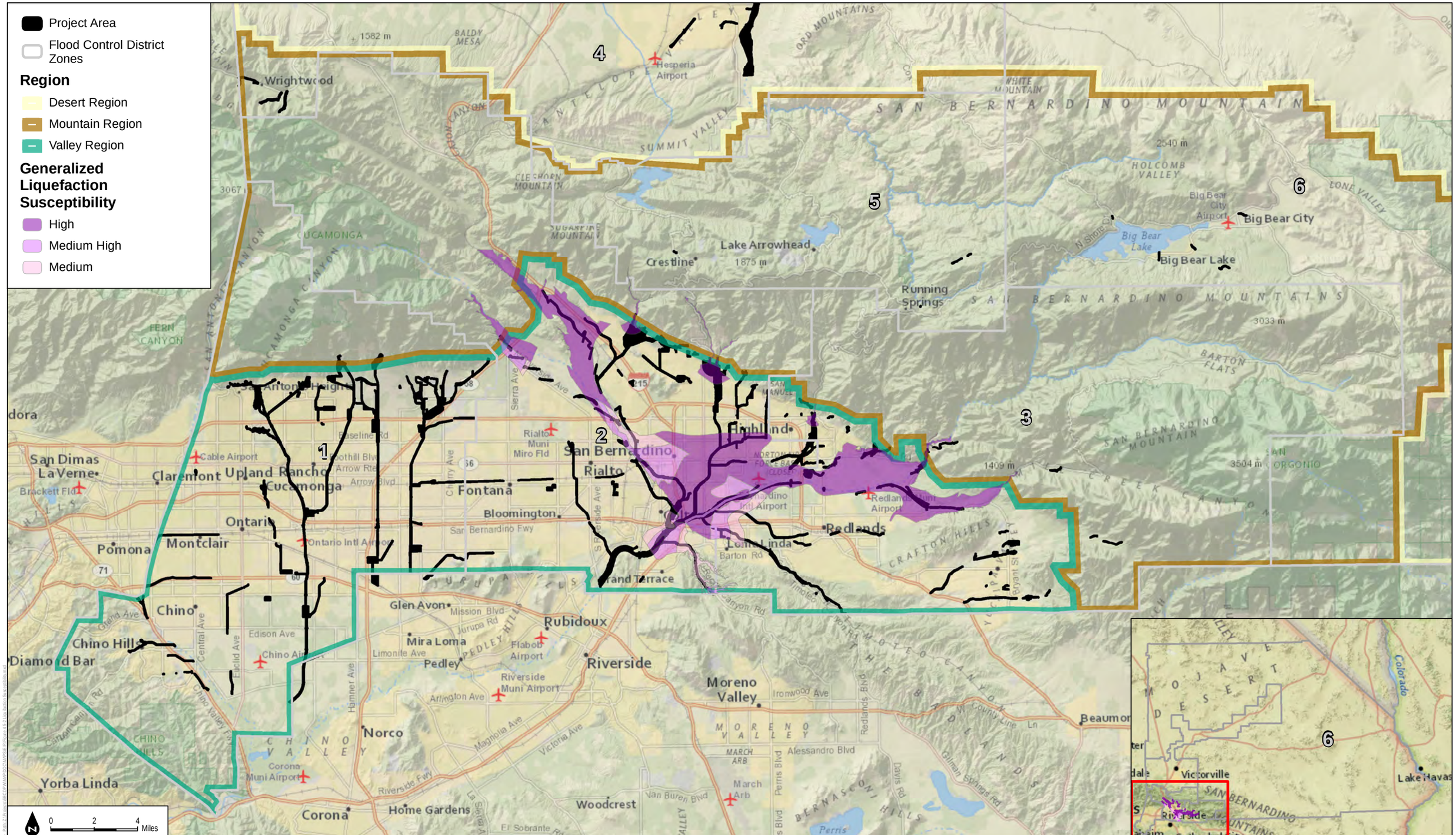

SOURCE: ArcGIS Online Basemap (Nat Geo), SBC Liquifaction Data

DUDEK

FIGURE 4.5-2

Liquefaction Susceptibility

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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4.6 GREENHOUSE GAS EMISSIONS

4.6.1 Introduction

This section of the environmental impact report (EIR) describes the existing greenhouse gas (GHG) emissions setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of the San Bernardino County Flood Control District (District) standard practice for reduction of GHG emissions impacts, and evaluates potential impacts related to implementation of the proposed program.

GHGs are gases that trap heat in the atmosphere. Some GHGs can occur naturally and are emitted into the atmosphere through natural processes and human activities. The analysis in this section is based on whether the proposed program would result in direct or indirect generation of GHG emissions and/or conflict with an applicable plan, policy, or regulation adopted to reduce emissions of GHGs. To make these determinations, emissions associated with the proposed program were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1[1] and are discussed in Section 4.6.6, Impacts Analysis. Emission calculations and model outputs can be found in Appendix D. Given the large scale and number of individual projects associated with the proposed program, emissions could not be calculated for every facility. Instead, a total of 12 representative project sites were selected with the intent of representing a "maximum impact" scenario and equipment/activity levels (as described in Section 4.6.6.1, Methods of Analysis). For the purpose of this GHG emissions analysis, "project" is defined as all maintenance activities occurring within a given facility type. However, as stated in Section 4.2, Air Quality, these projects have been carried out historically on an ongoing basis for many years and continuing maintenance activities under the proposed project would result in only incremental changes in emissions.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this

[1] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential GHG emissions from a variety of projects. It is recommended for California Environmental Quality Act (CEQA) GHG emissions analyses by the South Coast Air Quality Management District (SCAQMD) and the Mojave Desert Air Quality Management District (MDAQMD).

EIR and representative typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The County is composed of three distinct geographic regions: the Valley, Mountain, and Desert Regions. Although approximately 80% of the geographic extent of the County falls within the Desert Region, the Valley Region is the most developed, and approximately 77% of the District facilities are in the Valley Region. However, rather than delineating the analysis by geographic region (which is applicable to other analyses in this EIR), the GHG analysis is based on the selected representative projects (as described in Section 4.6.6.1). As stated in Section 4.2, Air Quality, the Mojave Desert Air Quality Management District (MDAQMD) and the South Coast Air Quality Management District (SCAQMD) are the local agencies responsible for air quality planning with authority over air pollutant sources. The MDAQMD has an established GHG threshold of 100,000 tons of carbon dioxide equivalent (CO_2E) per year. The SCAQMD has recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in which a screening level threshold of 3,000 metric tons of (MT) CO_2E per year was used to assess the proposed program's GHG emissions.

Given the large scale and number of individual projects associated with the proposed program, emissions could not be calculated for every facility. Because a representative project approach was used, where all maintenance activities occurring at a location were incorporated into the representative project scenario, the GHG analysis does not use the impact analysis categories described in the introduction to Chapter 4, Environmental Analysis.

The analysis in this section is based on information compiled by the District and documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.6.10, References.

4.6.2 Regulatory Framework

Federal

Massachusetts v. Environmental Protection Agency

In *Massachusetts v. Environmental Protection Agency* (April 2007), the U.S. Supreme Court directed the U.S. Environmental Protection Agency (EPA) administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry-fleet-wide basis, which would be equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021.

On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2017a).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018–2027 for certain trailers, and model years 2021–2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

State

The statewide GHG emissions regulatory framework provides a general summary and overview of GHG regulations and goals. The following text describes executive orders, assembly bills, senate bills, and other regulations and plans that would directly or indirectly reduce GHG emissions.

Executive Order S-3-05

Executive Order (EO) S-3-05 (June 2005), signed by Governor Schwarzenegger, established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the executive order and for reporting on progress toward the targets. The executive order established the following goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

EO S-3-05 directed the California Environmental Protection Agency to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2016).

Assembly Bill 32 and the Climate Change Scoping Plan

Under Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, the California Air Resources Board (CARB) is responsible for and is recognized as having the expertise to carry out

and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This GHG emissions reduction program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

Further, in 2008, CARB adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan) in accordance with California Health and Safety Code Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020.

In the Scoping Plan, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in statewide GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "business-as-usual" (BAU)). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and to lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050." The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent global warming potentials identified by the Intergovernmental Panel on Climate Change. Using the recalculated 1990 emissions level (431 million metric tons (MMT) carbon dioxide equivalent (CO_2E)) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions.

On January 20, 2017, CARB released the 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (CARB 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."

Senate Bill 32

SB 32 (enacted in 2016) set a new statewide GHG reduction target. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030.

Assembly Bill 1493

In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 (Pavley) was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, whereas the mid-term (2013–2016) standards will result in a reduction of about 30%.

Executive Order S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

Local

County of San Bernardino

The County developed and adopted a GHG Emissions Reduction Plan (GHG Plan) in September 2011 and updated it in March 2014. This GHG Plan presents a comprehensive set of actions to reduce its internal and external GHG emissions to 15% below 2007 levels by 2020, consistent with the AB 32 Scoping Plan. The County's GHG Plan (County of San Bernardino 2014) was prepared to accomplish the following specific objectives:

- Reduce emissions from activities over which the County has jurisdictional and operational control consistent with the target reductions of the AB 32 Scoping Plan;
- Provide estimated GHG reductions associated with the County's existing sustainability efforts and integrate the County's sustainability efforts into the discrete actions of the GHG Plan;
- Provide a list of discrete actions that will reduce GHG emissions; and
- Approve a GHG Plan that satisfies the requirements of Section 15183.5 of the CEQA Guidelines so that compliance with the GHG Plan can be used in appropriate situations to determine the significance of a project's effects relating to GHG emissions, thus providing streamlined CEQA analysis of future projects that are consistent with the approved GHG Plan.

As described in the GHG Plan, all projects, including those otherwise determined to be exempt from the CEQA, are subject to applicable Development Code provisions, including the GHG performance standards and state requirements. Attachment 1 of the County's GHG Plan includes GHG performance standards that all projects must meet in order to assist the County in achieving its 2020 GHG reduction target. Performance standards included in the GHG Plan that are not applicable to the proposed program include design standards such as energy efficiency and water conservation, and operational standards such as vehicle trip reduction potential. However, the GHG Plan does include construction performance standards that the proposed program would have to comply with. Construction standards include grading restrictions, reducing construction-related traffic impacts, and recycling of demolition waste (e.g., soil, vegetation, concrete, lumber, metal, and cardboard). With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MT CO_2E per year are considered to be consistent with the GHG Plan and determined to have a less than significant individual and cumulative impact for GHG emissions (County of San Bernardino 2014).

The GHG Plan includes goals and objectives aimed to reduce emissions generated during construction of projects. Since facility maintenance activities would require similar techniques and

methods comparable to construction practices in addition to the operation of heavy-duty equipment, the following GHG Plan measures would apply to the proposed program (County of San Bernardino 2014):

- **GHG Goal TL 4:** Reduce GHG emissions by regulating the idling of diesel-fueled vehicles and equipment and encouraging the use of alternative fuels and transportation technologies.
- **Objective GHG TL 4.1:** Reduce the exhaust emissions of diesel-fueled vehicles and equipment.

Other reduction strategies include an anti-idling enforcement policy, whereby the County requires that diesel-fueled vehicles and off-road equipment shall not be left idling on site for periods in excess of 5 minutes. The County will also continue to implement its diesel exhaust emissions control measures, which extend beyond the idling restriction described above in the anti-idling enforcement policy. The County's diesel exhaust emissions control measures described in the County's Code of Ordinances (Title 8, Division 3, Chapter 83.01) apply to all discretionary land use projects approved by the County on or after January 15, 2009. These measures include, but are not limited to, the following (County of San Bernardino 2007):

(2) Off-Road Diesel Vehicle/Equipment Operations. All business establishments and contractors that use off-road diesel vehicle/equipment as part of their normal business operations shall adhere to the following measures during their operations in order to reduce diesel particulate matter emissions from diesel-fueled engines:

(B) Use reformulated ultra low-sulfur diesel fuel in equipment and use equipment that is certified by the U.S. Environmental Protection Agency (EPA) or that pre-dates EPA regulations.

(C) Maintain engines in good working order to reduce emissions.

(D) Signs shall be posted requiring vehicle drivers to turn off engines when parked.

(E) Any requirements or standards subsequently adopted by the South Coast Air Quality Management District, the Mojave Desert Air Quality Management District or the California Air Resources Board.

(F) Provide temporary traffic control during all phases of construction.

(H) Maintain construction equipment engines in good working order to reduce emissions. The developer shall have each contractor certify

that all construction equipment is properly serviced and maintained in good operating condition.

(I) Contractors shall use ultra low-sulfur diesel fuel for stationary construction equipment as required by Air Quality Management District (AQMD) Rules 431.1 and 431.2 to reduce the release of undesirable emissions.

(J) Substitute electric and gasoline-powered equipment for diesel-powered equipment, where feasible.

Mojave Desert Air Quality Management District

The proposed program is within the San Bernardino County portion of the Mojave Desert Air Basin, which is under the jurisdiction of the MDAQMD. The MDAQMD has adopted GHG emissions thresholds in its CEQA Guidelines, but has not adopted a comprehensive strategy for reducing GHG emissions. The MDAQMD threshold is 100,000 tons of CO_2E per year, or approximately 90,718 MT CO_2E per year (MDAQMD 2016).

South Coast Air Quality Management District

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigations for potentially significant impacts. Although air districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues (SCAQMD 2008). SCAQMD has recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects. In December 2008, SCAQMD adopted an interim 3,000 MT CO_2E per year screening level threshold for all non-industrial projects for which the SCAQMD is the lead agency (SCAQMD 2010). SCAQMD has not adopted CEQA thresholds for other lead agencies.

4.6.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to GHG/climate change are based on criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to GHG emissions would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact GHG-1 ***Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Impact GHG-2 Would the program conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

In June 2014, the District circulated a Notice of Preparation and Initial Study, which served to focus the EIR on effects determined to be carried forward for analysis and effects determined not to be significant (14 CCR 15063). The 2014 Initial Study determined that both of the GHG emissions impact thresholds should be carried forward for analysis in the EIR (see Section 4.6.6.2, Analysis).

4.6.4 Existing Conditions

4.6.4.1 The Greenhouse Effect and Greenhouse Gases

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and back toward the Earth. This "trapping" of long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature.

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs). GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor (H_2O), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, can occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely byproducts of fossil-fuel combustion, whereas CH_4 results mostly from off-gassing associated with agricultural practices and landfills. Man-made GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, SF_6, and nitrogen trifluoride (NF_3), which are associated with certain industrial products and processes.

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in MT CO_2E. The current version of the CalEEMod (Version 2016.3.1) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT CH_4 are equivalent to emissions of 25 MT CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed program.

4.6.4.2 Contributions to Greenhouse Gas Emissions

In 2015, the United States produced 6,586.7 MMT CO_2E. The primary GHG emitted by human activities in the United States was CO_2. This primary GHG represented approximately 82.2% of total GHG emissions. The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.3% of CO_2 emissions (EPA 2017b).

According to California's 2000–2015 GHG emissions inventory (2017 edition), California emitted 440.36 MMT CO_2E in 2015, including emissions resulting from out-of-state electrical generation (CARB 2017b). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Climate Change Scoping Plan: A Framework for Change (Scoping Plan)) and their relative contributions in 2015 are presented in Table 4.6-1.

Table 4.6-1
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2E)	Percentage of Total[a]
Transportation	164.63	37%
Industrial uses	91.71	21%
Electricity generation[b]	83.67	19%
Residential and commercial uses	37.92	9%
Agriculture	34.65	8%
High-GWP substances	19.05	4%
Recycling and waste	8.73	2%
Total	**440.36**	**100%**

Source: CARB 2017b.
Notes: GHG = greenhouse gas; MMT CO_2E = million metric tons of carbon dioxide equivalent per year; GWP = global warming potential. Emissions reflect the California GHG inventory for 2015 as presented in the CARB 2017 GHG inventory edition.
[a] Percentage of total has been rounded.
[b] Includes emissions associated with imported electricity, which account for 36.51 MMT CO_2E annually.

The primary sources of GHG emissions that would result from maintenance activities proposed under the proposed program are motor vehicles (i.e., worker trips, truck deliveries, and hauling) and off-road construction equipment, due to fuel use and combustion.

4.6.4.3 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The Intergovernmental Panel on Climate Change's 2014 Synthesis Report indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to

millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CNRA 2014). The primary effect of global climate change has been a 0.2°C (0.36°F) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005 (CCCC 2006). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010; CCCC 2012).

4.6.5 Standard Operating Procedures

The District implements standard operating procedures (SOPs) as an environmentally sensitive practice to minimize adverse effects from maintenance activities. All of the District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The District's SOPs relating to GHG emissions are provided below (see Section 4.2, Air Quality, for the full text of these SOPs):

- **SOP-AQ-1** (Diesel Particulate Filters)
- **SOP-AQ-2** (Maintenance Equipment)
- **SOP-AQ-3** (Fugitive Dust)

4.6.6 Impacts Analysis

This section evaluates potential impacts associated with GHG emissions that would result from the proposed program. As discussed in the introduction to Chapter 4, most analyses in this EIR are organized into three categories of activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, a representative project approach was used for the GHG analysis to capture the cumulative GHG emissions resulting from

proposed program activities; therefore, the categorization described in the introduction to Chapter 4 does not apply to the GHG analysis and this section is instead organized by the program area as a whole (all three geographies together) and all proposed program activities combined.

Three comment letters were received in response to the 2014 Notice of Preparation (see Appendix B to this EIR) regarding impacts associated with GHG emissions. One comment from the MDAQMD concurred with the proposed scope identified in the Initial Study and identified no other specific comments necessary to the environmental review process. A comment letter from SCAQMD recommended that the CEQA Air Quality Handbook (SCAQMD 1993) be used for all air quality analysis and CalEEMod be used to estimate emissions from typical land use developments. SCAQMD recommended that impacts from project operations and maintenance activities be calculated. Resources were also recommended to assist in the drafting of mitigation measures in the event that the project generates significant adverse impacts. Additionally, one property owner expressed concerns about the existing conditions and the proposed program's impacts on Quail Wash in Joshua Tree. The commenter expressed concerns about several trucks hauling soil to Quail Wash during past activities, although not necessarily connected to the proposed program. The commenter mentioned that these trucks typically idle along residential roads. In response to this comment, the entire proposed program's emissions are accounted for by the modeling. Furthermore, any idling of trucks would be restricted per CARB's requirement on truck idling.

4.6.6.1 Methods of Analysis

The District currently maintains its facilities as needed and as authorized under regulatory approvals; however, the focus of this analysis is potential environmental impacts associated with consistent maintenance of facilities. To provide a conservative analysis, the environmental baseline for the GHG emissions analysis is the assumption that no activity is currently occurring. Therefore, impacts are evaluated based on the estimated total daily and annual emissions associated with the proposed program.

GHG emissions associated with proposed program activities were quantified using CalEEMod. Project-specific information was assumed in CalEEMod based on information provided by the District's staff when available. Default values provided in CalEEMod were used where detailed project information was not available.

The number of workers deployed to a site at any one time would vary depending on the maintenance activity and would also vary depending on the facility and maintenance subphase undertaken. The number of workers would range from 1 to 18 workers per day for each of the representative projects. The CalEEMod default value for a worker trip distance of 14.7 miles one way was assumed in the analysis. Vendor and haul trucks were each assumed to result in two

one-way trips per day. It was assumed that average one-way trip distance for vendor and haul trucks is 8.0 miles one way, which is based on the average distance from equipment and operational yards to various facilities along drainages where maintenance occurs. Estimated average daily haul truck trips were multiplied by the total days of the respective work phase to estimate total haul truck trips in CalEEMod.

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project, such as the proposed program, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. Thus, GHG impacts are recognized exclusively as cumulative impacts; there are no noncumulative GHG emission impacts from a climate change perspective (CAPCOA 2008).

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish quantifiable thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009a). The State of California has not adopted emission-based thresholds for GHG emissions under CEQA. The Governor's Office of Planning and Research's Technical Advisory titled "CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review" states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008). Further, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

As described previously, the County has adopted a GHG Plan (County of San Bernardino 2014) that establishes thresholds for GHG emissions. The threshold applied to assess the potential for the proposed program to generate GHG emissions either directly or indirectly that may have a

significant impact on the environment was the County's 2014 GHG Plan threshold of 3,000 MT of CO_2E per year.

Representative Projects

Currently, the District maintains its facilities as needed and as authorized under regulatory approvals, on a case-by-case basis. Although routine maintenance is currently ongoing, the consistent maintenance of facilities may result in environmental impacts, which is the focus of this analysis. To provide a conservative analysis, the environmental baseline for the GHG emissions analysis is the assumption that no activity is currently occurring. As explained below, representative projects were developed to evaluate the emissions associated with implementation of the proposed program, assuming that proposed program activities are new sources of emissions.

The analysis of typical proposed program activities is based on representative projects, as described in the following sections. Information regarding a typical maintenance activity scenario, including anticipated phasing and phase duration, maintenance activity equipment, worker trips, vendor truck tips (including water trucks), and haul truck trips, was generated for each representative project.

The representative projects are intended to represent a maximum, or worst-case, scenario associated with proposed program activities. Specifications for each proposed program activity will vary depending on the subject site characteristics, maintenance or restoration needs, and type of proposed solution; however, requirements for maintenance activities within the same category are not expected to differ substantially. Although maintenance activities at other proposed program locations not identified in this section may differ from the scenarios analyzed, the modeled projects and estimated maximum daily emissions included herein would represent a conservative assessment of GHG emission impacts associated with anticipated maintenance activities of any given facility of the same type.

Maintenance activities were assumed to occur at the following facility types: channel, dam, basin, groin, storm drain, levee, and spreading ground. Additionally, seven facilities would require sand and gravel operations, which are included as a separate component for the purpose of this analysis.

The District routinely maintains approximately 500 flood control facilities within the County. Of the approximately 500 facilities, approximately 53% are channels, which can be further assessed based on the level of maintenance required (high, medium, and low); approximately 0.2% are dams; approximately 26% are basins; approximately 2% are groins; approximately 4% are storm drains; approximately 7% are levees; and approximately 6% are spreading grounds.

The representative projects selected for this analysis are described in this subsection. Table 4.6-2 presents a summary of the representative projects analyzed herein.

Table 4.6-2
Representative Projects Summary

Representative Project	Facility Type	Selected Representative Project
A	Concrete channel	Etiwanda Creek Channel (Facility No. 1-701-1C)
B	Earthen–engineered channel	Mission Channel (Facility No. 3-501-1A)
C	Earthen–natural channel	Mojave River (Facility No. 4-101-1N)
D	Dam	Day Creek Dam (Facility No. 1-608-3A)
E	Debris basin	San Antonio Heights Basin No. 5 (Facility No. 1-313-4B)
F	Detention basin	Donnell Basin (Facility No. 6-402-4A)
G	Groin	Muscoy Groin No. 4 (Facility No. 2-209-5D)
H	Storm drain	Alta Loma Storm Drain (Facility No. 1-405-6A)
I	Levee 1	City Creek Levee (Facility No. 2-601-5B)
J	Levee 2	Devil Creek Levee (Facility No. 2-306-5A)
K	Spreading ground	Cucamonga Spreading Grounds (Facility No. 1-303-2A)
L	Sand and gravel operations	Devil Basin (Facility No. 2-304-4F)

Source: Derry, pers. comm. 2017.

Details and maintenance activity assumptions for each representative project are provided in the following subsections.

Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))

The Etiwanda Creek Channel (Facility No. 1-701-1C) was selected to represent a concrete channel maintenance project.[2] Typical maintenance includes concrete repair, access road maintenance and adjacent herbicide application, sediment removal, vector control, and concrete structure repair. Maintenance also includes limited vegetation management, 80% of which is done using hand tools. In general, vegetation along slopes is avoided. Concrete channel maintenance activity assumptions based on Representative Project A, Etiwanda Creek Channel (Facility No. 1-701-1C), are presented in Table 4.6-3.

[2] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Concrete channels include either concrete walls or bottoms. See Table 3-2 for the number of channels in the proposed program area.

Table 4.6-3
Representative Project A – Concrete Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	2	4	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	2	4	4	0	N/A	N/A
Grading – sediment removal	1	4	4	2	Excavator	1
Vector control (insect control)	1	2	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Structure repair	1	4	2	0	N/A	N/A
Vegetation management	1	4	0	0	Skidsteer loader[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))

The Mission Channel (Facility No. 3-501-1A) was selected to represent an earthen–engineered channel facility maintenance project.[3] Maintenance includes access road maintenance and adjacent herbicide application, sediment removal, bank repair and stabilization, and clearing fence lines. Maintenance also includes vegetation management, 10% of which is done using hand tools. Earthen–engineered channel maintenance assumptions based on Representative Project B, Mission Channel (Facility No. 3-501-1A), are presented in Table 4.6-4.

Table 4.6-4
Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	4	6	4	0	Grader	1
Herbicide application	2	4	2	0	N/A	N/A
Grading – sediment removal	10	12	6	48	Excavator	1

[3] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Earthen–engineered channels consist of a combination of engineered and natural features. See Table 3-2 for the number of channels in the proposed program area.

Table 4.6-4
Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Bank repair	10	12	4	40	Scraper	2
					Crawler Tractor	1
Concrete structure repair	1	2	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Vegetation management	1	2	2	0	Boom mowers (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))

The Mojave River (Facility No. 4-101-1N) was selected to represent an earthen–natural channel facility maintenance project.[4] Maintenance includes access road maintenance and related herbicide application, sediment removal, bank repair and stabilization, vector control, and vegetation management. Earthen–natural channel maintenance activity assumptions based on Representative Project C, Mojave River (Facility No. 4-101-1N), are presented in Table 4.6-5.

Table 4.6-5
Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	1	6	2	0	N/A	N/A
Access road maintenance	2	4	4	0	Grader	1
					Broom (tractor/loaders/ backhoes)	1
Herbicide application	2	4	2	0	Polaris Ranger (other construction equipment)	1

[4] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Natural channels consist of natural features. See Chapter 3 for the number of channels located in the program area.

Table 4.6-5
Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Grading 1 – sediment removal	10	8	2	0	Crawler Tractors	1
					Excavator	1
					Skidsteer loader	1
					Speed loader (tractor/ loaders/backhoes)	1
Grading 2 – bank repair	10	8	0	0	Crawler Tractor	1
					Gradall (tractor/loaders/ backhoes)	1
					Scraper	2
Other structure repair (riprap slope repairs)	2	12	4	16	Excavator	1
					Loader (tractor/loaders/ backhoes)	1
Vector control (insect control)	1	2	4	0	N/A	N/A
Vegetation management	1	2	2	0	Speed loader (tractor/ loaders/backhoes)[c]	1
					Boom mower (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))

Day Creek Dam (Facility No. 1-608-3A) was selected to represent a dam facility maintenance project.[5] Maintenance includes concrete repair, access road maintenance, adjacent herbicide application, sediment removal, and vector control. Maintenance also includes vegetation management, 10% of which is done using hand tools. The center flow maintenance (cleanup/ debris/sediment removal) is done up to 0.75 miles upstream from the spillway slope repair, as needed. High sediment load at this facility would require sediment removal of up to 500,000 cubic yards. Dam maintenance activity assumptions based on Representative Project D, Day Creek Dam (Facility No. 1-608-3A), are presented in Table 4.6-6.

[5] A dam is usually a large embankment that blocks an existing watercourse. The embankment is used to control the release of stormwater downstream via an outlet pipe that limits the amount of water that can exit the dam. See Table 3-2 for the number of dams in the proposed program area.

Table 4.6-6
Representative Project D – Dam Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	1	4	2	0	N/A	N/A
Grading 1 – bank repair	10	8	2	0	Gradall (tractor/loaders/ backhoes)	1
					Excavator	1
Rodenticide	1	2	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	1	4	2	0	Polaris Ranger (other construction equipment)	1
Grading 2 – sediment removal	10	8	6	0	Scrapers	1
Vector control (public health)	1	2	2	0	N/A	N/A
Vegetation management	4	18[c]	6	0	Boom mowers (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))

San Antonio Heights Basin No. 5 (Marble) (Facility No. 1-313-4B), was selected to represent a debris basin facility maintenance project.[6] Maintenance includes access road maintenance, herbicide application, vector control, bank repair and stabilization, sediment removal at the southern end of the basin facility and outlet, and vegetation management. This is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (excluding grasses) and removal of trees greater than 2 inches in diameter.[7] Any haul trucks associated with the federal maintenance were included in the vegetation management phase. Debris basin maintenance activity assumptions based on

[6] Debris basins are usually located at the mouth of a canyon where there is a potential for large sediment and debris yields. The purpose of the debris basin is to store sediment and debris, not water. Sediment and debris can reduce the capacity of downstream channels, if not contained, as well as blocking culverts and road crossings.
[7] Federal facilities are facilities over which a federal agency (e.g., U.S. Army Corps of Engineers, Division of Safety of Dams) has jurisdiction.

Representative Project E, San Antonio Heights Basin No. 5 (Facility No. 1-313-4B), are presented in Table 4.6-7.

Table 4.6-7
Representative Project E – Debris Basin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	2	0	Grader	1
Concrete repair	2	2	4	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Herbicide application	1	4	2	0	Polaris Ranger (other construction equipment)	1
Vector control	1	2	2	0	N/A	N/A
Grading 1 – bank repair	2	8	4	8	Scraper	2
					Crawler tractor	1
Grading 2 – sediment removal	2	8	4	8	N/A	N/A
Vegetation management	1	4	2	2	Boom mowers (other construction tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))

Donnell Basin 6-402-4A was selected to represent a detention basin facility maintenance project.[8] Maintenance includes access road maintenance and related herbicide application, sediment removal including side casting, stockpile maintenance, bank repair and stabilization, and vector control. Detention basin maintenance activity assumptions based on Representative Project F, Donnell Basin (Facility No. 6-402-4A), are presented in Table 4.6-8.

[8] A detention basin functions similarly to a dam in that its primary purpose is to cut off peak flows, thereby enabling the use of smaller channels downstream of the basin. Whereas a dam uses an embankment to impound water, a detention basin either will have no embankment or will have a small embankment. Most of the water pool is stored below grade.

Table 4.6-8
Representative Project F – Detention Basin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete structure repair	2	4	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	1	4	2	0	N/A	N/A
Grading 1 – sediment removal	1	6	0	0	Crawler tractor	1
					Excavator	1
Grading 2 – stockpile maintenance	2	6	2	0	Grader	1
					Loader (tractor/ loaders/backhoes)	1
Grading 3 – bank repair	5	6	2	0	Crawler tractor	1
					Grader	1
Rodenticide	1	2	2	0	N/A	N/A
Vector control (insect control)	1	2	4	0	N/A	N/A

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.

Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))

Muscoy Groin No. 4 (Facility No. 2-209-5D) was selected to represent a groin facility maintenance project.[9] Maintenance includes levee grading, access road repair, and herbicide application, as well as limited vegetation management along gates and fence lines, 40% of which is done using hand tools. This facility is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (except grasses) and removal of trees greater than 2 inches in diameter. Groin maintenance activity assumptions based on Representative Project G, Muscoy Groin No. 4 (Facility No. 2-209-5D), are presented in Table 4.6-9.

[9] Groins are elongated berms with one end on the bank of the stream and the other end projecting into the flow. Groins are designed to direct or deflect flows into the desired watercourse without having to construct a continuous bank. See Table 3-2 for the number of groins in the proposed program area.

Table 4.6-9
Representative Project G – Groin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road repair	1	6	0	2	Graders	1
Herbicide application	2	4	4	0	N/A	N/A
Vegetation management	4	14[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips would be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))

Alta Loma Storm Drain 1-405-6A was selected to represent a storm drain facility maintenance project.[10] Maintenance includes concrete and bank repair and stabilization, access road maintenance and related herbicide application, sediment removal, and vector control. Maintenance also includes vegetation management, 10% of which is done using hand tools. Storm drain maintenance activity assumptions based on Representative Project H, Alta Loma Storm Drain (Facility No. 1-405-6A), are presented in Table 4.6-10.

Table 4.6-10
Representative Project H – Storm Drain Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete structure repair	1	4	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Access road maintenance	1	4	2	0	Grader	1
Herbicide application	2	4	4	0	Polaris Ranger (other construction equipment)	1
Grading – sediment removal	2	2	2	4	Skidsteer loader	1

[10] Storm drain facilities are generally smaller channels, or reinforced concrete boxes and pipes, which receive flows primarily from urban runoff. These small facilities drain to a larger channel, stream, or watercourse. See Table 3-2 for the number of storm drains located in the program area.

Table 4.6-10
Representative Project H – Storm Drain Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Vector control	1	2	2	0	N/A	N/A
Vegetation management	1	2	2	0	Boom mowers (tractor/loaders/ backhoes)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Projects I and J: Levee (City Creek Levee (Facility No. 2-601-5B) and Devil Creek Levee (Facility No. 2-306-5A))

Two locations were selected to represent levee facility maintenance projects.[11] The City Creek Levee (Facility No. 2-601-5B) includes access road maintenance and related herbicide application, vector control, bank repair and stabilization, and vegetation management. This is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (except grasses) and the removal of trees greater than 2 inches in diameter. Additionally, sediment removal and vegetation management on the levee site may occur every 2 to 3 years, whereas maintenance in upstream and downstream stream segments would be tiered into phases of 3 to 7 years.

Devil Creek Levee (Facility No. 2-306-5A) includes bank repair and stabilization, sediment removal, access road repair and related herbicide application, and stockpile maintenance, as well as vegetation management, 10% of which is done using hand tools. This facility is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (excluding grasses) and the removal of trees greater than 2 inches in diameter.

[11] A levee is generally an elevated berm that is used to protect adjacent low-lying ground from stormwater. District facilities are generally solitary levees ("groins"), which deflect widely dispersed flows into a narrower stream course; they do not refer to the levees that make up the side slopes of small channels. These types of levees are used to deflect flows away from a larger bank, thus preventing erosion or breaching into the developed floodplain. See Table 3-2 for the number of levees located in the program area.

Levee maintenance activity assumptions based on Representative Projects I and J, City Creek Levee (Facility No. 2-601-5B) (Levee 1) and Devil Creek Levee (Facility No. 2-306-5A) (Levee 2) are presented in Tables 4.6-11 and 4.6-12.

Table 4.6-11
Representative Project I – Levee 1 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	2	0	Grader	1
Rodenticide	1	2	2	0	N/A	N/A
Concrete structure repair	2	4	2	0	N/A	N/A
Herbicide application (insect control)	1	2	4	0	N/A	N/A
Vector control	1	2	2	0	N/A	N/A
Grading 1 – bank repair	15	16	2	120	Crawler tractor	2
					Loader (tractor/ loaders/backhoes)	1
					Excavator	1
Grading 2 – sediment removal	25	26	4	200	Excavator	2
					Crawler tractor	2
					Speed loader (tractor/ loaders/backhoes)	1
					Gradall (tractor/ loaders/backhoes)	1
					Skidsteer loader	1
Vegetation management	2	15[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Table 4.6-12
Representative Project J – Levee 2 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Rodenticide	1	2	2	0	N/A	N/A
Concrete structure repair	2	4	2	0	N/A	N/A
Grading 1 – bank repair	3	8	2	12	Gradall (tractor/loaders/ backhoes)	1
Grading 2 – sediment removal	1	4	2	0	Excavator	1
Access road maintenance	1	4	4	0	Grader	1
Herbicide application	2	4	4	0	Polaris Ranger (other construction equipment)	1
Vegetation management	6	14[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project K: Spreading Grounds (Cucamonga Spreading Grounds (Facility No. 1-303-2A))

The Cucamonga Spreading Grounds (Facility No. 1-303-2A) was selected to represent a spreading ground facility maintenance project.[12] The Cucamonga Spreading Grounds is a large open area that encompasses the area south of the Cucamonga Debris Dam and upstream of Interstate 210, and does not include the mining activities immediately north of Interstate 210. Maintenance work includes access road maintenance, stockpiling, and herbicide application adjacent to the access road, as well as very limited vegetation management. Most vegetation management is done using hand tools. Spreading ground maintenance activity assumptions based on Representative Project K, Cucamonga Spreading Grounds (Facility No. 1-303-2A), are presented in Table 4.6-13.

[12] Spreading grounds are typically large areas of native ground that contain above-ground-surface embankments, or basins (below ground surface) with earthen bottoms, used by private and public water purveyors to impound water to recharge groundwater aquifers. Generally, spreading grounds are constructed in conjunction with a channel. The channel will divert flows into a spreading ground in order to impound the water for groundwater recharge. See Table 3-2 for the number of spreading grounds in the proposed program area.

Table 4.6-13
Representative Project K – Spreading Grounds Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	2	4	2	0	Grader	1
Grading – stockpile maintenance	2	4	0	4	Grader	1
					Loader (tractor/loaders/ backhoes)	1
Herbicide application	2	4	6	0	N/A	N/A
Vegetation management	6	14[c]	2	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (tractor/loaders/ backhoes)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))

Devil Basin (Facility No. 2-304-4F) was selected to represent a sand and gravel operation project. Sand and gravel operations consist of vendors sorting through surplus stockpiled materials so they can be separated by size and sold to buyers. Depending on the market and the volume of stockpiled material at any given site, sand and gravel operations are generally present in the visual environment for an average of 2 years, but this can extend up to 5 years or be as minimal as 6 months. Sand and gravel operations are facilitated by graders, loaders, dump trucks, and water trucks, but equipment also includes grizzlies (i.e., a system of bars or similar equipment applied over debris and sediment to screen out large cobbles and boulders), portable power screens (which can run 5 days a week), and portable power crushers. Although models vary, portable power screens are typically composed of a steel frame and display a rectangular or square form (typically of a similar size to a 12- or 18-foot-long dumpster) with a sloped screen and debris and sediment deposit area. Once sorted, materials are either deposited at ground level near the base of the portable power screen or are transferred to a nearby area via an angled conveyor-belt apparatus that is attached to the portable power screen. Portable power crushers are larger than power screens and can be up to 15 feet tall and 50 feet long. Sand and gravel operation maintenance activity assumptions based on Representative Project L, Devil Basin (Facility No. 2-304-4F), are presented in Table 4.6-14.

Table 4.6-14
Representative Project L – Sand and Gravel Operations Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Sand and gravel operations	522	12	2	2,200	Loaders	2
					Crusher (crushing/ proc. equipment)	1
					Screening equipment (other construction equipment)	1

Source: Derry, pers. comm. 2017.
Note:
[a] Water truck is included in vendor trips for modeling.

4.6.6.2 Analysis

Because of the cumulative, nonlocalized nature of impacts from GHG emissions, the geographic regions (Valley, Mountain, and Desert) used to organize the analysis of program impacts in many of the Analysis sections in Chapter 4 are not applicable for this analysis. Also, as discussed previously, a representative project approach was used for the GHG emissions analysis to capture the cumulative GHG emissions resulting from proposed program activities; therefore, categorization into ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities does not apply to the GHG analysis. Instead, this GHG emissions impact analysis is organized by impact threshold. Consistent with the cumulative nature of GHGs and climate change, the impact determination for the impact thresholds is for the proposed program as a whole, rather than for each representative project.

Impact GHG-1

Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

MDAQMD and SCAQMD

All Program Activities

Maintenance activities of the District's flood control facilities under the proposed program would result in GHG emissions, which are primarily associated with use of off-road equipment, on-road hauling and vendor trucks, and worker vehicles. Annual maintenance activity GHG emissions over 20 years are compared with the County's GHG significance threshold of 3,000 MT CO_2E/year to determine the significance of program-generated GHG emissions.

CalEEMod was used to calculate the annual GHG emissions based on the maintenance activity scenarios described in Section 4.6.6.1, under "Representative Projects." The GHG emissions are expressed in units of MT CO_2E. On-site sources of GHG emissions include off-road equipment and off-site sources include hauling and vendor trucks and worker vehicles. The District plans to maintain approximately 30% of its facilities per year.

Furthermore, approximately 50% of the District's haul truck fleet includes compressed natural gas (CNG) trucks; however, this was not accounted for within the air quality modeling because fuel types for haul trucks in CalEEMod cannot be altered. Therefore, not including CNG trucks represents a conservative approach since it is reasonable to assume that the benefits of operating CNG vehicles would include a reduction in CO_2 compared with petroleum-based fuels.

Maintenance activity assumptions for representative projects are presented in Table 4.6-3 through Table 4.6-14.

Table 4.6-15 presents annual maintenance activity emissions for each representative project analyzed from on-site and off-site emission sources.

Table 4.6-15
Representative Projects Estimated Annual Maintenance Activity GHG Emissions

Project Type	CO_2	CH_4	N_2O	CO_2E
	Metric Tons			
Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))	1.41	<0.01	0.00	1.42
Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))	24.70	0.01	0.00	24.87
Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))	31.48	0.01	0.00	31.72
Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))	14.48	<0.01	0.00	14.58
Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))	5.03	<0.01	0.00	5.07
Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))	6.09	<0.01	0.00	6.13
Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))	1.84	<0.01	0.00	1.86
Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))	1.48	<0.01	0.00	1.49
Representative Project I: Levee 1 (City Creek Levee (Facility No. 2-601-5B))	65.03	0.02	0.00	65.48
Representative Project J: Levee 2 (Devil Creek Levee (Facility No. 2-306-5A))	4.25	<0.01	0.00	4.27
Representative Project K: Spreading Ground (Cucamonga Spreading Grounds (Facility No. 1-303-2A))	3.70	<0.01	0.00	3.73

Table 4.6-15
Representative Projects Estimated Annual Maintenance Activity GHG Emissions

Project Type	CO_2	CH_4	N_2O	CO_2E
	Metric Tons			
Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))	199.66	0.02	0.00	200.56

GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2E = carbon dioxide equivalent.
See Appendix D for detailed results.
Emission factors for 2019 were used in CalEEMod to estimate maintenance activity emissions.

As presented in Table 4.6-15, the representative sand and gravel operations project was estimated to result in the greatest annual emissions of the projects analyzed (approximately 201 MT CO_2E).

Table 4.6-16 presents the estimated annual total amount of GHG emissions associated with maintenance of approximately 30% of the proposed program facilities each year.

Table 4.6-16
Estimated Annual Maintenance Activity GHG Emissions

Project Type	CO_2E Estimated Emissions (Metric Tons per Year)	Number of Facilities Maintained Each Year[a]	Combined Annual CO_2E Emissions (Metric Tons per Year)
Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))	1.42	18	25.56
Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))	24.87	31	765.39
Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))	31.72	6	190.56
Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))	14.58	1	14.58
Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))	5.07	9	45.63
Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))	6.13	19	96.14
Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))	1.86	2	3.72
Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))	1.49	5	7.45
Representative Project I: Levee 1 (City Creek Levee (Facility No. 2-601-5B))	65.48	8[b]	279.00
Representative Project J: Levee 2 (Devil Creek Levee (Facility No. 2-306-5A))	4.27		

Table 4.6-16
Estimated Annual Maintenance Activity GHG Emissions

Project Type	CO_2E Estimated Emissions (Metric Tons per Year)	Number of Facilities Maintained Each Year[a]	Combined Annual CO_2E Emissions (Metric Tons per Year)
Representative Project K: Spreading Ground (Cucamonga Spreading Grounds (Facility No. 1-303-2A))	3.73	7	26.11
Representative Project L: Sand and Gravel Operations (Devil Basin (Facility No. 2-304-4F))	200.56	2	401.12
Estimated annual program emissions			**1,880.93**

Source: District 2017.
Notes: GHG = greenhouse gas; CO_2E = carbon dioxide equivalent.
See Appendix D for detailed results.
[a] Approximately 30% of the facilities was assumed to be maintained each year.
[b] An average of Levee 1 and Levee 2 was used to calculate the total GHG emissions.

As shown in Table 4.6-16, maintenance activities would result in approximately 1,881 MT CO_2E per year. It is anticipated that maintenance activities would occur in 2019 and would continue to occur over the duration of program implementation. Emissions associated with maintenance activities in 2019 and beyond are based on emission factors for 2019 and assume the same frequency and intensity of activities in 2019, which result in a conservative estimate of annual maintenance activity emissions. Total estimated annual GHG emissions under the program are then compared to the County's recommended screening threshold of 3,000 MT CO_2E used in this analysis to determine the potential significance of program-generated GHG emissions. Estimated average annual maintenance activity emissions would not exceed the County's threshold of 3,000 MT CO_2E per year. Additionally, proposed program GHG emissions would not exceed the MDAQMD significance threshold of 100,000 tons of CO_2E (approximately 90,718 MT CO_2E) per year. The proposed program would include implementation of air quality SOPs (see Section 4.2.5, Standard Operating Procedures). However, SOP-AQ-1 (Diesel Particulate Filters), SOP-AQ-2 (Maintenance Equipment), and SOP-AQ-3 (Fugitive Dust) would primarily be associated with reducing the proposed program's diesel particulate emissions and the amount of fugitive dust generated. The proposed program would not result in cumulatively considerable emissions, and impacts would be less than significant.

Impact GHG-2

Would the program conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

MDAQMD and SCAQMD

All Program Activities

As discussed in Section 4.6.2, Regulatory Framework, and as stated in the County's GHG Plan (2014), with the implementation of the applicable construction GHG performance standards, projects that do not exceed 3,000 MT CO_2E per year are considered to be consistent with the GHG Plan and determined to have a less than significant individual and cumulative impact for GHG emissions.

As depicted in Table 4.6-16, annual emissions from maintenance activities under the proposed program would not exceed the County's screening threshold of 3,000 MT CO_2E per year. As provided in the GHG Plan, the County includes numerous policies and programs that guide development and also support the County's efforts to reduce GHG emissions. Based on the guidance presented in the GHG Plan, the proposed program would be consistent with the applicable plan adopted to reduce GHG emissions; therefore, the proposed program would result in a less than significant cumulative impact to GHG emissions and climate change.

Consistency with SCAG 2016–2040 RTP/SCS

At the regional level, SCAG has adopted the 2016–2040 RTP/SCS (SCAG 2016) for the purpose of reducing GHG emissions attributable to vehicles in western San Bernardino County and surrounding areas. Although the RTP/SCS does not regulate land use or supersede the exercise of land use authority by SCAG's member jurisdictions (i.e., the County), the RTP/SCS is a relevant regional reference document for purposes of evaluating the connection of land use and transportation patterns and the corresponding GHG emissions. The RTP/SCS is not directly applicable to the proposed program because the underlying purpose of the RTP/SCS is to provide direction and guidance on future regional growth (i.e., the location of new residential and non-residential land uses) and transportation patterns throughout the region, as stipulated under SB 375. The proposed program involves implementation of maintenance activities on existing flood control facilities, which entails short-term use of equipment and worker vehicle trips. As such, the proposed program would not conflict with the goals and policies of the RTP/SCS.

Consistency with Executive Order S-3-05 and Senate Bill 32

EO S-3-05. This executive order establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

SB 32. This bill establishes a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-

effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030.

To begin, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the Scoping Plan First Update that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the Scoping Plan First Update (CARB 2014) states the following:

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown. The Scoping Plan Second Update reaffirms that the state is on the path toward achieving the 2050 objective of reducing GHG emissions to 80% below 1990 after the adoption of SB 32 and AB 197 in 2016 (CARB 2017a).

Additionally, the proposed program would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because, as evidenced previously, the proposed program's annual GHG emissions would not exceed the County's significance threshold of 3,000 MT CO_2E annually and would occur through a period of 20 years. Therefore, the proposed program would not conflict with the state's trajectory toward future GHG reductions, and the proposed program's impacts on GHG emissions in the 2030 and 2050 horizon years would be less than significant.

Based on the preceding considerations, the proposed program would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, the proposed program would result in a less than significant impact.

4.6.7 Mitigation Measures

The thresholds set forth in the MDAQMD CEQA Guidelines and the SCAQMD CEQA Air Quality Handbook would not be exceeded as a result of implementation of the proposed program. With incorporation of District standard practices SOP-AQ-1 through SOP-AQ-3, any

potential GHG emissions impacts from the proposed program would be less than significant. Therefore, no mitigation measures would be required.

4.6.8 Level of Significance After Mitigation

GHG emissions impacts from implementation of the proposed program would be less than significant. Table 4.6-17 summarizes the impacts of proposed activities under each impact threshold analyzed in this EIR section.

Table 4.6-17
GHG Emissions Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance
Impact GHG-1: Would the program generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?				
MDAQMD and SCAQMD				
All Program Activities	SOP-AQ-1 SOP-AQ-2 SOP-AQ-3	Less than significant	—	Less than significant
Impact GHG-2: Would the program conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?				
MDAQMD and SCAQMD				
All Program Activities	—	Less than significant	—	Less than significant

4.6.9 Cumulative Impacts

Maintenance activities associated with the proposed program would create less than significant impacts on greenhouse gas emissions. As discussed previously, the proposed program activities would result in annual GHG emissions of approximately 1,881 MT CO_2E, therefore, the proposed program would not exceed the recommended SCAQMD GHG significance threshold of 3,000 MT CO_2E per year and would not exceed the GHG emissions threshold established by the MDAQMD of 100,000 tons of CO_2E (90,718 MT CO_2E) per year. Additionally, the proposed program would no conflict with any applicable plans, policies, or regulations established with the intent of reducing GHG emissions. The cumulative nature of climate change and the proposed program's potential to contribute to climate change impacts associated with program-generated GHG emissions are evaluated in Section 4.6.6. As explained in Section 4.6.6.1, Methods of Analysis, GHG impacts are recognized exclusively as cumulative impacts, and there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). The supporting documentation for the 2010 CEQA Guidelines amendments indicates that the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009b), and an environmental document must analyze the incremental contribution

of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009a). To reduce cumulative GHG emissions, various statewide regulatory measures focusing on different GHG emission sources have been implemented that will ultimately reduce GHG emissions associated with the proposed program and other future new development projects. Examples include the Low Carbon Fuel Standard, which set GHG standards for passenger vehicles, and the cap-and-trade program. Regional measures have been adopted by various agencies (e.g., cities, counties, metropolitan planning organizations) throughout the state to support and enhance the effectiveness of the statewide efforts. Although many of the statewide and regional plans, policies, and regulations would not be specifically applicable to reductions in GHG emissions from the proposed program and would vary in applicability to off-site (non-program-related) cumulative projects, to the extent required by law, the proposed program and other cumulative projects would be required to comply with applicable existing regulations and future regulations adopted in furtherance of statewide and/or regional goals.

As discussed in Section 4.6.6.2, the thresholds applied in the GHG emissions analysis were the County's recommended screening threshold of 3,000 MT CO_2E per year and the MDAQMD significance threshold of 100,000 tons of CO_2E (approximately 90,718 MT CO_2E) (County of San Bernardino 2014; MDAQMD 2016). The proposed program activities were estimated to result in annual GHG emissions of 1,881 MT CO_2E. Furthermore, as part of District's standard practice the proposed program would implement SOP-AQ-1 (Diesel Particulate Filters), SOP-AQ-2 (Maintenance Equipment), and SOP-AQ-3 (Fugitive Dust), which would reduce maintenance activity-generated GHG emissions. Because the estimated annual maintenance activity emissions would not exceed either the County or the MDAQMD significance threshold, the proposed program would not result in cumulatively considerable emissions.

4.6.10 References

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4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7.1 Introduction

This section of the environmental impact report (EIR) describes the existing hazards and hazardous materials setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce hazards and hazardous materials impacts, evaluates potential impacts related to implementation of the proposed program, and provides mitigation measures that will reduce potential impacts.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity and there would be limited disturbance to shallow subsurface soils. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

To determine potential impacts on hazards and hazardous materials from the proposed program, a review was conducted of hazardous materials sites, relevant emergency response and emergency evacuation plans, and resources currently in place to suppress wildland fires. Proposed program activities were then analyzed for potential impacts on these resources.

The analysis of hazardous materials included review of regulatory agency records to determine whether the proposed program is located on a site included on a list of hazardous materials sites. The search of regulatory agency records was extended 1/8 mile beyond the proposed program boundary in order to capture adjacent sites that may have impacted a proposed program site. Given that proposed maintenance activities would at most impact shallow soils, it is unlikely that potential impacts to the proposed program area from sites farther away (e.g., soil and groundwater impacts from a spill or leak), if present, would be encountered. Of the 364 sites identified in the regulatory agency records, it was determined that 46 may be of concern to the proposed program. These 46 sites of concern have groundwater or soil impacted by contamination. This could necessitate health and safety precautions during proposed program activities, such as air monitoring and plans for dealing with impacted media, if discovered. Methods and results of this database search are provided in Appendix G to this EIR and are summarized in Section 4.7.4.1, Hazardous Materials Sites Overview.

4.7.2 Regulatory Framework

Federal

The following federal regulations pertaining to hazards and hazardous materials would apply to the proposed program.

Federal Toxic Substances Control Act and RCRA

The federal Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.) and the Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. 6901 et seq.) established a program administered by the U.S. Environmental Protection Agency (EPA) for regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (PL 98-616), which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act. Under the authority of RCRA, the regulatory framework for managing hazardous waste, including requirements for entities that generate, store, transport, treat, and dispose of hazardous waste, is found in Title 40 of the Code of Federal Regulations, 260–299.

The EPA works closely with other federal agencies, state and local governments, and Native American tribes to develop and enforce regulations under existing environmental laws. The EPA is primarily responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes responsibility for issuing permits and monitoring and enforcing compliance. When national standards are not met, the EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality. The EPA also works with industries and all levels of government in a wide variety of voluntary pollution prevention programs and energy conservation efforts.

EPA Region 9 has jurisdiction over the southwestern United States (Arizona, California, Nevada, and Hawaii), and therefore over the County.

CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601 et seq.), commonly known as "Superfund," was enacted by Congress on December 11, 1980; the Superfund Amendments and Reauthorization Act amended CERCLA on October 17, 1986. This law provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to

provide for cleanup when no responsible party can be identified. This is relevant to the proposed program in the case where hazardous materials are encountered in the study area.

International Fire Code

The International Fire Code (IFC; ICC 2015), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code use a hazard classification system to determine what protective measures are required to protect life safety in relation to fire. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every 3 years.

U.S. Forest Service

Portions of the proposed program occur in the San Bernardino National Forest. The San Bernardino National Forest is part of Region 5, Pacific Southwest Region, of the U.S. Forest Service (USFS). The Pacific Southwest Region of the USFS manages 20 million acres of national forest land in California and assists the state and private forest landowners in California, Hawaii, and the U.S. Affiliated Pacific Islands. Eighteen national forests are located in this region. USFS Fire and Aviation Management is responsible for wildland fire suppression to protect communities and natural resources within the jurisdiction of the USFS.

National forests contain 6 million of the total 9 million acres of highly volatile brushland in California, found mainly in the foothill country where urban expansion is increasing and many developments lack adequate protection against wildfire. As of October 2008, more than 1,511 fires have burned 875,769 acres of national forest land in California (USFS 2017).

Department of Transportation

The Hazardous Materials Transportation Act of 1974, as amended, is the basic statute regulating hazardous materials transportation in the United States. This law gives the U.S. Department of Transportation and other agencies the authority to issue and enforce rules and regulations governing the safe transportation of hazardous materials.

State agencies are authorized to designate highways for the transport of hazardous materials. Where highways have not been designated, hazardous materials must be transported on routes that do not go through or near heavily populated areas.

State

The following state regulations pertaining to hazards and hazardous materials would apply to the proposed program.

Cal/OSHA

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and to notify workers of exposure (8 CCR 330 et seq.). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

CalEPA

The California Environmental Protection Agency (CalEPA) has broad jurisdiction over hazardous materials management in the state. Within CalEPA, the Department of Toxic Substances Control (DTSC) has primary regulatory responsibility for hazardous waste management and cleanup. Enforcement of regulations has been delegated to local jurisdictions that enter into agreements with the DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law.

Along with the DTSC, the Regional Water Quality Control Boards (RWQCBs) are responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. RWQCB regulations are contained in Title 27 of the California Code of Regulations. Additional state regulations applicable to hazardous materials are contained in Title 22 of the California Code of Regulations. Title 26 of the California Code of Regulations is a compilation of those sections or titles of the California Code of Regulations that are applicable to toxics.

Cortese List

The Cortese List (California Government Code, Section 65962.5) requires that information regarding environmental impacts of hazardous substances and wastes be maintained and provided at least annually to the Secretary for Environmental Protection. This information must include the following: sites impacted by hazardous wastes; public drinking water wells that contain detectable levels of contamination; underground storage tanks (USTs) with unauthorized releases; solid waste disposal facilities from which there is migration of hazardous wastes; and all cease and desist and cleanup and abatement orders. This information is maintained by various agencies, including DTSC, the California Department of Health Services, State Water Resources Control Board, and the local Certified Unified Program Agency. As each of the regulatory

agencies typically maintains these records in an electronic format, those requesting a Cortese List for a site are directed to the individual regulatory agencies. Typically, records searches are conducted via a regulatory database search company (such as Environmental Data Resources Inc. (EDR)). Unless otherwise requested, the records search companies typically conduct the records searches in accordance with ASTM Standard Practice E1527-13, Standard Practice for Phase I Environmental Site Assessments. The ASTM list of databases searched is more comprehensive than the Cortese List.

Hazardous Materials Release Response Plans and Inventory

Two programs found in California Health and Safety Code Chapter 6.95 are directly applicable to the California Environmental Quality Act (CEQA) issue of risk due to hazardous substances release. These two programs are referred to as the Hazardous Materials Business Plan (HMBP) program and the California Accidental Release Prevention (CalARP) program. The San Bernardino County Fire Department's (San Bernardino County Fire's) Hazardous Materials Division is responsible for implementing the HMBP and CalARP programs. The HMBP and CalARP programs provide threshold quantities for regulated hazardous substances. When the indicated quantities are exceeded, an HMBP or Risk Management Plan is required pursuant to the regulation. Congress requires the EPA Region 9 to make Risk Management Plan information available to the public through the EPA's Envirofacts Data Warehouse (EPA 2017). The Envirofacts Data Warehouse is considered the single point of access for EPA environmental data.

Emergency Services Act

Under the Emergency Services Act (California Government Code, Section 8550 et seq.), California developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. The Emergency Response Plan is administered by the California Emergency Management Agency and includes response to hazardous materials incidents. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the plan, which is administered by the Governor's Office of Emergency Services (OES). The OES coordinates the response of other agencies, including CalEPA, California Highway Patrol, California Department of Fish and Wildlife, RWQCBs, air quality management districts, and local/regional fire authorities.

2016 California Fire Code

The California Fire Code is part of the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. The California Building Standards Code is published in its entirety every 3 years by order of the California legislature, with supplements published in intervening years. The California legislature delegates authority to various state agencies, boards, commissions, and departments to create building regulations to implement the state's statutes.

These building regulations, or standards, have the force of law, and take effect 180 days after their publication unless otherwise stipulated. The California Building Standards Code applies to all jurisdictions in the State of California. A city, a county, or a city and county may establish more restrictive building standards reasonably necessary because of local climatic, geological, or topographical conditions (California Building Standards Commission 2016).

Although the proposed program does not involve the construction or operation of human-occupied buildings, it involves maintenance activities, which would be subject to Chapter 33, Fire Safety during Construction and Demolition, and Chapter 35, Welding and Other Hot Work, of the California Building Standards Code.

CAL FIRE San Bernardino Unit Strategic Fire Plan

Portions of the proposed program are located within the jurisdiction of the California Department of Forestry and Fire Protection (CAL FIRE), specifically within the CAL FIRE San Bernardino Unit. Therefore, the proposed program would need to be consistent with CAL FIRE guidelines for the portions of the proposed program located within CAL FIRE jurisdiction. The San Bernardino Unit includes San Bernardino, Los Angeles, Inyo, and Mono Counties. The total unit area is 1,408,000 acres of State Responsibility Area plus 18,502 acres of wildland contracts. All of the counties have multiple public lands within their response areas, including lands owned and managed by the Bureau of Land Management, National Park Service, and the U.S. Fish and Wildlife Service, and California State Parks, as well as national forest lands and county and local parks.

The CAL FIRE San Bernardino Unit Fire Prevention Bureau oversees the application of California Public Resources Code, Section 4290, and Title 14 of the California Code of Regulations, Section 1270, on all private lands classified as State Responsibility Area. These regulations are best known as the “SRA [State Responsibility Area] Fire Safe Regulations,” and constitute the basic wildland fire protection standards of the California Board of Forestry and Fire Protection. CAL FIRE has been given the role of wildland fire protection and is provided the opportunity to review and comment on all proposed construction and development within the State Responsibility Area. In cooperation with Inyo County Planning, Mono County Planning, and San Bernardino County Planning when requested, CAL FIRE has oversight responsibility and reviews Land Division Applications for compliance with California Public Resources Code, Section 4290. CAL FIRE forwards recommendations to the appropriate planning department, specifying the minimum requirements necessary to meet state law (CAL FIRE 2012).

Local

County Environmental Health Divisions

County environmental health divisions (under various names) are typically designated as the Certified Unified Program Agencies, which are the local administrative agencies that coordinate the regulation of hazardous materials and hazardous wastes, typically through the following program areas:

- Hazardous Materials Release Response Plans and Inventory
- California Accidental Release Prevention
- Business Emergency Plan
- Underground Storage Tanks
- Aboveground Petroleum Storage Act
- Spill Prevention, Control, and Countermeasure Plan
- Hazardous Waste Generation and On-Site Treatment
- Hazardous Materials Management Plans and Inventory Statements under Uniform Fire Code Article 80

In most San Bernardino County cities, San Bernardino County Fire's Hazardous Materials Division administers the programs listed above.

San Bernardino County Emergency Operations Plan

The intent of the County's Emergency Operations Plan (EOP) is to provide the concept of operations and strategic activities for responding to any type of emergency incident impacting the County. Other individual communities may maintain similar plans or procedures for implementation in response to localized incidents or initial activities prior to escalation to the County. The EOP establishes the framework of the County Operational Area's emergency organization, consisting of the County, cities, towns, special districts, schools, volunteer and private sector organizations, and state and federal agencies, and conforms to the current state and federal guidelines for emergency plans. The EOP further defines functions, assigns responsibilities, specifies policies and general procedures, and provides for coordination of planning efforts of the various emergency staff and service elements using the Standardized Emergency Management System and the National Incident Management System standards. The plan was adopted on February 26, 2013 (County of San Bernardino 2013).

County of San Bernardino 2007 General Plan

The County of San Bernardino 2007 General Plan's Safety Element (County of San Bernardino 2007) provides goals and policies regarding hazards and hazardous materials, including the following:

GOAL S 1 The County will minimize the potential risks resulting from exposure of County residents to natural and man-made hazards in the following priority: loss of life or injury, damage to property, litigation, excessive maintenance and other social and economic costs.

Policy S 1.3 Support and expand emergency preparedness and disaster response programs and establish comprehensive procedures for post-disaster planning in affected areas.

Program 4 Require disaster plans and provisions in the design, location, and management of all public facilities.

Program 5 Plan, design, and use public facilities according to the requirements of the County Emergency Management Plan.

Program 6 Ensure adequate access routes to and from potential devastation areas as required by the County's Emergency Management Plan.

GOAL S 2 The County will minimize the generation of hazardous waste in the County and reduce the risk posed by storage, handling, transportation, and disposal of hazardous wastes.

Policy S 2.1 Because reducing the amount of waste generated in this County is an effective mechanism for reducing the potential impact of these wastes on the public health and safety and the environment, and because legislation encourages the reduction, to the extent feasible, of hazardous waste, this jurisdiction will encourage and promote practices that will, in order of priority: (1) reduce the use of hazardous materials and the generation of hazardous wastes at their source; (2) recycle the remaining hazardous wastes for reuse; and (3) treat those wastes that cannot be reduced at the source or recycled. Only residuals from waste recycling and treatment will be land disposed.

Policy S 2.2 Include extensive public participation in the County's application review process for siting hazardous waste facilities and coordinate among agencies and County departments to expedite the process.

Apply a uniform set of criteria to the siting of these facilities for the protection of public health and safety and the environment.

Policy S 2.3 Ensure that environmental review is conducted for projects proposed on sites that have been identified as contaminated.

Policy S 2.4 Protect vital groundwater resources and other natural resources from contamination for present and future beneficial uses.

Policy S 2.5 Minimize the risk of exposure to hazardous substances by residential and other sensitive receptors through the application of program review and permitting procedures.

Program 1 The County shall provide 24-hour response to emergency incidents involving hazardous materials or wastes in order to protect the public and the environment from accidental releases and illegal activities.

Program 5 The County shall implement CUPA [Certified Unified Program Agency] programs for the development of accident prevention and emergency plans, proper installation, monitoring, and closure of USTs, and the handling, storage, transportation, and disposal of hazardous wastes.

Program 7 The County shall manage the investigation and remediation of environmental contamination due to releases from USTs, hazardous waste containers, chemical processes, or the transportation of hazardous materials.

GOAL S 3 The County will protect its residents and visitors from injury and loss of life and protect property from fires.

Policy S 3.1 Continue the Fire Department's consolidation efforts to develop an integrated approach to coordinate the County's present and future needs in fire protection services in response to fire hazards and risks and to serve as a basis for program budgeting, identification, and implementation of optimum cost-effective solutions with the goal of providing necessary Service Levels and achieve Deployment Goals. These Service Levels and Deployment Goals are as follows:

The deployment of fire companies with appropriate levels of staffing and apparatus within the service area plays an important role in

effective community fire protection and provision of a higher standard of care for life threatening health emergencies and thereby increasing the quality of life for our citizens. Consolidation provides the most effective option for streamlining the delivery of service and simplifying budget, fiscal, operational, and asset management and creates a single countywide Fire Protection District. It also provides the longest projection of financial solvency for the County Fire Department based on a special district deliver system. A tiered response, including staffing levels, response times and performance goals seems the only reasonable conclusion for the near future as the Department works towards establishing service planning goals for all areas of the County. Matching service levels with the various characteristics of a geographic area will provide several things including: base line service, knowledge of when the area will move to the next level of service, reasonable stabilization of current service, allow for community identity and choice, allow for the projection of future service levels, and lay the basic foundation for strategic planning and future growth of the Department.

Program 6 Continue to coordinate fire protection services countywide, with all city fire departments, self-governed special districts providing fire protection services, the California Department of Forestry and Fire Protection, the United States Forest Service, Bureau of Land Management.

Policy S 3.2 The County will endeavor to prevent wildfires and continue to provide public safety from wildfire hazards.

Policy S 3.3 Minimize the fire hazard posed by expanding development in wildland/urban intermix areas.

GOAL S 9 The County's emergency evacuation routes will quickly and efficiently evacuate all residents in the event of wildland fires and other natural disasters, and will ensure adequate access of emergency vehicles to all communities.

Policy S 9.1 Maintain projected emergency access needs in the periodic review of the County's Hazard Mitigation Plan.

Program 1 The Office of Emergency Services (OES), County Fire Department shall be responsible for the continued update of emergency evacuation plans for wildland fire incidents as an

extension of the agency's responsibility for Hazard Mitigation Planning in San Bernardino County. OES shall update evacuation procedures in coordination with MAST and provide specific evacuation plans for the Mountain Region where route planning, early warning and agency coordination is most critical in ensuring proper execution of successful evacuations. OES will monitor population growth and evaluate road capacities and hazard conditions along evacuation corridors to prepare contingency plans to correspond to the location, direction and rate of spread of wildland fires.

Policy S 9.2 Ensure that future developments have no less than two points of access for emergency evacuation and for emergency vehicles, in the event of wildland fires and other natural disasters.

Program 1 Require compliance with the provisions of the access standards of the Fire Safety Overlay, the Subdivision Design and Improvement Standards of the County Development Code and, where applicable, Planned Unit and Planned Residential Development standards.

Program 2 Access for development projects will be considered in conjunction with the location of active faults through the development review process. Access across faults will be discouraged where point(s) of access can feasibly be located outside of fault areas.

Program 3 Through the provisions of the Fire Safety Overlay and the development review process, require projects to provide immediate vehicular access to the perimeter of structural development within projects adjacent and exposed to wildlands.

Program 4 In areas with predominant natural slopes greater than 30% and in canyon mouths and ridge saddles. Access roads will be the shortest length feasible. Grading for roads will be the minimum necessary to provide adequate access.

GOAL S 10 San Bernardino County will provide a Hazard Mitigation Plan (HMP) with the intent to reduce and/or eliminate risk that may result in loss of life and property.

Policy S 10.1 Prepare a Multi-Jurisdictional Hazard Mitigation Plan that assists in developing sustainable, self-reliant, disaster-resistant communities within

San Bernardino County. By this policy, the Hazard Mitigation Plan shall be part of this Safety Element of the San Bernardino County General Plan.

Program 1 The Office of Emergency Services shall organize and preside over a coalition of local jurisdictions governed by the Board of Supervisors, participating agencies, pertinent stakeholders and emergency responders in the preparation of a comprehensive Multi-Jurisdictional Hazard Mitigation Plan that is regional in nature.

Program 2 The Office of Emergency Services shall develop a San Bernardino County Planning Team to participate in the development and implementation of the Multi-Jurisdictional Hazard Mitigation Plan to include, but not limited to:

a. The County,

b. The County Fire Department/Fire Protection District,

c. The Flood Control District,

d. The Special Districts Department,

e. The Land Use Services Department,

f. The Big Bear Recreation and Parks District, and

g. The Bloomington Recreation and Parks District.

Policy S 10.2 The San Bernardino County Planning Team shall meet annually to review the status of the Multi-Jurisdictional Hazard Mitigation Plan and all associated projects and take necessary actions to ensure compliance with the Plan.

Program 1 Complete pre-disaster and post-disaster actions required by the plan as funding and circumstances permit.

Program 2 Analyze the current situation annually at the San Bernardino County Planning Team meeting to add, remove, or modify projects as projects are completed, identified, or project priorities/rankings are changed by the individual jurisdictions/ departments responsible for the projects.

Program 3 Track all projects including those completed, in progress, waiting funding, in planning and development stage, or projects removed from lists for any reason. Project tracking shall be included in the next update cycle of the Multi-Jurisdictional Hazard Mitigation Plan.

Policy S 10.3 Every five years, starting with the latest FEMA [Federal Emergency Management Agency] Approval Date for the MJHMP, submit completed necessary revisions, updates and additions to the latest FEMA approved Multi-Jurisdictional Hazard Mitigation Plan. Plan updates will be a joint project of the County Planning Team with input from the public as indicated in the Federal Emergency Management Agency guidance documents.

Policy S 10.4 After disasters, complete the necessary repairs and reconstruction as quickly as possible as funding permits to restore a sense of normalcy to the affected communities while following the guidelines established by the Multi-Jurisdictional Hazard Mitigation Plan and other plans, regulations and laws that apply.

Other General Plans

General plans serve to guide and direct local government decision making for hazards and hazardous materials. Generally, safety elements in local jurisdictions' general plans focus on managing the natural hazards that may occur in each jurisdiction as well as specifying relevant programs and policies for hazardous materials disposal. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding hazards and hazardous materials. However, the proposed program would not conflict with these general plan policies.

4.7.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program impacts related to hazards and hazardous materials are based on criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to hazards and hazardous material would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact HAZ-1 ***Would the program create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardousmaterials?***

Impact HAZ-2 ***Would the program create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

Impact HAZ-3 ***Would the program emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

Impact HAZ-4 ***Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.?***

Impact HAZ-5 ***For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the program result in a safety hazard for people residing or working in the program area?***

Impact HAZ-6 ***For a program within the vicinity of a private airstrip, would the program result in a safety hazard for people residing or working in the program area?***

Impact HAZ-7 ***Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

Impact HAZ-8 ***Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

In June 2014, the District recirculated an NOP and Initial Study based on the currently proposed program (see Appendix B). The 2014 NOP and Initial Study identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The Initial Study determined that Impacts HAZ-1, HAZ-2, HAZ-3, HAZ-5, and HAZ-6 would have a less than significant impact; therefore, these impacts were eliminated from discussion and are not analyzed further in this EIR. Impacts HAZ-4, HAZ-7, and HAZ-8 were carried forward for analysis in the EIR and are examined in this section of the EIR (see Section 4.7.6.2, Analysis).

4.7.4 Existing Conditions

4.7.4.1 Hazardous Materials Sites Overview

As described in Section 4.7.1, Introduction, in order to determine the potential for the proposed program to be on a hazardous site, the District conducted a database search of regulatory records and available online records for sites in the proposed program area plus 1/8 mile from the proposed program boundary. Given that proposed maintenance activities would at most impact shallow soils, it is unlikely that potential impacts to the proposed program area from sites farther away (e.g., soil and groundwater impacts from a spill or leak), if present, would be encountered. The database search was subdivided into five subareas: Baker, San Bernardino, Trona, Victorville, and

Yucca Valley. The database results were narrowed to include only listed sites that indicated a release or potential release of hazardous materials or contaminants.

Based on the methodology described in Appendix G to this EIR, a total of 364 sites within or near the proposed program area were identified as having releases or potential releases of hazardous materials or contaminants. Some of the sites are listed in several of the databases searched; thus, duplicate entries were consolidated. The 364 sites of concern are shown on Table 1 in Appendix G. Information includes site name, address, site status and status date, contaminants of concern, and regulatory database listings.

Of the 364 sites identified as sites of concern, 269 are listed as closed or otherwise requiring no further action by the lead regulatory agency. These listings include the following types of sites: gas stations, landfills, auto mechanics, various other manufacturing sites, and schools. Sites with known releases, such as gas stations, landfills, and other similar sites, could have residual impacts remaining in the soil. Although these sites no longer require regulatory action, residual impacts could pose a risk to the proposed program. Special care should be taken at these sites to maintain worker safety, allow for the proper identification and storage of impacted materials, and provide appropriate treatment of impacted media. These sites are shown in orange on Figures 1 and 2 in Appendix G.

Of the 364 sites identified as sites of concern, 36 are listed as inactive or referred to another agency. These types of sites may have deferred investigation, be operated by uncooperative parties, or have been referred to another regulatory agency. It is unlikely that these are high-risk sites because the regulatory agencies would treat them with more urgency. However, because there is limited information, the extent of impacts is unknown. Therefore, impacts could be present and pose a risk to the proposed program. These “inactive/referred to another agency” sites are shown in yellow on Figures 1 and 2 in Appendix G.

Of the 364 sites identified as sites of concern, 59 are listed as open or active. Of the 59 open/active sites, 13 are adjacent to a concrete drainage feature. Because the proposed program does not involve removal of concrete drainage features (thereby eliminating potential contact with soil or groundwater), it is not expected that these sites would impact proposed program activities or that proposed program activities would exacerbate the existing environmental conditions of these sites. The regulatory status of these 13 open/active sites adjacent to drainage features is shown in yellow in Table 1 of Appendix G. The remaining 46 sites of concern are depicted on Figure 1, Hazardous Waste/Materials Impacted Sites – Valley and Mountain Regions, and Figure 2, Hazardous Waste/Materials Impacted Sites – Desert Region, of Appendix G. These sites are discussed in more detail in Appendix G.

4.7.4.2 Emergency Response Plan Overview

The County's EOP (County of San Bernardino 2013) provides guidance on response to the County's most likely and demanding emergency conditions. It does not supersede the well-established protocols for coping with day-to-day emergencies involving law enforcement, the fire service, medical aid, transportation services, flood control, or other discipline-specific emergency response systems. Rather, it places emphasis on those unusual and unique emergency conditions that will require extraordinary response beyond the ability of any one or set of organizations to respond. Neither does the EOP include detailed response level operating instructions. Each organization identified in the EOP is responsible for, and expected to develop, implement, and test policies, procedures, instructions, and standard operating guides or checklists that reflect cognizance of the emergency management concepts contained herein. Coordinated response and support roles must be defined by these organizations to facilitate the ability to respond to any given incident. This plan meets the requirements of the National Incident Management System for the purposes of emergency management.

A number of agency and organization-specific plans and organizational procedures support the County EOP and annexes. These plans and procedures are interrelated and have a direct influence on the County's preparation prior to a major emergency or disaster, its activities in response to such an emergency or disaster, and its ability to successfully recover from such incidents or events. These plans also provide local, regional, and state agencies and entities with a consolidated framework for coordinating activities and resources, thus promoting efficient use of resources during all phases of emergency management.

San Bernardino County and the surrounding jurisdictions have developed their local Hazard Mitigation Plans and received FEMA approval in 2011. The plan identifies hazards, assesses the losses associated with the hazards, and investigates the vulnerability of the community towards different hazards. The plan also identifies alternatives for the future of the community to better prepare, minimize loss, and educate the public of the hazards identified.

The San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan presents updated information regarding hazards being faced by the County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, Big Bear Valley Recreation and Parks District, Bloomington Recreation and Parks District, and those Board-governed Special Districts administered by the San Bernardino County Special Districts Department. The Multi-Jurisdictional Hazard Mitigation Plan also presents mitigation measures to help reduce consequences from hazards, and outreach/education efforts since 2005 within the unincorporated area of the County.

San Bernardino County is exposed to many hazards, all of which have the potential to disrupt the community, causing damage and creating casualties. Possible natural hazards include earthquakes, floods, wildfires, and winter storms. The threat of a war-related incident such as a nuclear, biochemical, or conventional attack is present as well. Other man-made disaster situations could develop from hazardous material accidents, public health-related incidents, major transportation accidents, or acts of terrorism.

The organizations described or noted in the EOP will be aware of significant emergency conditions as they arise. These conditions will trigger a response consistent with the respective responsibilities and roles defined by either the EOP or other legal and policy frameworks. The responding organizations will be constrained in their response by the level of training, readiness activities, and interagency coordination undertaken prior to the event. Emergencies could result in the following situations (County of San Bernardino 2013):

- The citizens of San Bernardino County will be expected to provide for their immediate needs to the extent possible for at least 72 hours following a catastrophic event, or for at least 24 hours following a location-specific event. This may include public as well as private resources in the form of lifeline services.
- A catastrophic earthquake would adversely impact local, County, and state government response capabilities. Consequently, a number of local emergencies will be declared.
- Communications, electrical power, water and natural gas lines, sewer lines and fuel stations will be seriously impaired during the first 24 hours following a major earthquake and may not be fully restored for 30 days or more.
- Transportation corridors will be affected so only equipment, foodstuffs, supplies, and materials on hand will be available for use during the first 72 hours of emergency operations.
- It is possible only emergency response personnel on duty at the time of a significant earthquake will be available during the first 6 hours. Mission capability may be available within 24 hours.
- In event of a catastrophic earthquake, a clear picture regarding the extent of damage, loss of life, and injuries may not be known for at least 36 hours.
- The OA [Operational Area] EOCs capability may be limited for at least 8 hours if communications links to other agencies and county departments are degraded.
- A Cajon Pass closure may limit the number of emergency response personnel available to staff the primary EOC in Rialto or other emergency management organization functions for at least 12 hours.

The San Bernardino County EOC is a centralized location for decision making regarding the Operational Area's emergency response. The EOC is where the emergency response actions can be managed and resource allocations and responses can be tracked and coordinated with the field, cities/towns, and the state. The County's Emergency Services Manager is responsible for the operational readiness of the EOC.

When an emergency or disaster occurs, or has the potential to occur, the County will activate the EOC. Under the Standardized Emergency Management System, and expanded by the San Bernardino County Operational Area, any one city/town that activates its EOC for an emergency will trigger an Operational Area EOC activation. In turn, this activates the California OES's Regional and State Operations Center. The EOC will organize according to the Standardized Emergency Management System functions of management, operations, planning/intelligence, logistics, and finance/administration and will activate those functions necessary for the emergency (County of San Bernardino 2013).

4.7.4.3 Wildland Fire Overview

A combination of climate, topography, vegetation, and development patterns creates high fire hazard risks throughout the County, especially in the many areas of wildland/urban intermix located in foothills and mountainous areas countywide.

As development encroaches upon wildland areas, the potential for disastrous loss of watershed, structures, and life (human and wildlife) increases. Establishment of a coordinated program to condition development in some of these areas has been adopted through the Fire Safety Overlay provisions of the County Development Code. Continuous evaluation and application of Hazard Overlays and accompanying policies and standards for adequate services, facilities, mapping, and developmental regulation are required as pressure for development increases countywide. Included in developmental regulation are requirements for minimum road widths (to provide adequate access for both fire-fighting equipment and evacuating residents) and clearance around structures to prevent the rapid spread of fire from one structure to another (County of San Bernardino 2007).

San Bernardino County Fire is a regional fire service agency that serves the Cities and Communities of Adelanto, Fontana, Grand Terrace, Hesperia, Needles, San Bernardino, Twentynine Palms, Upland, Victorville, and Yucca Valley in addition to various towns and communities within unincorporated San Bernardino County. San Bernardino County Fire regionally provides fire, emergency medical, and rescue services within a 19,130-square-mile service area. There are 65 fire stations that provide regional emergency response for all fires, medical aids, rescues, and hazardous materials incidents (San Bernardino County Fire 2016). Jurisdictions in the County that are not served by San Bernardino County Fire operate under individual city fire departments.

Table 4.11-1, Fire Jurisdiction Summary, in the Public Services section of this EIR identifies each jurisdiction potentially affected by the proposed program, its geographic region (Valley, Mountain, or Desert), its functioning fire department, and the address of its fire department's headquarters. Further description of wildfire risk for the Valley, Mountain, and Desert Regions is provided in Public Services, Sections 4.11.4.2 through 4.11.4.4.

4.7.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. All of the District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The following SOPs from the Maintenance Plan, although intended to reduce impacts relating to public services and traffic and circulation, are also relevant to the hazards and hazardous materials analysis. See Section 4.11, Public Services, and Section 4.13, Traffic and Circulation, for the text of these SOPs. Their relevance to specific impact topics is detailed in Section 4.7.6, Impacts Analysis.

- **SOP-PUB-1** (Fire Extinguisher)
- **SOP-PUB-2** (Fire Safety Measures)
- **SOP-TR-1** (District Coordination and Traffic Control Plan)

4.7.6 Impacts Analysis

4.7.6.1 Methods of Analysis

The analysis was conducted by reviewing available information on hazardous materials, Environmental Response Plans, and wildland fire protection services in the proposed program vicinity, as described in Section 4.7.4, Existing Conditions, and subsequently evaluating impacts that might occur as a result of implementation of the proposed program.

Two comments were received in response to the 2014 NOP (see Appendix B to this EIR) regarding impacts on hazards and hazardous materials.

The DTSC requested that the EIR evaluate whether conditions within the proposed program area may pose a threat to human health or the environment, identify required investigations and/or remediation for any site that may be contaminated, and summarize all findings of these investigations. The comment letter also states that (1) if structures are going to be demolished, they should be investigated for the presence of hazardous chemicals or hazardous materials; (2) if soil is contaminated it must be properly disposed of; (3) if necessary, a health risk assessment should be conducted by a qualified health risk assessor; (4) if hazardous wastes are being or will be generated the facility should obtain an EPA Identification Number; and (5) the DTSC can provide cleanup oversight.

Additionally, one property owner expressed concerns about the existing conditions and the proposed program's impacts on Quail Wash in Joshua Tree. The commenter mentioned that around 1986, an oil pipeline burst in Yucca Wash, and the contaminated soil was transported to Quail Wash for storage. The commenter mentioned that the operations yard, located at the intersection of Bonair and Desertair Roads, immediately east of Quail Wash, was used for hazardous materials storage. This site was not listed in the regulatory records that were searched; thus, there is no information to indicate that there were any issues with the storage of hazardous materials at this location. SOPs and mitigation measures described in this section provide guidance for the handling of hazardous materials should accidental contamination occur as a result of maintenance activities covered by this proposed program.

The commenter also expressed concerns about sediment being transported from Yucca Valley into the Quail Wash levee, which could create a mudflow hazard and block emergency access along State Route 62. Issues related to erosion and sediment transport are discussed in Section 4.5, Geology and Soils, and Section 4.8, Hydrology and Water Quality.

4.7.6.2 Analysis

This section is organized by impact threshold and by type of maintenance activity; however, for Impact HAZ-4, if the proposed program area occurs on a location where hazardous materials are present, maintenance activities could release hazardous materials, potentially exposing maintenance workers and/or nearby members of the public. Therefore, for this impact threshold, only ground-disturbing activities are included in the impact analysis because non-ground-disturbing activities would not have the potential to release hazardous materials. It is not expected that the presence or absence on a regulatory agency database of a facility where non-ground-disturbing activities would occur would have an impact on the public or the environment. Additionally, for Impact HAZ-4, all geographic regions (Valley, Mountain, and Desert) and activities were combined in the analysis because impacts would not vary by region or activity but would depend on the existing condition of each maintenance activity site.

For Impact HAZ-7, all regions and activities were combined in the analysis because proposed program impacts to the implementation of emergency response plans would not vary by region or activity. For Impact HAZ-8, all regions were combined because the proposed program's potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires would not vary across regions. Impacts could vary across activity types, so these are analyzed under separate headings.

Impact HAZ-4 Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

There are hazardous materials sites located within the proposed program area, as discussed in Section 4.7.4.1, Hazardous Materials Overview. There are impacts from these sites to soil and groundwater. For ground-disturbing activities near sites where releases have occurred, mitigation measures will reduce or avoid adverse environmental impacts resulting from proposed program activities. Mitigation measures would include preparation of a health and safety plan for the protection of workers and a hazardous materials contingency plan (see Mitigation Measure (MM) HAZ-1 (Hazardous Materials Contingency Plan) in Section 4.7.7, Mitigation Measures) prior to the start of maintenance activities. The hazardous materials contingency plan would identify areas of known hazardous materials concerns; prescribe sampling, if necessary; include procedures for managing hazardous materials; and discuss health and safety measures (e.g., air monitoring) that should be implemented during work in potentially impacted areas.

With implementation of MM-HAZ-1, impacts would be less than significant.

Impact HAZ-7 Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Valley, Mountain, and Desert Regions

All Program Activities

The emergency response/operations plan that covers the proposed program area is the San Bernardino County EOP (County of San Bernardino 2013). In addition, the Critical Incident Planning and Training Alliance's 2011 Los Angeles Operational Area Mass Evacuation Process Guide provides resources for jurisdictional planning efforts, and presents an all-hazards approach for conducting mass evacuations in Los Angeles and the surrounding areas, including San Bernardino County. These plans outline strategies, procedures, policies, and organizational structures that are put in place during regional emergencies; describe multi-jurisdictional coordination procedures, levels of alertness/response, and shelter/convergence points; and outline how emergency services would be maintained.

Review of these plans revealed no specific mapping or delineation of emergency evacuation or access routes, only that interstates, highways, and prime arterials could all be used in an emergency to access emergency services and facilitate evacuation of affected areas (whether during a natural disaster or a man-made emergency) (Critical Incident Planning & Training Alliance 2011). The County EOP does not predetermine evacuation routes because many factors (e.g., type of incident, location, and weather conditions) play a critical role in the selection of evacuation routes; instead, the EOP requires case-by-case determination of evacuation routes to be determined by local authorities and communicated via a number of channels to local residents during emergencies (County of San Bernardino 2013).

The proposed program would support the County-wide policy to support and expand emergency preparedness by maintaining flood control facilities in good operating condition. However, there could be some temporary obstructions to access associated with proposed program activities; however, these would be short term and temporary. As necessary, the District would implement SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13, Traffic and Circulation) as part of their standard practice, including notification and coordination with local jurisdictions, emergency services providers, or affected entities and residents regarding any maintenance work that might have an impact on emergency access. The District would prepare a traffic control plan if required by the local jurisdiction, as indicated in SOP-TR-1. All maintenance activities would be temporary, and all access routes would be reopened upon completion of maintenance.

With implementation of SOP-TR-1 (District Coordination and Traffic Control Plan), the proposed program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

Impact HAZ-8 ***Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

Ground-disturbing activities would include stockpiling, mechanized land clearance, vegetation management, bank repair, and ingress/egress. Ground-disturbing activities would typically employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3, Program Description (e.g., grader, loader, dozer, dump truck, scraper, excavator, and roller). Use of maintenance equipment around flammable vegetation and other materials that are fire hazards in the Valley, Mountain, and Desert Regions presents a wildland fire risk. Although “hot work,” including welding, soldering, cutting, and brazing, is not anticipated to occur during ground-disturbing

activities, there could be risks associated with incidental sparks from the use of maintenance equipment or from the refueling of equipment.

SOP-PUB-1 (Fire Extinguisher) (see Section 4.11.5) would require that a fire extinguisher be present on all maintenance vehicles to reduce potential impacts due to fire hazards. SOP-PUB-2 (Fire Safety Measures) would require that work crews implement fire safety measures in compliance with the California Fire Code. Therefore, upon incorporation of SOP-PUB-1 and SOP-PUB-2 as part of the District's standard practice, impacts associated with ground-disturbing activities would be less than significant.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management would include mowing and hand clearing of vegetation. Vegetation management would employ the use of power trimmers, weed eaters, and manual tools as detailed in Table 3-4 of Chapter 3. Proposed vegetation management would provide adequate setbacks and reduce the risk of fire-related accidents. However, use of maintenance equipment around flammable vegetation presents an increased wildland fire risk. Although hot work, including welding, soldering, cutting, and brazing, is not anticipated to occur during vegetation management, there could be risks associated with incidental sparks from the use or refueling of equipment.

SOP-PUB-1 (Fire Extinguisher; see Section 4.11.5) would require that a fire extinguisher be present on maintenance vehicles to reduce potential impacts due to fire hazards and SOP-PUB-2 (Fire Safety Measures) would require compliance with the California Fire Code for any hot work. Therefore, upon incorporation of SOP-PUB-1 and SOP-PUB-2 as part of the District's standard practice, impacts associated with non-ground-disturbing vegetation management would be less than significant.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities would include sand and gravel operations, herbicide and rodenticide application, flood control structure repair, graffiti removal, vector control, and stream gage maintenance. In some cases, non-ground-disturbing activities would employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3 (e.g., grader, loader, dump truck, scraper, cement truck, and portable power screen and crusher). Use of maintenance equipment around flammable vegetation and other materials that are fire hazards presents a wildland fire risk. Additionally, hot work, including welding, soldering, cutting, and brazing, could occur during non-ground-disturbing activities.

SOP-PUB-1 (Fire Extinguisher; see Section 4.11.5) would require that a fire extinguisher be present on maintenance vehicles to reduce potential impacts due to fire hazards and SOP-PUB-2 (Fire Safety Measures) would require compliance with the California Fire Code for any hot work. Therefore,

upon incorporation of SOP-PUB-1 and SOP-PUB-2 as part of the District's standard practice, impacts associated with non-ground-disturbing activities would be less than significant.

4.7.7 Mitigation Measures

Despite incorporation of District standard practices SOP-PUB-1, SOP-PUB-2, and SOP-TR-1, potentially significant impacts relating to hazards and hazardous materials were identified; therefore, to reduce potential impacts to maintenance workers from hazardous materials (Impact HAZ-4), a hazardous materials safety plan and contingency plan (MM-HAZ-1) shall be prepared for the proposed program to identify areas with known releases that may have residual impacts on the subsurface.

MM-HAZ-1 **Hazardous Materials Contingency Plan.** A hazardous materials contingency plan shall be prepared for the proposed program prior to ground-disturbing activities at San Bernardino County Flood Control District facilities that have an "open" or "active" regulatory case listing at the facility or immediately adjacent to it. Air monitoring shall be performed to limit worker exposure to potential hazardous chemicals in the subsurface. The hazardous materials contingency plan will identify areas with known hazardous materials concerns; include procedures for managing hazardous materials; prescribe sampling, if necessary; and include a health and safety plan. The health and safety plan will provide guidance to maintenance crews who may manage/handle hazardous material (e.g., fuels, solvents) and encounter previously unknown soil or groundwater contaminants. This plan will include information about potential contaminants, protocols for reporting suspected contaminants, authority to stop work, protocol for conducting further study, and other necessary information.

4.7.8 Level of Significance After Mitigation

Implementation of the mitigation measures in Section 4.7.7 would reduce potential impacts from the proposed program to less than significant levels. Table 4.7-1 summarizes the impacts from proposed activities under each impact threshold that was analyzed in this EIR section.

Table 4.7-1
Hazards and Hazardous Materials Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HAZ-4: Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	—	Significant	MM-HAZ-1	Less than significant
Impact HAZ-7: Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				
Valley, Mountain, and Desert Regions				
All Program Activities	SOP-TR-1	Less than significant	—	Less than significant
Impact HAZ-8: Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant

4.7.9 Cumulative Impacts

The geographic scope of cumulative impacts with respect to hazards and hazardous materials is site-specific and localized, and includes the potential for the program to contribute, along with other projects, to adverse conditions of the hazardous sites of concern. Additionally, an assessment was made of the proposed program's contribution to hazardous materials in consideration of other reasonably foreseeable projects.

As discussed in Appendix G, there are 364 sites of concern within or near the program area that were/are impacted by hazardous materials or contaminants. Of these 364 sites, 269 are closed or no further action is required by the lead regulatory agency. Although potential impacts from these sites are low, there could be residual impacts (e.g., contaminants in soil that were below regulatory screening levels). Of the remaining 95 sites, 36 were listed as inactive or referred to another agency; potential impacts from these sites are low. The remaining 59 sites are listed as open or active. Impacts to soil and groundwater at these sites include petroleum hydrocarbons and volatile organic compounds from leaking fuel tanks, solvents and metals from manufacturing, and potential

pesticides from former agriculture. Although it is unlikely that these hazards would be encountered during proposed program activities, Dudek recommended preparation of a hazardous materials contingency plan as noted in MM-HAZ-1 (see Section 4.7.7).

With implementation of MM-HAZ-1, hazards and hazardous materials impacts from maintenance activities under the proposed program would be limited, localized, and short term, occurring only at the time of program implementation, and would not contribute to the adverse conditions of any of the sites of concern. Therefore, the proposed program's contribution to significant cumulative impacts related to hazards and hazardous materials would not be cumulatively considerable.

As stated above, proposed program activities would include sediment removal, vegetation management, and repair of structures, and there would be limited disturbance to shallow subsurface soils. Hazardous materials (e.g., fuels, solvents, paint) would be used during proposed program activities, but in small quantities, which would not be enough to create a significant impact. Wastes from proposed program activities would include small quantities of green waste, construction materials, and empty hazardous materials containers. These wastes would be disposed of in accordance with applicable federal, state, and local regulations at the appropriate waste disposal facility. In addition, other projects would also have to comply with a similar set of federal, state, and local laws and regulations concerning the transport, use, and storage of hazardous materials; the identification and management of hazardous materials unexpectedly encountered; fire protection; and emergency services (see Section 4.7.2, Regulatory Framework). Thus, cumulative impacts with regard to waste disposal would create a less than substantial impact on hazards and hazardous materials on a localized and temporary basis.

There could be some temporary obstructions to access associated with proposed program activities; however, these would be short term and temporary. As necessary, the District would implement SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5) as part of their standard practice, including notification and coordination with local jurisdictions, emergency services providers, or affected entities and residents regarding any maintenance work that might have an impact on emergency access. The District would prepare a traffic control plan if required by the local jurisdiction, as indicated in SOP-TR-1. Other cumulative projects would also be required to notify local jurisdictions and effected entities that would have an impact on emergency access. Therefore, the proposed program would not contribute to a cumulatively considerable impact associated with the impairment or physical obstruction of an adopted emergency response plan or emergency evacuation plan.

Cumulative impacts on wildland fires would result when projects combine to increase the risk of wildland fire occurrences in an area susceptible to fires. Several maintenance activities would occur in very high fire hazard severity zones. Although the use of equipment around flammable

vegetation presents an increased fire risk, all activities would be required to have fire safety measures, such as fire suppression equipment, in place prior to the start of any maintenance activities. With incorporation of SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) (see Section 4.11.5) as part of the District's standard practice, impacts associated with wildland fires would not be cumulatively considerable.

4.7.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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4.8 HYDROLOGY AND WATER QUALITY

4.8.1 Introduction

This section of the environmental impact report (EIR) describes the existing hydrology and water quality setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce hydrology and water quality impacts, and evaluates potential impacts related to implementation of the proposed program.

The Initial Study for the proposed program, dated June 2014 (see Appendix B), determined that hydrology and water quality impact thresholds to be carried forward for further analysis in the EIR are related to water quality and increased runoff. Other hydrology-related issues, such as 100-year flooding, groundwater depletion, mudflows, and seiches, are not analyzed in this EIR. The summaries of hydrology and water quality existing conditions are separated into the Santa Ana, Lahontan, and Colorado River Basin Regional Water Quality Control Board (RWQCB) Regions and associated watersheds, as mapped by the District. Beneficial uses of the primary drainages within the proposed program area, which have watersheds encompassing District flood control facilities, have been summarized by District watershed for the Santa Ana, Lahontan, and Colorado River Basin RWQCB Regions. Water quality impairments that potentially affect those beneficial uses have also been summarized. Hydrologic and water quality impacts have been evaluated with respect to proposed maintenance facilities, incorporating District SOPs into the analysis as applicable, as those SOPs would reduce hydrology and water quality impacts.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County and in portions of 24 incorporated cities and towns in the County. The location of maintained facilities can be found on Figures 3-2A through 3-2I, and the extent and type of maintenance activities at representative facilities are depicted on Figures 3-3A through 3-3L in Chapter 3 of this EIR.

The analysis provided in this section is based on information from sources listed in Section 4.8.10, References.

4.8.2 Regulatory Framework

Federal

The following federal regulations pertaining to hydrology and water quality would apply to the proposed program.

Federal Clean Water Act

The 1972 Federal Water Pollution Control Act and its 1977 amendments, collectively known as the Clean Water Act (33 U.S.C. 1251 et seq.), established national water quality goals and the basic structure for regulating discharges of pollutants into the waters of the United States. The Clean Water Act also created a National Pollutant Discharge Elimination System (NPDES) of permits that specified minimum standards for the quality of discharged waters. The act required states to establish standards specific to water bodies and designated the types of pollutants to be regulated, including total suspended solids and oil. The Clean Water Act authorized the U.S. Environmental Protection Agency (EPA) to issue the NPDES permits.

Under Section 303(d) of the Clean Water Act, California is required to develop a list of impaired water bodies that do not meet water quality standards/objectives and is required to establish Total Maximum Daily Loads (TMDLs) for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards.

Section 319 of the 1987 amendments to the Clean Water Act (33 U.S.C., Section 466 et seq.) established the framework for non-point-source activities. Section 319 requires each state to prepare a Nonpoint Source Management Plan and to conduct an assessment of the impact non-point sources have on the state's water bodies. In response to these requirements, the State Water Resources Control Board (SWRCB) adopted the Nonpoint Source Management Plan in 1988 and the Water Quality Assessment in 1990. The Nonpoint Source Management Plan establishes a statewide policy for managing non-point-source inputs to California's waters.

Section 401 of the Clean Water Act requires that an applicant for any federal permit (e.g., a U.S. Army Corps of Engineers (USACE) Section 404 permit) obtain certification from the state that the discharge would comply with other provisions of the act and with state water quality standards. Water quality certification under Section 401 of the Clean Water Act, and the associated requirements and terms, is required to minimize or eliminate the potential water quality impacts associated with the action(s) requiring a federal permit.

Section 404 of the Clean Water Act requires permits for the discharge of dredged or fill material into waters of the United States, including wetlands. However, certain activities are exempt from

permit requirements under Section 404(f)(1), including maintenance (but not construction) of drainage ditches and structures such as dams, dikes, and levees.

State

The following state regulations pertaining to hydrology and water quality would apply to the proposed program.

Flood Control Act of 1939, as Amended 1995

The District was created under state legislation known as the Flood Control Act of 1939, and it is a separate legal entity from the County. Under the Flood Control Act, the District was subdivided into six discrete flood control zones to provide for the control and conservation of flood and storm waters, and also to protect watercourses, watersheds, public highways, life, and property from damage and destruction from flood and storm waters within the County.

The District has developed an extensive system of facilities, including dams, basins, channels, levees, and storm drains, to intercept and convey regional flood flows through and away from major developed areas of the County. The District was also granted the ability to levy and collect taxes for flood control purposes. In 1995, the Flood Control Act was amended to include the financing of activities necessary for compliance with NPDES obligations.

California Porter-Cologne Water Quality Control Act

Since 1973, the California SWRCB and its nine RWQCBs have been delegated the responsibility for administering permitted discharge into the waters of California. The Porter-Cologne Water Quality Control Act (Porter-Cologne Act; California Water Code, Section 13000 et seq.; 23 CCR, Chapter 3, Chapter 15) provided a comprehensive water-quality management system for the protection of California waters and regulated the discharge of oil into navigable waters by imposing civil penalties and damages for negligent or intentional oil spills. Under the Porter-Cologne Act, “any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state” must file a Report of Waste Discharge with the appropriate RWQCB. Pursuant to the Porter-Cologne Act, the RWQCB may then prescribe “waste discharge requirements” that add conditions related to control of the discharge. The Porter-Cologne Act defines “waste” broadly, and the term has been applied to a diverse array of materials, including non-point-source pollution. When regulating discharges that are included in the Clean Water Act, the state essentially treats waste discharge requirements and NPDES as a single permitting vehicle. In April 1991, the SWRCB and other state environmental agencies were incorporated into the California EPA.

The Porter-Cologne Act is the primary state regulation addressing water quality and waste discharges on land. Permitted discharges must be in compliance with the regional Basin Plans that were developed by the three respective RWQCBs that cover the proposed program sites, including the Santa Ana (Region 8), Lahontan (Region 6), and Colorado River Basin (Region 7) RWQCBs. Each RWQCB implements its Basin Plan to ensure that projects consider regional beneficial uses, water quality objectives, and water quality problems. The beneficial uses and water quality objectives collectively compose the water quality standards for each region.

The RWQCBs regulate urban runoff discharges under NPDES permit regulations. NPDES permitting requirements cover runoff discharged from point sources (e.g., industrial outfall discharges) and non-point sources (e.g., stormwater runoff). The California SWRCB requires dischargers whose projects disturb 1 acre of soil or more to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Quality Order 2009-0009-DWQ). Construction activity subject to this permit includes clearing, grading, and ground disturbances such as trenching, stockpiling, or excavation. However, the Construction General Permit specifically exempts routine maintenance activities conducted by utility service providers as long as the original line and grade, hydraulic capacity, or original purpose of the facility is maintained (Water Quality Order 2009-0009-DWQ). The proposed program would thus be exempt from requiring coverage under the Construction General Permit, and preparation and implementation of a stormwater pollution prevention plan (SWPPP) would not be required by law, provided that such activities remain within the District's existing facilities and right-of-way.

Although a SWPPP would not be required for routine maintenance activities, the District has incorporated SOPs into the proposed program consistent with typical BMPs as defined by EPA. EPA defines BMPs as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States." BMPs include "treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage" (40 CFR 122.2).

California Toxics Rule

Water quality criteria for priority toxic pollutants for California inland surface waters, enclosed bays, and estuaries were adopted. These federally promulgated criteria, together with state-adopted designated uses, create water quality standards for California inland waters. This rule satisfies Clean Water Act requirements and fills the need for water quality standards for priority toxic pollutants to protect public health and the environment. SWRCB adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California in 2000.

Local

The following are local regulations and guidance documents pertaining to hydrology and water quality that have applications to the proposed program.

County of San Bernardino General Plan

Section II, Part Q, Floodway (FW) Land Use Zoning District

Private lands that appear on a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map or on a County Flood Hazard Map as being subject to severe flooding are designated as a "Floodway" (FW) Land Use Zoning District (County of San Bernardino 2007). The purpose of these designations is to identify and preserve areas for flood flow as required to effectively carry discharge of floodwater or flood flow, and to prohibit occupancy or the encroachment of any structure, improvement, or development inconsistent with floodway land uses that would unduly affect the capacity of the floodway or unduly increase flood heights. On District-owned land, the District coordinates with private property owners to ensure that previously unknown encroachment into District-owned floodways does not impact the capacity of the floodway, and where it does, the District works with private property owners to remedy these situations.

Section VIII, Safety Element

This section of the General Plan (County of San Bernardino 2007) addresses issues related to the protection of community from risks associated with dam failure and flooding. Under this section, goals have been established to address flood protection, including the following:

GOAL S 5 The County will provide adequate flood protection to minimize hazards and structural damage.

Policy S 5.1 Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains.

Policy S 5.2 Update data and maps with newly identified flood hazard areas in the County, as new information becomes available.

Policy S 5.3 Protect residents and properties from the risk of dam failure as a result of earthquake or other causes.

Policy S 5.4 Protect existing development in floodways and floodplains.

Policy S 5.5 Require specific hydrology and hydraulic studies for development proposals to avoid spot flooding from small streams or unmapped areas adjacent to mapped flood areas.

Policy S 5.6 Prevent flood hazard resulting from drainage from adjacent development.

Policy S 5.7 Initiate public education programs that will play a vital role in minimizing flood hazard.

Policy S 5.8 Design flood control and drainage measures as part of an overall community improvement program that advances the goals of recreation, resource conservation, preservation of natural riparian vegetation and habitat, and the preservation of the scenic values of the County's streams and creeks.

Policy S 5.9 Coordinate with local, regional, state, federal, and other private agencies to provide adequate flood protection to County residents.

Policy S 5.10 Continue to develop local area drainage plans and establish funding mechanisms to provide the backbone drainage system for watershed areas.

Chapter X, Implementation Program, Section O, Storm Water Facilities Plans

This section of the County's 2007 General Plan provides guidance for managing stormwater facilities. Under this section, stormwater drainage facilities may be constructed, operated, maintained, and replaced in a manner that will provide the best possible service to the public. Implementation plans typically include rehabilitation of existing facilities, remediation of developed areas with inadequate levels of drainage service, and timely expansion of stormwater systems for future development.

Other General Plans

General plans serve to guide and direct local government decision making for hydrology and water quality. Generally, land use and safety elements in local jurisdictions' general plans focus on managing these resources. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding hydrology and water quality. However, the proposed program would not conflict with these general plan policies. For example, the City of San Bernardino General Plan's Safety Element Policy 10.5.2 (City of San Bernardino 2005) includes requiring and encouraging (1) increase in permeable areas to allow more percolation of runoff into the ground; (2) use of natural drainage, detention ponds, or infiltration pits to collect runoff; and (3) construction of property grades to divert flow to permeable areas. Similarly, Policy 10.5.4 requires site preparation, grading, and foundation

designs that provide erosion control to prevent sedimentation and contamination of waterways. These policies would be consistent with County General Plan policies described above and District SOPs described in Section 4.8.5, Standard Operating Procedures, of this EIR with respect to prevention of increased runoff and water quality degradation.

Guidelines for Grading and Erosion Control

The District maintains its facilities using accepted industry standards. When grading, fill zones are cleared of surface and subsurface obstructions, and any voids created by removal of buried material are backfilled with properly compacted soil. Exposed subgrade in fill zones is scarified to a depth of at least 6 inches, moisture conditioned to above optimum, and compacted to at least 90% of the ASTM D 1557-12 (modified Proctor) laboratory maximum density. In some cases, wet subgrades are stabilized with crushed rock, geogrids, and/or other methods. Fill materials used are naturally occurring, well-graded soil or soil/rock combinations, free of wood, trash, and other debris and organic, contaminated, or deleterious material. Some materials removed from the project area are used for slope and access road repairs, with surplus material stockpiled at designated upland sites. BMPs consistent with the Stormwater Best Management Practice Handbook – Construction (BMP Handbook; CASQA 2012) are implemented as part of the District's SOPs to reduce on-site and downstream impacts resulting from routine maintenance; these are identified in Section 4.8.5. To the extent feasible, facilities are maintained to as-built design standards and specifications.

Integrated Watershed Monitoring Program

On January 29, 2010, the Santa Ana RWQCB adopted Order No. R8-2010-0036 for NPDES Permit No. CAS618036, for the consortium of the District, the County, and the incorporated cities of San Bernardino County located within the Santa Ana Region (San Bernardino County Municipal Separate Storm Sewer System (MS4) Permit). The MS4 Permit includes the Receiving Waters and Urban Runoff Monitoring and Reporting Program (Monitoring and Reporting Program), which requires the District, as principal Permittee for the San Bernardino County Stormwater Program (County Stormwater Program), to administer and conduct the activities required by the Monitoring and Reporting Program. One of the programs included in the Monitoring and Reporting Program is an Integrated Watershed Monitoring Program. One of the objectives of the Integrated Watershed Monitoring Program is to provide data to support the development of an effective watershed monitoring plan and a focused environmental resources management program that is directing resources on the priority pollutants of concern (County Stormwater Program 2011a). Data obtained under the Integrated Watershed Monitoring Program are presented to the Santa Ana RWQCB in the MS4 Permit Annual Reports. Information from the latest annual report is used to describe water quality conditions for the Santa Ana Region in Section 4.8.4, Existing Conditions.

4.8.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program impacts to hydrology and water quality are based on criteria in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to hydrology and water quality would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact HYD-1 ***Would the program violate any water quality standards or waste discharge requirements?***

Impact HYD-2 ***Would the program substantially deplete groundwater supplies or interfere substantially 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 planned uses for which permits have been granted)?***

Impact HYD-3 ***Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?***

Impact HYD-4 ***Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***

Impact HYD-5 ***Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?***

Impact HYD-6 ***Would the program otherwise substantially degrade water quality?***

Impact HYD-7 ***Would the program 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?***

Impact HYD-8 ***Would the program place within a 100-year flood hazard area structures which would impede or redirect flood flows?***

Impact HYD-9 ***Would the program expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?***

Impact HYD-10 ***Would the program result in inundation by seiche, tsunami, or mudflow?***

In June 2014, the District recirculated an NOP and Initial Study (see Appendix B) for the currently proposed program, which served to focus the EIR on effects determined to be significant and effects determined not to be significant (14 CCR 15063). The 2014 Initial Study for the proposed program determined that hydrology and water quality impact thresholds to be carried forward for further analysis in the EIR are related to water quality and increased runoff (Impacts HYD-1, HYD-3, HYD-4, and HYD-6); therefore, these impacts are examined in this EIR section (see Section 4.8.6.2, Analysis). Impacts HYD-2, HYD-5, and HYD-7 through HYD-10 are not further analyzed in this EIR.

4.8.4 Existing Conditions

The County has an area of approximately 20,105 square miles and is divided into three distinct geographic regions: Valley, Mountain, and Desert. About 80% of the County is in the Desert Region, with the remaining areas divided between the Valley and Mountain Regions. As previously discussed in Section 4.8.2, Regulatory Framework, three RWQCB jurisdictions cover the proposed program sites: the Santa Ana (Region 8), Lahontan (Region 6), and Colorado River Basin (Region 7) Regions.

The Santa Ana Region includes all of the Valley Region of the County, as well as the portion of the Mountain Region that flows to the south, toward the Valley Region. The Lahontan Region includes the northwestern portion of the County Mountain Region, which flows toward the Victorville area, as well as much of the northern Desert Region. The Colorado River Basin Region includes the southeastern County Desert Region (a portion of the Colorado River Basin Region overlaps the County's Mountain Region; however, there are no proposed program facilities in this portion of the Mountain Region). These RWQCB regions have been subdivided into major watersheds[1] by the District, as shown on Figure 4.8-1, Watershed Map – Valley and Mountain Regions, and Figure 4.8-2, Watershed Map – Desert Region. The following summary of hydrology and water quality existing conditions is separated into the Santa Ana, Lahontan, and Colorado River Basin RWQCB Regions and associated watersheds, as mapped by the District.

[1] A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet, and includes the receiving waters. Watersheds are usually bordered and separated from other watersheds by mountain ridges or other naturally elevated areas.

4.8.4.1 Santa Ana Region

General Hydrology

Precipitation in the Santa Ana Region is nearly always in the form of rain in the lower elevations and mostly in the form of snow above 6,000 feet above mean sea level (amsl) in the San Bernardino Mountains. Mean annual precipitation ranges from about 12 inches in the southern portion of San Bernardino County, to about 20 inches at the base of the mountains, to more than 35 inches along the crest of the mountains. The mean annual precipitation in the County is 16 inches (CDM Smith 2016a).

The main stem Santa Ana River is the primary water body in the watershed. This river, which flows in a generally southwestern direction for nearly 100 miles, from its headwaters to the Pacific Ocean, is the largest stream system in Southern California. The portion of the Santa Ana River Watershed located within San Bernardino County is subdivided into a number of subwatersheds by the District, including the San Antonio Creek System, Cucamonga/West Cucamonga Creek System, Day Creek/Etiwanda–San Sevaine, Rialto, Grand Terrace, Twin/Warm, City Creek/Plunge Creek/Mill Creek, Zanja/Mission System, Upper Santa Ana River, San Timoteo, and Big Bear/Headwaters–Santa Ana River watersheds (Figure 4.8-1).

In the western portion of the Santa Ana Region, several major Santa Ana River tributaries arise in the San Gabriel Mountains and drain generally south into the Chino Basin before their confluence with the Santa Ana River, including Day Creek, Cucamonga Creek, and San Antonio Creek. Many of these drainages carry little to no storm flows during dry conditions due to infiltration in relatively coarse-grained, sandy soils and because of the presence of extensive, highly permeable recharge basins in this region. The District has over 110 basins throughout the Valley Region, which capture flows in both dry and wet weather conditions. All dry-weather flows are captured in these basins; most wet-weather flows under the 10-year rain event are also captured (County Stormwater Program 2016; Gabaldon, pers. comm. 2017). Much of the dry season flows consist of nuisance and secondary effluent flows. During the rainy season, the recharge basins are designed to capture only a portion of the surface flow, while releasing the remainder downstream (CDM Smith 2016b; SBVMWD and WMWD 2004; Gabaldon, pers. comm. 2017).

Within the Chino Groundwater Basin, which underlies most of the San Antonio Creek System, Cucamonga/West Cucamonga Creek System, and portions of the Day Creek/Etiwanda–San Sevaine, Rialto, and Grand Terrace watersheds, stormwater recharge is estimated to be approximately 12,000 to 22,000 acre-feet/year. The Inland Empire Utilities Agency, Chino Basin Watermaster, Chino Basin Water Conservation District, San Bernardino County Flood Control District, and the region's cities and water districts have worked together since 2000 to implement a regional program in the Chino Groundwater Basin. All surface waters are released from the

recharge basins prior to storm events. Prado Basin, located above Prado Dam, immediately south of San Bernardino County within Riverside County, captures all flows from the upper part of the Santa Ana River Watershed (IEUA 2016; CDM Smith 2016b; SBVMWD and WMWD 2004; Wildermuth Environmental Inc. 1999).

There are 14 publicly owned wastewater treatment plants (WWTPs) located above Prado Dam, in the upper Santa Ana River Watershed. Nine of these plants contribute to surface flow of the river; however, only two of them are located within San Bernardino County. The Rapid Infiltration and Extraction WWTP, in the City of Colton, and the Rialto WWTP, in the City of Rialto, discharge directly to the river via a discharge channel. Wastewater discharges from these plants have hydraulic continuity to the Santa Ana River above Riverside Narrows. With the exception of some nuisance flows in only a small percentage of the subwatersheds, the remaining discharges infiltrate into permeable sandy soils prior to reaching the river. Seven other WWTPs contribute wastewater discharges to the Santa Ana River between Riverside Narrows and Prado Dam (SBVMWD and WMWD 2004; CDM Smith 2016a; Gabaldon, pers. comm. 2017).

Many watercourses within the Santa Ana Region have been altered, most notably the Santa Ana River, which was given a definitive and direct outlet to the Pacific Ocean in 1920. The Seven Oaks Dam, located at the base of the Santa Ana River Canyon, in the upper reaches of the river east of the City of Highland, has substantially altered the natural hydrology of the river. Seven Oaks Dam was primarily constructed to regulate flood flows on the mainstem of the Santa Ana River. These floodwaters generally arrive between October and the end of February; therefore, the largest river flow changes occur during and after periods of high stream flow (i.e., flood flows), when flows within the contributing watershed of the dam are detained for flood control purposes. During the remainder of the year, space in which to conserve water supplies is available behind the dam. Overall, the completion of Seven Oaks Dam has altered the discharge rate, depth, velocity, and volume of flow in the river, and hence has decreased flood magnitude, the extent of overbank flooding, and channel scour. The regulation of surface flow also enables more water to be captured for local beneficial use (SBVMWD and WMWD 2004).

Water Quality

The Santa Ana River watershed is different from most western watersheds. The river itself predominantly consists of publicly owned treatment works (POTW) effluent during the dry weather months. In the wet season, it is a combination of POTW effluent and urban runoff. Nevertheless, water quality in the river has improved steadily, due largely to the efforts of the dischargers' action in response to RWQCB requirements.

By 2017, full compliance with many RWQCB requirements has been achieved (County Stormwater Program 2016). The water quality of stormwater discharges from municipal storm

drain systems (i.e., MS4s) is governed under the San Bernardino County MS4 Permit, which is being implemented to the maximum extent practicable. The efforts of the MS4 Permittees, which consist of the District, the County, and the 16 incorporated cities of San Bernardino County within the Santa Ana Region, have resulted in a strong improvement in regional surface water quality. The Permittees have been implementing a variety of Low Impact Development (LID) techniques and pollutant reduction strategies into facility retrofits and development projects. At the time of this EIR's publication, there was less than 1% exceedance from District facilities. In addition to stormwater discharges, water quality in the river can be affected by POTW effluent; however, the POTWs have plant-specific Waste Discharge Permits to manage these flows.

Beneficial Uses

Beneficial uses of the primary drainages within the Santa Ana Region, which have watersheds encompassing District flood control facilities, are presented in Table 4.8-1. Table 4.8-1 includes the beneficial uses by District watershed as well as the corresponding water bodies as identified in the Basin Plan. Hydrologic Unit codes corresponding to the Basin Plan watersheds are also provided. For a complete listing of beneficial uses of primary and tributary creeks, see the Santa Ana Basin Plan (Santa Ana RWQCB 2008).

Surface Water Quality Impairment and Total Maximum Daily Loads

Changes in land use from grazing to farming, as well as to residential, industrial, and military development, have resulted in the discharge of metals (cadmium, copper, lead, selenium, and zinc) and toxic organic compounds into Santa Ana Region waterways. Furthermore, land use activities that cause erosion have increased delivery of toxic substances to the waterways. Water quality impairments, as defined in Clean Water Act Section 303(d) for watersheds encompassing proposed program sites, are identified in Table 4.8-2. These impaired water segments are listed as Category 5, which include waters where at least one beneficial use is not supported and a TMDL is needed. Waters in the Santa Ana Region are impaired with a wide variety of point-source (e.g., industrial process water discharges, cleanup sites, sewer system overflows) and non-point-source (e.g., agricultural runoff, urban runoff/storm sewers, construction/land development) pollutants.

Table 4.8-1
Beneficial Uses – Santa Ana Region (Region 8)

County Flood Control District Watershed(s)	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU	Secondary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*		
Upper and Middle Santa Ana River Basin – Primary HU: 801																					
Upper Santa Ana River, Big Bear/ Headwaters Santa Ana River	Upper Santa Ana River, Reach 6 (Seven Oaks Dam to Headwaters)	X	X			X		X	X	X				X		X		X		801.72	
Big Bear/ Headwaters Santa Ana River	Bear Creek Drainage	X	X			X		X	X	X				X		X		X		801.71	
Big Bear/ Headwaters Santa Ana River	Big Bear Lake Tributaries	X				X			X	X				X		X		X		801.71	
Big Bear/ Headwaters Santa Ana River	Rathbone (Rathbun) Creek	X				X			X	X				X		X		X		801.71	
Big Bear/ Headwaters Santa Ana River	Knickerbocker Creek	I				I			I	I				I		I		I		801.71	
Big Bear/ Headwaters Santa Ana River	Caribou Creek	I				I			I	I				I		I		I		801.71	
Big Bear/ Headwaters Santa Ana River	Grout Creek	X				X			X	X				X		X		X		801.71	

Table 4.8-1
Beneficial Uses – Santa Ana Region (Region 8)

County Flood Control District Watershed(s)	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU	Secondary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*		
City Creek/ Plunge Creek/ Mill Creek	Santa Ana River Reach 5 (San Jacinto Fault in San Bernardino to Seven Oaks Dam)	X	X			X			X	X		X				X	X			801.52	801.57
City Creek/ Plunge Creek/ Mill Creek	Mill Creek (Reach 1 and 2) Headwaters to confluence with Santa Ana River)	X	X			X		X	X	X				X		X				801.58	
City Creek/ Plunge Creek/ Mill Creek	City Creek	X	X			X			X	X				X		X	X	X		801.57	
City Creek/ Plunge Creek/ Mill Creek	Plunge Creek	X	X			X			X	X				X		X	X			801.72	
City Creek/ Plunge Creek/ Mill Creek	Other Tributaries	I				I			I	I				I		I				801.72	801.71, 801.57
San Timoteo, Zanja/Mission System	San Timoteo Creek, Reach 1A, 1B, and 2 (Santa Ana River to Yucaipa Creek)		X			X			X	X		X				X				801.52, 801.61	
San Timoteo	Oak Glen Creek, Potato Canyon, and Birch Creeks	X				X			X	X		X				X				801.67	
San Timoteo	Yucaipa Creek	I				I			I	I		I				I				801.67	
San Timoteo	Other Tributaries	I				I			I	I		I				I				801.62	801.52, 801.53

Table 4.8-1
Beneficial Uses – Santa Ana Region (Region 8)

County Flood Control District Watershed(s)	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU	Secondary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*		
Twin/ Warm, City Creek/ Plunge Creek/ Mill Creek	Upper Santa Ana River, Reach 5 (San Jacinto Fault in San Bernardino to Seven Oaks Dam)	X	X			X			X	X		X				X	X			801.52	801.57
Twin/Warm	Lytle Creek	X	X	X	X	X		X	X	X				X		X	X			801.41	801.42, 801.52, 801.59
Twin/Warm	East Twin and Strawberry Creeks	X	X			X			X	X				X		X		X		801.57	
Twin/Warm	Waterman Canyon Creek	X				X			X	X				X		X				801.57	
Twin/Warm	Other Tributaries	I				I			I	I				I		I				801.72	801.71, 801.57
Rialto	Upper Santa Ana River, Reach 4 (Mission Blvd. in Riverside to San Jacinto Fault in San Bernardino)					X			X	X		X				X	X	X		801.21 801.27	801.44
Grand Terrace	Upper Santa Ana River, Reach 4 (Mission Blvd. in Riverside to San Jacinto Fault in San Bernardino)					X			X	X		X				X	X	X		801.27	801.44

Table 4.8-1
Beneficial Uses – Santa Ana Region (Region 8)

County Flood Control District Watershed(s)	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU	Secondary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*		
Day Creek/ Etiwanda–San Sevaine	Day Canyon Creek	X			X	X			X	X				X		X				801.21	801.43 801.44
Day Creek/ Etiwanda–San Sevaine	East Etiwanda	X			X	X			X	X				X		X	X			801.21	801.43 801.44
Day Creek/ Etiwanda–San Sevaine	Valley Reaches of Day Canyon and East Etiwanda Creeks	I				I			I	I		I				I				801.21	
Lytle/Cajon Creek	Cajon Canyon Creek	X				X			X	X				X		X	X			801.52	801.51
Lytle/Cajon Creek	Devil Canyon Creek	X				X			X	X				X		X	X	X		801.57	
Lytle/Cajon Creek	Bailey Canyon Creek	I				I			I	X				I		I				801.72	
Lytle/Cajon Creek	Kimbark Canyon, East Fork Kimbark Canyon, Ames Canyon and West Fork Cable Canyon Creeks	X				X			X	X		X		X		X				801.52	
Lytle/Cajon Creek	Lytle Creek (South, Middle, and North Forks)	X	X	X	X	X		X	X	X				X		X	X			801.41	801.42, 801.52, 801.59
Cucamonga/ West Cucamonga Creek System	Cucamonga Creek, Reach 1 (Confluence with Mill Creek to 23rd St. in Upland)					X				X			X			X				801.21	

Table 4.8-1
Beneficial Uses – Santa Ana Region (Region 8)

County Flood Control District Watershed(s)	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU	Secondary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*		
Cucamonga/ West Cucamonga Creek System	Cucamonga Creek, Reach 2 (23rd St. in Upland to Headwaters)	X		X	X	X		X	X	X				X		X		X		801.24	
Cucamonga/ West Cucamonga Creek System	Other tributaries	I				I			I	I				I		I				801.21	801.23
San Antonio Creek System	San Antonio Creek	X	X	X	X	X		X	X	X				X		X				801.23	
San Antonio Creek System	Chino Creek , Reach 1B (Mill Creek [Prado Area] to concrete channel south of Los Serranos Rd.)								X	X		X				X	X			801.21	

Source: Santa Ana RWQCB 2008.

Legend:

X Existing, potential, or intermittent beneficial use
I Intermittent beneficial use
MUN Municipal and domestic supply
AGR Agricultural supply
IND Industrial service supply
PROC Industrial process supply
GWR Groundwater recharge
NAV Navigation
POW Hydropower generation
REC1 Water contact recreation
REC2 Non-contact recreation
COMM Commercial and sport fishing
WARM Warm freshwater habitat
LWRM Limited warm freshwater habitat
COLD Cold freshwater habitat
BIOL Preservation of biological habitats of special significance
WILD Wildlife habitat
RARE Rare, threatened, or endangered species
SPWN Spawning, reproduction, and development
EST Estuarine habitat
HU Santa Ana RWQCB Basin Plan Hydrologic Unit

Table 4.8-2
Water Quality Impairments in the Santa Ana Region

San Bernardino County Flood Control Watershed	2012 303(d) List of Water Quality Impairments (Included under SWRCB Integrated Report Category 5)
San Antonio Creek System	pH
Cucamonga/West Cucamonga Creek System	Cadmium, coliform bacteria, copper, lead, zinc, pH
Lytle/Cajon Creek	Pathogens
City Creek/Plunge Creek/Mill Creek	Nutrients, pathogens, total suspended solids
Rialto/Grand Terrace/San Timoteo/Twin/Warm	Pathogens
Upper Santa Ana River	Cadmium, copper, lead
Big Bear/Headwaters Santa Ana River	Nutrients, mercury, PCBs, noxious aquatic plants

Source: SWRCB 2012.

Sediment transport (e.g., high turbidity) has not been included as a water quality impairment under Clean Water Act Section 303(d). Erosion, sediment transport, and sedimentation are natural fluvial processes and are only considered a water quality issue where anthropogenic activities cause excessively high erosion and turbidity beyond natural background levels (i.e., to a degree that they cause the loss or impairment of beneficial uses). In earthen-engineered channels, increased surface flow due to urbanization and channelization has increased the quantity of sediment transported and sediment build-up in maintained flood control facilities. However, such sediment build-up is managed through routine maintenance and through natural processes. Sediment-laden runoff from sources upstream of debris basins is captured by the basins. These basins filter out sediment loads in surface runoff, thus decreasing the turbidity of stormwater flows downstream. Generally, issues related to increased surface water flow and sedimentation include increased stream erosion, which has threatened homes, utilities, and other structures; impacts to biological species and habitats; and loss of channel hydraulic capacity.

In April 2016, the SWRCB issued an Integrated Report, which summarizes Clean Water Act Section 303(d) assessment data for the sampling data collected prior to and up to August 30, 2010. The SWRCB combined its 303(d) List and the 305(b) Report; however, only the 303(d) List portion of the 2012 Integrated Report requires approval by the SWRCB and EPA. The 303(d) List also includes SWRCB staff recommendations for additions, deletions, or changes to the 303(d) List from the RWQCBs.

Two TMDLs are currently in effect for water bodies located within the Santa Ana Region: the Big Bear Lake Nutrient TMDL and the Middle Santa Ana River Bacteria Indicator TMDL. TMDL Task Forces have been created with the responsibility for implementation of each TMDL. The District, representing the County Stormwater Program, is a TMDL task force partner for both TMDLs, and performs certain aspects of the required TMDL monitoring activities on behalf of the County Stormwater Program. TMDL monitoring plans define sampling schedules and

protocols agreed to by the TMDL stakeholders and the Santa Ana RWQCB in order to comply with the requirements of the associated TMDLs. The TMDL monitoring plans are enforceable by the RWQCB (County Stormwater Program 2011a; CDM Smith 2016).

Big Bear Lake Nutrient TMDL

Big Bear Lake is listed as an impaired waterway due to elevated nutrient concentrations. Remedial efforts to reduce these concentrations have included installation and refurbishment of numerous sedimentation basins, implementation of an annual carp (a non-native invasive fish) removal program, several large dredging projects to remove legacy loads, installation of an aerator near the dam, and large scale application of aluminum (County Stormwater Program 2014a).

The Big Bear Lake Nutrient TMDL working group, comprised of the District, County, City of Big Bear Lake, and Mammoth Mountain (formerly the Ski Resorts) implements the TMDL monitoring within the Big Bear Lake Watershed. The Watershed-Wide Monitoring Plan, which includes in-lake monitoring by the Big Bear Municipal Water District, has demonstrated that average chlorophyll-a and total inorganic nitrogen meet numeric targets in the lake; however, the total phosphorous target has not been met. The Permittees, in combination with the Big Bear Municipal Water District, have been neutralizing phosphorous loads in all but the wettest hydrological conditions in order to meet its minimum responsibilities under the TMDL (County Stormwater Program 2014a, 2016).

Middle Santa Ana River Bacteria Indicator TMDL

Middle Santa Ana River Reach 3 and several major tributaries to that reach are impaired by elevated bacteria concentrations that indicate a potential health risk for persons engaged in water contact recreation (REC-1). The MS4 Permittees of the Santa Ana Region have implemented a Comprehensive Bacteria Reduction Program (CBRP) to meet ongoing Middle Santa Ana River Bacterial Indicator TMDL requirements and reduce sources of bacteria in the MS4. The CBRP was approved by the RWQCB in 2012 and is now being implemented by the Permittees that have MS4 discharges within the area subject to the TMDL. In 2012, the RWQCB also amended the water quality standards related to protection of water contact recreation, including the associated bacteria objectives (County Stormwater Program 2014b). These amended water quality standards were approved by the U.S. Environmental Protection Agency in 2015 (County Stormwater Program 2016).

The Permittees have collected thousands of surface water samples in association with the CBRP, and the results of those samples have been used to focus subsequent remediation efforts. The CBRP developed a risk-based scoring system to target stream segments and stormwater outfalls with the highest potential to exceed water quality standards. The scoring system includes DNA analyses to identify bacteria sources arising from human activity that pose the greatest threat to

people recreating in the water. To date, the CBRP has conducted a number of assessments to identify controllable sources of bacteria and evaluate dry weather flows. Over time, the number of water quality samples with detectable human *Bacteroides* has declined. These assessments will continue to form the foundation of San Bernardino County's Middle Santa Ana River TMDL compliance strategy (County Stormwater Program 2014b).

Beginning in 2016, the Permittees joined with their sister MS4 agencies in adjacent counties to implement a unified Regional Bacteria Monitoring Plan (RMP) for pathogen-indicator bacteria. This new initiative, modeled on the successful bacteria monitoring program developed for the Middle Santa Ana River Bacteria TMDL, utilizes weekly monitoring to provide high quality data at all of the rivers, lakes, and creeks where water contact recreation most commonly occurs. A key element in the new RMP is development of an objective procedure consistent with Basin Plan language for determining whether elevated bacteria levels are caused by controllable anthropogenic sources or uncontrollable natural sources. The recent Basin Plan amendments defined "uncontrollable sources" to include, but not be limited to: wildlife activity and waste, bacterial regrowth with sediment or biofilm, re-suspension from disturbed sediment, concentrations (i.e., flocks) of semi-wild waterfowl and human shedding during swimming (County Stormwater Program 2014b, 2016).

The Middle Santa Ana River Bacterial Indicator TMDL requires the preparation of a Triennial Report every three years to assess the status of compliance with TMDL waste load allocations. The data collected as part of the TMDL monitoring efforts are generated by the Middle Santa Ana River Watershed TMDL Task Force and submitted per the MS4 Permit monitoring and reporting requirements. The watershed-wide compliance monitoring program samples five locations on a regular basis (County Stormwater Program 2016; CDM Smith 2016a).

In addition to the Middle Santa Ana River Watershed TMDL Task Force sampling, the County Stormwater Program includes sampling within the Middle Santa Ana River watershed. An NPDES Phase I MS4 Permit Annual Report was prepared by this program for activities completed during Fiscal Year 2015–2016, for submittal to the Santa Ana RWQCB. Sampling results from 2014–2016 were compared to water quality objectives from the July 2014 update of the 1995 Basin Plan and California Toxics Rule (County Stormwater Program 2016).

Sampling Results. The Middle Santa Ana River Bacterial Indicator TMDL 2015 Dry Season Report, which is based on the most recent reporting period 2012–2015, indicated that the fecal coliform geometric mean exceedance varied from 0% in the Prado Lake area of the San Antonio Creek System Watershed, to 90% to 100% in the Cucamonga/West Cucamonga Creek System and Santa Ana River watersheds (watersheds are shown on Figure 4.8-1). However, while still exceeding the water quality objectives, the fecal coliform concentrations at the Mill-Cucamonga Creek sampling location decreased substantially from 2013 to 2015, as a result of ongoing pollution prevention

measures. Sampling results included in the NPDES Phase I MS4 Permit Annual Report, for the period July 1, 2015, to June 30, 2016, indicate that pH, total dissolved solids, chemical oxygen demand, copper, lead, and zinc sporadically exceed water quality objectives during both dry- and wet-weather events (County Stormwater Program 2016; CDM Smith 2016a).

Hydrologic Disconnection. In addition, studies have been conducted by various Permittees to show hydrologic disconnection from impaired water bodies. Photos revealed that Cactus Channel is routinely dry during dry-weather conditions. Dry-weather flow conditions have also been documented at the Santa Ana River/La Cadena crossing, DeClez Channel/DeClez Basin, San Sevaine Channel/Jurupa Basin, and Day Creek Channel/Riverside Basin (County Stormwater Program 2016). The District has also observed over the past few years that the recharge basins are capturing all the dry-weather flows (Gabaldon, pers. comm. 2017).

Ongoing Pollution Prevention Related to Drainage Channels

The MS4 Permit requires the Permittees to annually evaluate the inspection and maintenance frequency for all portions of their drainage facilities. This evaluation is based on a prioritized list of drainage facilities, considering factors such as proximity to receiving waters; receiving water beneficial uses; beneficial use impairments; historical pollutant types; loads from past inspections/cleanings; and the presence of downstream regional facilities that would remove the types of pollutants found in the drainage facility. In 2016, approximately 201,000 cubic yards of material was removed from inlets, channels, and basins by Permittees. Approximately 25% of debris/detention basins, 2% of channels, and 8% of drain inlets (catch basins) were cleaned. The composition of materials cleaned by Permittees was approximately 30% organic matter, 39% sediment, and 7% litter/trash, with approximately 24% non-characterized “other” materials (County Stormwater Program 2016).

The MS4 Permit requires that training shall be provided to municipal staff annually, and that key staff shall attend at least three training sessions during each 5-year permit period. District staff receive such training on an annual basis (Derry, pers. comm. 2017). In addition, the Public Agency Activities Program addresses pollutant sources associated with municipal facilities, the homeless population, pet waste, schools, and residences, in order to reduce the amount of pollutants entering surface waters (County Stormwater Program 2016).

4.8.4.2 Lahontan Region

General Hydrology

The primary watershed within the Lahontan Region is the Mojave River Watershed, which feeds into the Mojave River main stem, the primary geographic and surface hydrologic feature of the watershed (watersheds are depicted on Figure 4.8-2). This watershed, which encompasses approximately 4,500

square miles, ranges from 8,500 feet amsl at Butler Peak in the San Bernardino Mountains to 1,400 feet amsl at Afton Canyon, near the terminus of the Mojave River. The Mojave River Watershed is subdivided into a number of subwatersheds by the District, including the Upper Mojave, Middle Mojave, Lower Mojave, and Mojave–Baker watersheds. In addition to the Mojave River Watershed, the portion of the Lahontan Region located within San Bernardino County includes the Sheep Creek and Trona watersheds (see Figure 4.8-2).

The headwaters of the Mojave River in the San Bernardino Mountains receive more than 40 inches of precipitation (i.e., rain and snow) annually, whereas Victor Valley, in the Desert Region, receives only about 4 inches of precipitation annually. The mountainous headwaters area is drained by two main tributaries, including Deep Creek and West Fork Mojave River. The Deep Creek tributary of the Mojave River is perennial. During heavy storms, especially those following other storms, streamflow in the area above Mojave River Forks Dam increases rapidly in response to rainfall. The shallow surface soils, impervious bedrock, fan-shaped collection systems, and steep gradients are important factors in producing high runoff rates and rapid concentration of floodwaters. In passing through the sandy wash downstream, surface flow is lost through percolation, reappearing at locations of impervious subsurface dikes (USACE 1997).

The Mojave River channel transects the watershed for approximately 120 miles until it reaches Silver Dry Lake, near the community of Baker. Some reaches of the river flow underground within the confines of the riverbed channel. Typical of southwestern arid environments, the Mojave River Watershed has limited water resources. Surface water from the headwaters in the San Bernardino Mountains quickly percolates into the porous sands of the young Mojave River alluvium. The Mojave River channel is typically dry downstream of the Mojave Forks Dam, except in areas where groundwater is forced to the surface by geologic structures (Town of Apple Valley et al. 2003; Lahontan RWQCB 2005).

Water Quality

Beneficial Uses

Beneficial uses of the drainages within the Lahontan Region, which have watersheds encompassing County flood control facilities, are presented in Table 4.8-3. Table 4.8-3 includes the beneficial uses by District watershed as well as the corresponding water bodies as identified in the Basin Plan. Hydrologic Unit codes corresponding to the Basin Plan watersheds are also provided. For a complete listing of beneficial uses of primary and tributary creeks, see the Lahontan Basin Plan (Lahontan RWQCB 2015).

Surface Water Quality Impairments and Total Maximum Daily Loads

No TMDLs have been recorded by EPA for the Mojave River, including the Upper Narrows to Lower Narrows reach and the Mojave Forks Reservoir Outlet to Upper Narrows reach. However, water quality impairments for the Mojave River include fluoride, sulfates, and total dissolved solids (EPA 2016a, 2016b). Similarly, no TMDLs have been recorded for Sheep Creek; however, water quality impairments include total dissolved solids (EPA 2016c).

The Mojave River was selected as a priority or "focus" watershed by SWRCB because of numerous water quality and quantity issues. Historically known for its agriculture, industrial, and military uses, Victor Valley has significantly changed during the last several decades into a satellite of Southern California's urbanization. Urban growth has substantially modified the areas of waste discharges that could potentially affect water quality, including stormwater and wastewater treatment. There are also numerous water quality issues associated with past and current agricultural, industrial, and military land uses throughout the watershed. Because of water quality degradation associated with past industrial activities, some waters in the Mojave River Watershed are listed as a water quality limited segments for priority organics on the federal Section 303(d) list of impaired water bodies (Table 4.8-4) (Lahontan RWQCB 2005).

Water quality problems in the Mojave River Watershed are primarily related to non-point sources, including erosion (from construction, timber harvesting, and livestock grazing), stormwater, acid drainage from inactive mines, and individual wastewater disposal systems. There are relatively few point-source discharges. Some types of discharges may be considered either point source or non-point source, depending on site-specific circumstances. For example, stormwater that enters one lake through a pipe may be regulated as a point source, while stormwater that enters a lake via sheet flow is considered a non-point-source discharge (Lahontan RWQCB 2015).

In the early 1970s, RWQCB evaluated existing surface water quality data for the Mojave River Watershed. Based on these data, RWQCB adopted numerical water quality objectives for inorganic constituents in surface waters of the Mojave River and several of its tributaries in the San Bernardino Mountains. These numerical standards generally represented native or background water quality. For the purpose of evaluating the water quality objectives, RWQCB has assembled two groups of stakeholders. The first group is focused on surface water upstream of the Mojave Forks Dam, which is located near the City of Hesperia. The second group is focused on groundwater of the Mojave River floodplain aquifer downstream of the Mojave Forks Dam, and the few downstream locations where groundwater is forced to the surface of the Mojave River floodplain by geologic structures. The overall goal of the sampling effort is to compare existing surface water quality to the water quality objectives that were developed in the 1970s (Lahontan RWQCB 2005).

RWQCB has worked with the City of Barstow since approximately 1990 to identify and eliminate sources of elevated total dissolved solids that enter the City's WWTP. Through an aggressive source control program, the City has reduced the concentration of total dissolved solids in its effluent from more than 1,000 milligrams per liter to typically less than 800 milligrams per liter (Lahontan RWQCB 2005).

In addition, RWQCB assembled a stakeholder group (the Mojave River Watershed Group), including the communities of Town of Apple Valley, the Cities of Hesperia and Victorville, and the County of San Bernardino, to address water quality concerns associated with stormwater. The Mojave River Watershed Group was responsible for developing and implementing a regional stormwater management plan as required by the Phase II Small MS4 Permit. Identification of critical areas of stormwater flow and the full list of constituents of concern are the primary goals of the Lahontan RWQCB (2002).

The Mojave River Watershed Group publishes an annual report summarizing the results of their Phase II Small MS4 General Permit program, which is intended to minimize or eliminate adverse surface water quality impacts by instituting controls on those MS4 discharges that have the greatest potential to cause environmental degradation. Discharges to, or from, the MS4 are of concern because they may contain pollutants, including trash, debris, sediments, fertilizers, oil, grease, metals, and pesticides. These discharges can result in the loss of surface water beneficial uses and contaminate local drinking water supplies (Mojave River Watershed Group 2014). Among other annual tasks, the stakeholder group has developed a Construction Site Storm Water Runoff Control Program, which is intended to develop, implement, and enforce a program to prevent the discharge of construction site pollutants and minimize or eliminate negative impacts on the beneficial uses of receiving waters (Mojave River Watershed Group 2014).

Table 4.8-3
Beneficial Uses – Lahontan Region (Region 6)

County Flood Control District Watershed(s)	Lahontan Region Basin Plan Water Body	Beneficial Use																						HU
		MUN	*AGR*	*PROC*	*IND*	*GWR*	*FRSH*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*AQUA*	*WARM*	*COLD*	*SAL*	*WILD*	*BIOL*	*RARE*	*MIGR*	*SPWN*	*WQE*	*FLD*	
Mojave Hydrologic Unit – HU: 628																								
Sheep Creek	Sheep Creek	X	X			X				X	X	X		X	X		X							628.20
Upper Mojave	Upper Mojave River	X	X			X				X	X	X		X	X		X							628.20
Middle Mojave	Middle Mojave River	X	X			X				X	X	X		X	X		X							628.30
Lower Mojave	Lower Mojave River	X	X			X				X	X	X		X	X		X							628.50
Mojave-Baker	Baker (none listed)																							628.80
Trona	Trona	X		X	X	X	X			X	X			X		X	X	X				X	X	621.00

Source: Lahontan RWQCB 2015.
Legend:
X Existing, potential, or intermittent beneficial use
MUN Municipal and domestic supply
AGR Agricultural supply
PROC Industrial process supply
IND Industrial service supply
GWR Groundwater recharge
FRSH Freshwater replenishment
NAV Navigation
POW Hydropower generation
REC1 Water contact recreation
REC2 Non-contact recreation
COMM Commercial and sport fishing
AQUA Aquaculture
WARM Warm freshwater habitat
COLD Cold freshwater habitat
SAL Inland saline water habitat
WILD Wildlife habitat
BIOL Preservation of biological habitats of special significance
RARE Rare, threatened, or endangered species
MIGR Migration of aquatic organisms
SPWN Spawning, reproduction, and development
WQE Water quality enhancement
FLD Flood peak attenuation/flood water storage
HU Lahontan RWQCB Basin Plan Hydrologic Unit

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Table 4.8-4
Water Quality Impairments in the Lahontan Region

San Bernardino County Flood Control Watershed	2012 303(d) List of Water Quality Impairments (Included under SWRCB Integrated Report Category 5)
Lahontan (Region 6)	
Upper Mojave	Fluoride
Middle Mojave	Fluoride, sulfates, total dissolved solids
Lower Mojave	None listed
Sheep Creek	Nitrate, total dissolved solids
Mojave Baker	None listed

Source: SWRCB 2012.

4.8.4.3 Colorado River Basin Region

General Hydrology

The primary watersheds within the Colorado River Basin Region of San Bernardino County include the Yucca Creek and Needles/Sacramento Wash Watersheds (see Figure 4.8-2). The Yucca Creek Watershed is located in the southern portion of the County, within the Colorado River Basin (West), which is the portion of the Colorado River Basin Region that does not drain into the Colorado River. This watershed drains toward internal hydrologically isolated sinks, or playas (Colorado River Basin RWQCB 2014). Two smaller watersheds include the Little Morongo Creek and Lucerne Storm Drain watersheds, which also drain toward internal hydrologically isolated sinks, or playas (see Figure 4.8-2).

The Needles/Sacramento Wash Watershed, which feeds directly into the Colorado River in the vicinity of Needles, comprises the northeast corner of the Colorado River Basin Region. This watershed is part of the East Colorado River Basin, which is the strip of watersheds along the Colorado River, within California. An average of only 4 inches of rain falls annually along this portion of the Colorado River (Colorado River Basin RWQCB 2014).

Water Quality

Beneficial Uses

Beneficial uses of the drainages within the Colorado River Basin Region, which have watersheds encompassing County flood control facilities, are presented in Table 4.8-5. Table 4.8-5 includes the beneficial uses by District watershed as well as the corresponding water bodies as identified in the Basin Plan. Hydrologic Unit codes corresponding to the Basin Plan watersheds are also provided. For a complete listing of beneficial uses of primary and tributary creeks, see the Colorado River Basin Plan (Colorado River Basin RWQCB 2011).

As indicated in Table 4.8-5, Yucca Creek, Lucerne Storm Drain, and Needles/Sacramento Wash are not specifically listed in the Colorado River Basin Region Basin Plan. As a result, beneficial uses of these water bodies are based on "Unlisted Perennial and Intermittent Streams."

Table 4.8-5
Beneficial Uses – Colorado River Basin Region (Region 7)

County Flood Control District Watershed(s)	Colorado River Basin Region Basin Plan Water Body	Beneficial Uses													HUC
		MUN	*AGR*	*AQUA*	*FRSH*	*IND*	*GWR*	*REC1*	*REC2*	*WARM*	*COLD*	*WILD*	*POW*	*RARE*	
Little Morongo Creek	Little Morongo Creek	X	X				X	X	X	X		X			719.10
Yucca Creek	Yucca Creek (based on "Unlisted Perennial and Intermittent Streams")	X			X		X	X	X	X		X		X	708.10 708.20
Needles/ Sacramento Wash	Needles/Sacramento Wash (based on "Unlisted Perennial and Intermittent Streams")	X			X		X	X	X	X		X		X	713.10 713.20 713.30 713.40
Lucerne Storm Drain	Lucerne Storm Drain (based on "Unlisted Perennial and Intermittent Streams")	X			X		X	X	X	X		X		X	701.00

Source: Colorado River Basin RWQCB 2011.
Legend:
X Existing, potential, or intermittent beneficial use
MUN Municipal and domestic supply
AGR Agricultural supply
AQUA Aquaculture
FRSH Freshwater Replenishment
IND Industrial Service Supply
GWR Groundwater recharge
REC1 Water contact recreation
REC2 Non-contact recreation
WARM Warm freshwater habitat
COLD Cold freshwater habitat
POW Hydropower generation
RARE Rare, threatened, or endangered species
HUC Hydrologic Unit code

Surface Water Impairments and Total Maximum Daily Loads

There are no existing TMDLs or water quality impairments related to project-related water bodies in the Colorado River Basin Region, as shown in Table 4.8-6 (EPA 2016c).

Table 4.8-6
Water Quality Impairments in the Colorado River Basin Region

Watershed	List of Water Quality Impairments
Yucca Creek	None listed
Needles–Sacramento Wash	None listed
Little Morongo Creek	None listed
Lucerne Storm Drain	None listed

Source: SWRCB 2012; Colorado River Basin RWQCB 2011.

4.8.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. All of the District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The SOPs from the Maintenance Plan presented in this section are relevant to the analysis of hydrology and water quality. Their relevance to specific impact topics is detailed in Section 4.8.6, Impacts Analysis.

The SOPs in this section include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. Many of these SOPs have been incorporated from water quality BMPs provided in applicable permits and guidance documents. The District, in coordination with Operations and Environmental staff, will implement the following SOPs, as applicable and specific to each maintenance request submitted by Operations in order to minimize impacts related to hydrology and water quality. These SOPs are consistent with those presented in the California Stormwater Quality Association BMP Handbook (CASQA 2012), but have been modified and supplemented where necessary to better apply to specific activities to be conducted under the proposed program.

SOP-HYD-1 **Scheduling.** Scheduling is the development of a plan that includes sequencing of maintenance activities and the implementation of BMPs such as erosion control and sediment control while taking local climate (rainfall, wind, etc.) into consideration. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the maintenance activities and control practices in accordance with the plan. The District schedules work only after the wetted portions of a channel or basin are dry enough to safely operate equipment when practicable and develops and implements a water diversion plan if activities occur when water

is present; incorporates implementation of water quality BMPs into the planning and scheduling of maintenance activities to the greatest feasible extent; and sequences work to avoid periods of rain and high winds.

SOP-HYD-2 **Vegetation Management.** Vegetation clearing is avoided/minimized to the greatest extent practicable in areas within flood control rights-of-way that do not impact the District's ability to maintain flood control capacity and do not impact the District's ability to comply with federal and state flood protection requirements. Clippings and cuttings are properly disposed of. All work is completed in accordance with the District's Vegetation Management Plan. Vegetation management activities reduce the flood risk by maintaining conveyance capacity for flood control facilities, maintain access, and preserve visibility for inspections and maintenance activities. Vegetation management includes maintaining in-stream vegetation, removing non-native weeds, removing vegetation on stockpiles and adjacent properties, removing hazardous trees, applying herbicide, implementing selective clearing operations, and in some cases, encouraging vegetation establishment and promotion. Vegetation can support the maintenance of flood control facilities through soil conservation and erosion control. (See SOP-HYD-4 regarding herbicide/pesticide application.)

SOP-HYD-3 **Minimization of Controllable Discharge of Sediment.** The District uses BMPs during program maintenance activities to minimize the controllable discharges of sediment to drainage systems or other waters of the state and of the United States. This includes the use of some or all of the following, as appropriate:

- **Storm Drain Inlet Protection.** Storm drain inlet protection consists of protective measures before runoff enters the storm drain. Control measures such as sediment filtration devices and/or impounding the area around or upstream of storm drains are implemented for sediment reduction. The following protection controls can be used: filter fabric and gravel bag barriers. The District maintains inlet protections regularly to keep them functioning properly.
- **Fiber Rolls.** Fiber rolls are used to intercept runoff, reduce its flow velocity, and release runoff as sheet flow. Fiber rolls are placed at the toe or on the face of slopes, along the perimeter of a program site, around temporary stockpiles, and downslope of exposed soil areas. Fiber rolls are one of many erosion control devices that can be and are employed by the District, as applicable.

- **Sandbag Barrier.** A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers placed on a level contour pond sheet flow runoff, allowing sediment to settle out. Sandbag barriers are one of many erosion control devices that can be and are employed by the District, as applicable.
- **Gravel Bag Berms.** Gravel bag berms are a series of gravel-filled bags used to intercept sheet flows, pond the runoff flow, and allow the sediment to settle out and slowly release the sheet flow. Gravel bag berms can be used as a sediment/erosion control measure in the program area. Gravel bag berms are one of many erosion control devices that can be and are employed by the District, as applicable.
- **Stabilized Work Area Entrance/Exit**. A stabilized work area entrance/exit reduces the tracking of mud and dirt onto public roads by work trucks. The stabilization feature can be built by using different techniques. Some of the common techniques are using 3- to 6-inch-diameter stones, placing steel rubble racks, and limiting the points of entrance/exit to the work area. The effectiveness of stabilized maintenance location entrances and exits are monitored and adjusted as necessary, and any vehicular trackouts of sediment are swept up.
- **Wind Erosion Control.** This control measure prevents dust and wind erosion by simply applying water or other dust palliatives as necessary to reduce or alleviate dust nuisance generated by maintenance activities. Wind erosion control is one of many erosion control devices that can be and are employed by the District, when necessary.
- **Straw Bales Barrier.** This temporary linear sediment barrier is placed where sediment-laden sheet flows from the work area can pond and settle out within the project site. Straw bales have limited applications. Straw bales barriers are one of many erosion control devices that can be and are employed by the District, as applicable.
- **Geotextiles and Mats.** Mattings, or rolled erosion control products (RECPs), are made of natural or synthetic materials or a combination of the two. RECPs are used to cover the soil surface to reduce erosion from rainfall impact, hold soil in place, and absorb and hold moisture near the soil surface. Additionally, RECPs are used to stabilize soils until vegetation is established or to reinforce non-woody surface vegetation. The District applies geotextiles and mats as applicable.

- **Soil Binders.** Soil binding consists of application and maintenance of a soil stabilizer to exposed soil surfaces. Soil binders are materials applied to the soil surface to temporarily prevent water- and wind-induced erosion of exposed soils on maintenance activity sites.
- **Temporary Stream Crossing.** A temporary stream crossing is a temporary culvert, ford, or bridge placed across a waterway to provide access for maintenance purposes for a period of less than 1 year. Temporary access crossings are not intended to maintain traffic for the public. The temporary access eliminates erosion and downstream sedimentation caused by vehicles.
- **Clear Water Diversion.** Clear water diversion consists of a system of structures and measures that intercept clear surface water runoff upstream of an activity, transport it around the work area, and discharge it downstream with minimal water quality degradation from either the program's maintenance activities or the creation of the diversion. Clear water diversions are used in a waterway to enclose a work area and reduce sediment pollution from maintenance work occurring in or adjacent to water. Structures commonly used as part of this system include diversion ditches, berms, dikes, slope drains, rock, gravel bags, wood, aqua barriers, cofferdams, filter fabric or turbidity curtains, drainage and interceptor swales, pipes, or flumes. The District conducts clear water diversion as applicable to the specific maintenance project.
- **Preservation of Native Vegetation.** Native vegetation that does not impact facility capacity or compromise the integrity of the facility and that is not mandated for removal under federal and state regulatory agencies to ensure structural integrity is avoided to the greatest feasible extent, to protect soil from erosion. Vegetation incorporated into the facility as part of the project design is maintained to as-built conditions.
- **Hydroseeding.** Hydroseeding typically consists of applying a mixture of a hydraulic mulch, seed, fertilizer, and stabilizing emulsion with a hydraulic mulcher, to temporarily protect exposed soils from erosion by water and wind. Hydraulic seeding, or hydroseeding, is simply the method by which temporary or permanent seed is applied to the soil surface. The District applies hydroseeding when appropriate.
- **Silt Fences.** Silt fences are a temporary control measure that is made of woven geotextile and is entrenched, attached to supporting poles, and sometimes backed by plastic or wire mesh. Silt fences

are one of many erosion control devices that can be and are employed by the District, as applicable.

- **Location of Temporary Stockpiles.** Temporary stockpiles may be placed in channel bottoms or debris basins if located on barren soil or areas with non-native weeds, and are not placed in such a manner that the stockpiles are exposed to flowing water. No temporary stockpiles are placed on channel beds or banks from October through April for more than the duration of the sediment removal work. Permanent stockpiles are not created within County rights-of-way in areas located within the 100-year flood hazard zone.

SOP-HYD-4 **Minimization of Controllable Discharge of Pollutants.** The District uses SOPs during program maintenance activities to minimize the controllable discharges of petroleum and chemical waste to drainage systems or other waters of the state and of the United States. This includes the use of some or all of the following, as appropriate:

- **Control of Corrosive Substances.** Substances resulting from program-related activities that could be harmful to aquatic life, including, but not limited to, petroleum lubricants and fuels, cured and uncured cements, epoxies, paints and other protective coating materials, Portland cement concrete or asphalt concrete, and washings and cuttings thereof, are not discharged to soils or waters of the state. All waste concrete is removed and properly disposed of.
- **Illegal Discharge.** Procedures and practices are put in place for contractors to recognize illegally dumped or discharged materials on a work site and to report incidents.
- **Road Base Discharge Avoidance.** The District implements measures to prevent the discharge of road base, fill, sediment, concrete, and/or asphalt beyond the previously established roadbed when maintaining existing driveways and dirt access roads within the maintenance activity area.
- **Spill and Leak Avoidance.** The District ensures that all equipment operating in and near a watercourse or in a basin is in good working condition and free of leaks. No equipment maintenance or refueling occurs in a channel or basin bottom. Spill containment materials are kept on site or readily available for any equipment maintenance or refueling that occurs adjacent to a watercourse. Further, a spill kit essential for controlling contaminants is available at all times.

Operations staff members working with heavy equipment are trained in the use of the equipment and in spill containment and response for any unforeseeable accidents that may occur. Special care is taken to prevent liquid paint from entering aquatic resources while painting in association with graffiti removal.

- **Spill Notification.** Should any spills occur, the District contracts with the County Fire Marshal–Hazardous Materials Division to prepare and implement spills response plans and report spills to any applicable state and federal regulatory agencies, including the California Office of Emergency Services. Depending on the magnitude of the spill, the District has hazardous materials handlers to implement spill response plans prepared by the County Fire Marshal–Hazardous Materials Division and to safely handle and dispose of hazardous materials.
- **Housekeeping Practices.** The District promotes efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals.
- **Non-Stormwater Discharges.** The District monitors and permits non-stormwater discharges as required and applicable under its NPDES MS4 permit.
- **Prohibition of Machine Maintenance near Streams.** Motorized equipment is not maintained or parked within or near any stream crossing, channel, or lake margin in such a manner that petroleum products or other pollutants from the equipment may enter these areas under any flow conditions. No equipment is operated in areas of flowing water. Vehicle maintenance, staging, storage, and dispensing of fuel occur in designated upland areas. These areas are located in a manner to prevent any runoff from entering waters of the United States.
- **Concrete Washout Protocols.** The District implements appropriate waste management practices during on-site concrete repair operations. Waste management practices are applied to the stockpiling of concrete, curing and finishing of concrete, and concrete wash-out operations. Waste management practices are adequate to ensure that fluids associated with the curing, finishing, and wash-out of concrete are not discharged to the channel or basin. Concrete wastes are stockpiled separately from

sediment and protected by erosion control measures so that concrete dust and debris are not discharged to the channel, basin, or waters of the state. The District determines the appropriate waste management practices based on considerations of flow velocities, site conditions, availability of erosion control materials, maintenance activity costs, and other requirements that may be outlined in the District's MS4 permit.

- **Aquatic Pesticide and Herbicide.** The District applies pesticides, herbicides, and related surfactants within its facilities in accordance with the District's Vegetation Management Plan, which complies with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG990005, Order No. 2013-0002-DWQ (Permit), dated 2013, and the District Weed Control Aquatic Pesticide Application Plan, dated 2014. The District's Vegetation Management Plan seeks to reduce the amount of herbicides used, by using selective herbicides and application techniques, timing applications for maximum effect, avoiding fixed application schedules, using mechanical control techniques where appropriate, and encouraging natural controls. See SOP-HYD-2 for a description of the overall purpose of the District's Vegetation Management Plan.
- **Drainage System Maintenance.** As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis removes pollutants, prevents clogging of the downstream conveyance system, restores catch basins' sediment trapping capacity, and ensures that the system functions properly hydraulically to avoid flooding.
- **Outdoor Storage of Raw Materials.** Raw materials, by-products, finished products, containers, and material storage areas exposed to rain and/or runoff can pollute stormwater. Stormwater can become contaminated when materials wash off or dissolve into water or are added to runoff by spills and leaks. Improper storage of these materials can result in accidental spills and the release of materials. To prevent or reduce the discharge of pollutants to stormwater from material delivery and storage, the District implements pollution prevention and source control measures, such as minimizing the storage of hazardous materials on site, enclosing or covering materials, storing materials in a designated area, installing secondary containment, conducting

regular inspections, preventing stormwater run-on and runoff, and training employees and subcontractors.

- **Stockpile Management.** The District implements appropriate stockpile management practices. Stockpile management procedures and practices reduce or eliminate air and stormwater pollution from stockpiles of soil; soil amendments; sand; paving materials, such as Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, and asphalt minder (so called "cold mix" asphalt); and pressure-treated wood.
- **Structural Demolition/Removal Over or Adjacent to Water.** The District implements procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses.

The analysis in this section includes an assessment of impacts to beneficial uses as defined by the Basin Plan of each RWQCB. Beneficial uses include those related to rare, threatened, and endangered species use of water resources as well as habitat associated with water resources; therefore, SOPs from the Maintenance Plan related to biological resources are also applicable to the hydrology and water quality analysis. The following SOPs would reduce potential impacts to special-status species and habitat, and therefore would reduce potential impacts to beneficial uses (see Section 4.3, Biological Resources, for the full text of these SOPs):

- **SOP-BIO-1** (Least Bell's Vireo)
- **SOP-BIO-2** (Coastal California Gnatcatcher)
- **SOP-BIO-3** (Southwestern Willow Flycatcher)
- **SOP-BIO-4** (Native Fish Avoidance)
- **SOP-BIO-8** (Western Spadefoot Toad)
- **SOP-BIO-9** (Arroyo Toad)
- **SOP-BIO-10** (Desert Tortoise)
- **SOP-BIO-11** (Mojave Fringe-Toed Lizard)
- **SOP-BIO-12** (Western Pond Turtle)
- **SOP-BIO-13** (Southern Rubber Boa)
- **SOP-BIO-14** (Special-Status Plants Pre-Activity Surveys and Avoidance)
- **SOP-BIO-19** (Herbicide Application)
- **SOP-BIO-20** (Jurisdictional Waters Avoidance)

4.8.6 Impacts Analysis

4.8.6.1 Methods of Analysis

The analysis was developed by reviewing available information on hydrology and water quality in the proposed program vicinity, as described in Section 4.8.4, Existing Conditions, and subsequently evaluating potential ground-disturbing and non-ground-disturbing impacts that might occur as a result of implementation of the proposed program. A field reconnaissance was not completed as part of the impact analysis. Rather, available hydrologic and water quality maps and reports were reviewed in completing the analysis.

Comments received in response to the 2014 NOP (see Appendix B) included concerns regarding compliance with applicable water quality standards and provisions. Comments received from the Lahontan RWQCB requested a detailed narrative description of each maintenance activity and an evaluation of potential impacts on water quality and hydrology. In addition, the Lahontan RWQCB indicated that with more than 500 facilities requiring routine maintenance County-wide, cumulative impacts on water quality and hydrology over time should be fully evaluated. Proposed maintenance activities are described throughout the impact evaluation for Impact HYD-1 in Section 4.8.6.2, Analysis. Similarly, cumulative impacts are addressed in Section 4.8.9, Cumulative Impacts.

A landowner located adjacent to Quail Wash, in the Joshua Tree area, had concerns regarding potential water quality impacts to Quail Wash, based on a history of large quantities of soil material being disposed along the wash (in association with levee construction), as well as the County mixing asphalt on the floor of the wash during levee construction. The landowner was concerned about mudflows occurring during a 100-year flood as a result of placing large quantities of soil in the wash. Downstream displacement of the soil could also cover the recharge basin located at the intersection of Quail and Yucca Washes, thus reducing the permeability of the basin. The landowner was also concerned about potential flooding along Quail Wash and potential water supply impacts associated with management of the Quail Wash facility. Water quality issues and areas of stockpiled soil within Quail Wash are not specifically addressed in this EIR, because this document is programmatic in nature due to the approximately 500 District facilities being included in the proposed program. However, potential water quality impacts are programmatically addressed in relation to the proposed maintenance activities under Impact HYD-1 in Section 4.8.6.2. Similarly, mudflows associated with specific areas of stockpiled soils have not been addressed in this EIR; however, potential increases in flow velocities and associated mudflows as a result of proposed program activities have been addressed under Impact HYD-3 in Section 4.8.6.2.

In addition, the Sierra Club, Mojave Group, San Gorgonio Chapter, had concerns regarding potential increased sediment and debris flow as a result of proposed program-related loosening

of sand and gravel in channel bottoms. As discussed previously, potential water quality impacts related to increased sedimentation are programmatically addressed in relation to the proposed maintenance activities under Impact HYD-1 in Section 4.8.6.2. Similarly, potential increases in flow velocities and associated mudflows as a result of proposed program activities have been addressed under Impact HYD-3 in Section 4.8.6.2.

4.8.6.2 Analysis

As noted in Section 4.8.1, Introduction, impacts to hydrology and water quality are based on watershed and water quality standards developed for the watersheds and major waterbodies. Because water quality standards are set by the SWRCB and implemented by the RWQCBs, the analysis in this section is divided into the three RWQCBs that occur in the County: the Santa Ana Region, the Lahontan Region, and the Colorado River Basin Region. Some impacts address all three regions together where the analysis is the same.

Impact HYD-1

Would the program violate any water quality standards or waste discharge requirements?

With respect to this impact threshold, the proposed program would have a significant impact if water quality objectives within the applicable Basin Plan are violated, or if activities cause the loss or impairment of beneficial uses. Section 303 of the federal Clean Water Act (33 U.S.C. 1313) defines water quality standards as consisting of both the uses of the surface (navigable) waters involved and the water quality criteria that are applied to protect those uses. Under the Porter-Cologne Act (California Water Code, Division 7, Chapter 2, Section 13050), these concepts are separately considered as beneficial uses and water quality objectives. Basin Plans for the Santa Ana, Lahontan, and Colorado River Basin Regions have established water quality objectives for inland surface waters based on beneficial uses associated with each water body. Where numerical objectives are specified, they generally represent the levels that will protect beneficial uses. Therefore, compliance with water quality objectives serves as evidence that beneficial uses are not affected.

Because the proposed program includes approximately 500 facilities, each individual facility has not been evaluated with respect to water quality objectives. Rather, impacts have been considered qualitatively with respect to general activity types and their potential to contribute to water quality impairments, cause exceedances of water quality objectives, and/or result in the impairment or loss of beneficial uses. The sites with the largest amount of ground disturbance and thus the greatest potential for water quality impacts have been called out by RWQCB region. The water quality objectives apply to receiving waters, rather than the stormwater runoff directly emanating from staging areas, access roads, or maintenance activity sites. For example, a short-lived increase in turbidity in runoff in one particular section of a channel as a result of maintenance

activities does not necessarily constitute a violation of water quality objectives. Excessively turbid flows would have to be prolonged and in excess of naturally turbid conditions to be considered in excess of water quality objectives in receiving water bodies. The District would use SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8.5, Standard Operating Procedures) and SOP-BIO-1 (Least Bell's Vireo), SOP-BIO-2 (Coastal California Gnatcatcher), SOP-BIO-3 (Southwestern Willow Flycatcher), SOP-BIO-4 (Native Fish Avoidance), SOP-BIO-8 (Western Spadefoot Toad), SOP-BIO-9 (Arroyo Toad), SOP-BIO-10 (Desert Tortoise), SOP-BIO-11 (Mojave Fringe-Toed Lizard), SOP-BIO-12 (Western Pond Turtle), SOP-BIO-13 (Southern Rubber Boa), SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), SOP-BIO-19 (Herbicide Application), and SOP-BIO-20 (Jurisdictional Waters Avoidance) (see Section 4.3.5, Standard Operating Procedures) as a means of reducing potential water quality impacts associated with maintenance activities of the proposed program, and to ensure its activities do not result in the loss or impairment of beneficial uses. As discussed in Section 4.8.2, Regulatory Framework, the NPDES-related Construction General Permit specifically exempts routine maintenance activities conducted by utility service providers as long as the original line and grade, hydraulic capacity, or original purpose of the facility is maintained (Water Quality Order 2009-0009-DWQ). The proposed program would thus be exempt from compliance with the Mojave River Watershed Group Construction Site Stormwater Runoff Control Program. Nevertheless, the proposed program includes SOPs to minimize potential impacts from maintenance-related pollutants and erosion.

The following is a discussion of potential water quality impacts associated with the proposed program for the Santa Ana, Lahontan, and Colorado River Basin Regions, respectively. The District has been routinely performing maintenance activities that are considered within the baseline setting under CEQA. However, the initial maintenance effort under this proposed program is expected to be more intense and of longer duration than the current level of maintenance activities due to deferring maintenance while awaiting environmental clearance for discrete maintenance events. Long-term maintenance performed under this proposed program is expected to be a smaller effort than the initial maintenance effort, with a lesser degree of impacts. Additionally, implementation of the Maintenance Plan (see Appendix A of this EIR), which includes a systemic and scheduled approach with a comprehensive guide and SOPs, will ensure that the District's proposed maintenance program has minimal impacts, and will likely be reduced relative to past maintenance activities, with respect to water quality. The bulk of the analysis below for each RWQCB region relates to the water quality impacts of the initial maintenance activities under the proposed program and is, therefore, a conservative analysis of potential impacts.

Santa Ana Region

As indicated in Table 4.8-2, Water Quality Impairments in the Santa Ana Region, the Clean Water Act Section 303(d) water quality impairments in the Santa Ana Region include pH, coliform bacteria, pathogens, nutrients, total suspended solids, cadmium, copper, lead, zinc, mercury, PCBs, and noxious aquatic plants. As described in more detail in this section, the proposed program maintenance activities would not contribute to substantial degradation of surface water quality with respect to the documented water quality impairments in the Santa Ana Region. Maintenance activities would involve clearing excessive sediments, vegetation, debris, and trash from flood control facilities in order to maintain hydraulic capacity in accordance with the proposed program objectives. Although minor incidental spills of petroleum products and hazardous substances from maintenance equipment may occur, such spills would be prevented and controlled through established District SOPs, as listed in Section 4.8.5. Such incidental spills would not contribute to metals concentrations or any other water quality impairments.

Water quality objectives in the Santa Ana Region for total dissolved solids vary from 100 to 700 parts per million (ppm), depending on the water body. Because the majority of the District facilities are located on sandy alluvial soils, storm runoff is generally very turbid. Therefore, turbidity would only be excessive in the event that total dissolved solids concentrations associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach. Potential elevated total dissolved solids concentrations associated with erosion-induced sedimentation of waterways would be minimized through implementation of District SOPs, completion of maintenance work during dry to relatively dry periods, and settling of sediment from runoff in District detention basins. Because pollutants are often adsorbed on sediment particles, settling of sediments from the water column in detention basins would not only result in increased water quality from a turbidity standpoint, but would also result in increased water quality from a pollutant standpoint. As a result, beneficial impacts would occur.

Proposed maintenance activities would not include any activities that would contribute to bacteria or nutrients in surface waters. In addition, pesticides, herbicides, and related surfactants applied to areas of vegetation during maintenance activities would be completed in accordance with the District's Vegetation Management Plan, which complies with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States. The District's Vegetation Management Plan seeks to reduce the amount of herbicides used by using selective herbicides and application techniques, timing applications for maximum effect, avoiding fixed application schedules, using mechanical control techniques where appropriate, and encouraging natural controls.

In addition, these substances would be applied in accordance with the current District Weed Control Aquatic Pesticide Application Plan (Aquatic Pesticide Application Plan; District 2014) and subsequent renewals. As a result, application of these substances would not contribute to

existing surface water impairments in the Santa Ana Region. The proposed maintenance activities would not contribute to the DDT, chlordane, and PCB impairments because those substances have been banned for production and use in the United States.

For these reasons, proposed program maintenance activities would not contribute to further degradation of surface water quality in association with documented water quality impairments in the Santa Ana Region and impacts would be less than significant to beneficial. These issues are described in more detail below by activity type.

Ground-Disturbing Activities (Erosion and Sedimentation)

Proposed ground-disturbing activities that could potentially have short-term adverse effects on water quality include facility slope repairs; clearing of excess sediment (including sandbars), dead vegetation, and trash within and immediately adjacent to facilities; establishment and maintenance of small center channels within channels (i.e., channel centerflow); clearing/grading of existing access roads that have been damaged as a result of erosion and/or vehicle use; and flood control structure repair. In addition, debris and sediment from District facilities would be stockpiled at specific locations for temporary storage and use in repairs. These stockpiles would sometimes be used by sand and gravel operation vendors, who would sort the materials into different size materials and sell the surplus materials. No new construction would occur in association with the proposed program; only maintenance activities for existing facilities would occur. See Table 3-4, Typical Flood Control Maintenance Activities, in Chapter 3 of this EIR for more detailed descriptions of proposed maintenance activities.

Short-term erosion impacts would be considered significant in the event that water quality objectives and standards, as outlined in the Santa Ana Region Basin Plan (Santa Ana RWQCB 2008), are exceeded. Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-1, Beneficial Uses – Santa Ana Region (Region 8).

Short-term increased sediment levels in stormwater runoff may add to existing water quality problems in RWQCB-designated impaired waterways for total suspended solids, such as the San Antonio Creek system (Table 4.8-2), as well as water quality in all other drainages. Suspended matter is primarily generated through erosion processes during rain events. As indicated in the Santa Ana Region Basin Plan, suspended solids are harmful to benthic (bottom-dwelling) organisms and may cause anaerobic (oxygen-poor) conditions to form. Suspended solids can clog fish gills and interfere with respiration in aquatic fauna. Suspended solids also screen out light, hindering photosynthesis and normal aquatic plant growth and development. Sediments also decrease the value of receiving waters for recreational uses and drinking water supplies. In addition, other stormwater pollutants are often adsorbed to (stuck to the outside of) suspended solids, particularly phosphorus, heavy metals, and organic compounds.

Because much of the Santa Ana Region is situated on a sandy alluvial fan (a fan-shaped buildup of earthen materials that form at the base of foothills) generated by high-intensity runoff from the adjacent, steeply inclined San Bernardino Mountains, runoff is naturally highly turbid. Santa Ana Region Basin Plan water quality objectives for total dissolved solids vary from 100 to 700 ppm, depending on the water body. In addition, the water quality objective for turbidity depend on the preexisting natural turbidity levels, but allow for increases of 10%–20%, with the low end of the range applying to clear waters and the high end of the range applying to naturally turbid waters. Therefore, turbidity would only be considered excessive in the event that total dissolved solids concentrations associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach. Potential elevated total dissolved solids concentrations and turbidity associated with erosion-induced sedimentation of waterways would be minimized through District SOPs, completion of maintenance work during dry to relatively dry periods, and settling of sediment from runoff in District detention basins.

The proposed program impacts to previously undisturbed land (i.e., native soils and vegetation) would be minimal, would be geographically dispersed within individual drainages, and would not occur simultaneously. Temporary work areas are located on site to maximize the use of existing roads, street lighting to prevent equipment vandalism and theft, and previously disturbed land. Any new disturbances of native soil and vegetation would be generally confined to what is minimally necessary to perform maintenance activities—areas on the edges of existing roads, turnaround/ turnout areas, and stormwater facility appurtenances. These impacts would be short term and confined primarily to the duration of individual maintenance activities.

Initial maintenance activities would be the most intensive with respect to ground disturbance. Approximately 10% to 20% of District facilities would initially require a substantial amount of ground disturbance. Table 4.8-7 includes a summary of sample proposed program activity sites with large amounts of ground disturbance associated with proposed maintenance activities. See Appendix A for a complete listing of proposed maintenance activities.

Table 4.8-7
Program Activity Sites with Large Amounts of Ground Disturbance – Santa Ana Region

Facility Name and Number	Area or Length of Facility	Facility Bottom Type	Proposed Maintenance Activities	County Flood Control District Watershed	Beneficial Uses*
Cactus Basins No. 1 and 2 (2-104-4A and 2-104-4B)	21,904 square feet	Engineered earth wall and invert	1 to 2 feet of sediment removal; levee grading; erosion and riprap repairs; 75% mechanized work	Rialto	GWR, REC1, REC2, WARM, WILD, RARE, SPWN

Table 4.8-7
Program Activity Sites with Large Amounts of Ground Disturbance – Santa Ana Region

Facility Name and Number	Area or Length of Facility	Facility Bottom Type	Proposed Maintenance Activities	County Flood Control District Watershed	Beneficial Uses*
Riverside Basin (1-604-4A)	14,597 square feet	Engineered earth wall and invert	Concrete repair; access road maintenance and related herbicide application; sediment removal; slope repair; 80% mechanized work	Day Creek/ Etiwanda–San Sevaine	MUN, GWR, REC1, REC2, COLD, WILD, RARE, SPWN
Baseline Basins No. 1, 2, 3 (2-214-4A, 2-214-4B, and 2-214-4C)	11,988 square feet	Engineered earth wall and invert	Slope repair; access road maintenance and related herbicide application; concrete structure repair; vegetation management including disking (85% mechanized); sediment removal/center flowing; stockpile maintenance	Lytle/Cajon Creek	MUN, AGR, IND, PROC, GWR, POW, REC1, REC2, COLD, WILD, RARE
Santa Ana River Spreading Center (3-101-1A)	13,682 square feet	Native (restored)	Access road maintenance and related herbicide application; stockpile maintenance; vegetation management; 100% mechanized work	City Creek/Plunge Creek/Mill Creek	MUN, AGR, GWR, POW, REC1, REC2, COLD, WILD, RARE, SPWN
Santa Ana River Channel Sections (3-101-1A, 3-101-1B, 3-101-1D, 3-101-1E)	Four sections up to 25,189 feet	Native (restored)	Sediment removal and maintenance of a levee access road for 1,800 feet; bridge maintenance; access road maintenance and related herbicide application; variable percentage mechanized work	City Creek/Plunge Creek/Mill Creek	MUN, AGR, GWR, POW, REC1, REC2, COLD, WILD, RARE, SPWN
City Creek Channel (2-603-1A)	23,463 feet	Engineered earth invert	Access road repair and related herbicide application, sediment removal; annual sediment removal; 95% mechanized work	Twin/Warm	MUNI, AGR, GWR, REC1, REC2, COLD, WILD, SPWN

Source: Appendix A.
Note:
* See Table 4.8-1 for explanation of beneficial uses. In addition, beneficial uses listed are representative of large areas, but not necessarily those applicable to individual flood control facilities.

For example, as indicated in Table 4.8-7, proposed maintenance activities for Cactus Basins No. 1 and 2 would include 1 to 2 feet of sediment removal over the 21,904-square-foot engineered earth basin, levee grading, and erosion and riprap repairs. Approximately 75% of the maintenance activities within Cactus Basins 1 and 2 would require mechanized work. The Cactus Basins are located in the Rialto watershed, with beneficial uses for Basin 2 including water contact recreation; non-contact recreation; warm freshwater habitat; cold freshwater habitat; rare, threatened, or endangered species; and spawning, reproduction, and development. Similarly, maintenance activities in City Creek Channel would require 95% mechanized work, including access road repair and annual sediment removal from the 23,463-foot-long flood control channel. This channel is

located in the Twin/Warm Creek watershed, with beneficial uses including municipal and domestic supply, agricultural supply, groundwater recharge, water contact recreation, non-contact recreation, cold freshwater habitat, wildlife habitat, and spawning, reproduction, and development. These high-ground-disturbance sites have a high potential for short-term erosion-induced sedimentation of downstream surface waters, which could adversely impact these beneficial uses. However, because basins and spreading grounds are designed to intercept and infiltrate surface runoff, any erosion or sedimentation from proposed work areas within these areas would not migrate off site to downstream receiving waters because runoff would be captured and sediment would be settled out. As a result, beneficial uses would not be adversely impacted.

During the rainy season, October through April, work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment, thus minimizing the potential for increased erosion-induced sedimentation of waterways. During the dry season, impacts would be minimal due to the lack of runoff and water in the basins. SOP-HYD-1 (Scheduling) provides the District's approach to scheduling work in a manner that minimizes the potential for work to coincide with wet weather.

Subsequent maintenance activities would be similar, but less intensive, because less work would be required with regular maintenance. Subsequent maintenance activities would include periodic regrading of access/maintenance roads and slope repair to promote sheetflow off the roads and over the tops of slope, and would include placement of additional drainage features where drainage problems are observed. These actions would be preventive, to ensure that problems associated with erosion and scour are reduced in subsequent storms.

Although land disturbances can also decrease the infiltration capacity of soils in the work area through compaction of soils from foot traffic, heavy machinery, and equipment laydown, the proposed program would remove accumulated silt that impedes infiltration, maximizing infiltration and minimizing the probability of future transport downstream during high storm flows. In addition, maintenance activities would maintain the hydraulic capacity of existing basins in accordance with proposed program objectives, thus allowing more time for settling of sediments from detained surface flows. As a result, excessive sediments and potential associated pollutants adsorbed onto those sediments would be removed from surface flows, thus increasing the water quality in flows that are discharged farther downstream. Maintaining hydraulic capacity of basins would also reduce the potential for downstream erosive scour, thus protecting downstream structures and public safety. As a result, beneficial erosion-related impacts would occur.

Long-term soil erosion could also occur as a result of inadequate drainage along the tops of basins and drainage channel slopes, and along access roads located adjacent to District facilities. For example, in the event that surface runoff is allowed to flow over the top of slope, erosional rills and gullies could form, most notably in soft, erodible soils. Similarly, in the event that

runoff is not properly directed off adjacent access/maintenance roads, runoff could concentrate within the road, resulting in erosive rilling and gullying. However, proposed maintenance activities are intended to generally eliminate or prevent such rills and gullies caused by accelerated erosion, thereby reducing the amount of sediment entering receiving waters. As discussed in Section 3.5, Program Activities and Schedule, proposed maintenance activities would include facility slope repairs, clearing of excess sediment within and immediately adjacent to facilities, establishment and maintenance of small center channels within channels, clearing/grading of existing access roads that have been damaged as a result of erosion and/or vehicle use, and flood control structure repair. Implementation of such erosion and sediment control measures would therefore result in beneficial long-term impacts.

The goals of the proposed program with regard to erosion control are positively aligned with the water quality objectives contained in the Santa Ana Region Basin Plan, including sedimentation (100 to 700 ppm total dissolved solids) and turbidity (depend on the preexisting natural turbidity levels, but allow for increases of 10%–20%, with the low end of the range applying to clear waters and the high end of the range applying to naturally turbid waters). Turbidity would only be considered excessive in the event that total dissolved solids concentrations associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach. Further, implementation of routine maintenance activities, such as sediment removal, would reduce transport of accumulated sediments and associated pollutants in flood control channels/basins and any sensitive downstream reaches. Implementation of such erosion and sediment control measures would therefore result in beneficial long-term impacts.

The proposed maintenance activities would incorporate SOPs designed to reduce erosion-induced impacts to District drainages. The District would routinely implement standard water quality SOPs, as described in Section 4.8.5. The primary purpose of SOPs is to properly manage maintenance sites in a manner that prevents off-site transport of sediment and debris, and avoids adverse physical impacts on creeks and other waterways.

With regard to erosion, SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) would be implemented during initial proposed program activities, including sediment/vegetation/debris removal, slope grading, access road grading, soil stockpiling, and incidental slope armoring. These SOPs, which would be used in combination rather than exclusively, depending on site-specific conditions (such as topography, receiving water sensitivity, and sediment risk), would minimize erosion-induced sedimentation of creeks and drainages in the vicinity of individual proposed program activities.

In addition to the SOPs described in Section 4.8.5, conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or California Department of Fish and Wildlife (CDFW) with respect to water quality and riparian/aquatic biota would be complied with.

Section 4.3, Biological Resources, addresses impacts to riparian habitat and jurisdictional waters and compensation for habitat losses. The analysis in Section 4.3 is related to this topic in that it is the primary manner in which impacts to habitat and wildlife beneficial uses (i.e., cold freshwater habitat; warm freshwater habitat; and wildlife habitat, spawning, reproduction, and development) are assessed in this EIR. Implementation of SOP-BIO-1 (Least Bell's Vireo), SOP-BIO-2 (Coastal California Gnatcatcher), SOP-BIO-3 (Southwestern Willow Flycatcher), SOP-BIO-4 (Native Fish Avoidance), SOP-BIO-8 (Western Spadefoot Toad), SOP-BIO-9 (Arroyo Toad), SOP-BIO-10 (Desert Tortoise), SOP-BIO-11 (Mojave Fringe-Toed Lizard), SOP-BIO-12 (Western Pond Turtle), SOP-BIO-13 (Southern Rubber Boa), SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), SOP-BIO-19 (Herbicide Application), and SOP-BIO-20 (Jurisdictional Waters Avoidance) (see Section 4.3.5) would avoid and minimize impacts to habitat and wildlife beneficial uses from maintenance activities. Implementation of Mitigation Measure (MM) BIO-3 (Mitigation for Special-Status Plants), MM-BIO-4 (Mitigation for San Bernardino Kangaroo Rat), MM-BIO-5 (Mitigation for Least Bell's Vireo), MM-BIO-6 (Mitigation for Delhi Sands Flower-Loving Fly), MM-BIO-7 (Mitigation for Coastal California Gnatcatcher), MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher), MM-BIO-9 (Mitigation for Tricolored Blackbird), MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region), MM-BIO-11 (Compensation for Special-Status Vegetation Communities in the Mountain Region), MM-BIO-12 (Mitigation for Mohave Ground Squirrel), MM-BIO-13 (Mitigation for Desert Tortoise), MM-BIO-14 (Mitigation for Least Bell's Vireo Habitat in the Desert Region), MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo in the Desert Region), MM-BIO-16 (Mitigation for Mojave River Vole), MM-BIO-17 (Compensation for Special-Status Vegetation Communities in the Desert Region), and MM-BIO-18 (Compensation for Jurisdictional Waters) (see Section 4.3.7, Mitigation Measures) would compensate for losses of habitat such that the proposed program does not result in the loss or impairment of beneficial uses such as cold freshwater habitat; warm freshwater habitat; and wildlife habitat, spawning, reproduction, and development.

Implementation of the aforementioned SOPs, in combination with compliance with conditions identified in the resource agency permits to be issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for ground-disturbing maintenance activities associated with the proposed program to violate any federal, state, or RWQCB standards or waste discharge requirements, such that short-term water quality impacts related to proposed maintenance activities would be less than significant.

In addition, maintenance activities would maintain the hydraulic capacity of existing basins in accordance with proposed program objectives, thus allowing more time for settling of sediments

from detained surface flows. As a result, excessive sediments and potential associated pollutants adsorbed onto those sediments would be removed from surface flows, thus increasing water quality. Maintaining hydraulic capacity of basins would also reduce the potential for downstream erosive scour, thus protecting downstream structures and public safety. With implementation of the District's SOPs and MM-BIO-3 (Mitigation for Special-Status Plants), MM-BIO-4 (Mitigation for San Bernardino Kangaroo Rat), MM-BIO-5 (Mitigation for Least Bell's Vireo), MM-BIO-6 (Mitigation for Delhi Sands Flower-Loving Fly), MM-BIO-7 (Mitigation for Coastal California Gnatcatcher), MM-BIO-8 (Mitigation for Southwestern Willow Flycatcher), MM-BIO-9 (Mitigation for Tricolored Blackbird), MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region), MM-BIO-11 (Compensation for Special-Status Vegetation Communities in the Mountain Region), MM-BIO-12 (Mitigation for Mohave Ground Squirrel), MM-BIO-13 (Mitigation for Desert Tortoise), MM-BIO-14 (Mitigation for Least Bell's Vireo Habitat in the Desert Region), MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo in the Desert Region), MM-BIO-16 (Mitigation for Mojave River Vole), MM-BIO-17 (Compensation for Special-Status Vegetation Communities in the Desert Region), and MM-BIO-18 (Compensation for Jurisdictional Waters), the proposed program would result in less than significant short-term impacts and beneficial long-term impacts to water quality.

Non-Ground-Disturbing Vegetation Management (Fuels, Fluids, Trash, and Other Pollutants)

Use of motor vehicles and motorized equipment during maintenance activities could result in incidental spills of petroleum products and hazardous materials. Materials that could contaminate the maintenance area include diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and maintenance-related trash and debris. Due to the nature of the proposed maintenance activities, only minor quantities of these materials would be required in any one work area along the District's system of flood control facilities. The amount would be the minimum necessary to fuel vehicles, power equipment, and complete maintenance activities. No vehicle fueling or maintenance activities would occur within work areas; rather, these activities would occur off site. However, improper management of hazardous materials could result in accidental spills or leaks, which could locally contaminate the closest surface water body.

Similar to erosion, these impacts would be short term and confined primarily to the duration of individual maintenance activities. Short-term impacts related to fuels, fluids, trash, and other pollutants would be considered significant in the event that water quality objectives and standards, as outlined in the Santa Ana Region Basin Plan (Santa Ana RWQCB 2008) are exceeded. Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-1.

Proposed maintenance activities include SOPs designed to reduce impacts to adjacent drainages related to fuels, fluids, trash, and other pollutants. The District would routinely implement standard water quality SOPs, as described in Section 4.8.5. With regard to

incidental spills of petroleum products and hazardous substances, SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) would be implemented during ground-disturbing activities. The components of these SOPs—which would be used in combination rather than exclusively, depending on site-specific conditions—would minimize incidental spill-related impacts to creeks and drainages near individual proposed program activities.

On average, 30% of flood control facilities are expected to be maintained each year. Some facilities may only require maintenance once every several years following large storm events, whereas others may require maintenance more than once a year.

In addition, the MS4 Permit requires the Permittees to annually evaluate the inspection and maintenance frequency for all portions of their drainage facilities. This evaluation is based on a prioritized list of drainage facilities, considering factors such as proximity to receiving waters, receiving water beneficial uses, beneficial use impairments, historical pollutant types, loads from past inspections/cleanings, and the presence of downstream regional facilities that would remove the types of pollutants found in the drainage facility. In 2016, the District removed approximately 201,000 cubic yards of material from inlets, channels, and basins (County Stormwater Program 2016).

Implementation of the previously mentioned SOPs, in combination with compliance with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for maintenance work area/site management activities associated with the proposed program to violate any federal, state, or RWQCB standards or waste discharge requirements, such that water quality impacts would be less than significant.

Non-Ground-Disturbing Activities (Herbicides and Pesticides)

Non-ground-disturbing activities would include application of pesticides, herbicides, and rodenticides, graffiti removal (which would include paint), and vector control. Vegetation management activities could include application of herbicides and pest control chemicals. If improperly applied, such products could be mobilized and contribute to water quality degradation in receiving waters. Because such activities would occur within and adjacent to creeks and drainages, incidental spills of such substances could adversely impact surface water quality, resulting in potentially significant impacts. These water quality impacts would be considered significant in the event that water quality objectives and standards, as outlined in the Santa Ana Region Basin Plan (Santa Ana RWQCB 2008) are exceeded. Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-1.

As previously discussed, during the rainy season (October through April), work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment,

thus minimizing the potential for increased erosion-induced sedimentation of waterways. During the dry season, impacts would be minimal due to the lack of runoff and water in the basins. SOP-HYD-1 (Scheduling) provides the District's approach to scheduling work in a manner that minimizes the potential for work to coincide with wet weather. As discussed in Section 4.8.2, the proposed program would be exempt from requiring coverage under the Construction General Permit, and preparation and implementation of a SWPPP would not be required by law, provided that such activities remain within the District's existing facilities and right-of-way.

With regard to incidental spills of herbicides and pesticides, components of SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8.5) would be implemented during proposed program activities. With regard to application of herbicides and pesticides during vegetation management, the District's standard practice is to ensure that pesticide and herbicide applications occur under the direction of a professional pesticide applicator with either a Qualified Applicator License or an Agricultural Pest Control Adviser License in California. The District would apply pesticides, herbicides, and related surfactants within its facilities in accordance with the District's Vegetation Management Plan, which complies with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG990005, Order No. 2013-0002-DWQ (Permit), dated 2013. In addition, these substances would be applied in accordance with the 2014 Aquatic Pesticide Application Plan (District 2017).

Also in compliance with SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) and the 2014 Aquatic Pesticide Application Plan (District 2017), label instructions and applicable laws and regulations would be strictly followed in the application of pesticides and herbicides and in the disposal of excess materials and containers. Only those materials registered by EPA for the specific purpose would be authorized for use. Before applying any pesticides or herbicides in parks or on state or federal land, the District would obtain approval from the appropriate agency. Based on these standard practices, use of herbicides and pest control chemicals would occur only where needed and in accordance with applicable laws and regulations requiring licensed professionals to carry out the activity.

Similarly, standard vector control, including use of biopesticides and introduction of mosquito-larva-eating fish, would be conducted by the County Environmental Health Department–Mosquito/Vector Control office in accordance with their established protocol to ensure that riparian vegetation and biota are protected.

The components of SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants)—which would be used in combination rather than exclusively, depending on site-specific conditions (such as topography/vegetation, receiving water sensitivity,

and sediment risk)—would minimize impacts related to incidental spills of hazardous substances, including pesticides, herbicides, and rodenticides, into creeks and drainages in the vicinity of individual proposed program activities. In addition to these SOPs, compliance with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW would include location-specific conditions to adequately protect water quality and riparian/aquatic biota. Implementation of these SOPs and compliance with permit conditions would combine to reduce water quality impacts from non-ground-disturbing activities to less than significant levels.

Lahontan Region

The analysis for the Santa Ana Region is applicable to the Lahontan Region, except as described in the following text. As indicated in Table 4.8-4, Clean Water Act Section 303(d) lists water quality impairments in the Lahontan Region including fluoride, sulfates, total dissolved solids, and nitrate. Water quality objectives for total dissolved solids vary in the San Bernardino County portion of the Lahontan Region depending on location. Water quality objectives in the mountainous areas, such as Sheep Creek and Reach 1 of the Upper Mojave River, are as low as 55 ppm. However, water quality objectives for total dissolved solids are as high as 560 ppm in the lower Reach 4 of the Mojave River, located east of Barstow. Because the majority of the District facilities are located on the sandy alluvial soils of the Desert Region, storm runoff is generally very turbid. Therefore, turbidity would only be excessive in the event that total dissolved solids concentrations associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach.

Proposed maintenance activities would not include any activities that would contribute to fluoride, sulfates, or nitrate in runoff. In addition, pesticides, herbicides, and related surfactants applied to areas of vegetation during maintenance activities would be completed in accordance with the District's Vegetation Management Plan and the 2014 Aquatic Pesticide Application Plan. As a result, application of these substances would not contribute to existing surface water impairments in the Lahontan Region.

For these reasons, proposed program maintenance activities would not contribute to further degradation of surface water quality in association with documented water quality impairments in the Lahontan Region and impacts would be less than significant to beneficial. These issues are described in more detail below by activity.

Ground-Disturbing Activities (Erosion and Sedimentation)

As discussed for the Santa Ana Region, short-term erosion impacts would be considered significant in the event that water quality objectives and standards, as outlined in the Lahontan Region Basin Plan (Lahontan RWQCB 2015), are exceeded. Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-3.

Short-term increased sediment levels in stormwater runoff may add to existing water quality problems in RWQCB-designated impaired waterways for total suspended solids, such as the Middle Mojave River (Table 4.8-4), as well as water quality in all other drainages. Suspended matter is primarily generated through erosion processes during rain events. As indicated in the Lahontan Region Basin Plan, suspended solids are harmful to benthic organisms and may cause anaerobic conditions to form. Suspended solids can clog fish gills and interfere with respiration in aquatic fauna. Suspended solids also screen out light, hindering photosynthesis and normal aquatic plant growth and development. Sediments also decrease the value of receiving waters for recreational uses and drinking water supplies. In addition, other stormwater pollutants are often adsorbed to suspended solids, particularly phosphorus, heavy metals, and organic compounds.

Because much of the Lahontan Region is situated on the sandy alluvial fan and fluvial (river-borne) deposits of the Desert Region, generated by high-intensity runoff from the adjacent, steeply inclined San Bernardino Mountains (as well as desert ranges farther to the west) and monsoonal rains, runoff is naturally highly turbid. Lahontan Region Basin Plan water quality objectives for total dissolved solids vary from 55 to 560 ppm, depending on the water body. In addition, the water quality objectives for turbidity depend on the preexisting natural turbidity levels, but allow for increases of 10%–20%, with the low end of the range applying to clear waters and the high end of the range applying to naturally turbid waters. Therefore, turbidity would only be considered excessive in the event that total dissolved solids concentrations associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach. Potential elevated total dissolved solids concentrations and turbidity associated with erosion-induced sedimentation of waterways would be minimized through implementation of District SOPs (SOP-HYD-1 (Scheduling) SOP-HYD-2 (Vegetation Management), and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), described in full in Section 4.8.5), completion of maintenance work during dry to relatively dry periods, and settling of sediment from runoff in District detention basins.

Proposed program maintenance activities would occur year-round. During monsoon season, storms can occur in July, August, and September. Rainfall can also occur during the normal California rainy season (October through April). During those potentially rainy months, proposed program work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment, thus minimizing the potential for increased erosion-induced sedimentation of waterways.

It is assumed that initial maintenance activities (those not conducted in several years) would be the most intensive with respect to ground disturbance. Approximately 10% to 20% of District facilities would initially require a larger amount of ground disturbance. Table 4.8-8 includes a summary of sample proposed program activity sites with large amounts of ground

disturbance associated with proposed maintenance activities. See Appendix A for a complete listing of proposed maintenance activities.

Table 4.8-8
Program Activity Sites with Large Amounts of Ground Disturbance – Lahontan Region

Facility Name and Number	Area or Length of Facility	Facility Bottom Type	Proposed Maintenance Activities	County Flood Control District Watershed	Beneficial Uses*
Mojave River Channel – Forks Dam (4-101-1C)	26,733 feet	Native (restored) walls and native (undisturbed) invert	Approximately 0.5 miles of levee maintenance and 3 miles of 150-foot center flowing; vegetation management primarily by hand tools	Upper Mojave	MUN, AGR, GWR, REC1, REC2, COMM, WARM, COLD, WILD
Sheep Creek Channel (4-354-1D)	18,382 feet	Engineered earth wall and invert	Access road repair and related herbicide application, sediment removal, bank repair, concrete repair; vegetation management using dozer and excavator; 100% mechanized work	Sheep Creek	MUN, AGR, GWR, REC1, REC2, COMM, WARM, COLD, WILD
Yermo Channel (4-701-1B)	25,105 feet	Engineered earth wall and invert	Access road repair and related herbicide application, sediment removal, bank repair, concrete repair; vegetation management; 25% mechanized work	Lower Mojave	MUN, AGR, GWR, REC1, REC2, COMM, WARM, COLD, WILD

Source: Appendix A.
Note:
* See Table 4.8-3 for explanation of beneficial uses. In addition, beneficial uses listed are representative of large areas, but not necessarily those applicable to individual flood control facilities.

For example, as indicated in Table 4.8-8, proposed maintenance activities for the Mojave River Channel–Forks Dam reach, approximately 0.5 miles of levee maintenance and 3 miles of 150-foot center-flowing channel maintenance would occur. This reach of the Mojave River Channel is located in the Upper Mojave watershed, with beneficial uses including municipal and domestic supply, agricultural supply, groundwater recharge, water contact recreation, non-contact recreation, commercial and sport fishing, warm freshwater habitat, cold freshwater habitat, and wildlife habitat. Similarly, in Sheep Creek Channel, 13,382 feet of access road repair, sediment removal, bank repair, and concrete repair would occur. Vegetation management and other maintenance work would be completed with mechanized equipment. This channel is located in the Sheep Creek watershed, with beneficial uses including municipal and domestic supply, agricultural supply, groundwater recharge, water contact recreation, non-contact recreation, commercial and sport fishing, warm freshwater habitat, cold freshwater habitat, and wildlife habitat. These high-ground-disturbance sites have a high potential for short-term erosion-induced

sedimentation of downstream surface waters and adverse impacts to beneficial uses. Potential impacts would be addressed as described for the Santa Ana Region.

The goals of the proposed program, with regard to erosion control, are positively aligned with the water quality objectives contained in the Lahontan Region Basin Plan, including sedimentation (55 to 560 ppm total dissolved solids), and turbidity (depend on the pre-existing natural turbidity levels, but allow for increases of 10%–20%, with the low end of the range applying to clear waters and the high end of the range applying to naturally turbid waters). Turbidity would only be considered excessive in the event that total dissolved solids concentrations associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach. Further, implementation of routine maintenance activities, such as sediment removal, would reduce transport of accumulated sediments, and associated pollutants, in flood control channels/basins and any sensitive downstream reaches. Implementation of such erosion and sediment control measures would therefore result in beneficial long-term impacts.

Implementation of SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) specified in Section 4.8.5, in combination with compliance with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for ground-disturbing maintenance activities associated with the proposed program to violate any federal, state, or RWQCB standards or waste discharge requirements, such that short-term water quality impacts related to proposed maintenance activities would be less than significant.

In addition, maintenance activities would maintain the hydraulic capacity of existing basins in accordance with proposed program objectives, thus allowing more time for settling of sediments from detained surface flows. As a result, excessive sediments and potential associated pollutants adsorbed onto those sediments would be removed from surface flows, thus increasing water quality. Maintaining hydraulic capacity of basins would also reduce the potential for downstream erosive scour, thus protecting downstream structures and public safety. With implementation of the District's SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) as well as MM-BIO-3 through MM-BIO-18, the proposed program would result in less than significant short-term impacts and beneficial long-term impacts to water quality.

Non-Ground-Disturbing Vegetation Management (Fuels, Fluids, Trash, and Other Pollutants)

As discussed for the Santa Ana Region, use of motor vehicles and motorized equipment during maintenance activities in the Lahontan Region could result in incidental spills of petroleum products and hazardous substances. Similarly, vegetation management activities could include application of herbicides and pest control chemicals. If improperly applied, such products could be mobilized and contribute to water quality degradation in receiving waters.

Similar to erosion, these impacts would be short term and confined primarily to the duration of individual maintenance activities. Short-term impacts related to fuels, fluids, trash, and other pollutants would be considered significant in the event that water quality objectives and standards, as outlined in the Lahontan Region Basin Plan (Lahontan RWQCB 2015), are exceeded. Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-3.

Implementation of SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), in combination with compliance with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for maintenance work area/site management activities associated with the proposed program to violate any federal, state, or RWQCB standards or waste discharge requirements, such that water quality impacts would be less than significant.

Non-Ground-Disturbing Activities (Herbicides and Pesticides)

Non-ground-disturbing activities would include application of pesticides, herbicides, and rodenticides, graffiti removal (which would include paint), and vector control. Because such activities would occur within and adjacent to creeks and drainages, incidental spills of such substances could adversely impact surface water quality, resulting in potentially significant impacts. These water quality impacts would be considered significant in the event that water quality objectives and standards, as outlined in the Lahontan Region Basin Plan (Lahontan RWQCB 2015), are exceeded. Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-3.

Potential impacts would be addressed as described for the Santa Ana Region. SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), in combination with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, includes location-specific conditions to adequately protect water quality and riparian/aquatic biota. Implementation of these SOPs and compliance with permit conditions would combine to reduce non-ground-disturbing water quality impacts to less than significant levels.

Colorado River Basin Region

The impact analysis provided for the Santa Ana Region would be applicable to the Colorado River Basin Region, except where noted. As indicated in Table 4.8-6, there are no water quality impairments in the Colorado River Basin Region. It is unlikely that proposed program maintenance activities would contribute to degradation of surface water quality in the Colorado River Basin Region.

The Needles/Sacramento Wash Watershed, which feeds directly into the Colorado River in the vicinity of Needles, is the only watershed with water quality objectives in the San Bernardino County portion of the Colorado River Basin Region. However, only water quality objectives for salinity are provided; total dissolved solids and other constituents are not provided. Regardless, because the majority of the District facilities are located on the sandy alluvial soils of the Desert Region, storm runoff is generally very turbid. Therefore, turbidity would only be excessive in the event that maintenance activities created turbidity concentrations that were in excess of natural conditions for that particular creek, drainage, or river reach.

Similar to the Santa Ana and Lahontan Regions, potentially elevated total dissolved solids concentrations and turbidity associated with erosion-induced sedimentation of waterways in the Colorado River Basin Region would be minimized through implementation of SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment); completion of maintenance work during dry to relatively dry periods; and settling of sediment from runoff in District detention basins. Because pollutants are often adsorbed on sediment particles, settling of sediments from the water column in detention basins would not only result in increased water quality from a turbidity standpoint, but would also result in increased water quality from a pollutant standpoint. As a result, beneficial impacts would occur.

In addition, pesticides, herbicides, and related surfactants applied to areas of vegetation during maintenance activities would be completed in accordance with the District's Vegetation Management Plan, which complies with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States. In addition, these substances would be applied in accordance with the 2014 Aquatic Pesticide Application Plan. As a result, application of these substances would not contribute to existing surface water impairments in the Colorado River Basin Region.

For these reasons, proposed program maintenance activities would not contribute to further degradation of surface water quality in association with documented water quality impairments in the Colorado River Basin Region and impacts would be less than significant to beneficial. These issues are described in more detail below.

Ground-Disturbing Activities (Erosion and Sedimentation)

Short-term erosion impacts would be considered significant in the event that water quality objectives and standards, as outlined in the Colorado River Basin Region Basin Plan (Colorado River Basin RWQCB 2014), are exceeded. The Basin Plan includes no numeric water quality objectives pertaining to the District watersheds with respect to turbidity and sedimentation.

Short-term increased sediment levels in stormwater runoff may potentially result in adverse water quality impacts. Because much of the Colorado River Basin Region is situated on the sandy alluvial fan and fluvial deposits of the Desert Region, generated by high-intensity runoff from monsoonal rains, runoff is naturally highly turbid. Therefore, turbidity would only be considered excessive in the event that total dissolved solids concentrations and turbidity associated with maintenance activities were in excess of natural conditions for that particular creek, drainage, or river reach.

Proposed program maintenance activities would occur year-round. During monsoon season, storms can occur in July, August, and September. Rainfall can also occur during the normal California rainy season (October through April). During those potentially rainy months, proposed program work would occur only after the wetted portions of a channel or basin are dry enough to safely operate equipment, thus minimizing the potential for increased erosion-induced sedimentation of waterways.

Initial maintenance activities would be the most intensive with respect to ground disturbance. Approximately 10% to 20% of District facilities would initially require a substantial amount of ground disturbance. Table 4.8-9 includes a summary of sample proposed program activity sites with large amounts of ground disturbance associated with proposed maintenance activities. See Appendix A for a complete listing of proposed maintenance activities.

Table 4.8-9
Program Activity Sites with Large Amounts of Ground Disturbance – Colorado River Basin Region

Facility Name and Number	Length of Facility	Facility Bottom Type	Proposed Maintenance Activities	County Flood Control District Watershed	Beneficial Uses*
Yucca Creek Channel (6-451-1C)	13,181 feet	Engineered earth wall and invert	Access road repair and related herbicide application; sediment removal; stockpile maintenance; bank repair; concrete repair; vegetation management (50% mechanized)	Yucca Creek	MUN, FRSH, GWR, REC1, REC2, WARM, WILD, RARE
Little Morongo Creek Channel	6,685 feet	Engineered earth wall and invert	Access road repair and related herbicide application; sediment removal with dozer; bank repair;	Little Morongo Creek	MUN, AGR, GWR, REC1, REC2, WARM, WILD

Table 4.8-9
Program Activity Sites with Large Amounts of Ground Disturbance – Colorado River Basin Region

Facility Name and Number	Length of Facility	Facility Bottom Type	Proposed Maintenance Activities	County Flood Control District Watershed	Beneficial Uses*
(6-501-1A)			vegetation management (50% mechanized)		

Source: Appendix A.
Note:
* See Table 4.8-5 for explanation of beneficial uses.

For example, as indicated in Table 4.8-9, proposed maintenance activities for Yucca Creek Channel would include 13,181 linear feet of access road repair, sediment removal, stockpile management, bank repair, concrete repair, and vegetation management. This channel is located in the Yucca Creek watershed, with beneficial uses including municipal and domestic supply, freshwater replenishment, groundwater recharge, water contact recreation, non-contact recreation, warm freshwater habitat, wildlife habitat, and rare, threatened, or endangered species. Similarly, maintenance activities in Little Morongo Creek Channel would include 6,685 linear feet of access road repair, sediment removal, bank repair, and vegetation management. This channel is located in the Little Morongo Creek Watershed, with beneficial uses including municipal and domestic supply, agricultural supply, groundwater recharge, water contact recreation, non-contact recreation, warm freshwater habitat, and wildlife habitat. Approximately 50% of the maintenance activities at both facilities would be completed with mechanized equipment. These high-ground-disturbance sites have an elevated potential for short-term erosion-induced sedimentation of downstream surface waters and associated adverse impacts to beneficial uses relative to routine maintenance. Potential impacts would be addressed as described for the Santa Ana Region.

Implementation of SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), in combination with compliance with applicable conditions identified in the resource agency permits to be issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for ground-disturbing maintenance activities associated with the proposed program to violate any federal, state, or RWQCB standards or waste discharge requirements, such that short-term water quality impacts related to proposed maintenance activities would be less than significant.

In addition, maintenance activities would maintain the hydraulic capacity of existing basins in accordance with proposed project objectives, thus allowing more time for settling of sediments from detained surface flows. As a result, beneficial water quality impacts would occur.

Non-Ground-Disturbing Vegetation Management (Fuels, Fluids, Trash, and Other Pollutants)

As discussed for the Santa Ana and Lahontan Regions, use of motor vehicles and motorized equipment during maintenance activities could result in incidental spills of petroleum products and hazardous substances. Improper management of hazardous materials could result in accidental spills or leaks, which could locally contaminate the closest surface water body. Similarly, vegetation management activities could include application of herbicides and pest control chemicals. If improperly applied, such products could be mobilized and contribute to water quality degradation in receiving waters. Short-term impacts related to fuels, fluids, trash, and other pollutants would be considered significant in the event that beneficial uses are adversely impacted, as outlined in the Colorado River Basin Region Basin Plan (Colorado River Basin RWQCB 2014). Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-5. Potential impacts would be addressed as described for the Santa Ana Region.

Implementation of SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), in combination with compliance with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for maintenance work area/site management activities associated with the proposed program to violate any federal, state, or RWQCB standards or waste discharge requirements, such that water quality impacts would be less than significant.

Non-Ground-Disturbing Activities (Herbicides and Pesticides)

Non-ground-disturbing activities would include application of pesticides, herbicides, and rodenticides, graffiti removal (which would include paint), and vector control. Because such activities would occur within and adjacent to creeks and drainages, incidental spills of such substances could adversely impact surface water quality, resulting in potentially significant impacts. These water quality impacts would be considered significant in the event that beneficial uses are adversely impacted, as outlined in the Colorado River Basin Region Basin Plan (Colorado River Basin RWQCB 2014). Beneficial uses that could be affected by proposed program maintenance activities are indicated in Table 4.8-5. Impacts would be addressed as described for the Santa Ana Region.

SOP-HYD-1 (Scheduling) and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), in combination with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, includes location-specific conditions to adequately protect water quality and riparian/aquatic biota, such that non-ground-disturbing water quality impacts would be less than significant.

Impact HYD-3

Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?

All RWQCB Regions in Program Area

The following analysis regarding potential alteration of drainages is applicable to the RWQCB Santa Ana, Lahontan, and Colorado River Basin Regions, as the types of drainage facilities are generally not unique to each region. Impacts are described collectively for all RWQCB Regions because the analysis is the same for each region.

Ground-Disturbing Activities

Proposed maintenance activities are primarily related to the maintenance of various flood control channels, basins, and earthen levees and dams to ensure flood protection and allow District facilities to function at their current/designed capacity. These activities would not substantially alter the existing drainage pattern because detention/recharge basins and flood control channels would include only minor alterations to update facilities to current standards or to increase stability. The facilities would be cleared of vegetation, debris, sandbars, and eroded sediments, and repairs would be made to earthen slopes and concrete/riprap walls. However, surface flow velocities would slightly increase as a result of vegetation and sediment removal in some facilities, because the vegetation currently acts as a flow velocity inhibitor, which allows more water to percolate into on-site soils due to decreased runoff velocities. Flow velocities would be higher following maintenance activities, increasing the sediment transport capabilities and thus reducing potential backfill of the facility with sediment. The removal of the velocity-inhibiting vegetation, debris, sandbars, and eroded sediments would result in localized, incidental hydraulic impacts to the drainage facilities.

Smoothing and compacting slopes of engineered earth facilities during basin and drainage ditch slope repairs could also slightly increase the velocity of surface flows. This reduction in roughness of the channel bed would be localized and inconsequential because channels with excessive sediment deposition typically have low roughness due to accumulation of coarse and fine sediments. In addition, bank repairs would include incidental placement of riprap or rock gabions that experience frequent erosion, resulting in high frequency of maintenance. Riprap repair would include repositioning or replacement of incidental riprap to stabilize the slopes. Bank repair would also include the repair of grouted and ungrouted sections of rock, as well as repair or replacement of steel revetments with more revetment or riprap rock.

Repair or replacement of existing sections of rock or steel revetments would not result in increased runoff velocities, because there would be no increase in hard surfaces over existing conditions. However, incidental repair of existing soft banks with riprap could result in erosion-related impacts immediately downstream of the maintenance area. Riprap is effective in increasing roughness and thus decreasing water velocity across the armored section. However, there can be increased scour at the toe and ends of the riprap, which in turn could result in short-term erosion-induced sedimentation of downstream waters.

In the event that smooth creek armoring is completed in previous soft bank areas, increased runoff velocities would occur. Erosion resulting from increased runoff velocities could result in rilling/gullying of soils, which in turn could undermine the stability of slopes, creating localized oversteepened slopes and lateral channel expansion. In a worst-case scenario, especially in a narrow channel, erosion of non-cohesive channel bed material could lower the channel bed, resulting in oversteepened banks that could fail and threaten critical public infrastructure or adjacent privately owned structures. The occurrence and magnitude of this potential impact would be dependent on the relevant amount of vegetation removed compared to existing conditions, the depth of non-cohesive materials underlying the drainage, and the amount of surface flow. However, drainage features would be repaired to prevent surface runoff from overtopping banks, resulting in erosive rilling and gullying of slopes. In addition, access roads would be graded such that rilling and gullying would be minimized.

Increased erosion would also result in downstream sedimentation of creeks and drainages. Increased downstream sedimentation could exacerbate water bodies already impaired with high total dissolved solids, such as the Big Bear/Headwaters reach of the Santa Ana River and Sheep Creek and the Middle Reach of the Mojave River (see Table 4.8-2). Erosion-induced siltation of downstream creeks and drainages could also result in downstream flooding associated with reduced drainage capacity. However, implementation of SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), and SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), in combination with compliance with conditions identified in the resource agency permits issued by the USACE, RWQCB, and/or CDFW, would reduce the potential for ground-disturbing maintenance activities associated with the proposed program to increase erosion-induced siltation of downstream waterways and violate any federal, state, or RWQCB standards or waste discharge requirements, such that short-term water quality impacts related to proposed maintenance activities would be less than significant.

In the event that large quantities of loose sediment or stockpiled soil are exposed to increased runoff velocities, mudflows could form, potentially causing downstream damage to structures. However, long-term erosional impacts would be partially offset by long-term stabilization of loose soil that has accumulated within the drainage facilities and would be removed as part of ongoing maintenance activities. In accordance with SOP-HYD-3 (Minimization of Controllable Discharge of Sediment),

no temporary stockpiles would be placed on the channel bed or banks from October through April for more than the duration of the sediment removal work. Temporary stockpiles in the channel bottom would be for not longer than one working day and not overnight. Permanent stockpiles would be located landward of the 100-year floodplain to the maximum extent feasible. These measures would minimize downstream erosion-induced siltation and prevent mudflows during average precipitation events and 2-year through 100-year flood events.

In addition, as described in Impact HYD-1, the goals of the proposed program with regard to erosion control are positively aligned with the water quality objectives contained in the RWQCB Basin Plans, particularly with regard to turbidity and sedimentation. In addition to maintaining drainage features to prevent erosive rilling and gullying, proposed maintenance activities would also include establishment and maintenance of a channel centerflow. These drainage features would convey and guide low-volume storm and dry weather (urban runoff) flows within the center of earthen channels to keep flows away from channel banks, thus reducing erosion. The centerflow channel would generally represent a width up to 20% to 50% of the channel, and approximately 2 to 3 feet deep. Channel inverts and basin bottoms would be graded to properly convey flows downstream, thus reducing erosion. Silt and clay would be removed from basin bottoms and the remaining soil would be disked or broken up with other machinery, thus maintaining groundwater recharge, slowing runoff velocities, and reducing erosion. Implementation of such erosion and sediment control measures would therefore result in beneficial long-term impacts.

As discussed in Section 4.8.2, the proposed program would be exempt from requiring coverage under the Construction General Permit, and preparation and implementation of a SWPPP would not be required by law because there would be no new construction under the proposed program and maintenance activities would remain within the District's existing facilities and right-of-way. Although the Construction General Permit would not apply to the proposed program, potential short-term erosion-related impacts would be addressed through erosion and sediment control features proposed as part of maintenance activities, including the components of SOP-HYD-3 (Minimization of Controllable Discharge of Sediment). Incorporation of SOP-HYD-3 into proposed program maintenance activities would result in less than significant erosion-related impacts associated with increased surface flows.

Non-Ground-Disturbing Vegetation Management and Other Non-Ground-Disturbing Activities

Non-ground-disturbing vegetation management and other non-ground-disturbing activities are addressed together, because impacts would be the similar with respect to water quality. Non-ground-disturbing activities, including vegetation management, would include application of pesticides, herbicides, and rodenticides, graffiti removal (which would include paint), and vector control. Application of pesticides and herbicides would have no impact on drainage patterns and associated

potential erosion because the root systems of the vegetation would remain undisturbed and the ground surface would be unaffected. Similarly, all other non-ground-disturbing activities would have no impact on soils and drainage.

Impact HYD-4

Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

All RWQCB Regions in Program Area

The following analysis regarding potential alteration of drainages is applicable to the RWQCB Santa Ana, Lahontan, and Colorado River Basin regions, as the types of drainage facilities are generally not unique to each region. Impacts associated potential increased rate/amount of surface runoff or on- or off-site flooding, due to alteration of existing drainage patterns, would generally be the same for each region.

Ground-Disturbing Activities

As discussed under Impact HYD-3, surface flow velocities would increase as a result of vegetation and sediment removal because the vegetation currently acts as a flow velocity inhibitor, which allows more water to percolate into on-site soils due to decreased runoff velocities. In addition, compacting slopes of engineered earth facilities and localized slope armoring during basin and drainage ditch slope repairs could also slightly increase the velocity of surface flows. This increased runoff would potentially result in downstream flooding impacts, including an increase in overbank flood hazard conditions, which in turn could result in damage to life and property.

Implementation of SOP-HYD-2 (Vegetation Management) would minimize vegetation removal to the extent feasible, which would contribute to minimizing increased surface runoff as a result of maintenance activities. More importantly, increased runoff would be offset by the increased capacity of the drainage facilities following sediment removal, because greater capacity would accommodate the increased flow volumes. As-built drawings are available for a substantial number of facilities but not all facilities; therefore, LIDAR data were gathered over large areas of the County and the data are being used to support baseline conditions in the District's facilities. LIDAR is a survey technology that measures distances and topographical changes using laser light. This strategy of applying LIDAR to arrive at as-built design conditions was implemented in coordination with state and federal resource agency staff. However, post-maintenance conditions would approximate original design conditions, including a general lack of vegetation and sediment accumulation within the facilities, resulting in overall beneficial impacts.

Non-Ground-Disturbing Vegetation Management and Other Non-Ground-Disturbing Activities

Non-ground-disturbing activities would include application of pesticides, herbicides, and rodenticides; graffiti removal (which would include paint); and vector control. Application of pesticides and herbicides would have no impact on drainage patterns, runoff velocities, or runoff volumes because the root system of the vegetation would remain undisturbed and the ground surface would be unaffected. Similarly, all other non-ground-disturbing activities would have no impact on soils and drainage.

Impact HYD-6

Would the program otherwise substantially degrade water quality?

All RWQCB Regions in Program Area

The following analysis regarding other potential impacts is applicable to the RWQCB Santa Ana, Lahontan, and Colorado River Basin regions, because the types of drainage facilities are generally not unique to each region. Impacts associated potential downstream deprivation of sand as a result of detention/debris basins would generally be the same for each region.

All Program Activities

As discussed under Impact HYD-3, maintenance activities would maintain the hydraulic capacity of existing basins in accordance with proposed program objectives, thus allowing more time for settling of sediments from detained surface flows. As a result, excessive sediments and potential associated pollutants adsorbed onto those sediments would be removed from surface flows, thus increasing water quality. Maintaining hydraulic capacity of basins would also reduce the potential for downstream erosive scour, thus protecting downstream structures and public safety. As a result, beneficial erosion-related impacts would occur.

However, an indirect impact related to those beneficial water quality impacts would be downstream deprivation of sand due to removal of sediment from detention and debris basins. Basin maintenance consists of periodic desilting of the basins, or if accumulated sediment or debris impairs the hydraulic capacity of the facility. Urban streams typically have a reduced sediment supply due to paving of surfaces in the watershed and the presence of flood control facilities, such as detention/debris basins. The periodic removal of sediments from the basins contributes to the ongoing reduction in sediment supply to the maintained drainages in the County. Reduced sediment supply can result in channel degradation over time.

The magnitude of this impact would not be significant because these basins have been in place for several decades on most of the affected drainages, allowing time for downstream reaches to adjust to

reduced sediment supply during non-flood years. Because the basins are already in place and reducing the amount of sediment that flows downstream, proposed program impacts would only be in relation to the incremental difference in existing conditions versus post-maintenance conditions. In addition, the basins are designed to only allow low to medium flows with sediments to pass downstream, thus minimizing the potential for downstream erosive scour and channel degradation associated with high-intensity flows. As a result, impacts would be less than significant.

4.8.7 Mitigation Measures

The proposed program has the potential to result in impacts to beneficial uses of cold freshwater habitat; warm freshwater habitat; and wildlife habitat, spawning, reproduction, and development as defined in the respective RWQCB Basin Plan. MM-BIO-3 through MM-BIO-18 (see Section 4.3, Biological Resources), although intended to reduce impacts on biological resources from District activities under the proposed program, would also reduce potential impacts to these beneficial uses related to wildlife and habitat. Many of the mitigation measures described below culminate in the preservation of habitat throughout the proposed program area that can be used by both terrestrial and aquatic wildlife species. These measures would result in no net loss of habitat and would result in a less than significant impact on beneficial uses for wildlife and habitat. Impacts relative to other water quality standards or waste discharge requirements from implementation of the proposed program would be less than significant; therefore, no additional mitigation measures are required.

- **MM-BIO-3** (Mitigation for Special-Status Plants)
- **MM-BIO-4** (Mitigation for San Bernardino Kangaroo Rat)
- **MM-BIO-5** (Mitigation for Least Bell's Vireo)
- **MM-BIO-6** (Mitigation for Delhi Sands Flower-Loving Fly)
- **MM-BIO-7** (Mitigation for Coastal California Gnatcatcher)
- **MM-BIO-8** (Mitigation for Southwestern Willow Flycatcher)
- **MM-BIO-9** (Mitigation for Tricolored Blackbird)
- **MM-BIO-10** (Compensation for Special-Status Vegetation Communities in the Valley)
- **MM-BIO-11** (Compensation for Special-Status Vegetation Communities in the Mountain Region)
- **MM-BIO-12** (Mitigation for Mohave Ground Squirrel)
- **MM-BIO-13** (Mitigation for Desert Tortoise)
- **MM-BIO-14** (Mitigation for Least Bell's Vireo Habitat in the Desert Region)

- **MM-BIO-15** (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo in the Desert Region)
- **MM-BIO-16** (Mitigation for Mojave River Vole)
- **MM-BIO-17** (Compensation for Special-Status Vegetation Communities in the Desert Region)
- **MM-BIO-18** (Compensation for Jurisdictional Waters)

4.8.8 Level of Significance After Mitigation

In addition to District standard practices SOP-HYD-1 through SOP-HYD-4 and SOP-BIO-1 through SOP-BIO-4, SOP-BIO-8 through SOP-BIO-14, SOP-BIO-19, and SOP-BIO-20 (see Section 4.3.5), implementation of MM-BIO-3 through MM-BIO-18 would reduce impacts relating to water quality standards or waste discharge requirements to less than significant. Table 4.8-10 summarizes the impacts for proposed activities under each impact threshold analyzed in this EIR section.

Table 4.8-10
Hydrology and Water Quality Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HYD-1: Would the program violate any water quality standards or waste discharge requirements?				
Ground-Disturbing Activities	SOP-HYD-1 through SOP-HYD-4 SOP-BIO-1 through SOP-BIO-4 SOP-BIO-8 through SOP-BIO-14 SOP-BIO-19 SOP-BIO-20	Significant	MM-BIO-3 through MM-BIO-18	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-HYD-1 SOP-HYD-4	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-HYD-1 SOP-HYD-4	Less than significant	—	Less than significant
Impact HYD-3: Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?				
Ground-Disturbing Activities	SOP-HYD-1 through SOP-HYD-3	Less than significant	—	Less than significant

Table 4.8-10
Hydrology and Water Quality Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	No impact	—	No impact
Impact HYD-4: Would the program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				
Ground-Disturbing Activities	SOP-HYD-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	—	No impact	—	No impact
Non-Ground-Disturbing Activities	—	No impact	—	No impact
Impact HYD-6: Would the program otherwise substantially degrade water quality?				
All Program Activities	—	Less than significant	—	Less than significant

4.8.9 Cumulative Impacts

Maintenance activities associated with the proposed program would result in no impact, less than significant impacts, or less than significant impacts after mitigation on hydrology and water quality. The geographic scope of cumulative effects on hydrology and water quality is the watersheds in the proposed program area. The temporal scope is limited to the implementation of proposed maintenance activities. This section addresses both water quality impacts and hydrologic impacts.

Water Quality

With respect to short-term water quality impacts, Table 4.8-2, Table 4.8-4, and Table 4.8-6 identify the water quality impairments to regional waterways that have resulted from the cumulative effects of past projects. In general, the primary water quality issues in the region include excessive concentrations of nutrients, heavy metals, and PCBs and high bacteria and pathogen counts. As discussed in Section 4.8.6 (Impacts Analysis), the potential water quality concerns of the proposed program are limited to sediment, total suspended solids, and possible pollutant sources associated with maintenance equipment and materials staging (e.g., fuels). With the possible exception of heavy metals and total dissolved solids, the proposed program would not contribute to regional water quality impairments and thus to cumulative impacts associated with those pollutants.

With regard to the proposed program's potential effects on total dissolved solids, heavy metals, and/or fuels, the proposed program, along with other projects occurring within the same

watersheds, would be required to comply with applicable federal, state, and local water quality regulations. Other projects that would have the highest potential to contribute to cumulative water quality impacts include projects located within the same primary waterways (i.e., Mojave River, Santa Ana River, and other major tributary creeks) that include a substantial amount of ground disturbance. Examples of cumulative projects with potentially the most water quality impacts include the Harmony Specific Plan, Renaissance Specific Plan, Pepper Avenue Specific Plan, and North Eastern Sphere Annexation Proposal (NESAP), as summarized below.

Harmony Specific Plan

Development in association with the Harmony Specific Plan would be a master-planned residential community in the City of Highland. The specific plan would include 658 acres of residential land use, 5.7 acres of commercial land use, and additional acreage to support construction of a school, fire station, water supply infrastructure, and wastewater supply infrastructure. A conceptual water quality management plan (WQMP) has been prepared for the Harmony Specific Plan that defines requirements and options for treatment of surface runoff in compliance with requirements of the City of Highland. To mitigate potential impacts, the conceptual WQMP prescribes a variety of facilities to provide incremental removal of urban pollutants. The project applicant will also comply with the requirements of the NPDES permit, including incorporation of BMPs to control discharges of pollutants into receiving waters. Projects included in the specific plan will also incorporate post-construction LID implementation and site design BMPs, as well as treatment control BMPs to treat pollutants of concern, consistent with the County Stormwater Program's WQMP Technical Guidance (County Stormwater Program 2011b). Incorporation of these water quality control features would reduce adverse water quality impacts such that the project would not make a considerably cumulative contribution to significant water-quality-related impacts.

Renaissance Specific Plan

The Renaissance Specific Plan is designed as a master-planned community on 1,439 acres in the City of Rialto, which would include a variety of logistics, employment, business, and shopping, as well as residential and community facilities, that are integrated by open spaces and amenities. The specific plan would include a conceptual drainage plan with on-site water quality treatment requirements for the parcels designated as Business Center, General Commercial, Corporate Center, and Freeway Commercial. The project applicant will comply with the requirements of the project-specific NPDES permits, including incorporation of BMPs to control discharges of pollutants into receiving waters. Projects included in the specific plan will also incorporate post-construction LID implementation and site design BMPs, as well as treatment control BMPs to treat pollutants of concern, consistent with the County Stormwater Program's WQMP Technical Guidance (County Stormwater Program 2011b).

In addition, as discussed in Section 4.8.2, on January 29, 2010, the Santa Ana RWQCB adopted Order No. R8-2010-0036 for NPDES Permit No. CAS618036 for the consortium of the District, the County, and the incorporated cities of San Bernardino County located within the Santa Ana Region (San Bernardino County MS4 Permit), including the City of Rialto. The MS4 Permit includes the Monitoring and Reporting Program, which requires the District, as principal Permittee for the County Stormwater Program, to administer and conduct the activities required by the Monitoring and Reporting Program. One of the programs included in the Monitoring and Reporting Program is an Integrated Watershed Monitoring Program. One of the objectives of the Integrated Watershed Monitoring Program is to provide data to support the development of an effective watershed monitoring plan and a focused environmental resources management program that is directing resources on the priority pollutants of concern (County Stormwater Program 2011a). Data obtained under the Integrated Watershed Monitoring Program are presented to the Santa Ana RWQCB in the MS4 Permit Annual Reports.

Incorporation of these water quality control features would reduce adverse stormwater runoff and water quality impacts such that the project would not make a considerably cumulative contribution to significant water-quality-related impacts.

Pepper Avenue Specific Plan

The Pepper Avenue Specific Plan pertains to development of a 101-acre primarily vacant property in the City of Rialto that would include retail uses, business park uses, and up to 275 multifamily dwelling units. No conceptual drainage plan or water quality control plan has been proposed specifically for the property (City of Rialto 2017). In addition, the City of Rialto General Plan (City of Rialto 2010) does not provide guidance or policies specific to drainage and water quality. However, the applicant will comply with the requirements of the project-specific NPDES permits, including incorporation of BMPs to control discharges of pollutants into receiving waters. Projects included in the specific plan will also incorporate post-construction LID implementation and site design BMPs, as well as treatment control BMPs to treat pollutants of concern, consistent with the County Stormwater Program's WQMP Technical Guidance.

In addition, as previously discussed for the Renaissance Specific Plan, the Santa Ana RWQCB adopted NPDES Permit No. CAS618036 for the San Bernardino County MS4 Permit, including the City of Rialto. This NPDES permit includes the Monitoring and Reporting Program, which requires the District, as principal Permittee for the County Stormwater Program, to administer and conduct the activities required by the Monitoring and Reporting Program. Data obtained under the Integrated Watershed Monitoring Program are presented to the Santa Ana RWQCB in the MS4 Permit Annual Reports. Compliance with these NPDES permits and watershed monitoring program would reduce adverse water quality impacts such that the project would not make a considerably cumulative contribution to significant water-quality-related impacts.

North Eastern Sphere Annexation Proposal

The NESAP area contains a total of approximately 4,300 acres in the County that would be annexed by the City of Rancho Cucamonga. Initial design considerations maintain the northern approximately 3,000 acres as a conservation priority area, with approximately 1,200 acres of development priority area in the southern portion, generally located between Milliken Avenue and Day Creek Avenue, north of Banyan Street. As discussed for the Renaissance Specific Plan, the Santa Ana RWQCB adopted NPDES Permit No. CAS618036 for the San Bernardino County MS4 Permit, including the City of Rancho Cucamonga. In addition, a project-specific NPDES permit, including a SWPPP and associated BMPs, would be implemented in association with development under the NESAP. Compliance with these NPDES permits and watershed monitoring program would reduce adverse water quality impacts such that the project would not make a considerably cumulative contribution to significant water-quality-related impacts.

District Projects

Cumulative District projects, such as the proposed Oaks Hills and Bandicoot Basin Project and the proposed Desert Knolls Wash Phase III Flood Control Improvement Project, would contribute to cumulative water quality impacts, because these projects would occur within the same drainages as the proposed program's maintenance activities. More specifically, the following projects would potentially contribute to cumulative hydrologic and water quality impacts to the High Desert/Mojave River Watershed and Valley/Santa Ana River Watershed, respectively:

- High Desert/Mojave River Watershed
    - Bandicoot Basin (Hesperia)
    - Oak Hills Basin (Hesperia)
    - Desert Knolls (Apple Valley)
    - Amethyst Basin (Victorville)
    - Seneca Basin (Victorville)
- Valley/Santa Ana River Watershed
    - San Creek/Warm Creek Confluence
    - West Fontana Chanel
    - Hawker Crawford Channel
    - Grove Basin
    - Carbon Canyon
    - Cactus Basins Nos. 3, 4, and 5

- Elder Creek
- Plunge Creek
- Rialto Channel
- West State Street Storm Drain
- Etiwanda Channel Invert Repair
- Santa Ana River Flood Wall Repair
- Twin Creek Basin

Although the proposed program would be exempt from an NPDES Construction General Permit, the program would comply with SOPs outlined in Section 4.8.5. The Construction General Permit, along with other general permits and individual (i.e., discharger-specific) NPDES/waste discharge requirement permits are among regulatory tools used by the SWRCB and RWQCBs to prevent and/or alleviate the region's cumulative water quality problems. The various NPDES permits required are aimed at maintaining the beneficial uses of the water bodies in the California RWQCB Basin Plans for the Santa Ana, Lahontan, and Colorado River Basin Regions, as well as meeting water quality objectives associated with specific pollutants of concern. Other cumulative projects downstream or upstream of the proposed program area that are more than 1 acre in size and are located in proposed program watersheds would be required to obtain coverage under the NPDES Construction General Permit. The Construction General Permit requires project proponents to identify and implement stormwater best practices that effectively control erosion and sedimentation and other maintenance activity-related pollutants, minimizing the cumulative impacts of other projects in the cumulative scenario.

As described further in the impact analysis, the SOPs outlined in Section 4.8.5 are targeted measures specific to and appropriate to the District's maintenance activities that achieve at least a similar outcome as compliance with the Construction General Permit in substantially reducing pollutant loads. Given compliance with NPDES permit conditions on projects within the same watersheds as the proposed program, in combination with District standard practices SOP-HYD-1 through SOP-HYD-4 (see Section 4.8.5) and SOP-BIO-1 through SOP-BIO-4, SOP-BIO-8 through SOP-BIO-14, SOP-BIO-19, and SOP-BIO-20 (see Section 4.3.5), and implementation of MM-BIO-3 through MM-BIO-18 (see Section 4.3.7), short-term and long-term water quality impacts would not be cumulatively considerable.

Hydrology and Flooding

As discussed under Impacts HYD-3 and HYD-4, post-maintenance surface water flow velocities would increase as a result of vegetation and sediment removal, because the vegetation currently acts as a flow velocity inhibitor, which allows more water to percolate into on-site soils due to

decreased runoff velocities. Smoothing and compacting slopes of engineered earth facilities during basin and drainage ditch slope repairs could also slightly increase the velocity of surface flows. Localized impermeable surfaces would be constructed as part of the proposed program in association with bank repair/armoring.

Potential flooding impacts would be partially offset by the increased capacity of the proposed program drainage facilities following sediment removal, because greater capacity could accommodate the increased flow volumes. As-built drawings are not available for many of the older facilities; therefore, LIDAR data that provide cross-sectional data of District facilities, along with existing as-built data, were used to provide a baseline for capacity. LIDAR data were generated by flights within the Santa Ana River and Mojave River watersheds. Application of LIDAR for establishing baseline conditions was coordinated with state and federal resource agency personnel. Available as-built designs further substantiate baseline conditions. Proposed maintenance activities would result in facilities approximating original design conditions, thus maximizing hydraulic capacities, maintaining hydraulic flow conditions, and reducing flooding and associated erosive scour. Therefore, overall environmental impacts would be beneficial. In the long term, the proposed program would not have a significant contribution to cumulatively considerable flooding impacts, because its long-term effects in this regard would be beneficial.

Downstream or upstream cumulative projects located in proposed program watersheds could similarly increase runoff as a result of increased impermeable surfaces. The cumulative effect would be that peak flows within the watershed drainages would be greater in magnitude, shorter in duration, and more responsive to storm events, because a greater portion of precipitation is carried by surface runoff rather than percolated into the soil. As previously discussed, examples of cumulative projects with potentially the most drainage-related impacts include the Harmony Specific Plan, Renaissance Specific Plan, Pepper Avenue Specific Plan, and NESAP, as summarized below.

Harmony Specific Plan

A comprehensive drainage system has been included in the specific plan to prevent flooding and protect property. A portion of the natural runoff upslope of the project area would bypass the project site in a separate storm drain system that would flow directly to the adjacent Mill Creek. The remaining project runoff would be conveyed in a separate storm drain system to the adjacent Santa Ana River and Mill Creek. Incorporation of this proposed drainage system would reduce stormwater runoff impacts such that the project would not make a considerably cumulative contribution to significant hydrology-related impacts.

Renaissance Specific Plan

The project would include construction of four major storm drain systems, which include detention basins to limit maximum 100-year outflow. Incorporation of these storm drain systems would reduce adverse stormwater runoff impacts such that the project would not make a considerably cumulative contribution to significant drainage-related impacts.

Pepper Avenue Specific Plan

No conceptual drainage plan has been proposed specifically for the specific plan property (City of Rialto 2017). In addition, the City of Rialto General Plan (City of Rialto 2010) does not provide guidance or policies specific to drainage. However, project-specific hydrology studies are required for development projects in the City of Rialto. Project-specific hydrology studies would determine existing and post-construction 100-year peak flow rates and would recommend stormwater detention if necessary, such that post-construction runoff would be equal to or less than existing conditions. The San Bernardino County Rational Method program and San Bernardino County Hydrology Manual (County of San Bernardino 1986, 2010) are used for hydrology calculations. Project drainage design in accordance with the San Bernardino County Hydrology Manual would reduce adverse drainage-related impacts such that the project would not make a considerably cumulative contribution to significant hydrology-related impacts.

North Eastern Sphere Annexation Proposal

A conceptual drainage plan has not been prepared for the proposed NESAP area; however, the City of Rancho Cucamonga General Plan, Public Facilities and Infrastructure Element (City of Rancho Cucamonga 2010) indicates that the City of Rancho Cucamonga and the District coordinate the preparation of drainage plans and review development projects using design criteria established by the District. Similar to the two existing master drainage plans for the east and west portions of the community, the NESAP would likely incorporate a master drainage plan for the NESAP area. The City of Rancho Cucamonga's drainage plans provide a drainage system consisting of regional mainline, secondary regional, and master plan facilities that would adequately convey a 100-year storm event. Implementation of a NESAP master drainage design, similar to the existing city master drainage plans, would reduce adverse drainage-related impacts such that the NESAP would not make a considerably cumulative contribution to significant hydrology-related impacts.

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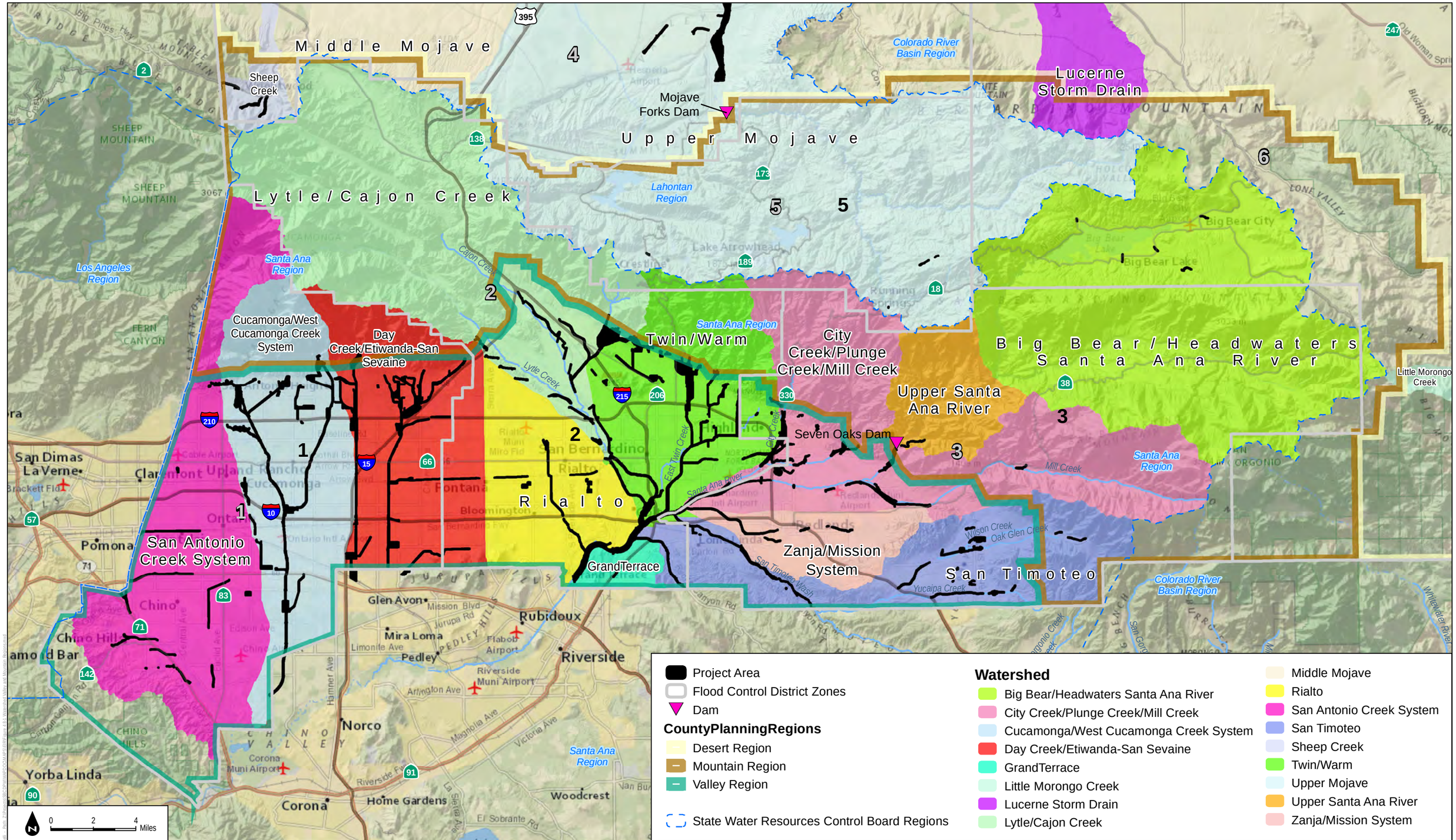

DUDEK

SOURCE: ArcGIS Online Basemap (Nat Geo), SBCDPW

FIGURE 4.8-1

Watershed Map - Valley and Mountain Regions

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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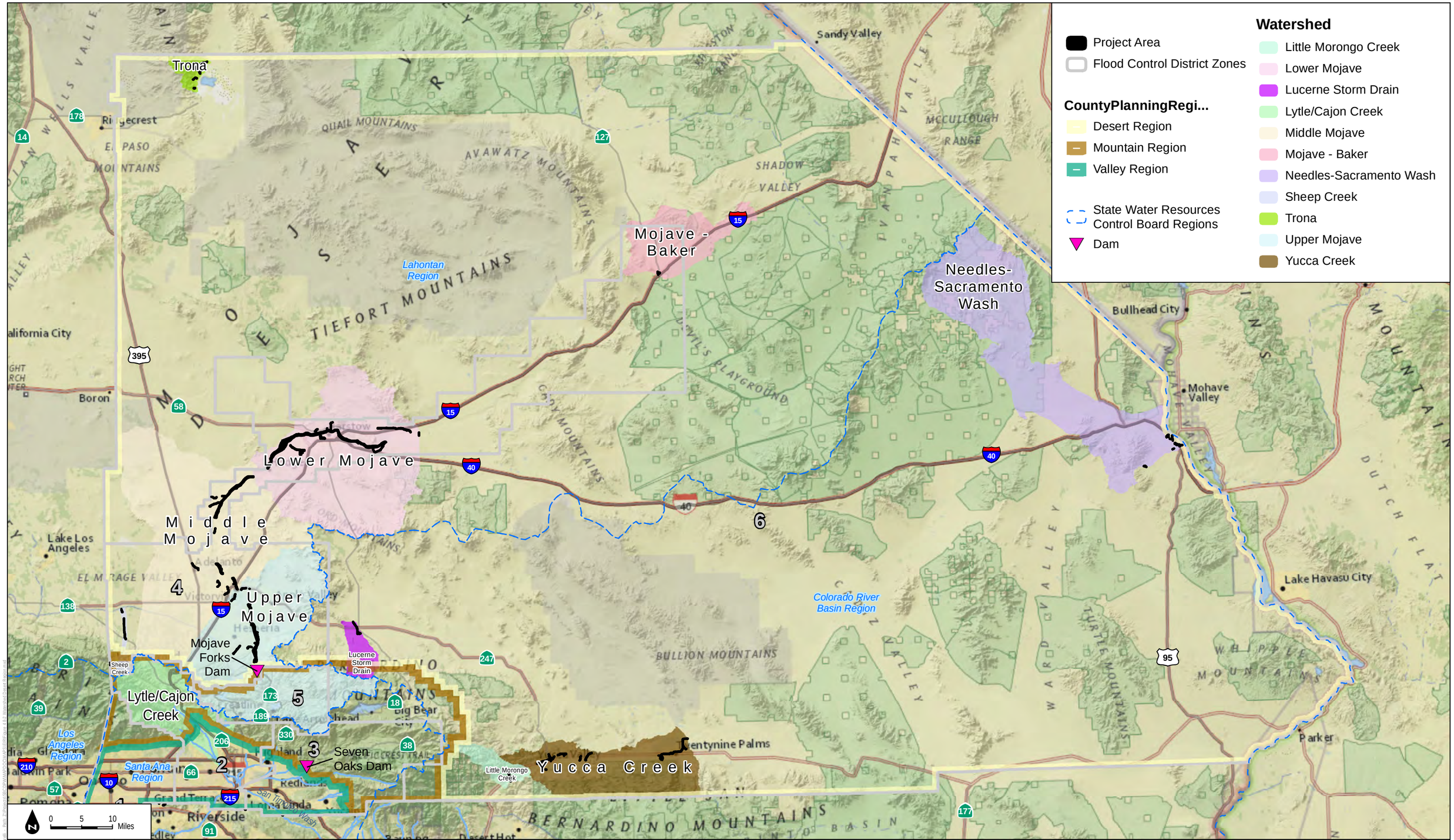

SOURCE: ArcGIS Online Basemap (Nat Geo), SBCDPW

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FIGURE 4.8-2

Watershed Map - Desert Region

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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4.9 LAND USE AND PLANNING

4.9.1 Introduction

This section of the environmental impact report (EIR) describes the existing land use and planning setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce land use and planning impacts, evaluates potential impacts related to implementation of the proposed program, and proposes mitigation measures to reduce any impacts resulting from the proposed program.

The focus of this chapter is on consistency with applicable habitat conservation plans (HCPs) and natural community conservation plans (NCCPs). As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L. The analysis on this chapter focuses on whether any of these activities or the increased intensity of the activities under the proposed program would cause a conflict with applicable HCPs or NCCPs.

The analysis in this section is based on information compiled by the District and on documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.9.10, References.

4.9.2 Regulatory Framework

Federal

No federal regulations, plans, or policies are applicable to the analysis of land use and planning as it pertains to the proposed program.

State

No state regulations, plans, or policies are applicable to the analysis of land use and planning as it pertains to the proposed program.

Local

County of San Bernardino 2007 General Plan

The County of San Bernardino 2007 General Plan, Conservation Element (County of San Bernardino 2007), provides goals and policies regarding natural resources. The following resource-related policies are applicable to the proposed program:

Policy CO 2.1 The County will coordinate with state and federal agencies and departments to ensure that their programs to preserve rare and endangered species and protect areas of special habitat value, as well as conserve populations and habitats of commonly occurring species, are reflected in reviews and approvals of development programs.

Other General Plans

Conservation elements or chapters are a mandatory component of a jurisdictional (city) general plan, as required by California Code of Regulations, Section 65302(d). Conservation elements provide an overview of federal, state, and local agency requirements and a general overview of natural resources. A city's general plan considers the effect of development within the jurisdiction on natural resources, with a discussion of coordination with other agencies and applicable plans or regulations. The proposed program addressed in this EIR would not conflict with the policies identified in local general plans.

North Fontana Conservation Program

This planning effort was initiated in 2004 and concentrates on the northern portion of the City of Fontana, adjacent to the foothills of the San Gabriel Mountains. Under the approved North Fontana Conservation Program, the City has collected mitigation fees for 12 years to offset the loss of Riversidean alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) to identify conservation properties for acquisition.

Town of Apple Valley MSHCP

An ongoing planning effort is underway to develop a multi-species habitat conservation plan (MSHCP) for the Town of Apple Valley and its sphere of influence. The website for this effort provides a map of the plan area that includes the Town's limits, the sphere of influence limits, and a sphere of influence "planning extension" that would include County jurisdiction (Town of Apple Valley 2010). Currently, no information is provided on covered activities or projects, or on what species may be covered for take (harm).

Upper Santa Ana River HCP

The Upper Santa Ana River HCP is a collaborative effort among the water resource agencies of the Santa Ana River Watershed, in partnership with USFWS, CDFW, and several other government agencies and stakeholder organizations. The Upper Santa Ana River HCP is in the development phase with an HCP team consisting of nine participating water resource agencies (including the District) and wildlife agencies. The purpose of the Upper Santa Ana River HCP is to enable the water resource agencies to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed. The covered projects span the majority of the Valley Region of the County as well as the eastern portion of San Bernardino National Forest. The goal is to ensure the conservation of the covered species, particularly the Santa Ana sucker (*Catostomus santaanae*), while still allowing for increased water conservation through new infrastructure for infiltration and increased effluent recycling. This HCP is currently in development; however, routine maintenance activities are proposed to be covered by this HCP.

Wash Plan

The Upper Santa Ana Wash Plan Land Management and Habitat Conservation Plan (Wash Plan) will primarily cover expanded gravel mining in an area downstream of the Seven Oaks Dam, in the southern extent of the City of Highland and the northern extent of the City of Redlands. The covered species include California gnatcatcher (*Polioptila californica*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), and slender-horned spineflower (*Dodecahema leptoceras*). Once fully approved, the Wash Plan covered activities will include the District's maintenance of flood control facilities including a portion of the maintenance in Elder Creek, Mill Creek, Plunge Creek, City Creek, and the Santa Ana River. With implementation of the fee schedule and avoidance and minimization measures within the Wash Plan for the District's covered activities, the District will be fully covered for impacts (take) of species covered under the Wash Plan.

According to the San Bernardino Valley Water Conservation District's (the Wash Plan's lead agency) website, progress toward finalizing the Wash Plan has been steady. The Wash Plan includes an HCP, a California Environmental Quality Act (CEQA)/National Environmental Quality Act (NEPA) joint EIR and Environmental Impact Statement, and two Implementing Agreements that include Memoranda of Understanding between the Task Force and participating stakeholders (SBVWCD 2017). One Implementing Agreement is specific to the District. The HCP draft is complete, and the CEQA/NEPA draft environmental documents are currently being finalized. The HCP and environmental documents are currently pending publication in the

Federal Register, which will be followed by a 90-day public comment period. Finalization of all documents, including the Implementation Agreements, is currently scheduled for 2018.

Desert Renewable Energy Conservation Plan

The Draft Desert Renewable Energy Conservation Plan (DRECP) was originally developed as an HCP/NCCP and a BLM Land Use Plan Amendment covering both public and private lands across seven counties, including the entire Desert Region of San Bernardino County. In October 2015, the DRECP BLM Land Use Plan Amendment and Final Environmental Impact Statement, which addresses renewable energy, land use, and conservation on BLM lands only was released (BLM 2015). The DRECP does not provide HCP/NCCP coverage for private lands in San Bernardino County.

Lower Colorado River MSCP

This multi-species conservation program (MSCP) was created to balance the use of Colorado River water resources with the conservation of native species and their habitats. The Lower Colorado River MSCP works toward the recovery of species currently listed under the federal Endangered Species Act (ESA). It also reduces the likelihood of additional species listings. Implemented over a 50-year period, the MSCP accommodates current water diversions and power production and will optimize opportunities for future water and power development by providing ESA compliance through the implementation of an HCP. The MSCP area extends over the main stem and historic 100-year floodplain of the Lower Colorado River within San Bernardino County, and includes Lake Havasu.

Western Riverside County MSHCP

The Western Riverside County MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in Western Riverside County. The Western Riverside County MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the ESA (16 U.S.C. 1531 et seq.), as well as an NCCP under the Natural Community Conservation Planning Act of 2001 (California Fish and Game Code, Section 2800 et seq.). The Western Riverside County MSHCP allows the participating jurisdictions to authorize take of plant and wildlife species identified within the plan area. The Western Riverside County MSHCP is a criteria-based plan and does not rely on a hardline preserve map. Instead, within the Western Riverside County MSHCP area, the Western Riverside County MSHCP reserve will be assembled over time from a smaller subset of the Plan Area referred to as the Criteria Area. The Criteria Area consists of Criteria Cells or Cell Groupings, and flexible guidelines (Criteria) for the assembly of conservation within the Cells or Cell Groupings. Cells and Cell Groupings also may be included within larger units known as Cores, Linkages, or Non-Contiguous Habitat Blocks (Dudek 2003). The District is not a permittee under the Western Riverside County MSHCP; however, three facilities within the proposed program fall within the Western Riverside County MSHCP boundary.

4.9.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to land use and planning are based on criteria in Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to land use and planning would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact LU-1 ***Would the program physically divide an established community?***

Impact LU-2 ***Would the program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?***

Impact LU-3 ***Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?***

In June 2014, the District recirculated an NOP and Initial Study (see Appendix B) for the currently proposed program, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The 2014 Initial Study determined that there would be no impact or a less than significant impact with regard to Impact LU-1 and Impact LU-2. Because the proposed program maintenance activities would not be invasive or large enough to physically divide a community, and because they would occur within existing District facilities, no impacts would occur. The proposed maintenance activities would occur throughout the County; however, as a public utility, the District is exempt from applicable plans, policies, or regulations. The proposed program would occur within HCP planning boundaries and would be required to comply with the provisions set forth in the applicable plans; therefore, the Initial Study determined that Impact LU-3 should be carried forward for analysis in the EIR (see Section 4.9.6.2, Analysis).

4.9.4 Existing Conditions

Valley Region

North Fontana Conservation Program

In recognition of the sensitivity of Riversidean alluvial fan sage scrub plant communities and their occurrence on the alluvial fans (fan-shaped buildups of earthen materials that form at the base of foothills and mountains) in north Fontana, the City of Fontana (City) developed an Interim North Fontana MSHCP Policy in 2004 that would allow the City to approve

development of parcels in north Fontana if no listed species were found on that property. However, if a listed species were found on a project site, an Individual Take Permit under the federal ESA would be required from USFWS before development could occur. Under the Interim North Fontana MSHCP Policy, now designated as the North Fontana Conservation Program, an applicant for development was required to conduct a habitat assessment of their property, conduct focused surveys for small mammals (San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)) and/or coastal California gnatcatcher (*Polioptila californica californica*) if suitable habitat was present and pay a mitigation fee to offset impacts to Riversidean alluvial fan sage scrub. Since the inception of the Conservation Program in July 2004, no San Bernardino kangaroo rat or Los Angeles pocket mouse were identified during dozens of focused surveys within the Conservation Program boundaries. The Plan Area for the North Fontana Conservation Program is entirely within the Valley Region. There are two facilities that fall within the boundary of the North Fontana Conservation Program: Hawker-Crawford Channel (facility number 1-806-1A) and San Sevaine Spreading Grounds – East Levee (facility number 1-802-5D); however, they are not within proposed conservation areas.

Under the approved North Fontana Conservation Program, the City has collected mitigation fees for 12 years to offset the loss of Riversidean alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with the USFWS and the CDFW to identify conservation properties for acquisition. The North Fontana Conservation Program could therefore compete with the proposed program for suitable Riversidean alluvial fan sage scrub habitat acquisitions.

Upper Santa Ana River HCP

The entire Valley Region falls within the boundary of the Upper Santa Ana River HCP. This HCP is currently being developed by the HCP team composed of nine water resource agencies (including the District) and the wildlife agencies (CDFW and USFWS). The draft list of species proposed to be covered by the HCP and potentially occurring in the Valley Region include slender-horned spineflower, Santa Ana River woollystar, Delhi sands flower-loving fly, Santa Ana sucker, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), tricolored blackbird (*Agelaius tricolor*), coastal California gnatcatcher, and San Bernardino kangaroo rat (ICF 2014). As this plan is still in development, it is provided for informational purposes only.

Wash Plan

This plan will cover primarily expanded gravel mining in an area downstream of the Seven Oaks Dam, in the southern extent of the City of Highland and the northern extent of the City of Redlands. The following drainages in the proposed program area are within the Wash Plan boundary: Elder Creek, Mill Creek, Plunge Creek, City Creek, and portions of the Santa Ana River. A portion of the

proposed program maintenance activities that are within the Wash Plan boundary are covered activities by the Wash Plan. The covered species include California gnatcatcher, San Bernardino kangaroo rat, Santa Ana River woollystar, and slender-horned spineflower. As this plan is not yet final, it is provided for informational purposes only.

Western Riverside County MSHCP

There are three facilities that fall within the Western Riverside County MSHCP boundary: Cucamonga Channel (facility number 1-301-1I), Riverside Basin (facility number 1-604-4A), and Declez Basin (facility number 1-814-3A). The Western Riverside County MSHCP is subdivided into Area Plans within which reserve areas are assembled from identified Criteria Cells. Cucamonga Channel is within the Eastvale Area Plan and Riverside Basin and Declez Basin are within the Jurupa Area Plan. Only Declez Basin falls within a Criteria Cell; Criteria Cell 10 within Cell Group B. Conservation within this Cell Group will focus on coastal sage scrub and grassland habitat focusing in the northeastern portion of the Cell Group.

Survey requirements at each of the District facilities within the Western Riverside County MSHCP are as follows:

- **Cucamonga Channel (1-301-1I).** The portion of the channel from Remington Avenue downstream to Hellman Avenue is located within the Western Riverside MSHCP overlay for burrowing owl (*Athene cunicularia*). If potential habitat for burrowing owl is determined to be located on the property, focused surveys may be required during the appropriate season per Western Riverside County MSHCP requirements.
- **Riverside Basin (1-604-4A).** The basin is located within the Western Riverside County MSHCP overlay for narrow endemic plant species and burrowing owl. Potential narrow endemic species at this location include San Diego ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*), and San Miguel savory (*Clinopodium chandleri*). If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season per Western Riverside County MSHCP requirements.
- **Declez Basin (1-814-3A).** The basin is located within the Western Riverside County MSHCP overlay for narrow endemic plant species, mammalian species, and burrowing owl. Potential narrow endemic species at this location include San Diego ambrosia, Brand's phacelia, and San Miguel savory. Potential mammalian species at this location include San Bernardino kangaroo rat and Los Angeles pocket mouse. If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season per Western Riverside County MSHCP requirements.

Mountain Region

Upper Santa Ana River HCP

The southwestern portion of the Mountain Region falls within the boundary of the Upper Santa Ana River HCP. This HCP is currently being developed by the HCP team, consisting of nine water resource agencies (including the District) and the wildlife agencies (CDFW and USFWS). The draft list of species to be covered by the HCP and potentially occurring in the Mountain Region includes southwestern willow flycatcher (ICF 2014).

Desert Region

Town of Apple Valley MSHCP/NCCP

The Town of Apple Valley is currently developing an MSHCP and NCCP. Covered Activities under the Apple Valley MSHCP/NCCP will be limited to land uses over which the Town of Apple Valley has land use authority and will include planning authorizations within its Sphere of Influence. The Apple Valley MSHCP/NCCP would include the entire incorporated area of Apple Valley (48,150 acres) and 173,030 acres of unincorporated County lands. The plan area for the Apple Valley MSHCP/NCCP would be entirely within the Desert Region.

As of June 2017, the Apple Valley MSHCP/NCCP proposes coverage for 50 species, including 16 plants and 34 wildlife species. The Apple Valley MSHCP/NCCP also proposes conservation to benefit 21 sensitive natural communities. At this time the MSHCP/NCCP's conservation strategy has not been made public, but the Planning Agreement between Apple Valley, the USFWS, and the CDFW states that the MSHCP/NCCP proposes to conserve approximately 44,400 acres of identified wildlife linkages connecting to existing preserved land in the Mojave Desert.

Desert Renewable Energy Conservation Plan

The DRECP is a landscape-level renewable energy and conservation planning effort covering 10.8 million acres of public lands managed by the Bureau of Land Management in the California desert. The Bureau of Land Management's Land Use Plan Amendment, which was Phase I of the DRECP, identifies priority areas for renewable energy development within federal lands while setting aside millions of acres for conservation and outdoor recreation. The DRECP designates Development Focus Areas with high-quality solar, wind, and geothermal energy potential and access to transmission, sited in areas with few land use conflicts. Phase I of the DRECP also identifies National Conservation Lands and designates Areas of Critical Environmental Concern, wildlife allocations, and National Scenic and Historic Trail management corridors to conserve biological, cultural, and other values.

Phase II of the DRECP addresses the non-federal lands within the DRECP planning area and is led by the California Energy Commission. Counties with primary land use and permitting authority on private lands in the DRECP planning area include Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego.

Lower Colorado River MSCP

The Lower Colorado River MSCP was finalized in 2004. However, the proposed program area does not overlap the Lower Colorado River MSCP area, and the nearest boundary is more than 100 miles from the proposed program area. Therefore, the proposed program is not expected to affect or be affected by the Lower Colorado River MSCP.

4.9.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. All of the District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A).

The Maintenance Plan does not identify SOPs specific to conservation plans; however, SOPs related to biological resources and hydrology and water quality are also applicable to the land use analysis. Their relevance to specific impact topics is detailed in Section 4.9.6, Impacts Analysis. The following SOPs are applicable (see Section 4.3, Biological Resources, and Section 4.8, Hydrology and Water Quality, for the full text of these SOPs):

- **SOP-BIO-6** (Burrowing Owl)
- **SOP-BIO-14** (Special-Status Plants Pre-Activity Surveys and Avoidance)
- **SOP-BIO-15** (Worker Environmental Awareness Program)
- **SOP-BIO-16** (Best Management Practices)
- **SOP-BIO-20** (Jurisdictional Waters Avoidance)
- **SOP-HYD-1** (Scheduling)
- **SOP-HYD-2** (Vegetation Management)
- **SOP-HYD-3** (Minimization of Controllable Discharge of Sediment)
- **SOP-HYD-4** (Minimization of Controllable Discharge of Pollutants)

4.9.6 Impacts Analysis

4.9.6.1 Methods of Analysis

The analysis in this section was completed by reviewing the relevant conservation plans (as described in Section 4.9.2. Regulatory Framework) and using geographic information systems (GIS) to determine whether maintenance activities overlap the conservation plans. Where there is overlap, the maintenance activities were reviewed to determine whether they were in conflict with the overlapping conservation plan.

4.9.6.2 Analysis

As discussed in the introduction to Chapter 4, most analyses in this EIR are organized into three categories of maintenance activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, for Impact LU-3 all activities were combined in the analysis because impacts would not vary by activity but would depend on region.

Impact LU-3

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

Valley Region

All Program Activities

North Fontana Conservation Program

Under the approved North Fontana Conservation Program, the City of Fontana has collected mitigation fees for 12 years to offset the loss of Riversidean alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with the USFWS and the CDFW to identify conservation properties for acquisition. The proposed program would also be required to mitigate for the loss of Riversidean alluvial fan sage scrub habitat as identified in Mitigation Measure (MM) BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region) (see Section 4.3, Biological Resources, of this EIR); therefore, the proposed program could compete with the North Fontana Conservation Program for suitable Riversidean alluvial fan sage scrub habitat acquisitions. However, the District proposes to mitigate for Riversidean alluvial fan sage scrub habitat through District-owned lands or easements or other District-managed instruments not available to the North Fontana Conservation Program; therefore, the proposed program would not conflict with the North Fontana Conservation Program.

Western Riverside County MSHCP

There are three facilities that fall within the Western Riverside County MSHCP boundary: Cucamonga Channel (Facility No. 1-301-1I), Riverside Basin (Facility No. 1-604-4A), and Declez Basin (Facility No. 1-814-3A). Although the District is not a permittee under the Western Riverside County MSHCP, this section analyses consistency with the Western Riverside County MSHCP for compliance with this CEQA threshold.

Declez Basin falls within Criteria Cell 10 of Cell Group B. As described in the MSHCP, conservation within this Cell Group will focus on coastal sage scrub and grassland habitat focusing in the northeastern portion of the Cell Group. Declez Basin has been routinely maintained and activities covered under the proposed program would not substantially alter the vegetation communities or land use of the basin from existing conditions. Additionally, Declez Basin is located in the northwestern portion of the Cell Group; therefore, the proposed program would not be in conflict with the conservation goals of this Criteria Cell.

All three facilities fall within the Burrowing Owl Survey Area of the Western Riverside County MSHCP. The District implements burrowing owl avoidance measures as described in SOP-BIO-6 (Burrowing Owl); therefore, the proposed program would not result in impacts to burrowing owl and would not be in conflict with the goals of this survey area.

Riverside Basin and Declez Basin are within the Narrow Endemic Plant Survey Area 7 for Brand's phacelia, San Diego ambrosia, and San Miguel savory. Implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance) and MM-BIO-3 (Mitigation for Special-Status Plants) would ensure that the proposed program is not in conflict with the goals of this survey area.

In addition, Declez Basin falls within Mammal Survey Area 3, which requires habitat assessments for San Bernardino kangaroo rat and Los Angeles pocket mouse. The proposed program includes an analysis of potential impacts to these small mammals and, with implementation of MM-BIO-4 (Mitigation for San Bernardino Kangaroo Rat), the proposed program would not be in conflict with the goals of this survey area.

The Western Riverside County MSHCP also requires review for the potential for impacts to riparian/riverine habitat. All three facilities would meet the definition of riparian/riverine habitat; however, avoidance, minimization, and mitigation measures would be incorporated for riparian communities as described in Section 4.3 of this EIR. These include SOP-BIO-15 (Worker Environmental Awareness Program), SOP-BIO-16 (Best Management Practices), SOP-BIO-20 (Jurisdictional Waters Avoidance), SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants), and MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley Region). With implementation of these

SOPs and MM-BIO-10, the proposed program would not be in conflict with the riparian/riverine guidelines of the Western Riverside County MSHCP.

The Western Riverside County MSHCP also requires a review for vernal pool and/or listed fairy shrimp habitat. The three facilities are composed of well-drained soils typical of flood control facilities. Soils mapped within these facilities include silt loam, rocky sandy loam, sandy loam, fine sandy loam, fine sand, loamy sand, loamy fine sand, very fine sand, gravel pits, and riverwash (see Appendix E, Biological Technical Report). None of these soil types are conducive to supporting vernal pools or ephemerally ponded areas that would support fairy shrimp species; therefore, the proposed program would not be in conflict with the vernal pool guidelines of the Western Riverside County MSHCP.

Mountain Region

All Program Activities

There are no approved plans that overlap the Mountain Region; therefore, the proposed program would not conflict with any approved plans in the Mountain Region.

Desert Region

All Program Activities

The proposed program would not impede the achievement of the biological goals and measurable objectives of existing or future conservation plans in the Desert Region. The proposed program's impacts to the three plans already adopted or in development within the Desert Region are described below.

Town of Apple Valley MSHCP

The Town of Apple Valley MSHCP/NCCP is still in development. Therefore, it is not possible to identify any conflicts with the plan at this time. However, Covered Activities under the Apple Valley MSHCP/NCCP are proposed to be limited to land uses over which the Town of Apple Valley has land use authority and will include planning authorizations within its Sphere of Influence; therefore, District maintenance activities are not expected to be in conflict with this MSHCP/NCCP.

Desert Renewable Energy Conservation Plan

Although the DRECP area includes the Desert Region, the DRECP currently only applies to renewable energy projects and would not be applicable to the proposed program. It is possible that renewable energy projects could compete with the proposed program for mitigation lands; however, that possibility exists regardless of the DRECP. The proposed program is not in conflict with the goals and policies of the DRECP.

Lower Colorado River MSCP

The Lower Colorado River MSCP area is far from the proposed program area. Therefore, no impacts to the implementation of the MSCP would result from the proposed program.

4.9.7 Mitigation Measures

Despite incorporation of District standard practices SOP-BIO-6, SOP-BIO-14 through SOP-BIO-16, SOP-BIO-20, and SOP-HYD-1 through SOP-HYD-4, potentially significant impacts relating to land use and planning were identified; therefore, mitigation measures are provided to reduce the potential for impacts. The proposed program has facilities that fall within the Western Riverside County MSHCP. Mitigation measures proposed under the proposed program to avoid, minimize, and mitigate impacts to biological resources would also ensure that the proposed program is in compliance with the MSHCP. Mitigation measures from the Biological Resources section of this EIR (see Section 4.3.7, Mitigation Measures, for the full text of these measures) that are applicable to the land use and planning analysis are as follows:

- **MM-BIO-3** (Mitigation for Special-Status Plants)
- **MM-BIO-4** (Mitigation for San Bernardino Kangaroo Rat)
- **MM-BIO-10** (Compensation for Special-Status Vegetation Communities in the Valley Region)

4.9.8 Level of Significance After Mitigation

In addition to District standard practices SOP-BIO-6, SOP-BIO-14 through SOP-BIO-16, SOP-BIO-20, and SOP-HYD-1 through SOP-HYD-4 (see Sections 4.3.5 and 4.8.5 of this EIR), implementation of MM-BIO-3, MM-BIO-4, and MM-BIO-10 (see Section 4.3, Biological Resources) would reduce potential impacts from the proposed program to a less than significant level. Table 4.9-1 summarizes the impacts from the proposed activities under each impact threshold analyzed in this EIR section.

Table 4.9-1
Land Use and Planning Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact LU-3: Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?				
Valley Region				
All Program Activities	SOP-BIO-6 SOP-BIO-14 through SOP-BIO-16 SOP-BIO-20 SOP-HYD-1 through SOP-HYD-4	Significant	MM-BIO-3 MM-BIO-4 MM-BIO-10	Less than significant
Mountain Region				
All Program Activities	—	Less than significant	—	Less than significant
Desert Region				
All Program Activities	—	Less than significant	—	Less than significant

4.9.9 Cumulative Impacts

The geographic scope of cumulative effects on land use and planning are within the applicable regional conservation plans that overlap the proposed program area. The introduction to Chapter 4, Environmental Analysis, of this EIR contains a list of approved or planned future projects within the County, including cities, other public agencies, and the District (Table 4-1). According to the CEQA Guidelines, determining whether to include a related project in a cumulative analysis should include the nature of each environmental resource being examined, the location of the project, and its type.

The proposed program was determined to have potentially significant impacts on one applicable conservation plan, the Western Riverside County MSHCP. However, none of the cumulative projects fall within the jurisdiction of the Western Riverside County MSHCP; therefore, the proposed program would not contribute to a cumulatively considerable impact to this regional conservation plan. The proposed program would comply with SOP-BIO-6, SOP-BIO-14 through SOP-BIO-16, SOP-BIO-20, and SOP-HYD-1 through SOP-HYD-4 to reduce cumulative impacts to vegetation communities and special-status species within the applicable Valley Region conservation plans. Additionally, MM-BIO-3, MM-BIO-4, and MM-BIO-10 require mitigation for special-status plants, special-status wildlife, and special-status vegetation communities. Therefore, cumulative impacts related to applicable habitat conservation plans

would be less than significant. With implementation of these SOPs and mitigation measures, impacts to land use and planning would not be cumulatively considerable.

4.9.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

BLM (Bureau of Land Management). 2015. DRECP BLM Land Use Plan Amendment and Final Environmental Impact Statement. http://www.drecp.org/finaldrecp/.

Dudek. 2003. "Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)." June 17, 2003. http://www.rctlma.org/Portals/0/mshcp/volume1/sec1.html.

ICF (ICF International Inc.). 2014. "Final Phase 1 Report: Upper Santa Ana River Habitat Conservation Plan." Prepared for San Bernardino Valley Municipal Water District. March 2014. https://static1.squarespace.com/static/53920f34e4b05366f07d971c/t/53a3508ae4b013ef40a58e68/1403211914675/Final_Phase1_UpperSARHCP_Report_3-13-14.pdf.

SBVWCD (San Bernardino Valley Water Conservation District). 2017. Upper Santa Ana Wash Land Management and Habitat Conservation Plan (Wash Plan). http://www.sbvwcd.org/our-projects/wash-plan.html.

Town of Apple Valley. 2010. "Relief Map." *Town of Apple Valley Multi-Species Habitat Conservation Plan*. August 11, 2010. http://www.applevalley.org/services/planning-division/multi-species-habitat-conservation-plan.

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4.10 NOISE

4.10.1 Introduction

This section of the environmental impact report (EIR) describes the existing noise setting of the proposed Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce noise impacts, and evaluates potential impacts related to implementation of the proposed program.

The analysis is based on whether the proposed program would result in a significant increase in temporary ambient noise levels and/or exposure of sensitive receptors (defined as people especially susceptible to noise levels) in excess of established standards. To make these determinations, noise measurements were taken for the proposed program to assess existing ambient noise levels against which potential changes to noise levels from the proposed program were compared. Given the large scale and number of individual projects associated with the proposed program, noise measurements could not be taken at every facility. Instead, a total of 15 representative project sites were selected with the intent of representing a "maximum impact" scenario in terms of proximity to noise-sensitive land uses and equipment/activity levels. For the purpose of this noise analysis, a "project" is defined as all maintenance activities occurring within a facility. Data from these representative projects were used to characterize the existing noise environment for the remaining proposed program locations. A sound-level survey was conducted on April 11–13, 2017, to evaluate existing sound levels and assess the potential noise impacts from the proposed program on the surrounding area.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The County is composed of three distinct geographic regions, the Valley, Mountain, and Desert Regions. Although approximately 80% of the geographic extent of the County falls within the Desert Region, the Valley Region is the most developed and approximately 77% of the District facilities are in the Valley Region. As a result, sensitive receptors near maintained facilities are

primarily located in the Valley Region; therefore, projects representing the maximum impact were clustered in the Valley Region. Rather than delineating the analysis by geographic region (which is applicable to other analyses in this EIR), the noise analysis is based on the selected representative projects. Additionally, because a representative project approach was used, where all maintenance activities occurring at a location were incorporated into the representative project scenario, the noise analysis does not use the ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities impact analysis categories described in the introduction to Chapter 4, Environmental Analysis.

The analysis contained in this section is based on information compiled by the District and on documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.10.10, References.

4.10.2 Regulatory Framework

Federal

There are no federal plans, policies, or ordinances that are applicable to the proposed program.

State

California Code of Regulations, Section 65302(f), requires local land use planning jurisdictions to prepare a general plan. The noise element is a mandatory component of the general plan. It may include general community noise guidelines developed by the California Department of Health Services and specific planning guidelines for noise/land use compatibility developed by the local jurisdiction. The state guidelines also recommend that the local jurisdiction should consider adopting a local noise control ordinance. In compliance with California Code of Regulations, Section 65302(f), the County and each of the 24 incorporated cities within which proposed program activities occur has developed a General Plan and noise regulations as part of its code of ordinances.

Local

County of San Bernardino 2007 General Plan

The County of San Bernardino 2007 General Plan, Noise Element (County of San Bernardino 2007), provides goals and policies regarding noise. The following noise-related goals and policies are applicable to the proposed program:

Policy N 1.6 Enforce the hourly noise-level performance standards for stationary and other locally regulated sources, such as industrial, recreational, and construction activities as well as mechanical and electrical equipment.

Policy M/N 1.1 Encourage and support strict enforcement of vehicle code regulations to reduce vehicular noise in the mountain communities.

Other General Plans

Noise elements or chapters are a mandatory component of a jurisdictional (city) general plan as required by California Code of Regulations, Section 65302(f). Noise elements provide an overview of federal, state, and local agency requirements and a general overview of the nature of sound. Noise-generating uses and activities within the general plan area are identified and typically sources that generate noise levels that exceed the prevailing background noise are described. A city's general plan noise element includes an analysis of future conditions, with a discussion of future growth and development within the general plan area and the resulting noise impacts. The proposed program addressed in this EIR would not conflict with policies identified in local general plans.

Noise Ordinances

Local jurisdictions in which the proposed program would occur may have established noise regulations as part of their code of ordinances, which may include statutes associated with the generation of noise within their jurisdiction. Although noise regulations vary by jurisdiction, typically, noise zones are established within the ordinance and are characterized by noise sensitivity or land use types. Interior and exterior noise standards are generally categorized by noise zone and establish allowable noise levels for a given time period. Jurisdictions typically provide a list of noise-generating sources or activities exempt from the provisions established within the noise ordinance, which in some cases includes construction, maintenance, and emergency work on public utilities (County of San Bernardino 2014).

4.10.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts related to noise are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to noise would occur if the program would meet or exceed any of the following impact thresholds:

Impact NOI-1 ***Would the program result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Impact NOI-2 ***Would the program result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?***

Impact NOI-3 ***Would the program result in a substantial permanent increase in ambient noise levels in the program vicinity above levels existing without the program?***

Impact NOI-4 ***Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?***

Impact NOI-5 ***Would the program be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and if so, would expose people residing or working in the program area to excessive noise levels?***

Impact NOI-6 ***Would the program be within the vicinity of a private airstrip, and if so, would expose people residing or working in the program area to excessive noise levels?***

In June 2014, the District circulated a Notice of Preparation and Initial Study, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The Initial Study determined there would be no impact or a less than significant impact for groundborne vibration or noise, permanent increases in ambient noise levels, and projects in the vicinity of a public airport or private airstrip; therefore, Impacts NOI-2, NOI-3, NOI-5, and NOI-6 are not further analyzed in this EIR. Impacts NOI-1 and NOI-4 are examined in this section (see Section 4.10.6.2, Analysis).

4.10.4 Existing Conditions

4.10.4.1 Noise Concepts

Noise is generally defined as loud, unexpected, or undesired sound, typically associated with human activity that interferes with or disrupts normal activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The definition of noise as unwanted sound implies that it has an adverse effect on people and their environment.

Sound is measured in terms of intensity, which describes the sound's loudness, and is measured in decibels (dB), frequency or pitch measured in cycles per second or hertz, and duration of sound. Sound is composed of various frequencies; however, the human ear does not respond to all frequencies, being less sensitive to very low and high frequencies than to medium frequencies that correspond with human speech. Sound-level meters adjust for the weight the human ear gives to certain frequencies, applying a correction to each frequency range to approximate the

human ear's sensitivity within each range. This is called "A-weighting," abbreviated dBA, which is the most commonly used and the most appropriate unit of measure for community noise.

Following are definitions of the acoustical terminology used herein. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dBA). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards use A-weighting, as it provides a high degree of correlation with human annoyance and health effects.

Ambient Noise Level: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

The **CNEL** and **DNL** represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically 1 hour.

Noise Exposure Contours: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently used to describe community exposure to noise.

SEL or **SENEL:** Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise

Equivalent Noise Level and Related Noise Metrics. Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a mixture of noise from distant sources that create a relatively steady background noise in which no particular source is identifiable. A single descriptor called the "equivalent sound level" (L_{eq}) is used to describe the average acoustical energy in a time-varying sound. L_{eq} is the energy-mean A-weighted sound level present or predicted to occur during a specified interval (typically computed using 1-, 8-, and 24-hour sample periods). It is the "equivalent" constant sound level that a given source

would need to produce to equal the fluctuating level of measured sound. It is often desirable to also know the range of acoustic levels of the noise source being measured. This is accomplished through the A-weighted maximum and minimum sound level (L_{max} and L_{min}) noise descriptors. They represent the root-mean-square maximum and minimum obtainable noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location represents the quietest moment occurring during the measurement period and is often called the *acoustic floor* for that location. Likewise, the loudest momentary sound during the measurement is represented by L_{max}.

To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90} (or other percentile values) may be used. They are the noise levels equaled or exceeded 10%, 50%, and 90% of the time, respectively, during the measured interval. The percentile descriptors are most commonly found in nuisance noise ordinances to allow for different noise levels for various portions of an hour. For example, the L_{50} value would represent 30 minutes of an hour period; the L_{25} would be associated with 15 minutes of an hour; and so on. Of particular interest in this analysis are other descriptors of noise that are commonly used to help determine noise/land use compatibility and to predict an average community reaction to adverse effects of environmental noise, including traffic-generated and industrial noise.

Community Noise Equivalent Level. A unit of measure for the cumulative effect of community noise is the community noise equivalent level (CNEL), which is the weighted average noise level for a 24-hour period. CNEL is often used to describe the relationship of a noise source, such as traffic or other transportation noise, to the desirable ambient noise level (normal and existing noise level). CNEL is adjusted to reflect the greater sensitivity to noise during evening and nighttime hours with 5 dB being added to noise occurring between 7:00 p.m. and 10:00 p.m., and 10 dB being added to noise occurring between 10:00 p.m. and 7:00 a.m.

Audible Noise Changes. To respond to the human ear's sensitivity to sound, the range of audible sounds exist on a logarithmic scale that takes into account the large differences in audible sound intensities. On this scale, for example, a 10 dB increase is normally perceived as a doubling of sound. A sound level of 0 dBA is approximately the threshold of human hearing. Normal speech has a sound level of approximately 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort and eventually as pain at slightly higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB.

Noise Components. There are three conceptual components to noise: the source, the transmission path, and the receiver. Noise can be reduced at its source; by lengthening or interrupting the transmission path through diversion, absorption, or dissipation; or by protecting the receiver through noise insulation. The most efficient and effective means of abating noise is

to reduce noise at its source. The source noise can be controlled through regulation, such as following restrictions outlined in noise ordinances, muffling techniques, or sound proofing. The transmission path can be interrupted through the creation of a buffer between the source and the receiver, such as a noise wall, earth embankment, or a building. The receiver can be protected from noise impacts through insulation, building orientation, or shielded areas.

Noise sources can be classified in two forms: (1) point sources, such as stationary equipment (e.g., pumps), and (2) line sources, such as a roadway with a large number of pass-by sources (e.g., motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB for each doubling of distance from the source to the receptor. For example, a 60 dBA noise level measured at 50 feet from a point source would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dB and 4.5 dB per doubling of distance from the source to the receptor for hard and soft sites, respectively. Typical sound levels generated by various activities are listed in Table 4.10-1.

Table 4.10-1
Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet flyover at 1,000 feet		
	— 100 —	
Gas lawnmower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013.

Sound levels can also be attenuated by man-made or natural barriers. Intervening noise barriers, such as a solid wall or berm, typically reduce noise levels by 5 to 10 dB. Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The exterior-to-interior noise attenuation provided by typical California building structures ranges from 15 to 25 dB for windows open and closed, respectively. Acoustically designed enclosures and buildings can provide up to approximately 50 dB of noise reduction, depending on the noise abatement treatments.

Sensitive Receptors. Sensitive receptors are those susceptible to the effects of noise including, but not limited to, residences, schools, playgrounds, childcare centers, religious institutions, long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, and wildlife habitat areas. For the proposed program, sensitive receptors could include any of the facilities listed above.

4.10.4.2 Noise Analysis Methodology

Ambient Noise Measurements. A sound-level survey was conducted on April 11–13, 2017, to evaluate existing sound levels and assess the potential noise impacts from the proposed program on the surrounding area. Short-term sound levels were measured at existing noise-sensitive receptors adjacent to representative maintenance activity locations. Noise measurements at these representative sites were taken at nearby residences, recreation areas, and other potential sensitive receptors, which varies based on the representative site. Data from these sites were used to characterize the existing noise environment for the remaining proposed program locations. Short-term (1 hour or less)[1] attenuated sound-level measurements were taken with a Rion NL-52 Sound-Level Meter. This instrument is categorized as Type 1, Precision Grade.

To ensure accuracy, the laboratory calibration of the instrument was field-checked before and after each measurement period using an acoustical calibrator. The accuracy of the acoustical calibrator is maintained through a program established through the manufacturer and traceable to the National Institute of Standards and Technology. The sound measurement instrument meets the requirements of the American National Standard Institute S1.4-1983 (ANSI 1983) and the International Electrotechnical Commission Publications 804 and 651 (IEC 1979 and 1985). In all cases, the microphone height was 5 feet aboveground, and the microphone was equipped with a windscreen. During the field measurements, physical observations of the predominant noise sources were noted. The major noise source in most of the measurement locations consisted of noise from traffic on arterial roadways. Other, secondary noise sources included noise from distant aircraft, landscaping maintenance work, rustling leaves, birds, and neighborhood activity (e.g., dogs barking and conversations).

[1] Collection of short-term noise measurements is the standard practice in the field, particularly for activities that are primarily conducted during the day.

Maintenance Activities Noise Modeling. The Federal Highway Administration's Roadway Construction Noise Model (RCNM) (FHWA 2008) and program-specific maintenance equipment provided by District staff were used to estimate noise levels at the nearest noise-sensitive land uses.

Input variables for the RCNM consist of the receiver/land use types, the equipment type, and number of each equipment type (e.g., two excavators, a loader, a dump truck), the duty cycle for each piece of equipment (i.e., percentage of hours the equipment typically works per day), and the distance from the sensitive noise receptor. The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were used for this analysis.

The RCNM is a national model that is based on the noise calculations and extensive construction noise data compiled for the Central Artery/Tunnel (CA/T) Project. The CA/T Project, which began in the early 1990s, was located in Boston, Massachusetts, and was one of the largest urban construction projects ever built in the United States. The basis for the national model is a spreadsheet tool developed in support of the CA/T Project. The CA/T predictions originated from Environmental Protection Agency noise-level work and an Empire State Electric Energy Research Corporation Guide, which uses an "acoustical usage factor" to estimate the fraction of time each piece of equipment is operating at full power (i.e., its loudest condition) during an activity (FHWA 2006).

4.10.4.3 Representative Projects

Currently, the District maintains its facilities as needed and as authorized under regulatory approvals, on a case-by-case basis. Although routine maintenance is currently ongoing, the consistent maintenance of facilities may result in environmental impacts, which is the focus of this noise analysis. To provide a conservative analysis, the environmental baseline for the noise analysis is the assumption that no activity is currently occurring. Therefore, impacts are evaluated based on the estimated noise levels associated with each maintenance activity.

To provide an analysis of noise levels generated by typical proposed maintenance activities, 15 representative projects, as shown on Figure 4.10-1, Noise Measurement Locations, have been identified based on the facility-specific maintenance activities as described in the Maintenance Plan (Appendix A). Information regarding a typical maintenance activity scenario, including anticipated phasing and phase duration, maintenance equipment, worker trips, vendor truck tips (including water trucks), and haul truck trips, was generated for each of these representative projects (see Appendix D, Air Quality and GHG Analysis).

As previously discussed, the representative projects in general were chosen because of their size, location, and proximity to urban environments being representative of the system as a whole. These representative projects are intended to represent a maximum, or worst-case, scenario

associated with implementation of the proposed program's maintenance activities. The specifications of each proposed project will vary depending on the subject site characteristics, maintenance needs, and type of proposed solution; however, equipment requirements for activities within the same category of maintenance activity are not expected to differ substantially. Although other proposed activities not identified may differ from the scenarios analyzed, the modeled projects included herein would represent a conservative assessment of noise impacts associated with anticipated maintenance activities under the proposed program.

The representative projects selected for this noise analysis are described in this subsection. Table 4.10-2 presents a summary of the representative projects analyzed herein.

Table 4.10-2
Representative Projects Summary

Representative Project	Facility Type	Selected Representative Project
A	Concrete channel	Etiwanda Creek Channel (Facility No. 1-701-1C)
B	Earthen–engineered channel	Mission Channel (Facility No. 3-501-1A)
C	Earthen–natural channel	Mojave River (Facility No. 4-101-IN)
D	Dam	Day Creek Dam (Facility No. 1-608-3A)
E	Debris basin	San Antonio Heights Basin No. 5 (Facility No. 1-313-4B)
F	Detention basin	Donnell Basin (Facility No. 6-402-4A)
G	Groin	Muscoy Groin No. 4 (Facility No. 2-209-5D)
H	Storm drain	Alta Loma Storm Drain (Facility No. 1-405-6A)
I	Levee 1	City Creek Levee (Facility No. 2-601-5B)
J	Levee 2	Devil Creek Levee (Facility No. 2-306-5A)
K	Spreading ground	Cucamonga Spreading Grounds (Facility No. 1-303-2A)
L	Sand and gravel operations	Devil's Basin (Facility No. 2-304-4F)

Source: Appendix D.

Details and maintenance activity assumptions for each representative project are provided in the following subsections.

Representative Project A: Concrete Channel (Etiwanda Creek Channel (Facility No. 1-701-1C))

The Etiwanda Creek Channel 1-701-1C was selected to represent a concrete channel maintenance project.[2] Typical maintenance includes concrete repair, access road maintenance and adjacent facility herbicide application, sediment removal, vector control, and concrete structure repair. Maintenance also includes limited vegetation management, 80% of which is

[2] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Concrete channels include either concrete walls or bottoms. See Chapter 3, Program Description, for the number of channels located in the program area.

done using hand tools. In general, vegetation removal along slopes is avoided. Concrete channel maintenance activity assumptions based on Representative Project A, Etiwanda Creek Channel (Facility No. 1-701-1C), are presented in Table 4.10-3.

Table 4.10-3
Representative Project A – Concrete Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	2	4	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	2	4	4	0	N/A	N/A
Grading – sediment removal	1	4	4	2	Excavator	1
Vector control (insect control)	1	2	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Structure repair	1	4	2	0	N/A	N/A
Vegetation management	1	4	0	0	Skidsteer loader[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for maintenance activity modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project B: Earthen–Engineered Channel (Mission Channel (Facility No. 3-501-1A))

The Mission Channel (Facility No. 3-501-1A) was selected to represent an earthen–engineered channel facility maintenance project.[3] Maintenance includes access road maintenance and adjacent herbicide application, sediment removal, bank repair and stabilization, and clearing fence lines. Maintenance also includes vegetation management, 10% of which is done using hand tools. Earthen–engineered channel maintenance activity assumptions based on Representative Project B, Mission Channel (Facility No. 3-501-1A), are presented in Table 4.10-4.

[3] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Earthen–engineered channels consist of a combination of engineered and natural features. See Table 3-2 for the number of channels in the program area.

Table 4.10-4
Representative Project B – Earthen–Engineered Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	4	6	4	0	Grader	1
Herbicide application	2	4	2	0	N/A	N/A
Grading – sediment removal	10	12	6	40	Excavator	1
Bank repair	10	12	4	40	Scraper	2
					Dozer (crawler tractor)	1
Concrete structure repair	1	2	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Vegetation management	1	2	2	0	Boom mowers (other construction equipment)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project C: Earthen–Natural Channel (Mojave River (Facility No. 4-101-1N))

The Mojave River (Facility No. 4-101-1N) was selected to represent an earthen–natural channel facility maintenance project.[4] Maintenance includes access road maintenance and related herbicide, sediment removal, bank repair and stabilization, vector control, and vegetation management along fence lines and gates. Earthen–natural channel maintenance activity assumptions based on Representative Project C, Mojave River (Facility No. 4-101-1N), are presented in Table 4.10-5.

Table 4.10-5
Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	1	6	2	0	N/A	N/A
Access road maintenance	2	4	4	0	Grader	1
					Broom (tractor/loaders/ backhoes)	1

[4] Channels are constructed to collect and convey runoff flows, generally along historical stream paths. Natural channels consist of natural features. See Table 3-2 for the number of channels in the proposed program area.

Table 4.10-5
Representative Project C – Earthen–Natural Channel Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Herbicide application	2	4	2	0	Polaris Ranger (other construction equipment)	1
Grading 1 – sediment removal	10	8	2	0	Dozer	1
					Excavator	1
					Skidsteer loader	1
					Speed loader (tractor/loaders/ backhoes)	1
Grading 2 – bank repair	10	8	0	0	Dozer	1
					Gradall (tractor/loaders/ backhoes)	1
					Scraper	1
Other structure repair (riprap slope repairs)	2	12	4	16	Excavator	1
					Loader	1
Vector control (insect)	1	2	4	0	N/A	N/A
Vegetation management	1	2	2	0	Speed loader (tractor/loaders/ backhoes)[c]	1
					Boom mower (other construction equipment)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project D: Dam (Day Creek Dam (Facility No. 1-608-3A))

Day Creek Dam (Facility No. 1-608-3A) was selected to represent a dam facility maintenance project.[5] Maintenance includes concrete repair, access road maintenance, adjacent herbicide application, sediment removal, and vector control. Maintenance also includes vegetation management along fence lines, 10% of which is done using hand tools. The center flow maintenance (cleanup/debris/sediment removal) is done up to 0.75 miles upstream from the spillway slope repair, as needed. High sediment load at this facility would require sediment

[5] A dam is usually a large embankment that blocks an existing watercourse. The embankment is used to control the release of stormwater downstream via an outlet pipe that limits the amount of water that can exit the dam. See Table 3-2 for the number of dams in the proposed program area.

removal of up to 500,000 cubic yards. Dam maintenance activity assumptions based on Representative Project D, Day Creek Dam (Facility No. 1-608-3A), are presented in Table 4.10-6.

Table 4.10-6
Representative Project D – Dam Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete repair	1	4	2	0	N/A	N/A
Grading 1 – bank repair	10	8	2	0	Gradall (tractor/loaders/ backhoes)	1
					Excavator	1
Rodenticide	1	2	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	1	4	2	0	Polaris Ranger (other construction equipment)	1
Grading 2 – sediment removal	10	8	6	0	Scrapers	1
Vector control (public health)	1	2	2	0	N/A	N/A
Vegetation management	4	18[c]	6	0	Boom mowers (other construction equipment)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips would be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project E: Debris Basin (San Antonio Heights Basin No. 5 (Facility No. 1-313-4B))

San Antonio Heights Basin No. 5 (Marble) (Facility No. 1-313-4B) was selected to represent a debris basin facility maintenance project.[6] Maintenance includes access road maintenance, herbicide application, vector control, bank repair and stabilization, sediment removal from the southern end of the basin facility and outlet, and vegetation management. This is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (excluding grasses) and removal of trees greater than 2 inches in

[6] Debris basins are usually located at the mouth of a canyon where there is a potential for large sediment and debris yields. The purpose of the debris basin is to store sediment and debris, not water. Sediment and debris can reduce the capacity of downstream channels, if not contained, as well as blocking culverts and road crossings. See Chapter 3 for the number of debris basins located in the program area.

diameter.[7] Debris basin maintenance activity assumptions based on Representative Project E, San Antonio Heights Basin No. 5 (Facility No. 1-313-4B), are presented in Table 4.10-7.

Table 4.10-7
Representative Project E – Debris Basin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	2	0	Grader	1
Concrete repair	2	2	4	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Herbicide application	1	4	2	0	Polaris Ranger (other construction equipment)	1
Vector control	1	2	2	0	N/A	N/A
Grading 1 – bank repair	2	8	4	8	Scraper	2
					Dozer (crawler tractor)	1
Grading 2 – sediment removal	2	8	4	8	N/A	N/A
Vegetation management	1	4	2	2	Boom mowers (other construction equipment)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project F: Detention Basin (Donnell Basin (Facility No. 6-402-4A))

Donnell Basin (Facility No. 6-402-4A) was selected to represent a detention basin facility maintenance project.[8] Maintenance includes access road maintenance and related herbicide application, sediment removal including side casting, stockpile maintenance, bank repair and stabilization, and vector control. Detention basin maintenance activity assumptions based on Representative Project F, Donnell Basin (Facility No. 6-402-4A), are presented in Table 4.10-8.

[7] Federal facilities are facilities over which a federal agency (e.g., U.S. Army Corps of Engineers, Division of Safety of Dams) has jurisdiction.

[8] A detention basin functions similarly to a dam in that its primary purpose is to cut off peak flows, thereby enabling the use of smaller channels downstream of the basin. Whereas a dam uses an embankment to impound water, a detention basin either will have no embankment or will have a small embankment. Most of the water pool is stored below grade. See Chapter 3 for the number of detention basins located in the program area.

Table 4.10-8
Representative Project F – Detention Basin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete structure repair	2	4	2	0	N/A	N/A
Access road maintenance	2	4	2	0	Grader	1
Herbicide application	1	4	2	0	N/A	N/A
Grading 1 – sediment removal	1	6	0	0	Dozer	1
					Excavator	1
Grading 2 – stockpile maintenance	2	6	2	0	Grader	1
					Loader (tractor/loaders/ backhoes)	1
Grading 3 – bank repair	5	6	2	0	Dozer	1
					Grader	1
Rodenticide	1	2	2	0	N/A	N/A
Vector control (insect control)	1	2	4	0	N/A	N/A

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips would be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.

Representative Project G: Groin (Muscoy Groin No. 4 (Facility No. 2-209-5D))

Muscoy Groin No. 4 (Facility No. 2-209-5D) was selected to represent a groin facility maintenance project.[9] Maintenance includes levee grading, access road repair and herbicide application, as well as limited vegetation management along gates and fence lines, 40% of which is done using hand tools. This facility is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (except grasses) and removal of trees greater than 2 inches in diameter. Groin maintenance activity assumptions based on Representative Project G, Muscoy Groin No. 4 (Facility No. 2-209-5D), are presented in Table 4.10-9.

[9] Groins are elongated berms with one end on the bank of the stream and the other end projecting into the flow. Groins are designed to direct or deflect flows into the desired watercourse without having to construct a continuous bank. See Chapter 3 for the number of groins located in the program area.

Table 4.10-9
Representative Project G – Groin Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road repair	1	6	0	2	Graders	1
Herbicide application	2	4	4	0	N/A	N/A
Vegetation management	4	14[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (other construction equipment)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project H: Storm Drain (Alta Loma Storm Drain (Facility No. 1-405-6A))

Alta Loma Storm Drain (Facility No. 1-405-6A) was selected to represent a location of a storm drain facility maintenance project.[10] Maintenance includes concrete and bank repair and stabilization, access road maintenance and related herbicide application, sediment removal, and vector control. Maintenance also includes vegetation management, 10% of which is done using hand tools. Storm drain maintenance activity assumptions based on Representative Project H, Alta Loma Storm Drain (Facility No. 1-405-6A), are presented in Table 4.10-10.

Table 4.10-10
Representative Project H – Storm Drain Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Concrete structure repair	1	4	2	0	N/A	N/A
Rodenticide	1	2	2	0	N/A	N/A
Access road maintenance	1	4	2	0	Grader	1
Herbicide application	2	4	4	0	Polaris Ranger (other construction equipment)	1

[10] Storm drain facilities are generally smaller channels, or reinforced concrete boxes and pipes, which receive flows primarily from urban runoff. These small facilities drain to a larger channel, stream, or watercourse. See Table 3-2 for the number of storm drains in the program area.

Table 4.10-10
Representative Project H – Storm Drain Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Grading – sediment removal	2	2	2	4	Skidsteer loader	1
Vector control	1	2	2	0	N/A	N/A
Vegetation management	1	2	2	0	Boom mowers (other construction equipment)[c]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Projects I and J: Levee (City Creek Levee (Facility No. 2-601-5B) and Devil Creek Levee (Facility No. 2-306-5A))

Two locations were selected to represent levee facility maintenance projects.[11] The City Creek Levee (Facility No. 2-601-5B) includes access road maintenance and related herbicide, vector control, bank repair and stabilization, and vegetation management. This is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (except grasses) and removal of trees greater than 2 inches in diameter. Additionally, sediment removal and vegetation management on the levee site may occur every 2 to 3 years, whereas maintenance in upstream and downstream stream segments would be tiered into phases of 3 to 7 years.

Devil Creek Levee (Facility No. 2-306-5A) includes bank repair and stabilization, sediment removal, access road repair and related herbicide application, stockpile maintenance, as well as vegetation management, 10% of which is done using hand tools. This facility is a federal facility and as such, federal vegetation management policies apply, including the maintenance of a 15-foot vegetation-free zone (excluding grasses) and removal of trees greater than 2 inches in diameter.

Levee maintenance activity assumptions based on Representative Projects I and J, City Creek Levee (Facility No. 2-601-5B) (Levee 1) and Devil Creek Levee (Facility No. 2-306-5A) (Levee 2), are presented in Tables 4.10-11 and 4.10-12.

[11] A levee is generally an elevated berm that is used to protect adjacent low-lying ground from stormwater. District facilities are generally solitary levees ("groins"), which deflect widely dispersed flows into a narrower stream course; they do not refer to the levees that make up the side slopes of small channels. These types of levees are used to deflect flows away from a larger bank, thus preventing erosion or breaching into the developed floodplain. See Table 3-2 for the number of levees in the program area.

Table 4.10-11
Representative Project I – Levee 1 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	2	0	Grader	1
Rodenticide	1	2	2	0	N/A	N/A
Concrete structure repair	2	4	2	0	N/A	N/A
Herbicide application (insect control)	1	2	4	0	N/A	N/A
Vector control	1	2	2	0	N/A	N/A
Grading 1 – bank repair	15	16	2	120	Dozer (crawler tractors)	2
					Loader	1
					Excavator	1
Grading 2 – sediment removal	25	26	4	200	Excavator	2
					Dozer (crawler tractors)	2
					Speed loader (tractor/ loaders/backhoes)	1
					Gradall (tractor/loaders/ backhoes)	1
					Skidsteer loader	1
Vegetation management	2	15[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (other construction equipment)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Table 4.10-12
Representative Project J – Levee 2 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Rodenticide	1	2	2	0	N/A	N/A
Concrete structure repair	2	4	2	0	N/A	N/A
Grading 1 – bank repair	3	8	2	12	Gradall (tractor/ loaders/backhoes)	1
Grading 2 – sediment removal	1	4	2	0	Excavator	1

Table 4.10-12
Representative Project J – Levee 2 Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	1	4	4	0	Grader	1
Herbicide application	2	4	4	0	Polaris Ranger (other construction equipment)	1
Vegetation management	6	14[c]	4	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (other construction equipment)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project K: Spreading Grounds (Cucamonga Spreading Grounds (Facility No. 1-303-2A))

Cucamonga Spreading Grounds (Facility No. 1-303-2A) was selected to represent a spreading ground facility maintenance project.[12] The Cucamonga Spreading Grounds is a large, open area that encompasses the area south of the Cucamonga Debris Dam and upstream of Interstate 210, and does not include the mining activities immediately north of Interstate 210. Maintenance work includes access road maintenance, stockpiling, herbicide application adjacent to the access road, and very limited vegetation management. Most vegetation management is done using hand tools. Spreading ground maintenance activity assumptions based on Representative Project K, Cucamonga Spreading Grounds (Facility No. 1-303-2A), are presented in Table 4.10-13.

[12] Spreading grounds are typically large areas of native ground that contain above-ground-surface embankments, or basins (below ground surface) with earthen bottoms, used by private and public water purveyors to impound water to recharge groundwater aquifers. Generally, spreading grounds are constructed in conjunction with a channel. The channel will divert flows into a spreading ground in order to impound the water for groundwater recharge. See Table 3-2 for the number of spreading grounds in the program area.

Table 4.10-13
Representative Project K – Spreading Grounds Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks[b]	Equipment	
					Equipment Type	*Quantity*
Access road maintenance	2	4	2	0	Grader	1
Grading – stockpile maintenance	2	4	0	4	Grader	1
					Loader	1
Herbicide application	2	4	6	0	N/A	N/A
Vegetation management	6	14[c]	2	0	Speed loader (tractor/ loaders/backhoes)[d]	1
					Boom mower (other construction equipment)[d]	1

Source: Derry, pers. comm. 2017.
Notes: N/A = not applicable (no off-road construction equipment is associated with the proposed maintenance activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.
[a] Water, sprayer, and service trucks are included as vendor trips for modeling.
[b] Dump trucks are included as haul trips for modeling.
[c] Workers will arrive by service truck.
[d] Equipment used for mechanical vegetation management may be interchangeable based on site-specific conditions and equipment availability.

Representative Project L: Sand and Gravel Operations (Devil's Basin (Facility No. 2-304-4F))

Devil's Basin (Facility No. 2-304-4F) was selected to represent a sand and gravel operation maintenance project. Sand and gravel operations consist of vendors sorting through surplus stockpiled materials so they can be separated by size and sold to buyers. Depending on the market and the volume of stockpiled material at any given site, sand and gravel operations are generally present in the visual environment for an average of 2 years, but this can extend up to 5 years or be as minimal as 6 months. Sand and gravel operations are facilitated by graders, loaders, dump trucks, and water trucks, but equipment also includes grizzlies (i.e., a system of bars or similar equipment applied over debris and sediment to screen out large cobbles and boulders), portable power screens (which can run 5 days a week), and portable power crushers. Although models vary, portable power screens are typically composed of a steel frame and display a rectangular or square form (typically of a similar size to a 12- or 18-foot-long dumpster) with a sloped screen and debris and sediment deposit area. Once sorted, materials are either deposited at ground level near the base of the portable power screen or are transferred to a nearby area via an angled conveyor-belt apparatus that is attached to the portable power screen. Portable power crushers are larger than power screens and can be up to 15 feet tall and 50 feet long. Sand and gravel operation maintenance activity assumptions based on Representative Project L, Devil's Basin (Facility No. 2-304-4F), are presented in Table 4.10-14.

Table 4.10-14
Representative Project L – Sand and Gravel Operations Maintenance Activity Scenario

Work Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day[a]	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Sand and gravel operations	522	12	2	8,352	Loaders	2
					Crusher (crushing/ proc. equipment)	1
					Screening equipment (other construction equipment)	1

Source: Derry, pers. comm. 2017.
Note:
[a] Water truck is included as vendor trips for modeling.

4.10.4.4 Existing Noise Environment

The results of the sound-level measurements, the land use type of each measurement location, observed noise sources, and details about the measurement location and measurement period for each representative project site are summarized in Table 4.10-15. Measured noise levels varied from 43 dBA L_{eq} at measurement location M-2 to 61 dBA L_{eq} at measurement location M-12, when rounded to whole numbers as is customary for community noise measurements.

Table 4.10-15
Short-Term Sound Level Measurement Results

Site ID	Measurement Location	Measurement Period			Noise Sources	Land Use Type/ Sensitive Receptor	Nearby District Facility	Facility ID Number	Measurement Results (dBA)[a]					
		Date	*Start Time*	*Duration (mm:ss)*					L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
M-1	4630 San Jose St. Montclair, California 91763	4/12/17	11:58:00	10:00	Traffic, birds, distant aircraft, distant conversations/yelling, distant traffic, rustling leaves	Residential	Montclair Basin No. 2	1-110-4B	54.1	66.9	47.6	49.6	52.4	56.7
M-2	1331 Leggio Ln. Upland, California 91784	4/12/17	11:28:00	10:00	Traffic, birds, distant aircraft, distant traffic, rustling leaves	Residential	Cucamonga Basin No. 6	1-306-4B	43.3	65.6	37.5	38.3	39.9	44.1
M-3	14000 Weeping Willow Ln. Fontana, California 92337	4/13/17	08:42:00	10:00	Birds, distant aircraft, distant dog barking, distant traffic, rustling leaves	Residential	Dedez Channel & Dedez Basin	1-813-1B & 1-814-3A	46.9	58.3	39.5	41.7	44.9	50.3
M-4	14198 Young's Cyn Rd. Rancho Cucamonga, California 91739	4/12/17	10:16:00	10:00	Traffic, birds, distant aircraft, rustling leaves	Residential	San Sevaine Basin No. 5 & San Sevaine Basin No. 3	1-802-3E & 1-802-4C	57.8	61	54.6	56.2	57.7	59.1
M-5	1094 Award Dr. Colton, California 92324	4/13/17	09:15:00	10:00	Birds, distant dog barking, distant traffic, rustling leaves	Residential	Warm Creek & Warm Creek Conservation Basin No. 4	2-411-1B & 2-241-2D	48.1	53.4	44.2	45.2	47.7	49.8
M-6	1600-1648 Willowcreek Dr. Redlands, California 92374	4/13/17	10:55:00	10:00	Traffic, birds, distant aircraft, distant conversations/yelling, distant traffic, rustling leaves	Residential	Zanja Creek	3-501-1E	45.3	56.8	40	41.2	43.2	47.4
M-7	686 E 40th St. San Bernardino, California 92404	4/13/17	09:42:00	10:00	Traffic, birds, distant dog barking	Recreation (Wildwood Park)	Waterman Levee & Waterman Spreading Grounds	2-408-5A & 2-404-2A	47.5	62.2	41.1	42.3	45.4	50

Table 4.10-15
Short-Term Sound Level Measurement Results

Site ID	Measurement Location	Measurement Period			Noise Sources	Land Use Type/ Sensitive Receptor	Nearby District Facility	Facility ID Number	Measurement Results (dBA)[a]					
		Date	*Start Time*	*Duration (mm:ss)*					L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
M-8	30188 Santa Ana Canyon Rd. Highland, California 92346	4/13/17	10:12:00	10:00	Traffic, birds, distant dog barking, rustling leaves	Residential	Plunge Creek & Plunge Creek Spreading Grounds	3-201-1B & 3-202-2A	46.3	57.2	40.8	42.6	44.7	49.1
M-9	33441 Pine Dr. Yucaipa, California 92399	4/13/17	11:19:00	10:00	Birds, distant aircraft, distant dog barking, distant traffic, rustling leaves	Residential	Chicken Springs Basin	__	45.7	54.2	41	42.7	44.9	48
M-10	13078 Pinewood Ln. Yucaipa, California 92399	4/13/17	11:41:00	10:00	Traffic, birds, distant aircraft, distant gardener/landscape noise, distant traffic, rustling leaves	Residential	Facility No. 3-608-4A	Wildwood Debris Basin	52.3	64.9	39.5	43.3	49.9	55.9
M-11	6384 Bagley Ave. Twentynine Palms, California 92277	4/11/13	11:46:00	10:00	Traffic, birds, distant aircraft, distant traffic	Residential	Facility Nos. 6-402-1B & 4-402-4A	29 Palms Flood Channel & Donnell Basin	50.8	67.1	36.2	36.8	40.8	53.8
M-12	15835 Potomac Rd. Apple Valley, California 92307	4/12/17	09:13:00	10:00	Traffic	Residential	Facility No. 4-201-1A	Desert Knolls Wash	60.8	67.7	50.6	55.7	60.3	63.2
M-13	62485 CA-62 Joshua Tree, California 92252	4/11/17	12:22:00	10:00	Traffic, birds, distant aircraft, distant conversations/yelling, distant traffic, rustling leaves	Residential	Facility No. 6-453-5A	Quail Wash Levee	43.9	53.9	34.9	40.2	42.7	46.4
M-14	875 Cucamonga Creek Trail Upland, California 91784	4/12/17	11:06:00	10:00	Resident working in garage, birds, distant aircraft, distant traffic, rustling leaves	Residential	Facility Nos. 1-301-1B & 1-352-3A	Cucamonga Channel & Cucamonga Dam	45.1	59.1	39	40.4	42.3	47.7

Table 4.10-15
Short-Term Sound Level Measurement Results

Site ID	Measurement Location	Measurement Period			Noise Sources	Land Use Type/ Sensitive Receptor	Nearby District Facility	Facility ID Number	Measurement Results (dBA)[a]					
		Date	*Start Time*	*Duration (mm:ss)*					L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
M-15	401-775 W. 26th St. Upland, California 91784	4/12/17	10:49:00	10:00	Birds, distant aircraft, distant traffic, rustling leaves	Residential	Facility No. 1-313-4A	San Antonio Heights Basin No. 1	49.4	67.5	34.4	36.6	44.4	53

Source: Appendix H.
Notes: mm:ss: = minutes:seconds; dBA = A-weighted decibels.
[a] The L_{min} value obtained for a particular monitoring location represents the quietest moment occurring during the measurement period and is often called the acoustic floor for that location. The loudest momentary sound during the measurement is represented by L_{max}. To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10} L_{50}, and L_{90} (or other percentile values) are the noise levels equaled or exceeded 10%, 50%, and 90% of the time, respectively, during the measured interval. For example, the L_{50} value would represent 30 minutes of a 1-hour period.

4.10.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The following SOP is relevant to the noise analysis. Its relevance to specific impact topics is detailed in Section 4.10.6, Impacts Analysis.

SOP-NOI-1 Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks. In order to minimize noise at nearby noise-sensitive receptors, proposed program activities implement the following earthwork considerations, as applicable:

- Noise-generating maintenance activities are restricted to the daytime, generally 7:00 a.m. to 7:00 p.m. Monday through Friday, or to the applicable local permitted hours if the work is located within a jurisdictional boundary in the program area, except for urgent or emergency situations. As necessary, the District coordinates with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts.
- Electrically powered equipment is used instead of pneumatic or internal-combustion-powered equipment, where feasible.
- Temporary material stockpiles and mobile equipment staging and parking are located as far as practicable from noise-sensitive receptors.

4.10.6 Impacts Analysis

This section evaluates potential impacts associated with noise that would result from the proposed program. Maintenance activities under the proposed program could generate noise from the use of heavy equipment at the sites or vehicles transporting material to or from the maintenance sites. Equipment anticipated for the proposed program would not include the type associated with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment). This type of equipment would not be necessary for implementation of the proposed program.

One set of comments was received regarding impacts on noise and vibration in response to the 2014 Notice of Preparation (see Appendix C to this EIR). A comment letter from a resident (Iona Chelette, June 28, 2014) regarding the current use of Quail Wash in Joshua Tree requested any prior environmental studies (including noise). In addition, the comment letter states that the Quail Wash site management is placing an imposition upon its neighbors by creating noise as well as other effects without consultation, in particular with its choice of truck routes, and states that residents in the area are generally subjected to hazardous levels of traffic noise and excessive

vibration. In response to this comment, a representative noise measurement (M-13) was conducted at the Quail Wash Levee to sample the ambient noise levels as shown on Figure 4.10-1 and in Table 4.10-15. Measured noise levels were 44 dBA L_{eq} at measurement location M-13.

4.10.6.1 Methods of Analysis

Although maintenance currently occurs at District facilities, the level and frequency varies depending on the environmental clearance obtained for specific maintenance projects. Therefore, this analysis employed a conservative approach and compared modeled noise levels for the proposed program against ambient conditions. As discussed in Section 4.10.4.2, Noise Analysis Methodology, noise associated with proposed maintenance activities was quantified using the FHWA's RCNM model. Table 4.10-16 provides equipment noise data, which are used as inputs to the RCNM. The noise levels listed represent the A-weighted maximum sound level (L_{max}) measured at a reference distance of 50 feet from the equipment (FHWA 2006).

Table 4.10-16
Noise Emission Reference Levels and Usage Factors

Equipment	Acoustical Usage Factor[a] (% of time)	Noise Level at 50 feet (dBA L_{max})
Backhoe	40	80
Compressor (air)	40	80
Concrete pump truck	20	82
Concrete mixer truck	40	85
Crane	16	85
Excavator	40	85
Front-end loader	40	80
Generator	50	82
Grader	40	85
Paver	50	85
Pickup truck	40	55
Pump	50	77
Roller	20	85
Tractor	40	84

Source: FHWA 2006.
Notes: dBA = A-weighted decibels; L_{max} = maximum sound level.
[a] "Acoustical usage factor" is the percentage of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

4.10.6.2 Analysis

As discussed in the introduction to Chapter 4, most analyses in this EIR are organized into three categories of activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, because a representative project

approach was used for the noise analysis to capture the maximum potential noise levels resulting from proposed program activities at selected maintenance sites, this categorization does not apply to the noise analysis. In addition, because the noise analysis is based on specific noise impacts of the selected representative projects rather than on regional effects, this analysis is not organized by geographic region as described in Chapter 4.

Impact NOI-1

Would the program result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Valley, Mountain, and Desert Regions

All Program Activities

FHWA's RCNM and standard District practices regarding equipment used for maintenance of the representative proposed projects were used to estimate noise levels at a distance of 100 feet from the equipment/activity. The input and output from this and the other RCNM analyses are included in Appendix H, and the results are summarized in Table 4.10-17. The highest sound levels associated with proposed maintenance activities would range from approximately 75 to 81 dBA L_{eq} at a distance of 100 feet from the maintenance activity.

Table 4.10-17
Maintenance Activity Noise Results Summary (Based on Facility Type)

Facility Type	Maximum Maintenance Activity Noise at Representative Receiver Distances (L_{eq} (dBA)) at 100 feet
Concrete channel	75
Earthen–engineered channel	79
Earthen–natural channel	80
Dam	77
Debris basin	79
Detention basin	75
Groin	77
Storm drain	75
Levee 1	81
Levee 2	81
Spreading ground	77
Sand and gravel operations	80

Source: Appendix H.
Notes: L_{eq} = equivalent measured sound level; dBA = A-weighted decibels.

The County's Code of Ordinances (Title 8, Division 3, Chapter 83.01) sets standards for stationary noise sources (i.e., on-site equipment noise) at adjacent property boundaries. The standard for the hours from 7:00 a.m. to 10:00 p.m. is 55 dBA L_{eq}. The other municipalities within the proposed program area also have set standards for daytime hours ranging from 50 to 75 dBA L_{eq}. These standards are typically applicable to permanent on-site noise (i.e., noisy pumps, fans, or other operational equipment), not to short-term or temporary activities. Noise from maintenance activities associated with the proposed program would be short term and temporary and would occur only during the specific maintenance activity. Based on a review of the local codes for jurisdictions potentially impacted by the proposed program, the proposed program activities are exempted from local noise standards through special provisions, exemptions, or exceptions outlined in the various noise codes related to construction or public utilities work. As stated previously, the District is exempt through California Government Code Section 53091, as well as the local codes. However, routine maintenance activities would typically occur Monday through Friday from 7:00 a.m. to 7:00 p.m. Weed abatement would be conducted on Saturdays and Sundays by crews of approximately 12 to 18 people. Additionally, on Saturdays and Sundays, operations staff would be present for 9 hours a day for each zone to conduct minor maintenance, such as manual debris removal, and would be available for emergency situations and to oversee weed abatement work. Maintenance activities beyond minor maintenance would occur on the weekends only in urgent situations, which would occur less than 10% of the time (approximately six times a year). Maintenance activities outside the limits described above would occur only in emergency situations. This is generally consistent with the applicable local codes and ordinances. Maintenance activities are not conducted on Sundays or during federal holidays, nor are they conducted during nighttime hours. In addition, as described in SOP-NOI-1 (Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks), the District would coordinate with local jurisdictions as necessary to ensure maintenance activities are not in violation with local policies and ordinances (see Section 4.10.5, Standard Operating Procedures). Therefore, impacts related to the generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, would be less than significant.

Impact NOI-4

Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?

Valley, Mountain, and Desert Regions

All Program Activities

Although noise from proposed maintenance activities would be audible and would temporarily elevate the local ambient noise level to some degree at nearby noise-sensitive land uses. Based on

the ambient noise measurements shown in Table 4.10-15, Short-Term Sound Level Measurement Results, which ranged from 43 to 61 dBA L_{eq}, temporary noise level increases could range from approximately 14 to 38 dB. However, maintenance activities are expected to be short term at each location and would be consistent with the types of maintenance activities that currently occur routinely throughout the system. Additionally, these noise levels are consistent with other existing, non-project-related activities associated with local maintenance and infrastructure. See, for example, Table 4.10-1, Typical Noise Levels, in which noise levels from some common outdoor noise sources are listed; the documented typical noise level from a gas lawnmower at a distance of 100 feet is 70 dBA, and a diesel truck at 50 feet is listed as approximately 85 dBA.

The proposed program would not result in significantly increased activity or project-related noise levels beyond those currently being experienced at nearby noise-sensitive land uses; this includes the residences near Quail Wash. In addition, as part of standard practice, where feasible, the District would implement a noise minimization SOP (described in Section 4.10.5 and in Appendix A) to reduce noise levels in the vicinity of sensitive receptors, which are generally described in Section 4.10.4.1, Noise Concepts. With implementation of the noise minimization measures listed in SOP-NOI-1 (Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks), in addition to the short-term, temporary nature of the noise, impacts related to a substantial temporary or periodic increase in ambient noise levels in the proposed program vicinity above levels existing without the proposed program would be less than significant.

4.10.7 Mitigation Measures

With incorporation of District standard practice SOP-NOI-1, potential noise impacts would be less than significant; therefore, no mitigation measures would be required.

4.10.8 Level of Significance After Mitigation

Noise impacts from implementation of the proposed program would be less than significant. Table 4.10-18 summarizes the impacts from proposed maintenance activities under each impact threshold analyzed in this EIR section.

Table 4.10-18
Noise Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact NOI-1: Would the program result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				
Valley, Mountain, and Desert Regions				
All Program Activities	SOP-NOI-1	Less than significant	—	Less than significant

Table 4.10-18
Noise Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact NOI-4: Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?				
Valley, Mountain, and Desert Regions				
All Program Activities	SOP-NOI-1	Less than significant	—	Less than significant

4.10.9 Cumulative Impacts

Maintenance activities associated with the proposed program would not result in a substantial temporary increase in ambient noise levels where these activities would occur. Noise impacts from proposed program activities would be short term, temporary, infrequent, and localized, and therefore less than significant. In most cases, only one activity would be occurring in any particular location, which would not constitute a significant cumulative impact when considered in combination with other activities in the region. In addition, cumulative impacts would be further reduced with implementation of noise minimization measures in SOP-NOI-1 (Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks) as part of the District's standard practice to reduce or avoid noise levels from maintenance activities in the vicinity of sensitive receptors. Following implementation of maintenance activities, the proposed program would not contribute to cumulatively considerable noise impacts associated with other projects in the region; therefore, cumulative impacts would be less than significant and no mitigation measures would be required.

4.10.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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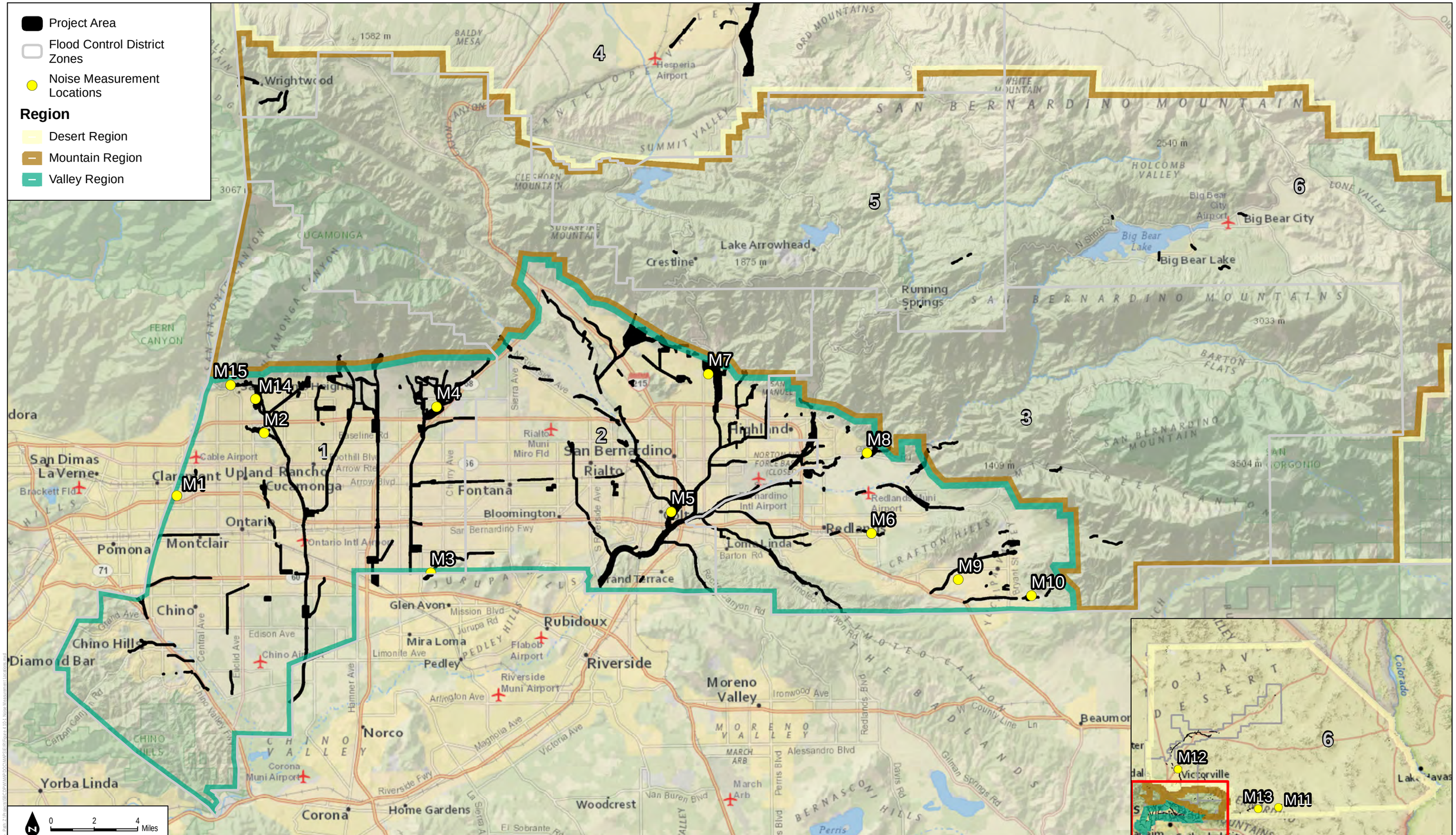

DUDEK

SOURCE: ArcGIS Online Basemap (Nat Geo), SBC Landslide Data

FIGURE 4.10-1

Noise Measurement Locations

San Bernardino County Flood Control District

Master Storm Water System Maintenance Program Draft Environmental Impact Report

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4.11 PUBLIC SERVICES

4.11.1 Introduction

This section of the environmental impact report (EIR) describes the existing public services setting of the proposed Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce public services impacts, and evaluates potential impacts related to implementation of the proposed program.

The 2014 Initial Study (see Appendix B) determined that there would be no impact or a less than significant impact on public services related to police protection, schools, parks and other public facilities; therefore, these topics are not further analyzed in this EIR, and this section focuses on potential impacts to fire protection services. The analysis was developed by reviewing available information on fire protection services in the County and within local jurisdictions across the proposed program area. The analysis focuses on whether the increase in maintenance activities associated with the proposed program would result in additional demand for fire protection services. To make this determination, each activity was analyzed for the potential for fire risk.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The existing conditions are described within the Valley, Mountain, and Desert Regions; however, the impact analysis combines the discussion under one heading because the approach to mitigate the effects of fire does not vary across the three geographic regions of the County. As described in the introduction to Chapter 4, Environmental Analysis, the impacts analysis is separated into ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities.

The analysis contained in this section is based on information compiled by the District in addition to documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.11.10, References.

4.11.2 Regulatory Framework

Federal

The following federal guidelines pertaining to fire protection services would apply to the proposed program.

U.S. Forest Service

Portions of the proposed program occur in the San Bernardino National Forest; therefore the proposed program would need to be consistent with guidelines established by the U.S. Forest Service. The San Bernardino National Forest is part of Region 5, Pacific Southwest Region, of the U.S. Forest Service (USFS). The Pacific Southwest Region of the USFS manages 20 million acres of national forest land in California and assists the state and private forest landowners in California, Hawaii, and the U.S. Affiliated Pacific Islands. Eighteen national forests are located in this region. USFS Fire and Aviation Management is responsible for wildland fire suppression to protect communities and natural resources within the jurisdiction of the USFS.

National forests contain 6 million of the total 9 million acres of highly volatile brushland in California, found mainly in the foothill country where urban expansion is increasing and many developments lack adequate protection against wildfire. Since October 2008, more than 1,511 fires have burned in excess of 875,769 acres of national forest land in California (USFS 2017).

State

The following state regulations and agencies have implications for the proposed program with respect to fire protection services.

2016 California Fire Code

The California Fire Code is part of the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. The California Building Standards Code is published in its entirety every 3 years by order of the California legislature, with supplements published in intervening years. The California legislature delegated authority to various state agencies, boards, commissions, and departments to create building regulations to implement the state's statutes. These building regulations, or standards, have the same force of law, and take effect 180 days after their publication unless otherwise stipulated. The California Building Standards Code applies to all jurisdictions in the State of California. A city, a county, or a city and county may establish more restrictive standards reasonably necessary because of local climatic, geological, or topographical conditions (California Building Standards Commission 2016).

Although the proposed program does not involve the construction or operation of human-occupied buildings, it involves maintenance activities, which would be subject to Chapter 33, Fire Safety during Construction and Demolition, and Chapter 35, Welding and Other Hot Work.

CAL FIRE San Bernardino Unit Strategic Fire Plan

Portions of the proposed program are located within the jurisdiction of the California Department of Forestry and Fire Protection (CAL FIRE), specifically within the CAL FIRE San Bernardino Unit. Therefore, the proposed program would need to be consistent with guidelines established by the CAL FIRE guidelines, for the portions of the proposed program located within CAL FIRE jurisdiction. The San Bernardino Unit includes San Bernardino, Los Angeles, Inyo, and Mono Counties. The total unit area is 1,408,000 acres of State Responsibility Area plus 18,502 acres of wildland contracts. All of the counties have multiple public lands within their response areas, including lands owned and managed by the Bureau of Land Management, National Park Service, and the U.S. Fish and Wildlife Service, and California State Parks, as well as national forest lands and county and local parks.

The CAL FIRE San Bernardino Unit Fire Prevention Bureau oversees the application of California Public Resources Code, Section 4290, and Title 14 of the California Code of Regulations, Section 1270, on all private lands classified as State Responsibility Area. These regulations are best known as the "SRA [State Responsibility Area] Fire Safe Regulations," and constitute the basic wildland fire protection standards of the California Board of Forestry and Fire Protection. CAL FIRE has been given the role of wildland fire protection and is provided the opportunity to review and comment on all proposed construction and development within the State Responsibility Area. In cooperation with Inyo County Planning, Mono County Planning, and San Bernardino County Planning when requested, CAL FIRE has oversight responsibility and reviews Land Division Applications for compliance with California Public Resources Code, Section 4290. CAL FIRE forwards recommendations to the appropriate planning department, specifying the minimum requirements necessary to meet state law (CAL FIRE 2012).

Local

The following local regulations pertaining to fire protection services would apply to the proposed program.

County of San Bernardino Municipal Code

County of San Bernardino Municipal Code, Title 2, Division 3, Chapter 3, Abatement of Fire Hazards and Hazardous Trees, requires every owner or person in control of any land or interest therein in the unincorporated area of the County to abate all fire hazards and hazardous trees from such land and from all sidewalks, parkways, road easements and all other easements on such land. All such fire hazards and hazardous trees are declared to be a public nuisance for

which the costs of abatement may be specially assessed pursuant to California Government Code, Section 25845. Abatement requirements are specified for the Valley, Mountain, and Desert Regions of the County.

County of San Bernardino 2007 General Plan

The County of San Bernardino 2007 General Plan, Circulation and Infrastructure Element (County of San Bernardino 2007), provides goals and policies regarding fire protection, including the following:

GOAL CI 16 The County will protect its residents and visitors from injury and loss of life and protect property from fires through the continued improvement of existing Fire Department facilities and the creation of new facilities, but also through the improvement of related infrastructure that is necessary for the provision of fire service delivery such as water systems and transportation networks.

Other General Plans

General plans serve to guide and direct local government decision making in public services and facilities-related matters. Generally, public services and facilities elements or chapters in local jurisdictions' general plans focus on publicly managed services and facilities that have a direct influence on the distribution and intensity of development that can be accommodated through assumptions to determine adequate service levels. This includes fire protection and fire response services. Jurisdictions typically have an established threshold that measures a fire department's ability to respond to a fire in a timely manner.

4.11.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to public services are based on criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to public services would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact PUB-1 ***Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:***

a. Fire protection?

b. Police protection?

c. Schools?

d. Parks?

e. Other public facilities?

In June 2014, the District recirculated a Notice of Preparation and Initial Study, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The Initial Study determined that there would be no impact or a less than significant impact on public services related to police protection, schools, parks and other public facilities; therefore, these topics are not further analyzed in this EIR.

No comments were received in response to the 2014 Notice of Preparation (see Appendix B to this EIR) regarding impacts on fire services; however, based on the findings in the Initial Study, Impact PUB-1a is analyzed in this EIR section (see Section 4.11.6.2, Analysis).

4.11.4 Existing Conditions

This section describes the existing conditions in the proposed program area and also identifies the resources that could be affected by the proposed program.

4.1.4.1 Overview

A combination of climate, topography, vegetation, and development patterns creates high fire hazard risks throughout the County, especially in the many areas of wildland/urban intermix located in foothills and mountainous areas countywide.

As development encroaches upon wildland areas, the potential for disastrous loss of watershed, structures, and life (human and wildlife) increases. Establishment of a coordinated program to condition development in some of these areas has been adopted through the Fire Safety Overlay provisions of the County Development Code. Continuous evaluation and application of Hazard Overlays and accompanying policies and standards for adequate services, facilities, mapping, and developmental regulation are required as pressure for development increases countywide. Included in developmental regulation are requirements for minimum road widths (to provide adequate access for both firefighting equipment and evacuating residents) (County of San Bernardino 2007). These regulations are relevant to the District because minimum road widths are important to maintain access to flood control facilities for regular maintenance activities and fire suppression activities by other agencies. Vegetation management under the proposed program is mainly for the purpose of maintaining the capacity of flood control facilities, but it has the secondary benefit of reducing wildfire potential.

The San Bernardino County Fire Department (San Bernardino County Fire) is a regional fire service agency that serves the Cities and Communities of Adelanto, Fontana, Grand Terrace, Hesperia, Needles, San Bernardino, Twentynine Palms, Upland, Victorville, and Yucca Valley in addition to various towns and communities within unincorporated San Bernardino County. San Bernardino County Fire regionally provides fire, emergency medical, and rescue services within a 19,130-square-mile service area. There are 65 fire stations that provide regional emergency response for fires, medical aids, rescues, and hazardous materials incidents (San Bernardino County Fire 2016). Jurisdictions in the County that are not served by San Bernardino County Fire operate under individual city fire departments.

Table 4.11-1 identifies each jurisdiction potentially affected by the proposed program, its functioning fire department, and the address of its fire department's headquarters. Additionally, there are some proposed program activities that are within the County of Riverside, as specified in Table 4.11-1.

Table 4.11-1
Fire Jurisdiction Summary

Fire Departments	Jurisdiction	Region	Address
Apple Valley Fire Protection District	City of Apple Valley	Desert	22400 Headquarters Drive Apple Valley, California 92307
Barstow Fire Protection District	City of Barstow	Desert	220 East Mountain View Street, Suite A, Barstow, California 92311
Big Bear Lake Fire Protection District	City of Big Bear Lake	Mountain	39707 Big Bear Boulevard PO Box 10000 Big Bear Lake, California 92315
Chino Valley Fire District	City of Chino, City of Chino Hills	Valley	14011 City Center Drive Chino Hills, California 91709
Colton Fire Department	City of Colton	Valley	303 East E Street Colton, California 92324
CAL FIRE/Riverside County Fire Department	City of Eastvale, City of Jurupa Valley	Valley[a]	210 West San Jacinto Avenue Perris California 92570
CAL FIRE/San Bernardino Unit	City of Yucaipa	Valley	3800 North Sierra Way San Bernardino, California 92405
Highland Fire Department	City of Highland	Valley	27215 Base Line Highland, California 92346
Loma Linda Fire Department	City of Loma Linda	Valley	25541 Barton Road Loma Linda, California 92354
Montclair Fire Department	City of Montclair	Valley	5111 Benito Street Montclair, California 91763
Ontario Fire Department	City of Ontario	Valley	425 East B Street Ontario, California 91764

Table 4.11-1
Fire Jurisdiction Summary

Fire Departments	Jurisdiction	Region	Address
Rancho Cucamonga Fire District	City of Rancho Cucamonga	Valley	10500 Civic Center Drive Rancho Cucamonga, California 91730
Redlands Fire Department	City of Redlands	Valley	35 Cajon Street Redlands, California 92373
Rialto Fire Department	City of Rialto	Valley	150 South Palm Avenue Rialto, California 92376
San Bernardino County Fire Department	City of Adelanto, City of Fontana, City of Grand Terrace, City of Hesperia, City of Needles, City of San Bernardino, City of Twentynine Palms, City of Upland, City of Victorville, Town of Yucca Valley, and unincorporated San Bernardino County	Desert, Mountain, Valley	157 West Fifth Street, 2nd floor San Bernardino, California 92415-0451

[a] Although portions of the proposed program occur in Riverside County (City of Eastvale and City of Jurupa Valley), these jurisdictions are included in the Valley Region of San Bernardino County.

4.1.4.2 Valley Region

The Valley Region of San Bernardino County is situated at the base of the San Gabriel and San Bernardino mountains, and is bound by the City of Upland and the Los Angeles County line to the west and the City of Yucaipa and the Riverside County line to the east. Proposed program activities in the Valley Region would be located within the following jurisdictions:

- City of Chino
- City of Chino Hills
- City of Colton
- City of Fontana
- City of Grand Terrace
- City of Highland
- City of Loma Linda
- City of Montclair
- City of Ontario
- City of Rancho Cucamonga
- City of Redlands
- City of Rialto
- City of San Bernardino
- City of Upland
- City of Yucaipa
- Unincorporated San Bernardino County

The Valley Region is composed of a diverse geography including valleys and foothills. The inland valleys in San Bernardino County are bounded on the northeast and northwest by the San Bernardino and San Gabriel Mountain Ranges. The Valley Region is largely developed, with approximately 77% of the area within County jurisdiction either developed or under agricultural uses.

Portions of the Cities of Chino Hills, Colton, Fontana, Grand Terrace, Highland, Loma Linda, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Upland, and Yucaipa are identified as very high fire hazard severity zones. Portions of the proposed program area within these cities occur in the very high fire hazard severity zones (CAL FIRE 2008).

Flammable vegetation that occurs within the Valley Region includes plants with dead material, grass over 4 inches in height, and tumbleweeds (prickly Russian thistle (*Salsola tragus*)). Flammable vegetation, combustible rubbish, and limbs and undergrowth up to 6 feet off the ground in eucalyptus (*Eucalyptus* spp.) windrows are all considered fire hazards in the Valley Region of the County (County of San Bernardino 1994).

4.1.4.3 Mountain Region

The Mountain Region is located north of the Valley Region in the San Gabriel and San Bernardino Mountains, separated by the Cajon Pass, a defining feature of the San Andreas Fault Zone. The mountain communities stretch from Mount Baldy and Wrightwood to the west, to Big Bear City on the east, and Forest Falls to the southeast. Proposed program activities in the Mountain Region would be located within the following jurisdictions:

- City of Big Bear Lake
- Unincorporated San Bernardino County

A majority of wildland fires occur in the Mountain Region and affect both mountain and foothill communities. The Mountain Region is characterized by forest land and dense vegetation. The forest land contains volatile brushland found mainly in the foothill country where urban expansion is increasing and many developments lack adequate protection against wildfire, making the Mountain Region the most vulnerable area to wildfire in the proposed program area (USFS 2017).

The majority of the City of Big Bear Lake is identified as a very high fire hazard severity zone. Portions of the proposed program within the City of Big Bear Lake occur in a very high fire hazard severity zone (CAL FIRE 2008).

Flammable vegetation that occurs within the Mountain Region includes trees, high-energy-release shrubs (manzanita (*Arctostaphylos* spp.), serviceberry (*Amelanchier* spp.), mountain white thorn (*Ceanothus cordulatus*), sage (*Salvia* spp.), Catalina ironwood (*Lyonothamnus floribundus*), juniper shrubs (*Juniperus* spp.), Spanish broom (*Spartium junceum*)), lower foliage on and under shrubs, plants with dead material and leaf litter, grass over 4 inches in height, pine needles, leaf litter, and chipped/ground mulch. Flammable vegetation, combustible rubbish, and leaves, needles, or dead vegetative growth are all considered fire hazards in the Mountain Region of the County (County of San Bernardino 1994).

4.1.4.4 Desert Region

The Desert Region is located north of the San Bernardino and San Gabriel Mountains and north of the Riverside County line, to the Arizona state line to the east, Kern and Los Angeles Counties to the west, and Inyo County and the Nevada state line to the north. Proposed program activities in the Desert Region would be located within the following jurisdictions:

- City of Adelanto
- City of Apple Valley
- City of Barstow
- City of Hesperia
- City of Needles
- City of Twentynine Palms
- City of Victorville
- Town of Yucca Valley
- Unincorporated San Bernardino County

The Desert Region is primarily characterized by shorter, remote mountain ranges surrounded by desert plains.

Portions of the City of Hesperia and the Town of Yucca Valley are identified as very high fire hazard severity zones. Portions of the proposed program within the Town of Yucca Valley occur in a very high fire hazard severity zone (CAL FIRE 2008).

Flammable vegetation that occurs within the Desert Region include prickly Russian thistle, limbs and debris of saltcedar (*Tamarix ramosissima*), plants with dead material, and grass more than 4 inches in height. Flammable vegetation, combustible rubbish, and tumbleweeds are all considered fire hazards in the Desert Region of the County (County of San Bernardino 1994).

4.11.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The following SOPs are relevant to the public services analysis. Their relevance to specific public services impact topics is detailed in Section 4.11.6, Impacts Analysis.

SOP-PUB-1 **Fire Extinguisher.** Due to the risk of fire, all maintenance vehicles are equipped with a fire extinguisher in case of incidental sparks caused by maintenance.

SOP-PUB-2 **Fire Safety Measures.** The maintenance crew provides fire safety measures during maintenance activities in compliance with Chapter 33 of the California Fire Code. Gasoline-powered or diesel-powered machinery used during maintenance are equipped with standard exhaust controls and muffling devices

that also act as spark arrestors. Fire containment and extinguishing equipment are available and accessible during maintenance activities. The maintenance crew is trained in the use of the fire suppression equipment and is not permitted to idle vehicles on the job site when they are not in use. Where hot work is necessary, it is performed in compliance with the California Fire Code's Chapter 35, "Welding and Other Hot Work," and the National Fire Protection Association's 51-B, "Fire Prevention During Welding, Cutting and Other Hot Work."

4.11.6 Impacts Analysis

4.11.6.1 Methods of Analysis

The proposed program setting was developed by reviewing available information on fire protection services in the County and within local jurisdictions across the Valley, Mountain, and Desert Regions. The analysis was developed by reviewing the description and equipment for each flood control maintenance activity type.

4.11.6.2 Analysis

Proposed maintenance activities are primarily related to addressing infrastructure repair and protection needs of existing facilities. Maintenance activities would not involve the expansion of existing or construction of new facilities. Therefore, no indirect stimulus to growth would occur. No homes or employment opportunities are proposed that would directly facilitate population growth. The workforce hired to implement/perform proposed maintenance activities would be small and would most likely already be employed by the District or would come from the region, so there would be no growth as a result of implementation of long-term maintenance activities. Proposed maintenance activities would not directly or indirectly induce substantial population growth resulting in the need for additional fire protection services.

This impact analysis combines the analysis of impacts under one heading because the approach to mitigate the effects of fire does not vary across the three geographic regions of the County (Valley, Mountain, and Desert).

Impact PUB-1a

Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services?

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

Ground-disturbing activities would include stockpiling, mechanized land clearance/sediment removal, vegetation management, bank repair, and ingress/egress, all of which would typically employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3, Program Description (e.g., grader, loader, dozer, dump truck, scraper, excavator, and roller). Use of such heavy equipment around flammable vegetation and other materials that are fire hazards presents a fire risk that could result in the need for fire suppression services. Although "hot work," including welding, soldering, cutting, and brazing, is not anticipated to occur during ground-disturbing activities, there could be risks associated with incidental sparks from the use of equipment or from the refueling of equipment.

As part of the District's standard practice, SOP-PUB-1 (Fire Extinguisher) (see Section 4.11.5, Standard Operating Procedures) requires that a fire extinguisher be present on all maintenance vehicles to reduce potential impacts due to fire hazards and SOP-PUB-2 (Fire Safety Measures) requires that maintenance crews be trained in fire protection procedures and be prepared to extinguish small fires during maintenance activities.

Additionally, the proposed program would not include construction of new or expanded facilities that would increase the number of facilities or indirectly cause population growth and development, resulting in the need for additional fire protection services. Proposed program activities would be temporary in nature and would not require the expansion of existing fire protection services. In the event that fire suppression services are required, existing fire stations and crews would be able to adequately support the proposed activities, and no new or additional fire protection services would be required. Therefore, upon incorporation of SOP-PUB-1 and SOP-PUB-2 as part of the District's standard practice, impacts associated with ground-disturbing activities would be less than significant.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management would include mowing and hand clearing of vegetation, and would involve the use of power trimmers, weed eaters, and manual tools as detailed in Table 3-4 of Chapter 3. The proposed vegetation management would reduce the risk of fire-related incidents; however, use of maintenance equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services. Although hot work is not anticipated to occur during vegetation management, there could be risks associated with incidental sparks from the use of maintenance equipment or from the refueling of equipment.

Additionally, the proposed program would not include construction of new or expanded facilities that would increase the number of facilities or indirectly cause population growth and development, resulting in the need for additional fire protection services. Proposed program activities would be temporary in nature and would not require the expansion of existing fire protection services. In the event that fire suppression services are required, existing fire stations and crews would be able to adequately support the proposed activities, and no new or additional fire protection services would be required. Therefore, upon incorporation of SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) as part of the District's standard practice, impacts associated with non-ground-disturbing vegetation management would be less than significant.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities would include sand and gravel operations, herbicide and rodenticide application, flood control structure repair, fuel modification maintenance, graffiti removal, vector control, and stream gage maintenance. In some cases, non-ground-disturbing activities would involve the use of heavy equipment as detailed in Table 3-4 of Chapter 3 (e.g., grader, loader, dump truck, scraper, cement truck, portable power screen, and crusher). Use of equipment around flammable vegetation and other materials that are fire hazards presents a fire risk that could result in the need for fire suppression services, because there could be risks associated with incidental sparks from the use of equipment or from the refueling of equipment. Additionally, hot work could occur during non-ground-disturbing activities.

Additionally, the proposed program would not include construction of new or expanded facilities that would increase the number of facilities or indirectly cause population growth and development, resulting in the need for additional fire protection services. Proposed program activities would be temporary in nature and would not require the expansion of existing fire protection services. In the event that fire suppression services are required, existing fire stations and crews would be able to adequately support the proposed activities, and no new or additional fire protection services would be required. Therefore, upon incorporation of SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) as part of the District's standard practice, impacts associated with non-ground-disturbing activities would be less than significant.

4.11.7 Mitigation Measures

With incorporation of District standard practices SOP-PUB-1 and SOP-PUB-2, potential public services impacts would be less than significant; therefore, no mitigation measures would be required.

4.11.8 Level of Significance After Mitigation

Public services impacts from maintenance activities under the proposed program would be less than significant. Table 4.11-2 summarizes the impacts of proposed activities for the impact threshold analyzed in this EIR section.

Table 4.11-2
Public Services Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact PUB-1a: Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection services?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant

4.11.9 Cumulative Impacts

Physical impacts to public services are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. Public services are provided by local jurisdictions or districts. Service providers serving the proposed program are located within San Bernardino County. Therefore, the geographic extent for the public services analysis is limited to the County, with a focus on the localized nature of the program activities.

Cumulative impacts on fire protection services can result when projects combine to increase demand on services such that additional services must be provided or new fire facilities constructed. This usually results from incremental addition of people occupying an area or incremental urban development, requiring expanded public services provision. Maintenance activities associated with the proposed program would not contribute to an impact associated with the need for new or expanded public services or facilities. The proposed program would not include construction of new or expanded facilities that would increase the number of facilities or indirectly cause population growth and development, resulting in the need for additional fire protection services. The proposed program would not increase the population, leading to an

increased demand for public services or facilities. With incorporation of District standard practices SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures), maintenance activities associated with the proposed program would result in less than significant impacts on public services on a localized and temporary basis only.

Several maintenance activities would occur in very high fire hazard severity zones. Although the use of equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services, all activities would be required to have fire safety measures, such as fire suppression equipment, in place prior to the start of any maintenance. With implementation of SOP-PUB-1 and SOP-PUB-2 as part of the District's standard practice, impacts to fire protection services would not combine with other cumulative projects as described in the introduction to Chapter 4 (see Table 4-1), resulting in a need for the expansion of existing or construction of new fire protection facilities. Therefore, this impact would not be cumulatively considerable.

4.11.10 References

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4.12 RECREATION

4.12.1 Introduction

This section of the environmental impact report (EIR) describes the existing recreation setting of the proposed Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce recreation impacts, and evaluates potential impacts related to implementation of the proposed program.

The analysis is based on whether the proposed program would result in an increase in use of existing regional facilities such that substantial physical deterioration of the facility would occur or be accelerated. To make this determination, existing recreational facilities that overlap with the proposed program area sites were analyzed in combination with the type of maintenance activity that is proposed in proximity to the recreational facility.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The County is geographically divided into three distinct regions, Valley, Mountain, and Desert, as described in Chapter 3 of this EIR. For this recreation section, the existing conditions and impacts analysis combines the Valley, Mountain, and Desert regional discussions under one heading because the analysis of impacts to recreational facilities does not vary across the three regions of the County.

The analysis contained in this section is based on information compiled by the District in addition to documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.12.10, References.

4.12.2 Regulatory Framework

Federal

The following federal plans pertaining to recreation would apply to the proposed program.

U.S. Forest Service, Land Management Plan, Southern California National Forests Vision

Portions of the proposed program occur in the San Bernardino National Forest; therefore the proposed program would need to be consistent with guidelines established by the U.S. Forest Service. The Southern California National Forests (Angeles National Forest, Cleveland National Forest, Los Padres National Forest, and San Bernardino National Forest) include over 3.5 million acres of federally managed public land extending from Big Sur to the north to the international border with Mexico to the south. The revised land and resource management plans (forest plans) for the Southern California national forests describe the strategic direction at the broad program level for managing the land and its resources over the next 10 to 15 years. The strategic direction was developed by an interdisciplinary planning team working with national forest staff, using extensive public involvement and the best science available. The revised forest plans are outcome-based and are focused on the condition of the land after project completion. Each forest plan is directed toward the realization of the desired conditions using strategies that are consistent with the concept of adaptive management and sustainable resource use.

The revised forest plans are grounded in the concepts described by the Committee of Scientists in their report, Sustaining the People's Lands (Committee of Scientists 1999). Paraphrasing the committee's report, the term "sustainability" includes three components: ecological, social, and economic. Sustainability means meeting the needs of the present generation without compromising the ability of future generations to meet their needs. The concept of sustainability is old; its broadened interpretation and redefinition should be viewed as a continuation of the attempt by Gifford Pinchot and others that followed him to articulate the meaning of "conservation" and "conservative use" of the lands and waters of the national forests. Therefore, the revised forest plans are designed so that managers have the flexibility to adapt management strategies to the constantly changing demands that are inherent to natural resource management. The strategic direction is expressed through an overall vision of what is desired, the strategy for accomplishment, and the design criteria that will be used as activities are proposed, analyzed, and implemented (USFS 2005).

Bureau of Land Management, California Desert Conservation Area Plan

Portions of the proposed program occur in the jurisdiction of the Bureau of Land Management (BLM); therefore, the proposed program would need to be consistent with guidelines established by BLM. The 25-million-acre California Desert Conservation Area (CDCA) contains over 12 million acres of public lands, and important factor in the use and protection of the CDCA. As a first step toward a mechanism for resolution of conflicts, Congress enacted the Federal Land Policy and Management Act of 1976, which directed BLM to inventory CDCA resources and to prepare a comprehensive land use management plan for the area.

The goal of the CDCA Plan is to provide for the use of the public lands and the resources of the CDCA, including economic, educational, scientific, and recreational uses, in a manner which enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and aesthetic values of the California desert and its productivity. This goal is to be achieved in the CDCA Plan through the direction given for management actions and resolution of conflicts. Direction is stated first on a geographic basis in the guidelines for each of four multiple-use classes. Within those guidelines, further refinement of direction is expressed in the goals for each CDCA Plan element. Direction is also expressed in certain site-specific CDCA Plan decisions, such as Areas of Critical Environmental Concern.

The CDCA Plan provides general regional guidance for management of the CDCA over at least a 20-year period. This general plan is at the top of a hierarchy, providing the framework for subsequent plans for specific resources and uses, as well as for development of site-specific programs or project actions, and it is responsive to specific land use requests.

All of the public lands in the CDCA under BLM management, except for a few small and scattered parcels (approximately 300,000 acres), have been designated geographically into four multiple-use classes. The classification was based on the sensitivity of resources and the types of uses for each geographic area. Four multiple-use classes are used in the CDCA Plan: Multiple-Use Classes C, L, M, and I. Each describes a different type and level or degree of use that is permitted within that particular geographic area. Class C includes areas that are being preliminarily recommended as suitable for wilderness designation by Congress. Multiple-Use Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Multiple-Use Class M (Moderate Use) is based on a controlled balance between higher-intensity use and protection of public lands. This class provides for a wide variety of uses such as mining, livestock grazing, recreation, energy, and utility development. Multiple-Use Class I is an "intensive use" class. Its purpose is to provide for concentrated use of lands and resources to meet human needs (BLM 1999).

State

There are no state plans, policies, or ordinances that are applicable to the proposed program.

Local

County of San Bernardino 2007 General Plan

The County of San Bernardino 2007 General Plan, Open Space Element (County of San Bernardino 2007), provides goals and policies regarding recreation. The following are those that are applicable to the proposed program:

Policy OS 1.8 Ensure that the variety of recreational experiences at Regional Park sites meets the needs of the region.

Policy OS 1.9 Ensure that open space and recreation areas are both preserved and provided to contribute to the overall balance of land uses and quality of life.

GOAL OS 3 The County will develop multi-purpose regional open spaces and advocate multi-use access to public lands including national parks, national forests, state parks, and U.S. Bureau of Land Management areas.

Policy OS 3.2 Seek Joint Powers Agreements and coordination with other jurisdictions' plans.

Policy OS 3.4 Seek the conjunctive use of public lands for regional park experiences. Flood control lands are one example, as are lands that have been deemed unsuitable for habitable structures.

Policy OS 3.5 Coordinate with the federal and state agencies regarding opportunities for leasing public lands for regional park, open space, and trail purposes.

Policy OS 3.6 Consistent with safety and operational considerations, support the use of channels, levees, aqueduct alignments, and similar linear spaces for open space and/or trail use.

Policy OS 3.7 Use open space corridors to link natural areas.

Policy OS 4.2 The County will preserve and encourage the management of suitable land for greenbelts, forests, recreation facilities and flood control facilities to assist the County's efforts to provide adequate water supply, achieve air quality improvement, and provide habitat for fish, wildlife and wild vegetation.

GOAL OS 7 The County will minimize land use conflict between open spaces and surrounding land uses.

Policy OS 7.1 Control access to lands used for open space purposes as appropriate to retain the desirable open space attributes of the land.

Policy OS 7.2 For natural open space areas that require separation from human activity to preserve their function and value, limit construction of roads into or across natural open space areas.

Other General Plans

General plans serve to guide and direct local government decision making for recreational resources. Generally, open space or conservation elements in local jurisdictions' general plans focus on managing the supply of land, setting aside open space, or maintaining existing open space or recreational areas. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding recreational resources. However, the proposed program would not conflict with these general plan policies.

4.12.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to recreation are based on criteria in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to recreation would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact REC-1 ***Would the program increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

Impact REC-2 ***Would the program include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?***

In June 2014, the District recirculated a Notice of Preparation and Initial Study (see Appendix B to this EIR), which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The 2014 Initial Study determined there would be no impact from the proposed program's inclusion of recreational facilities or required construction or expansion of recreational facilities that might have an adverse effect on the environment; therefore, Impact REC-2 is not further analyzed in this EIR. Impact REC-1 is carried forward for analysis in this section of the EIR (see Section 4.12.6.2, Analysis).

4.12.4 Existing Conditions

Recreation areas where proposed program activities would occur include national forest lands and state parks, BLM land, county parks, and city parks (California Protected Areas Database 2017). Some of the largest recreation areas where proposed program activities would occur include the San Bernardino National Forest, North Etiwanda Habitat Preserve, and Prado Regional Park in the Chino Valley Basin. Table 4.12-1 identifies District-maintained areas included as part of the proposed program that traverse national, state, county, or city recreation areas.

Table 4.12-1
Recreation Facilities

Recreation Facility	Managing Agency	Region	Facility Number
Al Guhin Park	City of San Bernardino	Valley	2-309-1A
Anderson Park	City of Rialto	Valley	2-120-1B
Angeles National Forest	USFS	Mountain	4-354-1A
Baseball Field Park	City of Loma Linda	Valley	3-401-1D
Big League Dreams Sports Park	City of Chino Hills	Valley	1-125-1A
BLM Lands	BLM	Desert and Valley	6-603-5B, 6-802-1A, 4-802-5A, 6-805-1A, 6-805-1B, 6-603-5A, 3-205-1C, 4-108-1B, 4-602-2A, 6-501-1A, 4-101-1C, 4-101-1J, 4-101-1K, 4-101-1L, 4-101-1M, 4-101-1N, 6-608-5A, 4-502-1A, 6-609-4A, 3-201-1C, 6-803-1B, 6-804-1A, 3-101-1B, 3-101-1C, 6-801-1A, 6-803-1A, 4-507-4A, 4-507-1A, 4-701-1B
Bryant Street Detention Basin	District	Valley	3-601-1A, 3-602-4A, 3-602-4B, 3-602-4C, 3-602-4D, 3-602-2E
Bryn Mawr Veterans Memorial Park	City of Loma Linda	Valley	3-401-1D
California State Lands Commission	CSLC	Desert	6-603-5A
Canyon Oaks Park	City of Highland	Valley	3-301-5D
Catawba Park	City of Fontana	Valley	2-124-1A
Central Avenue Park	City of Highland	Valley	2-603-1A
Central Park	City of Rancho Cucamonga	Valley	1-501-1C
Chapman Heights Open Space	Crafton Hills Open Space Conservancy	Valley	3-615-1A
Chino Hills Open Space	City of Chino Hills	Valley	1-127-1A
Chino Hills Skate Park	City of Chino Hills	Valley	1-125-1A
City of Colton Open Space	City of Colton	Valley	2-411-1B
City of Highland Natural Park Land	City of Highland	Valley	3-201-1B
City of Redlands Conservation Area	City of Redlands	Valley	3-401-1B, 3-401-4L, 3-401-4M, 3-401-4N, 3-401-4O, 3-401-4R
Cucamonga-Guasti Regional Park	County of San Bernardino	Valley	1-501-1F, 1-504-4E
Cypress Trails Park	City of Chino	Valley	1-901-1C
Del Vallejo Park	San Bernardino City Unified School District	Valley	2-509-1C
Doris Davies Park	City of Victorville	Desert	4-106-1A
Duke Watkins Park	City of Needles	Desert	6-602-4A
East Highlands Ranch Open Space	District	Valley	3-205-1C
Equestrian Center	City of Yucaipa	Valley	3-608-1B
Eva Dell Park	City of Victorville	Desert	4-101-1F
Foglesong Park/Eda Henderson Pool	Barstow Recreation and Park District	Desert	4-501-1C
Heritage Community Park	City of Rancho Cucamonga	Valley	1-401-1B

Table 4.12-1
Recreation Facilities

Recreation Facility	Managing Agency	Region	Facility Number
Hesperia Lake Park	Hesperia Recreation and Park District	Desert	4-101-1C
Highland Open Space	City of Highland	Valley	2-604-1A, 3-301-1C, 2-601-1A, 2-603-1A, 3-301-5D, 3-301-5C, 3-301-5B, 3-301-5A, 2-601-1B, 2-601-5A, 2-601-5B, 2-601-5C, 2-601-5D, 2-605-1A, 3-202-2B
James Galanis Park	City of Ontario	Valley	1-201-1G
Lytle Creek Park	City of San Bernardino	Valley	2-203-1B
Lytle-Cajon Channel and Warm Creek Confluence	District	Valley	2-204-1A, 2-421-4B, 2-421-4C, 2-421-4D, 2-411-1B
Martin Tudor Jurupa Hills Regional Park	City of Fontana	Valley	1-813-1B
Mojave River	CDFW	Desert	4-101-1E
Morning Field Park	City of Chino Hills	Valley	1-114-1B
Newmark Field	City of San Bernardino	Valley	2-366-1A
North Etiwanda Habitat Preserve	County of San Bernardino	Valley	1-601-1A, 1-608-3A, 1-602-2A
North Heritage Park	City of Fontana	Valley	1-801-1J
Nunez Park	City of San Bernardino	Valley	2-203-1A
Oak Glen Creek Detention Basin	District	Valley	3-603-4A, 3-603-4B, 3-603-4C
Oak Park	City of Fontana	Valley	1-813-1B
Olive Grove Park	City of Rancho Cucamonga	Valley	1-802-3E
Open Space – Flood Plain	City of Redlands	Valley	3-802-5A
Perris Hill Park	City of San Bernardino	Valley	2-409-1A
Prado Regional Park	USACE	Valley	1-901-1A
Rancho Summit Park	City of Rancho Cucamonga	Valley	1-701-1C
San Bernardino National Forest	USFS	Valley and Mountain	2-506-4A, 1-501-1A, 5-211-1B, 3-801-1A, 2-222-6A, 3-204-1B, 3-101-1A, 3-104-3A, 3-302-3A, 3-303-1A
Speicher Park	City of San Bernardino	Valley	2-501-1A
Sterling Park	City of San Bernardino	Valley	2-509-1C
Sylvan Park	City of Redlands	Valley	3-501-1G
Veterans Memorial Park	City of Ontario	Valley	1-201-1G
Westwind Park	City of Ontario	Valley	1-301-1G
Wildwood Canyon	California Department of Parks and Recreation	Valley	3-608-1F
Wildwood Park	City of San Bernardino	Valley	2-408-5A

Table 4.12-1
Recreation Facilities

Recreation Facility	Managing Agency	Region	Facility Number
Wildwood Park	City of Yucaipa	Valley	3-608-1D
Yucaipa Regional Park	County of San Bernardino	Valley	3-615-1A
Yucca Valley Holding 1	Town of Yucca Valley	Desert	6-451-1B

Source: California Protected Areas Database 2017.
Notes: USFS = U.S. Forest Service; BLM = Bureau of Land Management; District = San Bernardino County Flood Control District; CSLC = California State Lands Commission; CDFW = California Department of Fish and Wildlife; USACE = U.S. Army Corps of Engineers.

4.12.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The following SOP is relevant to recreational resources.

SOP-REC-1 **Agency Coordination.** During scheduling of maintenance activities, the District reaches out to the applicable agencies (e.g., agency with jurisdiction over parks and recreational resources, California Department of Fish and Wildlife) to ensure that scheduled maintenance would not conflict with other closures planned by the agency.

The following additional SOPs, although intended to reduce impacts relating to biological resources (see Section 4.3), hydrology and water quality (see Section 4.8), or public services (see Section 4.11), are also relevant to the recreation analysis. Their relevance to specific recreation impact topics is detailed in Section 4.12.6, Impacts Analysis.

- **SOP-BIO-14** (Special-Status Plants Pre-Activity Surveys and Avoidance)
- **SOP-BIO-15** (Worker Environmental Awareness Program)
- **SOP-BIO-16** (Best Management Practices)
- **SOP-BIO-17** (Monitoring)
- **SOP-BIO-18** (Restoration of Temporary Impacts)
- **SOP-BIO-19** (Herbicide Application)
- **SOP-HYD-1** (Scheduling)
- **SOP-HYD-2** (Vegetation Management)
- **SOP-HYD-3** (Minimization of Controllable Discharge of Sediment)
- **SOP-HYD-4** (Minimization of Controllable Discharge of Pollutants)

- **SOP-PUB-1** (Fire Extinguisher)
- **SOP-PUB-2** (Fire Safety Measures)

4.12.6 Impacts Analysis

4.12.6.1 Methods of Analysis

This analysis was conducted by reviewing available information on where proposed program areas intersect with recreational areas, as described in Section 4.12.4, Existing Conditions, and subsequently evaluating impacts that might occur as a result of implementation of the proposed program.

One comment was received in response to the 2014 Notice of Preparation (see Appendix B) regarding impacts on recreation resources. The U.S. Department of Agriculture–San Bernardino National Forest Supervisor's Office requested to be included as a regulatory agency. Permits or easements would be required for the anticipated work on National Forest System lands. The U.S. Forest Service (USFS) requested to be a cooperating agency with the U.S. Army Corps of Engineers. The USFS requested that the EIR (1) consider impacts to species on National Forest System land, including USFS sensitive species and San Bernardino National Forest management indicator species; and (2) consider the implementation of all applicable best management practices (BMPs) when implementing the anticipated actions. Because the USFS comment is generally focused on biological resources, these topics are discussed in more detail in Section 4.3, Biological Resources, of this EIR. However, the analysis presented in Section 4.12.6.2 discusses how the proposed program could impact resources within recreational areas in general, including the San Bernardino National Forest.

4.12.6.2 Analysis

This impacts analysis combines the regional discussions under one heading because the analysis of impacts to recreational facilities does not vary across the three geographical regions of the County.

Impact REC-1

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

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities

Ground-disturbing activities would include stockpiling, mechanized land clearance/sediment removal, vegetation management, bank repair, and ingress/egress. Ground-disturbing activities would typically involve the use of heavy equipment as detailed in Table 3-4 of Chapter 3 (e.g., grader, loader, dozer, dump truck, scraper, excavator, and roller).

As discussed in Section 4.12.4, proposed maintenance activities would occur in, and in the immediate vicinity of, a number of parks and recreation areas, which include national forest lands and state parks, BLM land, county parks, and city parks.

Ground-disturbing activities would involve a temporary influx of workers, vehicles, and equipment into the identified recreation areas, which could result in the temporary physical deterioration of public trail facilities, reducing the availability of recreational opportunities to area residents and recreationists and could impact species located within national forest lands, state parks, and BLM land.

Temporary limited access on trails may occur as a result of the proposed ground-disturbing activities. For example, proposed program areas would intersect with multiple trails in the Angeles National Forest. However, the trails and parks would not be permanently closed to the public, leading to the increased use of surrounding parks. In the event there is a temporary closure of a trail, the public would be directed around the maintenance area or onto an alternative trail or sidewalk.

To ensure that physical deterioration of recreation areas does not occur, SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), SOP-BIO-15 (Worker Environmental Awareness Program), SOP-BIO-16 (Best Management Practices), SOP-BIO-17 (Monitoring), SOP-BIO-18 (Restoration of Temporary Impacts), and SOP-BIO-19 (Herbicide Application) (see Section 4.3.5); SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8.5); and SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) (see Section 4.11.5) would be implemented as part of the District's standard practice.

Although the proposed program may have limited, short-term impacts to certain trails within parks or other recreational facilities during maintenance activities, the proposed program is a maintenance program for existing facilities. The proposed program would not indirectly cause population growth and development, thus resulting in physical deterioration of recreational facilities. None of the proposed ground-disturbing activities would have substantial adverse physical impacts on the use of parks. Additionally, many of the existing access roads are used by the public for walking and jogging. Therefore, maintenance of access roads would be beneficial in terms of recreational resources. Impacts to recreation resources as a result of proposed ground-disturbing activities would be less than significant.

Non-Ground-Disturbing Vegetation Management

Non-ground-disturbing vegetation management would include mowing and hand clearing of vegetation. Vegetation management would employ the use of power trimmers, weed eaters, and manual tools as detailed in Table 3-4 of Chapter 3.

Non-ground-disturbing vegetation management would involve a temporary influx of maintenance workers, vehicles, and manual tools into the identified recreation areas, which could result in the temporary physical deterioration of public trail facilities, reducing the availability of recreation opportunities to area residents and recreationists and could impact species located within national forest lands, state parks, and BLM land.

Temporary limited access on trails may occur as a result of the proposed non-ground-disturbing vegetation management; however, the trails and parks would not be permanently closed to the public, leading to the increased use of surrounding parks. In the event that there is a temporary closure of a trail, the public would be directed around the work site or onto an alternative trail or sidewalk.

To ensure that physical deterioration of recreation areas does not occur as a result of maintenance activities, SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), SOP-BIO-15 (Worker Environmental Awareness Program), SOP-BIO-16 (Best Management Practices), SOP-BIO-17 (Monitoring), SOP-BIO-18 (Restoration of Temporary Impacts), and SOP-BIO-19 (Herbicide Application) (see Section 4.3.5); SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8.5); and SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) (see Section 4.11.5) would be implemented.

Although the proposed program may have limited, short-term impacts to certain trails within parks or other recreational facilities during maintenance activities, the proposed program is a maintenance program for existing facilities. The proposed program would not indirectly cause population growth

and development, resulting in physical deterioration of recreational facilities. None of the proposed non-ground-disturbing vegetation management activities would have substantial adverse physical impacts on the use of parks. Therefore, impacts to recreation resources as a result of proposed non-ground-disturbing vegetation management would be less than significant.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities would include sand and gravel operations, herbicide and rodenticide application, flood control structure repair, graffiti removal, vector control, and stream gage maintenance. In some cases, non-ground-disturbing activities would employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3 (e.g., grader, loader, dump truck, scraper, cement truck, and portable power screen and crusher).

Non-ground-disturbing activities would involve a temporary influx of maintenance workers, vehicles, and equipment into the identified recreation areas, which could result in the temporary physical deterioration of public trail facilities, reducing the availability of recreation opportunities to area residents and recreationists and could impact species located within national forest lands, state parks, and BLM land.

Temporary limited access on trails may occur as a result of the proposed non-ground-disturbing activities; however, the trails and parks would not be permanently closed to the public, leading to the increased use of surrounding parks. In the event that there is a temporary closure of a trail, the public would be directed around the work site or onto an alternative trail or sidewalk.

To ensure that physical deterioration of recreation areas does not occur, SOP-BIO-15 (Worker Environmental Awareness Program), SOP-BIO-16 (Best Management Practices), SOP-BIO-17 (Monitoring), SOP-BIO-19 (Herbicide Application), SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8.5) and SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) (see Section 4.11.5) would be implemented.

Although the proposed program may have limited, short-term impacts to certain trails within parks or other recreational facilities during maintenance activities, the proposed program is a maintenance program for existing facilities. The proposed program would not indirectly cause population growth and development, resulting in physical deterioration of recreational facilities. None of the proposed non-ground-disturbing activities would have substantial adverse physical impacts on the use of parks. Additionally, many of the existing access roads are used by the public for walking and jogging. As described above, temporary limited access on trails may occur as a result of the proposed non-ground-disturbing activities; however, in the event that there is a temporary closure of a trail, the public would be directed around the work site or onto an alternative trail or sidewalk. Therefore,

visitors of parks and trails would have limited exposure to noise, dust, and maintenance-related activities, because alternative routes would be provided. Therefore, maintenance of access roads would be beneficial in terms of recreational resources. Impacts to recreation resources as a result of proposed non-ground-disturbing activities would be less than significant.

4.12.7 Mitigation Measures

With incorporation of District standard practices SOP-BIO-14 through SOP-BIO-19, SOP-HYD-1 through SOP-HYD-4, and SOP-PUB-1 and SOP-PUB-2, potential recreation impacts would be less than significant; therefore, no mitigation measures would be required.

4.12.8 Level of Significance After Mitigation

Recreation impacts from maintenance activities under the proposed program would be less than significant. Table 4.12-2 summarizes the recreation impacts for proposed maintenance activities under the impact threshold analyzed in this EIR.

Table 4.12-2
Recreation Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact REC-1: Would the program increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	SOP-BIO-14 through SOP-BIO-19 SOP-HYD-1 through SOP-HYD-4 SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-BIO-14 through SOP-BIO-19 SOP-HYD-1 through SOP-HYD-4 SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant

Table 4.12-2
Recreation Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Non-Ground-Disturbing Activities	SOP-HYD-1 through SOP-HYD-4 SOP-PUB-1 SOP-PUB-2	Less than significant	—	Less than significant

4.12.9 Cumulative Impacts

The geographic scope for the analysis of the cumulative impacts to recreation is the program area as a whole. Cumulative impacts on recreation resources result when projects combine to increase use of recreational facilities such that additional facilities must be constructed or provided, if other recreational facilities are shut down, increasing the use of a few facilities, or if maintenance activities by multiple jurisdictions are occurring at one facility, shutting down multiple aspects of one facility. With incorporation of the District SOPs noted in Section 4.12.5, maintenance activities associated with the proposed program would result in less than significant impacts on recreation on a localized and temporary basis.

Physical impacts to recreational facilities are usually associated with population in-migration and growth in an area, which increases the demand for a particular service, leading to the need for expanded or new facilities. The proposed program would not include construction of new or expanded facilities that would permanently impact park services or access to parks facilities, or indirectly cause population growth and development, thus resulting in the need for construction of additional parks or recreational facilities. Other projects in the area would also need to provide notice of their construction or maintenance-related closures, but these closures would also be temporary and localized.

None of the proposed program activities would have substantial adverse physical impacts on the use of parks, and no new parks would need to be constructed or expanded as a result of implementation of the proposed program. With implementation of District standard practices SOP-BIO-15 (Worker Environmental Awareness Program), SOP-BIO-16 (Best Management Practices), SOP-BIO-17 (Monitoring), SOP-BIO-19 (Herbicide Application), SOP-HYD-1 through SOP-HYD-4 (see Section 4.8.5) and SOP-PUB-1 and SOP-PUB-2 (see Section 4.11.5), impacts on recreation resources would be less than significant.

However, to ensure that the proposed program activities would not combine with other projects to result in impacts to recreational resources, SOP-REC-1 would also be implemented as part of the District's standard practice. Per SOP-REC-1, the District coordinates with other agencies to ensure that there are no conflicts with maintenance activities. Therefore, upon coordination with other agencies as noted in SOP-REC-1, the proposed program would not combine with other cumulative projects as described in the introduction to Chapter 4, resulting in an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Maintenance activities associated with the proposed program would not contribute to a cumulatively considerable impact associated with the deterioration of existing parks and recreational resources.

4.12.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

BLM (Bureau of Land Management). 1999. *The California Desert Conservation Area Plan 1980*, as amended. Riverside, California: U.S. Department of the Interior, BLM, Desert District. Amended March 1999. https://eplanning.blm.gov/epl-front-office/projects/lup/66949/82080/96344/CDCA_Plan.pdf.

California Protected Areas Database. 2017. California Protected Areas Data Portal. Accessed April 2017. http://www.calands.org/.

Committee of Scientists. 1999. *Sustaining the People's Lands: Recommendations for Stewardship of the National Forests and Grasslands into the Next Century*. Washington DC: U.S. Department of Agriculture. March 15, 1999.

County of San Bernardino. 2007. *County of San Bernardino 2007 General Plan*, as amended. Prepared by URS for County of San Bernardino, Land Use Services Division. Adopted March 13, 2007; amended April 24, 2014.

USFS (U.S. Forest Service). 2005. *Land Management Plan, Part 1: Southern California National Forests Vision*. R5-MB-075. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region. September 2005. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev7_007721.pdf.

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4.13 TRAFFIC AND CIRCULATION

4.13.1 Introduction

This section of the environmental impact report (EIR) describes the existing traffic and circulation setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce traffic and circulation impacts, and evaluates potential impacts related to implementation of the proposed program.

As outlined in Section 4.13.3, Thresholds of Significance, the analysis is based on whether the proposed program would result in conflict with an applicable policy or congestion management plan establishing measures for effectiveness of the circulation system, increase hazards due to design features, result in inadequate emergency access, and/or conflict with adopted policies regarding alternative transportation facilities. A review of applicable policies and management plans is provided in Section 4.13.2, Regulatory Framework, and an overview of public transit is provided in Section 4.13.4, Existing Conditions. To determine potential impacts to traffic resources, vehicle trip generation was estimated for representative projects, as discussed in Section 4.13.6, Impacts Analysis. Representative projects were chosen because numerous small Maintenance Plan projects are included within the proposed program and it would not be feasible to conduct a site-specific traffic analysis for each of the sites throughout the proposed program area. The projects in the proposed program were categorized based on project zone location and type of maintenance activity. Representative projects from each category were then selected for further analysis based on consultation with the District. See Section 4.2, Air Quality, for more information on this process. Each representative project has multiple phases of activity that involve different types of maintenance activities vehicles and varying numbers of workers on site. The highest-trip-generating project phase was selected for the traffic analysis as an example of the worst-case scenario for trip generation.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and representative typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The County is composed of three distinct geographic regions, the Valley, Mountain, and Desert Regions. Although approximately 80% of the geographic extent of the County falls within the Desert Region, the Valley Region is the most developed; approximately 77% of the District facilities are in the Valley Region. Therefore, rather than delineating the analysis by geographic region (which is applicable to other analyses in this EIR), the traffic and circulation analysis is based on the selected representative projects. Additionally, because a representative project approach was used, where maintenance activities occurring at a location are incorporated into the representative project scenario, the traffic and circulation analysis does not use the ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities impact analysis categories described in the introduction to Chapter 4, Environmental Analysis.

The analysis contained in this section is based on information compiled by the District and on documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.13.10, References.

4.13.2 Regulatory Framework

Federal

There are no relevant federal plans, policies, or ordinances that are applicable to the proposed program.

State

California Department of Transportation

As the owner and operator of the State Highway System, the California Department of Transportation (Caltrans) implements established state planning priorities in all functional plans, programs, and activities. Caltrans has the responsibility to coordinate and consult with local jurisdictions when proposed local land use planning and development may impact state highway facilities. Pursuant to Section 21092.4 of the California Public Resources Code, for projects of statewide, regional, or area-wide significance, the lead agency shall consult with transportation planning agencies and public agencies that have transportation facilities that could be affected by the project. A traffic impact study is required by Caltrans when a project generates and assigns over 100 peak hour trips to a state highway facility, or if the project generates and assigns 50 to 100 peak hours trips to a state highway facility causing the facility to approach level of service (LOS) C or D, or 1 to 49 peak hour trips are generated and assigned to a state highway facility causing it to experience significant congestion (LOS E or F) or increased risk for traffic collisions, or affecting access to the facility (Caltrans 2002).

Senate Bill 375: Sustainable Communities Strategy

Senate Bill (SB) 375 provides a new planning process to coordinate land use planning, regional transportation plans (RTPs), and funding priorities in order to help California meet the greenhouse gas reduction goals established in Assembly Bill 32. SB 375 requires that RTPs developed by metropolitan planning organizations (e.g., Southern California Association of Governments (SCAG)) incorporate a sustainable communities strategy (SCS) in their RTPs that will achieve regional greenhouse gas emission reduction targets set by the California Air Resources Board. The development of the SCS requires scenario planning that considers a range of alternative land use patterns for the region as well as transportation investments that achieve the regional target reduction in greenhouse gases. SB 375 also includes provisions for streamlined California Environmental Quality Act (CEQA) review for some infill projects, such as transit-oriented developments.

Senate Bill 743: Transit Oriented Development and Vehicle Miles Traveled

In September 2013, Governor Brown signed SB 743, which made significant changes to how transportation impacts are to be assessed under CEQA. SB 743 directs the Governor's Office of Planning and Research to develop a new metric and approach that replaces LOS analysis and suggests vehicle miles traveled as a metric. SB 743 also creates a new exemption for certain projects that are consistent with the regional SCS and, in some circumstances, eliminates the need to evaluate aesthetic and parking impacts of a project.

The Governor's Office of Planning and Research has released Draft CEQA Guidelines; however, at the time this analysis was completed the Guidelines had not been finalized or adopted. It is anticipated that the revisions to the CEQA Guidelines will be finalized in early 2018 According to the most recent Draft CEQA Guidelines released by the Governor's Office of Planning and Research, lead agencies would have a grace period of 2 years to update and adopt new thresholds once the new Guidelines have been adopted.

Local

Southern California Association of Governments

SCAG develops the RTP that presents the transportation vision for Los Angeles, Orange, San Bernardino, Imperial, Riverside, and Ventura Counties. SB 375 was enacted to reduce greenhouse gas emissions from automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. Under the law, SCAG is tasked with developing an SCS, a newly required element of the RTP that provides a plan for meeting emissions reduction targets set forth by the California Air Resources Board.

The 2016 RTP/SCS (SCAG 2016) identifies priorities for transportation planning within the Southern California region, sets goals and policies, and identifies performance measures for transportation improvements to ensure that future projects are consistent with other planning goals for the area. The Regional Transportation Improvement Program, also prepared by SCAG and based on the RTP, lists all of the regional funded/programmed improvements within the next 7 years. In order to qualify for CEQA streamlining benefits under SB 375, a project must be consistent with the RTP/SCS.

County of San Bernardino Congestion Management Program

To address the increasing public concern that traffic congestion is impacting the quality of life and economic vitality of the State of California, Proposition 111 created the Congestion Management Program (CMP) in 1990. The intent of the CMP is to provide the analytical basis for transportation decisions through the State Transportation Improvement Program process. Included with the provision for additional transportation funding was a requirement to undertake a CMP within each county with an urbanized area having a population of 50,000 or more, to be developed and adopted by a designated Congestion Management Agency. In 1990, the San Bernardino County Transportation Authority (formerly San Bernardino Associated Governments (SANBAG)) was designated the Congestion Management Agency for San Bernardino County.

Although implementation of the CMP was made voluntary by the passage of Assembly Bill 2419 in 1996, the CMP requirement has been retained in all five urban counties within the SCAG region. In addition to their value as a transportation management tool, CMPs have been retained in these counties because of the federal congestion management process requirement that applies to all large urban areas that are not in attainment of federal air quality standards. These counties recognize that the CMP provides a mechanism through which locally implemented programs can fulfill most aspects of a regional requirement that would otherwise have to be addressed by the regional agency (SCAG).

The LOS at each CMP location is monitored by local jurisdictions in order to implement the statutory requirements of the CMP. If LOS standards deteriorate, then local jurisdictions must prepare a deficiency plan to meet conformance standards outlined by the County-wide plan. The local CMP requires that a traffic impact analysis report be prepared when a project's trip generation exceeds 250 two-way peak hour trips. For the CMP roadway system, the LOS standard is required to be E for all segments and intersections except those designated LOS F, as listed in Table 2-1 of the CMP (SANBAG 2016). None of the intersections in the proposed program area is listed in Table 2-1 of the CMP.

Other General Plans

Implementation of the proposed program would occur in 24 incorporated cities and unincorporated areas in San Bernardino County. LOS-related policies included in city and county general plans (e.g.,

in the Transportation or Circulation Elements of the General Plan) for local jurisdictions within the proposed program area typically address long-term traffic conditions resulting from proposed project operations. Because the proposed program would not generate enough operational trips to warrant a formal traffic impact analysis and would generate only short-term maintenance-activity-related traffic, local LOS-related policies do not apply to the proposed program.

4.13.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program's impacts to traffic and circulation are based on criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to traffic and circulation would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact TR-1 ***Would the program conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance or the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?***

Impact TR-2 ***Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?***

Impact TR-3 ***Would the program result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

Impact TR-4 ***Would the program substantially increase hazards due to a design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

Impact TR-5 ***Would the program result in inadequate emergency access?***

Impact TR-6 ***Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?***

In June 2014, the District recirculated a Notice of Preparation and Initial Study, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in

the EIR. No comments related to traffic and circulation impacts from the proposed program were received in response to the 2014 Initial Study and Notice of Preparation. The 2014 Initial Study determined there would be no impact relating to air traffic patterns. Therefore, with the exception of potential impacts to air traffic (Impact TR-3), all impact thresholds (Impacts TR-1, TR-2, TR-4, TR-5, and TR-6) are further analyzed in this EIR (see Section 4.13.6.2, Analysis).

4.13.4 Existing Conditions

A variety of interstates, state routes, county routes, and city arterials provide routes for vehicle travel through the proposed program area in San Bernardino County. Other transportation modes include public transit, bikeways, and rail.

Public Transit

The largest public transit service provider in San Bernardino County is Omnitrans. Omnitrans has a service area of 480 square miles covering 15 cities and portions of unincorporated County areas. Omnitrans currently operates local and express bus routes as well as rapid bus transit service, OmniGo hometown shuttle service, and Access, a paratransit service for the disabled (Omnitrans 2016) Other transit service providers include the Morongo Basin Transit Authority, Mountain Area Regional Transit Authority, Needles Area Transit, Valley Transportation Services, and Victor Valley Transit Authority.

Bicycle and Pedestrian Facilities

San Bernardino County has more than 468 miles of on-road and off-road bikeways within 25 jurisdictions, with another 1,282 miles planned throughout the County (SANBAG 2015). The physical infrastructure for cycling and walking varies widely from one city to another and within cities.

Passenger Rail

The San Bernardino valley is served by Metrolink and Amtrak. Metrolink trains operate on seven routes across a six-county, 538-route-mile network. Metrolink is governed by the Southern California Regional Rail Authority, a joint powers authority made up of an 11-member board representing the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. Amtrak is a national rail operator with 21,000 route miles in 46 states, and tends to provide limited interstate service.

4.13.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District’s routine maintenance SOPs are provided in the

Maintenance Plan (Appendix A). SOP-TR-1 would reduce potential impacts to traffic and circulation from maintenance activities under the proposed program.

SOP-TR-1 **District Coordination and Traffic Control Plan.** The District coordinates with local jurisdictions, emergency service providers, or transit providers, as appropriate, when maintenance activities affect emergency access or bicycle, pedestrian, or transit facilities. Coordination is also required if maintenance activities cause interference with roadway operations, such as lane closures during peak hours or detours. If required by the affected jurisdiction, a traffic control plan is prepared.

4.13.6 Impacts Analysis

4.13.6.1 Methods of Analysis

This section evaluates potential impacts associated with traffic and circulation that would result from the proposed program. As outlined previously in Section 4.13.1, Introduction, the traffic analysis relied on estimated vehicle trip generation for representative projects. This method was chosen because numerous small Maintenance Plan projects are included within the proposed program, and conducting site-specific traffic analyses for every site in the proposed program area would be infeasible. Each representative project has multiple phases of activity that involve different types of maintenance vehicles and varying numbers of workers on site. The highest-trip-generating project phase was selected for the traffic analysis as an example of the worst-case scenario for trip generation.

4.13.6.2 Analysis

As discussed in the introduction to Chapter 4, most analyses in this EIR are organized into three categories of activities: ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities. However, because a representative project approach was used for the traffic and circulation, this categorization does not apply to the traffic and circulation analysis. In addition, rather than delineating the analysis by geographic region (which is applicable to other analyses in this EIR), the traffic and circulation analysis is based on the selected representative projects.

Impact TR-1 and Impact TR-2

Would the program conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant

components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Valley, Mountain, and Desert Regions

All Program Activities

The potential for impacts related to conflicts with plans regarding transit, pedestrian, and bicycle facilities is addressed under Impact TR-6 in this section. In order to determine whether there would be impacts related to roadways and highways, vehicle trip generation was estimated for representative projects.

The projects in the proposed program were categorized based on project zone location and type of maintenance activity. Representative projects from each category were then selected for further analysis. See Section 4.2, Air Quality, for more information on this process. Each representative project has multiple phases of activity that involve different types of maintenance vehicles and varying numbers of workers on site. The highest-trip-generating project phase was selected for the traffic analysis as an example of the worst-case scenario for trip generation.

The levee typical maintenance activities scenario sediment removal phase was found to have the greatest number of trips, with 13 workers, 2 vendor[1] trucks, and 4 haul trucks per day. Each vehicle type (worker trucks, vendor trucks, and haul trucks) was multiplied by the appropriate daily trip generation rate and the appropriate passenger car equivalent (PCE) factor to create daily vehicle trips in PCEs. Each worker was assumed to generate three trips per day. The trip rate was based on the assumption that each employee commutes to and from work every day (two trips a day) and that approximately 50% of employees would make two extra trips (inbound and outbound) during their shift for reasons such as a meeting or lunch. The PCE for worker trips is 1, because each worker will use a passenger vehicle to get to the site. Each vendor truck has been assumed to enter and exit the site once per day, for a total of two trips per day and a PCE of 2.5. Each haul truck has been assumed to enter and exit the site once per day, for a total of two trips per day and a PCE of 3. As shown in Table 4.13-1, it is estimated that 73 daily trips will be generated during the highest-trip-generating activity, the sediment removal phase of a typical levee maintenance activity.

[1] Water, sprayer, and service trucks are categorized as vendor trips.

Table 4.13-1
Daily Vehicle Trips for Levee Sediment Removal Phase

Trip Calculation	Workers	Vendor Trucks	Haul Trucks
Number of vehicles	13	2	4
Trip rate	3 per day	2 per day	2 per day
Total actual trips	*39*	*4*	*8*
PCE factor	1	2.5	3
Total trips in PCEs	*39*	*10*	*24*
		Total daily trips in PCEs	**73**

Source: Appendix D.
Note: The representative projects used for the air quality analysis were also used to develop the maximum truck trips for the traffic analysis.

The SANBAG CMP defers to local jurisdiction guidelines to determine when a traffic impact analysis is necessary (SANBAG 2016). The San Bernardino County threshold for preparing a traffic impact analysis is 100 peak hour vehicle trips (County of San Bernardino 1993). Not all of the worker and truck trips would occur during the peak hour; however, even if they did, the San Bernardino County threshold for conducting a traffic impact analysis would not be met. This small number of trips (fewer than 100 vehicle trips in the peak hour) represents a negligible increase in traffic related to the proposed program; therefore, further traffic impact analysis is not warranted and there would be no conflict with applicable plans, policies, or ordinances. Impacts would be less than significant.

Impact TR-4

Would the program substantially increase hazards due to a design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Valley, Mountain, and Desert Regions

All Program Activities

The proposed program includes the implementation of a Maintenance Plan (see Appendix A to this EIR). Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. The projects included in the proposed program do not include new design features and therefore would not introduce hazards. If necessary, any temporary traffic control for ingress and egress during maintenance would follow the latest California Manual on Uniform Traffic Control Devices, Part 6: Temporary Traffic Control.

Maintenance equipment would be used as described in Table 3-4, Typical Flood Control Maintenance Activities (see Chapter 3, Program Description). However, this equipment would be used on a short term and temporary basis. To avoid the potential for interference with

roadway operations, such as lane closures during peak hours or detours, a traffic control plan would be prepared as described in SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5, Standard Operating Procedures). Therefore, there would be no substantial hazards from design features or incompatible uses with implementation of the proposed program activities, and impacts would be less than significant.

Impact TR-5

Would the program result in inadequate emergency access?

Valley, Mountain, and Desert Regions

All Program Activities

The proposed program includes maintenance projects that would repair, restore, and/or protect existing flood control facilities; there would be no new facilities or changes in use of existing facilities that would result in inadequate emergency access. Proposed program activity areas would be repaired and/or maintained to provide for better access, stability, and safety; so projects under the proposed program will maintain access in general.[2] There could be some temporary obstructions to access associated with maintenance activities; however, these would be short term and temporary. The District would implement SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5), including notification and coordination with local jurisdictions, emergency services providers, or affected entities, and residents regarding any maintenance work that might have an impact on emergency access. The District would prepare a traffic control plan if required by the local jurisdiction, as indicated in SOP-TR-1. All maintenance activities would be temporary, and all access routes would be reopened upon completion. With implementation of SOP-TR-1 (District Coordination and Traffic Control Plan) as part of the District's standard practice, the proposed program would not result in inadequate emergency access, and impacts would be less than significant.

[2] The majority of these access areas are not open for public use.

Impact TR-6

Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Valley, Mountain, and Desert Regions

All Program Activities

The proposed program activities may affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis. The District would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian access impediments associated with the proposed program. If required by the jurisdiction in which the work is occurring, the District would prepare a traffic control plan as indicated in SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5). All proposed program maintenance activities would be temporary, and once a maintenance activity has been completed, access would be restored. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of SOP-TR-1 as part of the District's standard practice, maintenance activities conducted under the proposed program would not result in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant.

4.13.7 Mitigation Measures

With incorporation of District standard practice SOP-TR-1, potential traffic and circulation impacts would be less than significant; therefore, no mitigation measures would be required.

4.13.8 Level of Significance After Mitigation

Traffic and circulation impacts from implementation of the proposed program would be less than significant. Table 4.13-2 summarizes the impacts for the impact thresholds analyzed in this EIR section.

Table 4.13-2
Traffic and Circulation Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact TR-1: Would the program conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance or the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
Valley, Mountain, and Desert Regions				
All Program Activities	—	Less than significant	—	Less than significant
Impact TR-2: Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				
Valley, Mountain, and Desert Regions				
All Program Activities	—	Less than significant	—	Less than significant
Impact TR-4: Would the program substantially increase hazards due to a design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?				
Valley, Mountain, and Desert Regions				
All Program Activities	SOP-TR-1	Less than significant	—	Less than significant
Impact TR-5: Would the program result in inadequate emergency access?				
Valley, Mountain, and Desert Regions				
All Program Activities	SOP-TR-1	Less than significant	—	Less than significant
Impact TR-6: Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				
Valley, Mountain, and Desert Regions				
All Program Activities	SOP-TR-1	Less than significant	—	Less than significant

4.13.9 Cumulative Impacts

Maintenance activities associated with the proposed program would create a small, insubstantial increase in traffic volumes on the existing and planned roadway network on a localized and temporary basis only. The proposed program would not contribute to cumulative regional traffic and transportation impacts associated with other projects in the region because the maintenance activities, which are currently ongoing, do not generate enough trips to substantially alter the performance of the circulation system, as indicated by the fact that the proposed program does not warrant a traffic impact analysis. Therefore, traffic and circulation impacts would not be cumulatively considerable.

4.13.10 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

Caltrans (California Department of Transportation). 2002. *Guide for the Preparation of Traffic Impact Studies*. December 2002.

County of San Bernardino. 1993. *Road Planning and Design Standards*. April 12, 1993.

Omnitrans. 2016. "About Omnitrans." Website. http://www.omnitrans.org/about/.

SANBAG (San Bernardino Associated Governments). 2015. *San Bernardino Congestion Non-Motorized Transportation Plan*. March 2011. Revised May 6, 2015.

SANBAG. 2016. *San Bernardino Congestion Management Program 2016 Update*. June 2016.

SCAG (Southern California Association of Governments). 2016. *Regional Transportation Plan and Sustainable Communities Strategy*. April 7, 2016.

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4.14 UTILITIES AND SERVICE SYSTEMS

4.14.1 Introduction

This section of the environmental impact report (EIR) describes the existing utilities and service systems setting of the Master Storm Water System Maintenance Program (proposed program) area, identifies associated regulatory requirements, details standard operating procedures (SOPs) implemented as part of standard practice for the San Bernardino County Flood Control District (District) that will reduce utilities and service systems impacts, and evaluates potential impacts related to implementation of the proposed program.

The analysis is based on whether the proposed program would result in a need for new or expanded stormwater facilities or would use energy in an excessive way. To make this determination for stormwater facilities, available information on hydrology was reviewed and potential ground-disturbing and non-ground-disturbing impacts that might occur as a result of implementation of the proposed program were subsequently evaluated. Available hydrologic maps and reports were reviewed in completing the analysis. Upon review of this data, each activity was analyzed to determine whether changes compared to the existing conditions would warrant additional stormwater facilities.

As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation management, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

The existing conditions portion of the hydrology review is divided by the Regional Water Quality Control Boards (RWQCBs) occurring in the County because hydrology information and watersheds are specific to these regions rather than to location within the County. For the Appendix F analysis, the proposed maintenance activities were evaluated to determine their energy consumption potential. For this analysis, the existing conditions are described by the energy type County-wide rather than by regions.

The analysis contained in this section is based on information compiled by the District and on documentation from local jurisdictions in which proposed program activities would occur. Other sources consulted are listed in Section 4.14.10, References.

4.14.2 Regulatory Framework

State

Energy Conservation Policies

Executive Order S-12-04. This order requests the participation of all state agencies under the authority of the governor and other entities not under the direct authority of the governor to institute energy conservation measures that will reduce energy consumption. Additionally, the order requests that all state agencies review and assess energy conservation policies currently in place and extend those measures to all applicable facilities.

Local

County of San Bernardino General Plan

Part 15, Infrastructure, of the Circulation and Infrastructure Element of the 2007 County General Plan, indicates that maintenance of infrastructure facilities is coordinated through Special Districts and County Service Areas, which are separate legal entities authorized by California laws and formed by the County Board of Supervisors to provide municipal services and capital improvements to unincorporated County areas.

Chapter X, Implementation Program, Part O, Storm Water Facilities Plans, of the 2007 County General Plan indicates that stormwater drainage facilities may be constructed, operated, maintained, and replaced in a manner that will provide the best possible service to the public. In developing implementation plans, consideration may be given to rehabilitation of existing facilities, remediation of developed areas with inadequate levels of drainage service, and the timely expansion of the system for future development.

Other General Plans

General plans serve to guide and direct local government decision making for utilities and service systems. Generally, circulation and infrastructure elements in local jurisdictions' general plans focus on managing these resources. Proposed program activities would occur in several local jurisdictions, which have adopted general plan policies regarding utilities and service systems. However, the proposed program would not conflict with these general plan policies.

4.14.3 Thresholds of Significance

The significance thresholds used to evaluate the proposed program impacts to utilities and service systems are based on criteria in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact

related to utilities and service systems would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact UTL-1 ***Would the program exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?***

Impact UTL-2 ***Would the program require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

Impact UTL-3 ***Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

Impact UTL-4 ***Would the program have sufficient water supplies available to serve the program from existing entitlements and resources, or are new or expanded entitlements needed?***

Impact UTL-5 ***Would the program result in a determination by the wastewater treatment provider which serves or may serve the program that it has adequate capacity to serve the program's projected demand in addition to the provider's existing commitments?***

Impact UTL-6 ***Would the program be served by a landfill with sufficient permitted capacity to accommodate the program's solid waste disposal needs?***

Impact UTL-7 ***Would the program comply with federal, state, and local statutes and regulations related to solid waste?***

In addition, Appendix F of the CEQA Guidelines requires that EIRs include a discussion of the potential energy impacts of a program, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The CEQA Guidelines provide no specific thresholds for impacts associated with energy consumption. However, Appendix F provides guidance for evaluating whether a program may result in significant impacts with regard to energy. Based on Appendix F, a program could have a significant impact on energy consumption if the program would have any of the following effects.

Appendix F – Energy Conservation: Would the program:

a. Result in wasteful, inefficient, or unnecessary consumption of energy?

b. Conflict with existing energy standards and regulations?

c. Place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?

In June 2014, the District recirculated a Notice of Preparation and Initial Study, which identified effects determined not to be significant (14 CCR 15063) and those requiring further analysis in the EIR. The 2014 Initial Study determined there would be no impact or a less than significant impact on the exceedance of wastewater treatment requirements, the need for new water or wastewater treatment facilities or expansion of such facilities, insufficient water supply, insufficient landfill capacity, and compliance with solid waste regulations; therefore, Impacts UTL-1, UTL-2, and UTL-4 through UTL-7 are not further analyzed in this EIR.

Impact UTL-3 and the Appendix F – Energy Conservation impact threshold are examined in this EIR section (see Section 4.14.6.2, Analysis).

4.14.4 Existing Conditions

4.14.4.1 Hydrology and Stormwater Overview

The County of San Bernardino has an area of approximately 20,105 square miles and is divided into three distinct geographic regions: Valley, Mountain, and Desert. About 80% of the County is in the Desert Region, with the remaining areas divided between the Valley and Mountain Regions. As previously discussed in Section 4.14.2, Regulatory Framework, three RWQCB jurisdictions cover the proposed program area: the Santa Ana (Region 8), Lahontan (Region 6), and Colorado River Basin (Region 7) Regions.

The Santa Ana RWQCB includes all of the Valley Region of the County, as well as the portion of the Mountain Region that flows to the south, toward the Valley Region. The Lahontan RWQCB includes the northwestern portion of the Mountain Region, which flows toward the Victorville area, as well as much of the northern Desert Region. The (Colorado River Basin RWQCB includes the southeastern Desert Region. These RWQCB regions have been subdivided into major watersheds by the District, as shown on Figure 4.8-1, Watershed Map – Valley and Mountain Regions, and Figure 4.8-2, Watershed Map – Desert Region (see Section 4.8, Hydrology and Water Quality).

A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet, and includes the receiving waters. Watersheds are usually bordered and separated from other watersheds by mountain ridges or other naturally elevated areas. The following summary of hydrology and stormwater existing conditions is separated into the Santa Ana, Lahontan, and Colorado River Basin RWQCB regions and associated watersheds, as mapped by the District.

RWQCB – Santa Ana Region

Precipitation in the Santa Ana Region is nearly always in the form of rain in the lower elevations and mostly in the form of snow above 6,000 feet above mean sea level (amsl) in the San Bernardino Mountains. Mean annual precipitation ranges from about 12 inches in the southern portion of San Bernardino County, to about 20 inches at the base of the mountains, to more than 35 inches along the crest of the mountains. The mean annual precipitation in the County is 16 inches (CDM Smith 2016a).

The main stem Santa Ana River is the primary water body in the watershed. This river, which flows in a generally southwestern direction for nearly 100 miles, from its headwaters to the Pacific Ocean, is the largest stream system in Southern California. The portion of the Santa Ana River Watershed located within the County is subdivided into a number of subwatersheds by the District, including the San Antonio Creek System, Cucamonga/West Cucamonga Creek System, Day Creek/Etiwanda–San Sevaine, Rialto, Grand Terrace, Twin/Warm, City Creek/Plunge Creek/Mill Creek, Zanja/Mission System, Upper Santa Ana River, San Timoteo, and Big Bear/Headwaters–Santa Ana River watersheds (Figure 4.8-1).

In the western portion of the Santa Ana Region, several major Santa Ana River tributaries arise in the San Gabriel Mountains and drain generally south into the Chino Basin before their confluence with the Santa Ana River, including Day Creek, Cucamonga Creek, and San Antonio Creek. Many of these drainages carry little to no storm flows during dry conditions due to infiltration in relatively coarse-grained, sandy soils and because of the presence of extensive, highly permeable recharge basins in this region. The District has over 110 basins throughout the Valley Region, which capture flows in both dry and wet weather conditions. All dry-weather flows are captured in these basins; most wet-weather flows under the 10-year rain event are also captured (San Bernardino County Storm Water Program 2016; Gabaldon, pers. comm. n.d.). Much of the dry season flows consist of nuisance and secondary effluent flows. During the rainy season, the recharge basins are designed to capture only a portion of the surface flow, while releasing the remainder downstream (CDM Smith 2016b; SBVMWD and WMWD 2004; Gabaldon, pers. comm. 2017).

Within the Chino Groundwater Basin, which underlies most of the San Antonio Creek System, Cucamonga/West Cucamonga Creek System, and portions of the Day Creek/Etiwanda–San Sevaine, Rialto, and Grand Terrace watersheds, stormwater recharge is estimated to be approximately 12,000 to 22,000 acre-feet/year. The Inland Empire Utilities Agency, Chino Basin Watermaster, Chino Basin Water Conservation District, San Bernardino County Flood Control District, and the region's cities and water districts have worked together since 2000 to implement a regional program in the Chino Groundwater Basin. All surface waters are released from the recharge basins prior to storm events. Prado Basin, located above Prado Dam, immediately south of San Bernardino County within Riverside County, captures all flows from the upper part of the Santa Ana River Watershed (IEUA 2016; CDM Smith 2016b; SBVMWD and WMWD 2004; Wildermuth Environmental Inc. 1999).

There are 14 publicly owned wastewater treatment plants (WWTPs) located above Prado Dam, in the upper Santa Ana River Watershed. Nine of these plants contribute to surface flow of the river; however, only two of them are located within San Bernardino County. The Rapid Infiltration and Extraction WWTP, in the City of Colton, and the Rialto WWTP, in the City of Rialto, discharge directly to the river via a discharge channel. Wastewater discharges from these plants have hydraulic continuity to the Santa Ana River above Riverside Narrows. With the exception of some nuisance flows in only a small percentage of the subwatersheds, the remaining discharges infiltrate into permeable sandy soils prior to reaching the river. Seven other WWTPs contribute wastewater discharges to the Santa Ana River between Riverside Narrows and Prado Dam (SBVMWD and WMWD 2004; CDM Smith 2016a; Gabaldon, pers. comm. n.d.).

Many watercourses within the Santa Ana Region have been altered, most notably the Santa Ana River, which was given a definitive and direct outlet to the Pacific Ocean in 1920. The Seven Oaks Dam, located at the base of the Santa Ana River Canyon, in the upper reaches of the river east of the City of Highland, has substantially altered the natural hydrology of the river. Seven Oaks Dam was primarily constructed to regulate flood flows on the main stem of the Santa Ana River. These floodwaters generally arrive between October and the end of February; therefore, the largest river flow changes occur during and after periods of high stream flow (i.e., flood flows), when flows within the contributing watershed of the dam are detained for flood control purposes. During the remainder of the year, space in which to conserve water supplies is available behind the dam. Overall, the completion of Seven Oaks Dam has altered the discharge rate, depth, velocity, and volume of flow in the river, and hence has decreased flood magnitude, the extent of overbank flooding, and channel scour. The regulation of surface flow also enables more water to be captured for local beneficial use (SBVMWD and WMWD 2004).

RWQCB – Lahontan Region

The primary watershed within the Lahontan Region is the Mojave River Watershed, which feeds into the Mojave River main stem, the primary geographic and surface hydrologic feature of the watershed (watersheds are depicted on Figure 4.8-2). This watershed, which encompasses approximately 4,500 square miles, ranges from 8,500 feet amsl at Butler Peak in the San Bernardino Mountains to 1,400 feet amsl at Afton Canyon, near the terminus of the Mojave River. The Mojave River Watershed is subdivided into a number of subwatersheds by the District, including the Upper Mojave, Middle Mojave, Lower Mojave, and Mojave–Baker watersheds. In addition to the Mojave River Watershed, the portion of the Lahontan Region located within San Bernardino County includes the Sheep Creek and Trona watersheds (see Figure 4.8-2).

The headwaters of the Mojave River in the San Bernardino Mountains receive more than 40 inches of precipitation (i.e., rain and snow) annually, whereas Victor Valley, in the Desert Region, receives only about 4 inches of precipitation annually. The mountainous headwaters area

is drained by two main tributaries, including Deep Creek and West Fork Mojave River. The Deep Creek tributary of the Mojave River is perennial. During heavy storms, especially those following other storms, streamflow in the area above Mojave River Forks Dam increases rapidly in response to rainfall. The shallow surface soils, impervious bedrock, fan-shaped collection systems, and steep gradients are important factors in producing high runoff rates and rapid concentration of floodwaters. In passing through the sandy wash downstream, surface flow is lost through percolation, reappearing at locations of impervious subsurface dikes (ACOE 1997).

The Mojave River channel transects the watershed for approximately 120 miles until it reaches Silver Dry Lake, near the community of Baker. Some reaches of the river flow underground within the confines of the riverbed channel. Typical of southwestern arid environments, the Mojave River Watershed has limited water resources. Surface water from the headwaters in the San Bernardino Mountains quickly percolates into the porous sands of the young Mojave River alluvium. The Mojave River channel is typically dry downstream of the Mojave Forks Dam, except in areas where groundwater is forced to the surface by geologic structures (Town of Apple Valley et al. 2003; Lahontan RWQCB 2005).

RWQCB – Colorado River Basin Region

The primary watersheds within the Colorado River Basin Region of San Bernardino County include the Yucca Creek and Needles/Sacramento Wash Watersheds (see Figure 4.8-2). The Yucca Creek Watershed is located in the southern portion of the County, within the Colorado River Basin (West), which is the portion of the Colorado River Basin Region that does not drain into the Colorado River. This watershed drains toward internal hydrologically isolated sinks, or playas (Colorado River Basin RWQCB 2014). Two smaller watersheds include the Little Morongo Creek and Lucerne Storm Drain watersheds, which also drain toward internal hydrologically isolated sinks, or playas (see Figure 4.8-2).

The Needles/Sacramento Wash Watershed, which feeds directly into the Colorado River in the vicinity of Needles, composes the northeast corner of the Colorado River Basin Region. This watershed is part of the East Colorado River Basin, which is the strip of watersheds along the Colorado River, within California. An average of only 4 inches of rain falls annually along this portion of the Colorado River (Colorado River Basin RWQCB 2014).

4.14.4.2 Energy Overview

Natural Gas

The Southern California Gas Company (SoCalGas) provides natural gas service to the Valley Region, the Morongo Basin, and portions of the Mountain Region. Southwest Gas Corporation provides natural gas service to the High Desert area, Victor Valley, Barstow,

portions of the North Desert area, and the Bear Valley communities. SoCalGas, Pacific Gas and Electric, Kern River, Mojave, and Kern Mojave are the major natural gas pipelines serving San Bernardino County, although SoCalGas provides the natural gas services to San Bernardino County (County of San Bernardino 2007).

Electricity

The major electricity service provider to San Bernardino County is Southern California Edison (SCE), which is part of the Pacific Intertie system. The Pacific Intertie system, which generates electricity throughout 10 western states, supplies electricity to the County and distributes electricity generated by the County anywhere throughout the system. SCE provides electricity service to all of San Bernardino County except for a few small pockets of County land. SCE's transmission system includes 500-kilovolt (kV) and 230 kV facilities that operate as a network and have been transferred to the Independent System Operator for operational control. Although a limited number of SCE's 115 kV, 66 kV, and 55 kV submission facilities also operate as a network and have been transferred, most of these facilities are radial in nature and remain outside the Independent System Operator's operational control. Transmission and subtransmission lines feed into the distribution network serving businesses, homes, and other electric power consumers. The distribution facilities encompass lines below 55 kV. The 115/12 kV and 66/12 kV substations provide a source for distribution lines and the smaller 12/4 kV substations. The electric power is distributed from the substations to individual customers through 33 kV and lower voltage distribution lines.

The City of Needles, Bear Valley Electric Service, and the City of Colton are the electricity service providers to the pockets of County land SCE does not service. The City of Needles provides electricity service to more than 4,000 customers. Bear Valley Electric Service provides electric power to more than 20,000 customers in the communities surrounding Big Bear Lake, including the City of Big Bear Lake, Big Bear City, Fawnskin, Erwin Lake, Moonridge, Sugarloaf, Lake Williams, Baldwin Lake, and Camp Radford. The City of Colton provides electricity service to more than 17,500 customers. Other electricity utilities for the County include Southern California Water and Electric and the Los Angeles Department of Water and Power (County of San Bernardino 2007).

4.14.5 Standard Operating Procedures

The District implements SOPs as an environmentally sensitive practice to minimize adverse effects from maintenance activities. The District's routine maintenance SOPs are provided in the Maintenance Plan (Appendix A). The following SOP, although intended to reduce impacts to hydrology and water quality (see Section 4.8 of this EIR for full text of this SOP), is relevant to the utilities and service systems analysis. Its relevance to specific impact topics is detailed in Section 4.14.6, Impacts Analysis.

SOP-HYD-2 (Vegetation Management)

4.14.6 Impacts Analysis

4.14.6.1 Methods of Analysis

The analysis was conducted by reviewing available information on hydrology and energy resources in the proposed program vicinity, as described in Section 4.14.4, Existing Conditions, and subsequently evaluating potential ground-disturbing and non-ground-disturbing impacts that might occur as a result of implementation of the proposed program.

Several comments were received in response to the Notice of Preparation (see Appendix C to this EIR) regarding impacts on utilities and service systems. The Lahontan RWQCB comments requested a detailed narrative description of each maintenance activity and an evaluation of potential impacts on water quality and hydrology. In addition, the Lahontan RWQCB indicated that with over 500 facilities requiring routine maintenance throughout the County, cumulative impacts on water quality and hydrology over time should be fully evaluated. These comments are addressed in Section 4.8 of this EIR.

In addition, a comment was received from SCE that expressed concern that the proposed program could impact multiple SCE facilities and requested that notification occur when any equipment associated with maintenance activities would be close to SCE facilities. It also requested that proposed use of SCE's right-of-way be coordinated with SCE and that any proposed use be reviewed on a case-by-case basis. Upon initiation of maintenance activities in the proposed program area where there may be SCE facilities, the District's standard practice is to reach out to SCE to coordinate those activities. Therefore, this topic is not addressed further in the analysis.

4.14.6.2 Analysis

The analysis in this section was combined for Valley, Mountain, and Desert Regions, because the approach to mitigating stormwater and energy impacts would not vary by geography. Some of the activities were also combined in the analysis because they would not result in different impacts to the stormwater system or in different energy impacts.

Impact UTL-3

Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Valley, Mountain, and Desert Regions

Ground-Disturbing Activities and Non-Ground-Disturbing Vegetation Maintenance

Ground-disturbing activities would include stockpiling, mechanized land clearance/sediment removal, vegetation management, bank repair, and ingress/egress. Ground-disturbing activities would typically employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3, Program Description (e.g., grader, loader, dozer, dump truck, scraper, excavator, and roller).

Non-ground-disturbing vegetation management would include mowing and hand clearing of vegetation. Vegetation maintenance would employ the use of power trimmers, weed eaters, and manual tools as detailed in Table 3-4 of Chapter 3.

Proposed maintenance activities are primarily related to the maintenance of various flood control channels, basins, and earthen levees and dams to ensure flood protection and allow District facilities to function at their current/designed capacity. These activities would not substantially alter the existing drainage pattern, because detention/recharge basins and flood control channels would include only minor alterations to update facilities to current standards or to increase stability. The facilities would be cleared of vegetation, debris, sandbars, and eroded sediments, and repairs would be made to earthen slopes and concrete/riprap walls. However, surface flow velocities would slightly increase as a result of vegetation and sediment removal in some facilities, because the vegetation currently acts as a flow velocity inhibitor, allowing more water to percolate into on-site soils due to decreased runoff velocities. Flow velocities would be higher following maintenance activities, increasing the sediment transport capabilities and thus reducing potential backfill of the facility with sediment. The removal of the velocity-inhibiting vegetation, debris, sandbars, and eroded sediments would result in localized, incidental hydraulic impacts to the drainage facilities.

Smoothing and compacting slopes of natural earthen and engineered earthen facilities during basin and drainage ditch slope repairs could also slightly increase the velocity of surface flows. This reduction in roughness of the channel bed would be localized and inconsequential because channels with excessive sediment deposition typically have low roughness due to accumulation of coarse and fine sediments. In addition, bank repairs would include incidental placement of riprap or rock gabions that could experience frequent erosion, resulting in high frequency of maintenance. Riprap repair would include repositioning, replacement, or replacement of incidental riprap to stabilize the slopes. Bank repair would also include the repair of grouted and ungrouted sections of rock, as well as repair or replacement of steel revetments with more revetment or riprap rock. Repair or replacement of existing sections of rock or steel revetments would not result in increased runoff velocities, because there would be no increase in hard surfaces over existing conditions.

Implementation of SOP-HYD-2 (Vegetation Management; see Section 4.14.5, Standard Operating Procedures) as part of the District's standard practice would minimize vegetation management to the extent feasible, which would contribute to minimizing increased surface runoff as a result of maintenance activities.

More importantly, increased runoff would be offset by the increased capacity of the drainage facilities following sediment removal, because greater capacity would accommodate the increased flow volumes. As-built drawings are available for a substantial number of facilities but not all facilities; therefore, LIDAR data were gathered over large areas of the County and the data are being used to support baseline conditions in the District's facilities. LIDAR is a survey technology that measures distances and topographical changes using laser light. This strategy of applying LIDAR to arrive at as-built design conditions was implemented in coordination with state and federal resource agency staff. However, post-maintenance conditions would approximate original design conditions, including a general lack of vegetation and sediment accumulation within the facilities, resulting in overall beneficial impacts. Therefore, the proposed program would not require construction of new stormwater drainage facilities or expansion of existing facilities and impacts would be less than significant.

Non-Ground-Disturbing Activities

Non-ground-disturbing activities would include sand and gravel operations.[1] herbicide and rodenticide application, flood control structure repair, graffiti removal, vector control, and stream gage maintenance. In some cases, non-ground-disturbing activities would employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3 (e.g., grader, loader, dump truck, scraper, cement truck, and portable power screen and crusher).

Application of pesticides and herbicides would have no impact on drainage patterns, runoff velocities, or runoff volumes because the root system of the vegetation would remain undisturbed and the ground surface would be unaffected. Similarly, all other non-ground-disturbing activities would have no impact on soils and drainage. Therefore, the proposed program would not require construction of new stormwater drainage facilities or expansion of existing facilities and impacts would be less than significant.

[1] Sand and gravel operations are considered non-ground-disturbing activities because they are located in areas free of vegetation and do not entail any excavation below the ground surface.

Appendix F – Energy Conservation

Would the program result in wasteful, inefficient, or unnecessary consumption of energy; conflict with existing energy standards and regulations; or place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?

Valley, Mountain, and Desert Regions

All Program Activities

Ground-disturbing activities would include stockpiling, mechanized land clearance/sediment removal, vegetation management, bank repair, and ingress/egress. Non-ground-disturbing vegetation management would include mowing and hand clearing of vegetation. Non-ground-disturbing activities would include sand and gravel operations, herbicide and rodenticide application, flood control structure repair, graffiti removal, vector control, and stream gage maintenance. Ground-disturbing and non-ground-disturbing activities would typically employ the use of heavy equipment as detailed in Table 3-4 of Chapter 3, Program Description (e.g., grader, loader, dozer, dump truck, scraper, excavator, and roller). Non-ground-disturbing vegetation management would employ the use of power trimmers, weed eaters, and manual tools as detailed in Table 3-4 of Chapter 3.

Implementation of the proposed ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities would result in a small increase in consumption of electricity, natural gas, and petroleum; however, since the maintenance activities are currently ongoing, the increase would likely be negligible. Electricity, natural gas, and petroleum would be used to power equipment used for ground-disturbing activities. Petroleum would be used for off-road equipment, on-road hauling and vendor trucks, and worker vehicles. On a permanent, long-term basis, ground-disturbing activities would consume energy; however, the proposed program would use very little energy, because it consists of small maintenance projects and activities for existing infrastructure that is already in place. Therefore, the proposed program would not result in the excessive use of fuel or energy or the use of excessive amounts of power, and impacts would be less than significant.

There are no statewide mandatory energy requirements that would apply to ground-disturbing maintenance activities. Ground-disturbing maintenance activities would not involve the construction of structures that would require the use of electricity, natural gas, or petroleum to operate. Therefore, the proposed program would not be subject to the 2016 California Building Energy Efficiency Standards (24 CCR Part 6).

Ground-disturbing activities, non-ground-disturbing vegetation management, and non-ground-disturbing activities would increase the demand for electricity, natural gas, and petroleum.

However, the proposed program would involve maintenance of existing infrastructure. Maintenance activities would not involve the introduction of a land use or development associated with intensive energy consumption. Therefore, the proposed program would not create a significant demand on local or regional energy supplies, nor would it require a substantial amount of additional capacity.

4.14.7 Mitigation Measures

With incorporation of District standard practice SOP-HYD-2, potential utilities and service systems impacts would be less than significant; therefore, no mitigation measures would be required.

4.14.8 Level of Significance After Mitigation

Utilities and service systems impacts from implementation of the proposed program would be less than significant. Table 4.14-1 summarizes the impacts for proposed activities under each impact threshold analyzed in this EIR section.

Table 4.14-1
Utilities and Service Systems Impacts Summary

Program Element	Standard Operating Procedures	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact UTL-3: Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	SOP-HYD-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	SOP-HYD-2	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	—	Less than significant	—	Less than significant
Appendix F – Energy Conservation: Would the program result in wasteful, inefficient, or unnecessary consumption of energy; conflict with existing energy standards and regulations; or place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?				
Valley, Mountain, and Desert Regions				
Ground-Disturbing Activities	—	Less than significant	—	Less than significant
Non-Ground-Disturbing Vegetation Management	—	Less than significant	—	Less than significant
Non-Ground-Disturbing Activities	—	Less than significant	—	Less than significant

4.14.9 Cumulative Impacts

Physical impacts to utilities and service systems are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to

the need for expanded or new facilities. Public services and utilities are provided by local jurisdictions or districts. Service providers serving the proposed project are located within San Bernardino County. Therefore, the geographic extent for the cumulative utilities and service systems analysis is limited to the County.

Cumulative impacts on utilities and service systems result when projects combine to increase demand on services such that additional services must be provided or new utility service systems must be constructed. This would usually result from incremental addition of people occupying an area or incremental urban development, requiring expanded utilities and service system provision. Maintenance activities associated with the proposed program would not contribute to an impact associated with the need for new or expanded utilities and service systems. The proposed program would not include construction of new or expanded facilities that would increase the number of facilities or indirectly cause population growth and development, resulting in the need for additional utilities. The proposed program would not increase the population, leading to an increased demand for utilities and service systems.

Maintenance activities associated with the proposed program would result in less than significant impacts on utilities and service systems on a localized and temporary basis only. Post-maintenance surface water flow velocities would increase as a result of vegetation and sediment removal, because the vegetation currently acts as a flow velocity inhibitor, which allows more water to percolate into on-site soils due to decreased runoff velocities. Smoothing and compacting slopes of natural earthen facilities during basin and channel slope repairs could also slightly increase the velocity of surface flows. Localized impermeable surfaces would be created as part of the proposed program in association with bank repair/armoring. Downstream or upstream cumulative projects located in proposed program watersheds could similarly increase runoff as a result of increased impermeable surfaces. The cumulative effect would be that peak flows within the watershed drainages would be greater in magnitude, shorter in duration, and more subject to flash floods, because a greater portion of precipitation would be carried by surface runoff rather than percolated into the soil.

Potential flooding impacts would be partially offset by the increased capacity of the proposed program drainage facilities following sediment removal, because greater capacity could accommodate the increased flow volumes. As-built drawings are not available for many of the facilities; therefore, it is not clear whether the post-maintenance design capacity would be the same as the original design. However, post-maintenance conditions would approximate original design conditions, including a general lack of vegetation and sediment accumulation within the facilities, resulting in overall beneficial impacts. Therefore, in the long term, the proposed program would not have a significant contribution to cumulatively considerable impacts requiring the construction of new stormwater drainage facilities or expansion of existing facilities.

The proposed program would increase the demand for electricity, natural gas, and petroleum during proposed program activities. However, the proposed program would involve maintenance of existing water infrastructure. The proposed program would not involve the introduction of a new land use or development associated with intensive energy consumption. Therefore, the proposed program would not create a significant demand on energy supplies, nor would it require a substantial amount of additional capacity. Therefore, the proposed program would not have a significant contribution to cumulatively considerable impacts associated with energy consumption.

The proposed program would not include construction of new or expanded facilities that would increase the number of facilities or indirectly cause population growth and development, resulting in the need for additional utilities. The proposed program would not increase population leading to an increased demand for utilities and service systems. Therefore, the proposed project would not combine with other cumulative projects as described in the introduction to Chapter 4 (see Table 4-1), resulting in a need for the expansion of existing or construction of new utilities and service systems. Maintenance activities associated with the proposed program would not contribute to a cumulatively considerable impact associated with the need for new or expanded utilities and service systems.

4.14.10 References

24 CCR Part 6. California Building Energy Efficiency Standards.

40 CFR 122.2. Definitions.

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Town of Apple Valley, City of Hesperia, City of Victorville, and County of San Bernardino. 2003. *Storm Water Management Program (SWMP) for the Mojave River Watershed.* August 2003. Accessed November 21, 2016. http://www.waterboards.ca.gov/water_issues/programs/stormwater/swmp/mojave_swmp.pdf.

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CHAPTER 5
OTHER CEQA CONSIDERATIONS

5.1 INTRODUCTION

The purpose of this environmental impact report (EIR) is to implement a long-term routine maintenance program proposed by the San Bernardino County Flood Control District (District). This program, the Master Storm Water System Maintenance Program (proposed program), is designed to provide a formal, comprehensive approach to routine maintenance of over 500 flood control facilities within the District's jurisdiction.

The District currently conducts maintenance activities within their facilities; however, the Maintenance Plan will provides a formalized, comprehensive plan that will provide a systematic and scheduled approach to these maintenance activities, providing increased efficiency and environmental sensitivity to the implementation of maintenance activities. As described in Chapter 3, Program Description, maintenance activities would allow District facilities to function at their current/designed capacity and would include activities such as sediment removal, vegetation maintenance, and repair of structures. Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. District facilities are located both in unincorporated lands in San Bernardino County (County) and in portions of 24 incorporated cities and towns in the County. The locations of proposed program facilities are depicted on Figures 3-2A through 3-2I of this EIR and typical maintenance activities at each facility type are depicted on Figures 3-3A through 3-3L.

This chapter describes the other considerations that are required in an EIR, as follows:

- Impacts Found Not to Be Significant (Section 5.2)
- Significant and Unavoidable Environmental Impacts (Section 5.3)
- Significant and Irreversible Environmental Impacts (Section 5.4)
- Growth Inducement (Section 5.5)

References used in the preparation of this chapter are provided in Section 5.6.

5.2 IMPACTS FOUND NOT TO BE SIGNIFICANT

The California Environmental Quality Act (CEQA) provides that an EIR shall focus on a proposed project's significant effects on the environment, discussing the effects with emphasis in proportion to their severity and probability of occurrence. Effects dismissed in an initial study (IS) as clearly insignificant and unlikely to occur need not be discussed further in the EIR unless information inconsistent with the finding in the IS is subsequently received.

Section 15128 of the CEQA guidelines requires that an EIR briefly describe potential environmental effects that were determined not to be significant and therefore were not discussed in detail in the EIR. Based on the analysis provided herein, the following areas were found to have no significant impacts, and no mitigation measures are necessary. The environmental impacts relating to the issues discussed in the following sections are not considered significant, and the reasons for the conclusion of non-significance are discussed in this section.

5.2.1 Aesthetics

5.2.1.1 Adverse Effect on Scenic Vistas

The County General Plan does not specifically designate scenic vistas, but it does identify environmental features as an important contributor to natural and aesthetic resources (County of San Bernardino 2007). Proposed maintenance activities, such as road grading or vegetation maintenance would maintain the existing access roads and facilities, with very little to no visual change. Analysis performed during the IS phase of the proposed program determined that impacts to a scenic vista would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B to this EIR, 2014 Initial Study/Notice of Preparation (IS/NOP).

5.2.1.2 Damage to Scenic Resources

The only officially designated scenic highway in the proposed program area, State Route 38 (SR-38) from the South Fork Campground to approximately 3 miles south of SR-18, is located within the County of San Bernardino. There are no District facilities or proposed program activities located adjacent to or near the designated scenic segment of SR-38. Analysis performed during the IS phase and in this EIR (see Section 4.1, Aesthetics) determined that there would be no impacts to scenic resources within a state scenic highway.

5.2.1.3 Degradation of Existing Visual Character

The proposed program would involve the maintenance and repair of existing facilities, and would not involve the construction of new infrastructure or facilities; the degree of visual change is generally not expected to be substantial. The maintenance regime of the proposed program would be similar to the existing regime and would produce similar visual effects. The temporary presence of equipment would not degrade existing visual character. In addition, viewers may tend to have low visual expectations and reduced sensitivity to visual changes occurring at District facilities due to their engineered appearance and routine maintenance activities that create a continually changing visual appearance. The analysis in the EIR (see Section 4.1) determines which District facilities are visible from specific public vantage points (i.e., designated state scenic and eligible highways and County scenic routes) and evaluates the potential for impacts to existing views because of proposed program

activities. Because of the recurring nature of maintenance activities, familiarity with the presence of construction vehicles and maintenance visual effects, and the related reduced expectations and sensitivities of viewers in the surrounding area, impacts to existing visual character and quality resulting from proposed program activities would be less than significant.

5.2.1.4 New Source of Light and Glare

No new permanent lighting would be installed as part of the proposed program. Maintenance activities are typically conducted during daytime hours. In addition, the need for nighttime light is episodic, limited in extent and duration, and would involve use of downward-directed lights. Analysis performed during the IS phase of the proposed program determined that impacts related to light and glare would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.2 Agricultural Resources

The IS determined that impacts associated with agricultural resources would be less than significant, and no additional analysis in the EIR would be required. For a detailed discussion on less than significant impacts regarding agricultural resources, see Appendix B.

5.2.3 Air Quality

5.2.3.1 Conflict with Applicable Air Quality Management Plan

The proposed program would involve the maintenance and repair of existing facilities. The proposed program does not propose to change existing land uses or applicable policies as designated in the general plans of the affected jurisdictions. Accordingly, the proposed program would not conflict with the 2016 Air Quality Management Plan (AQMP) or exceed the assumptions in the 2016 AQMP. In addition, the proposed program would neither increase population nor require additional long-term employment. Based on the proposed activities, the proposed program is not anticipated to generate employment not accounted for in the Southern California Association of Governments 2016 Regional Growth Forecast. Implementation of the proposed program would result in volatile organic compound (VOC), oxides of nitrogen (NO_x), coarse particulate matter (PM_{10}), or fine particulate matter ($PM_{2.5}$) emissions; however, proposed program-generated emissions would not exceed the Mojave Desert Air Quality Management District (MDAQMD) or South Coast Air Quality Management District (SCAQMD) thresholds. Analysis in Section 4.2, Air Quality, of this EIR determined that impacts would be less than significant.

5.2.3.2 Violation of an Air Quality Standard

Proposed program maintenance activities would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from equipment at proposed program sites, as well as from off-site trucks hauling removed sediment and debris. None of the estimated annual representative project maintenance activity emissions would exceed the MDAQMD construction thresholds. However, there is a potential for maintenance activities to occur concurrently with maintenance activities at one or more facilities. The criteria air pollutant of concern (i.e., the pollutant that concurrent maintenance activities would most likely exceed thresholds of) is NO_x. Based on the estimated emissions from the representative projects presented in the EIR, it is reasonable to anticipate that the maximum daily NO_x emissions would be within the range of approximately 7 to 29 pounds per day. The representative earthen–natural channel project was estimated to result in the greatest emissions of NO_x (29.43 pounds per day) out of the 12 analyzed representative projects. Because the MDAQMD threshold for NO_x is 137 pounds per day and the SCAQMD threshold for NO_x is 100 pounds per day, assuming that earthen–natural channel projects could generate approximately 29 pounds per day, it is estimated that an additional three earthen–natural channel projects would have to occur at the same time for emissions to exceed the SCAQMD NO_x threshold. In addition, using the assumption that no more than four sand and gravel activities would occur concurrently, the proposed program would not exceed the MDAQMD annual NO_x threshold of 25 tons per year. With incorporation of Standard Operating Procedure (SOP) AQ-1 (Diesel Particulate Filters) and SOP-AQ-2 (Maintenance Equipment) into the proposed program as part of the District's standard practice, this EIR determined that impacts would be less than significant. See Section 4.2 for the full analysis and the text of these SOPs.

5.2.3.3 Cumulatively Considerable Increase of a Criteria Pollutant

In considering cumulative impacts from the proposed program, the analysis evaluates the proposed program's contribution to the cumulative increase in pollutants for which the Mojave Desert Air Basin (MDAB) and the Southern California Air Basin (SCAB) are designated as nonattainment for the National Ambient Air Quality Standards and/or California Ambient Air Quality Standards. If the proposed program's emissions would exceed the MDAQMD or SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the MDAB or the SCAB. The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). The discussion herein is nonetheless provided in an effort to show good faith analysis and to comply with CEQA's information disclosure requirements. Because the proposed program is not expected to exceed the MDAQMD and SCAQMD thresholds, the proposed program would not thereby conflict with SCAQMD's 2016 AQMP, which addresses the cumulative emissions in the SCAB. As previously discussed, SOP-AQ-1 (Diesel Particulate Filters) and SOP-AQ-2

(Maintenance Equipment) (see Section 4.2) would be incorporated into the proposed program to reduce proposed program-generated emissions and associated impacts. Based on the analysis presented in Section 4.2, proposed program emissions would be less than cumulatively considerable for nonattainment pollutants.

5.2.3.4 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Maintenance activities associated with the proposed program would result in temporary on-site sources of fugitive dust and maintenance activity equipment emissions. However, according to the localized significance thresholds (LSTs) analysis in Section 4.2 of this EIR, maximum daily on-site maintenance activity emissions for each representative project would not exceed the most stringent LSTs. As such, site-specific maintenance activity impacts on ambient air quality at sensitive receptor locations would be less than significant.

Traffic-congested roadways and intersections have the potential to generate localized high levels of carbon monoxide (CO) "hotspots." Individual projects under the proposed program would be temporary and would not be a source of daily, long-term mobile-source emissions. Accordingly, proposed activities would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the MDAB or the SCAB is steadily decreasing. Accordingly, impacts were determined to be less than significant, as discussed in Section 4.2 of this EIR.

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. The nearest sensitive receptors to the maintenance activity sites cannot be defined with accuracy at this time; however, because the majority of the proposed program activities would occur within existing District use areas or previously disturbed areas, as well as in open space, it is not anticipated that the greater portion of proposed program maintenance activities would be located close to sensitive receptors. Health effects from carcinogenic air toxics are usually described in terms of cancer risk, and SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 30-year lifetime will contract cancer based on the use of standard risk-assessment methodology. The maintenance activity period for the proposed program is expected to begin in 2018, and after maintenance at a given facility is completed, TAC emissions associated with the proposed program would cease at that site. Thus, the proposed program would not result in a long-term (i.e., 30-year) source of TAC emissions. As such, impacts related to exposure of sensitive receptors to proposed program-related TAC emission impacts during maintenance activities would be less than significant.

Maintenance of the proposed program would generate criteria air pollutant emissions; however, the proposed program would not exceed the MDAQMD or SCAQMD mass-emission thresholds. Accordingly, the proposed program would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

5.2.3.5 Objectionable Odors

Chemicals used for maintenance and cleaning are used in small quantities that can be transported on a utility vehicle and would not be used in concentrations substantial enough to significantly impact areas surrounding the maintenance sites. The majority of proposed maintenance activities are in remote areas located away from residences and other occupied facilities, so a limited number of people would be affected. The potential release of odors associated with maintenance equipment and maintenance and cleaning materials would be minor, temporary, and unlikely to impact a substantial number of people**.** Analysis performed during the IS phase of the proposed program determined that impacts relating to objectionable odors would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.4 Biological Resources

5.2.4.1 Interference with Wildlife Movement or Use of Nursery Sites

Maintenance activities will occur within several of the wildlife corridors and linkages that occur in the Valley Region. However, because maintenance activities would only reduce or remove a small portion of the habitat in a given drainage or stream, and the result of these activities are unlikely to preclude use by dispersing wildlife, direct impacts to wildlife corridors and habitat linkages would be less than significant. Indirect impacts to wildlife corridors during the implementation of maintenance will be short term and would be less than significant. Additional detail is provided in Section 4.3.

5.2.4.2 Conflict with Local Policies Protecting Biological Resources

By definition in the San Bernardino County Development Code, Chapter 88.01 Plant Protection and Management, local governmental entities, such as the District, are exempt from the Development Code. Therefore, maintenance activities are not in conflict with the San Bernardino County Development Code and no impact would occur. Nevertheless, as part of their environmentally sensitive practice, the District avoids and minimizes impacts to the extent practicable to species covered by the Development Code including oak woodlands, Joshua trees, and riparian habitat. Additional detail is provided in Section 4.3.

5.2.5 Cultural Resources

5.2.5.1 Disturbance of Human Remains

Given the prehistoric and historic use of the area, human remains may be encountered during ground-disturbing activities.[1] Existing regulations through the California Health and Safety Code, Section 7050.5 et seq., state that if human remains are discovered during proposed program activities, no further disturbance shall occur until the county coroner has made the necessary findings as to their origin. Given the required compliance with the existing regulations pertaining to the discovery of human remains (California Health and Safety Code, Section 7050.5 et seq.), the proposed program would result in less than significant impacts to human remains. Additional detail is provided in Section 4.4, Cultural Resources.

5.2.6 Geology and Soils

5.2.6.1 Exposure to Faulting, Seismic Ground Shaking, Liquefaction, or Landslides

Regardless of the extent and magnitude of seismic hazards present within the County of San Bernardino, the proposed maintenance activities would not increase public exposure to such risks because they would not involve habitable structures and would not result in increased geologic risks to the public or property outside the proposed program area. The majority of maintenance activities would occur on or along existing system facilities and infrastructure, which are generally not accessible to the public. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.6.2 Soil Erosion or Loss of Topsoil

The proposed maintenance activities include actions to minimize the potential for erosion, such as the removal of excess sediment and sand from the invert of the channel or basin or on-site/off-site stockpile location and placing it onto the side slopes. These activities are limited to the District's existing facilities, are generally confined to previously disturbed areas, and will decrease the potential for existing erosion problems to continue or worsen in the future. The long-term impacts with respect to substantial soil erosion or the loss of topsoil would be less than significant and this is issue was not analyzed further in the EIR. Additional information is provided in Appendix B.

[1] Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) establishes a formal consultation process for California tribes as part of CEQA. Although AB 52 became law on January 1, 2015, it only applies to projects that have an NOP or notice of negative declaration/mitigated negative declaration filed on or after July 1, 2015. Because the recirculated NOP for the proposed program was filed on June 30, 2014, tribal consultation under AB 52 is not required.

5.2.6.3 Location of Program Sites on Unstable Geologic Unit

The proposed program does not include activities that would increase the extent, magnitude, timing, or probability of lateral spreading, subsidence, liquefaction, or collapse. Implementation of the proposed program would provide a comprehensive program for maintenance of various flood control channels and basins to ensure flood protection. Some maintenance projects would be located within areas of the County that are susceptible to slope failures, including shallow surficial slides/slumps, mudslides/debris flows, deep-seated landslides, or topples/falls. However, with implementation of SOP-GEO-1 (Earthwork and Grading Best Practices) as part of the District's standard practice (see Section 4.5, Geology and Soils), slope recontouring and temporary shoring up of hillsides would be conducted in accordance with applicable standards governing construction safety and excavations (including California Occupational Safety and Health Administration Construction Safety Orders and General Industry Safety Orders) and in coordination with applicable federal, state, and local agencies. Implementation of SOP-GEO-1 (Earthwork and Grading Best Practices) would ensure that impacts related to slope failures resulting from maintenance activities would be less than significant. Additional detail is provided in Section 4.5.

5.2.6.4 Location of Program Sites on Expansive Soil

The expansive potential of soils is typically related to the type and amount of clay minerals in a soil, along with the moisture content of the soil and how often it changes (i.e., wet/dry cycles). Expansive soils can be widely dispersed and are found in hillside areas as well as low-lying areas in alluvial basins. This criterion does not apply to routine maintenance activities because the proposed program involves maintenance only of the District's existing infrastructure and would not require or involve the construction of new or expanded facilities. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.6.5 Location of Program Sites on Soils Incapable of Supporting Septic Tanks or Alternative Wastewater Disposal Systems

Proposed maintenance activities would not involve any septic tanks or alternative wastewater disposal systems, and no impact would occur. Analysis performed during the IS phase of the proposed program determined that no impacts to septic tanks or alternative wastewater disposal systems would occur, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.7 Greenhouse Gas Emissions

5.2.7.1 Generation of Greenhouse Gas Emissions

Maintenance activities under the proposed program would result in the generation of GHG emissions that would be primarily associated with use of off-road equipment, on-road hauling and vendor trucks, and worker vehicles. The proposed program would not generate operational emissions. Annualized maintenance activity emissions over 20 years are compared with the County's GHG significance threshold of 3,000 metric tons of carbon dioxide equivalent (MT CO_2E) to determine the significance of proposed program-generated GHG emissions. Maintenance activities would result in approximately 5,989 MT CO_2E per year. Thus, proposed program maintenance activity emissions amortized over 20 years would be approximately 299 MT CO_2E. Estimated average annual maintenance activity emissions would not exceed the County's threshold of 3,000 MT CO_2E. Therefore, the proposed program would not result in cumulatively considerable emissions. Impacts would be less than significant. Additional detail is provided in Section 4.6, Greenhouse Gas Emissions.

5.2.7.2 Conflict with an Applicable Greenhouse Gas Reduction Plan

As stated in the County's Greenhouse Gas Emissions Reduction Plan (GHG Plan) (County of San Bernardino 2011), with the application of the greenhouse gas (GHG) performance standards, projects that do not exceed 3,000 MT CO_2E per year are considered to be consistent with the GHG Plan and determined to have a less than significant individual and cumulative impact for GHG emissions. Emissions from maintenance activities under the proposed program would not exceed the County's screening threshold of 3,000 MT CO_2E per year. Furthermore, the proposed program is accounted for within the GHG Plan. As provided in the GHG Plan, the County includes numerous policies and programs that guide development and also support the County's efforts to reduce GHG emissions. Objective GHG WC 1.1 would be applicable to the proposed program because this policy requires that the County maintain stormwater drainage facilities and flood control channels throughout the County. Based on the guidance presented in the GHG Plan, the proposed program would be consistent with the applicable plan adopted to reduce GHG emissions.

At the regional level, the Southern California Association of Governments has adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the purpose of reducing GHG emissions attributable to passenger vehicles in western San Bernardino County and surrounding areas. The RTP/SCS is not directly applicable to the proposed program because the underlying purpose of the RTP/SCS is to provide direction and guidance on future regional growth (i.e., the location of new residential and non-residential land

uses) and transportation patterns throughout the region, as stipulated under Senate Bill 375. As such, the proposed program would not conflict with the goals and policies of the RTP/SCS.

Executive Order S-3-05 establishes goals to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. Additionally, Senate Bill 32 establishes a statewide GHG emissions target reduction whereby the California Air Resources Board, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. The proposed program would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because, as evidenced previously, the proposed program's amortized GHG emissions of 299 MT CO_2E would be substantially lower than the County's significance threshold of 3,000 MT CO_2E and would occur over a period of 20 years. Therefore, the proposed program would not conflict with the state's trajectory toward future GHG reductions, and the proposed program's impacts on GHG emissions in the 2030 and 2050 horizon years would be less than significant. Additional detail is provided in Section 4.6.

5.2.8 Hazards and Hazardous Materials

5.2.8.1 Routine Transport, Use, or Disposal of Hazardous Materials

Small quantities of hazardous materials (i.e., able to be transported on a utility truck), such as herbicides, rodenticides, biopesticides, lubricants, paint, and fuel, would be used during facility maintenance for graffiti removal, vegetation maintenance, protection from burrowing rodents, and vector control. These materials would be used in accordance with applicable federal, state, and local laws. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.8.2 Accidental Conditions Involving Release of Hazardous Materials

The proposed maintenance activities would involve small quantities of hazardous materials only where needed and primarily not in areas frequented by the public. It is unlikely that these small quantities of hazardous materials associated with the proposed program could create a significant hazard to the public or environment through a release of hazardous materials. Therefore, impacts were determined in the IS to be less than significant, and no further analysis was included in the EIR. Additional information is provided in Appendix B.

5.2.8.3 Hazardous Materials within One-Quarter Mile of a School

Use of hazardous materials would be limited to existing facilities, primarily in areas not frequented by the public, and would not affect an existing or proposed school. Therefore, the IS determined that impacts would be less than significant, and further analysis in the EIR was not required. See Appendix B for further information.

5.2.8.4 Hazardous Materials near an Airport or within an Airport Land Use Plan Area

Maintenance activities would not result in the construction of facilities or structures that would visually or physical obstruct flight paths or roads leading to any public airports. Existing District facilities are located within 2 miles of the San Bernardino and Los Angeles/Ontario international airports, the Chino Airport, Cable Airport, Municipal Rialto Airport, Redlands Municipal Airport, Tri-City Airport, Big Bear Airport, Southern Logistics Airport, Depue Airport, Yucca Valley Airport, Hi Desert Airport, and Barstow Daggett County Airport. Proposed maintenance activities would occur within these areas; however, they would be unlikely to result in a safety hazard for those working or residing in the proposed program area. Therefore, the IS determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.8.5 Hazardous Materials in the Vicinity of a Private Airstrip

Proposed maintenance activities would not result in the construction of facilities or structures that would visually or physically obstruct flight paths or roads leading to the Andy Jackson Airpark, Baker Airport, Cones Field, or Bauer Airport. District employees would potentially be exposed to noise or dangers associated with nearby air traffic; however, work in these areas would be temporary and short term. Therefore, impacts were determined in the IS to be less than significant, and no further analysis was included in the EIR. Additional information is provided in Appendix B.

5.2.8.6 Risk from Wildland Fires

Proposed maintenance activities may employ the use of heavy equipment. Use of maintenance equipment around flammable vegetation and other materials that are fire hazards presents a wildland fire risk. Although hot work, including welding, soldering, cutting, and brazing, is not anticipated to occur during maintenance activities, there could be risks associated with incidental sparks from the use of maintenance equipment or from the refueling of equipment. The District implements SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) (see Section 4.11, Public Services, for complete text of these SOPs) to reduce impacts from equipment that could lead to wildland fires. Therefore, this impact would be less than significant. Additional detail is provided in Section 4.7.

5.2.9 Hydrology and Water Quality

5.2.9.1 Depleted Groundwater Supplies

Proposed program activities are related to the maintenance of various flood control channels, basins, earthen streams, and dams to ensure flood protection. There are no proposed maintenance activities that would be invasive enough to potentially encounter groundwater during implementation. In addition, groundwater resources would not be relied on for water supply, dust suppression, or any other need. Thus, the IS determined that impacts to groundwater from maintenance activities would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.9.2 Alteration of Existing Drainage Pattern Resulting in Erosion or Siltation

Proposed maintenance activities are primarily related to the maintenance of various flood control channels, basins, and earthen levees and dams to ensure flood protection and allow District facilities to function at their current/designed capacity. These activities would not substantially alter the existing drainage pattern because detention/recharge basins and flood control channels would include only minor alterations to update facilities to current standards or to increase stability. However, surface flow velocities would slightly increase as a result of vegetation and sediment removal in some facilities, because the vegetation currently acts as a flow velocity inhibitor. Smoothing and compacting slopes of engineered earth facilities during basin and drainage ditch slope repairs could also slightly increase the velocity of surface flows. Increased erosion would also result in downstream sedimentation of creeks and drainages.

In accordance with SOP-HYD-3 (Minimization of Controllable Discharge of Sediment; see Section 4.8 of this EIR), no temporary stockpiles would be placed on the channel bed or banks from October through April for more than the duration of the sediment removal work. Temporary stockpiles in the channel bottom would be for a duration not longer than one working day and not overnight. Permanent stockpiles would be located landward of the 100-year floodplain to the maximum extent feasible. These measures would minimize downstream erosion-induced siltation and prevent mudflows during average precipitation events and 2-year through 100-year flood events. In addition, the goals of the proposed program with regard to erosion control are positively aligned with the water quality objectives contained in the Regional Water Quality Control Board Basin Plans, particularly with regard to turbidity and sedimentation. Drainage features would be maintained to prevent surface runoff from overtopping banks, resulting in erosive rilling and gullying of slopes. Access roads would be graded such that rilling and gullying would be minimized. Proposed maintenance activities would also include establishment and maintenance of a channel centerflow, which would convey and guide low-volume storm and dry weather (urban runoff) flows within the center of earthen

channels to keep flows away from channel banks, thus reducing erosion. Incorporation of SOP-HYD-3 (Minimization of Controllable Discharge of Sediment) into proposed program maintenance activities would result in less than significant erosion-related impacts associated with increased surface flows. Analysis is provided in Section 4.8 of this EIR.

5.2.9.3 Alteration of Existing Drainage Pattern Resulting in Flooding

Surface flow velocities would increase as a result of vegetation and sediment removal because the vegetation currently acts as a flow velocity inhibitor, which allows more water to percolate into on-site soils due to decreased runoff velocities. This increased runoff would potentially result in downstream flooding impacts. Implementation of SOP-HYD-2 (Vegetation Management; see Section 4.8) would minimize vegetation removal to the extent feasible, which would contribute to minimizing increased surface runoff as a result of maintenance activities. More importantly, increased runoff would be offset by the increased capacity of the drainage facilities following sediment removal, because greater capacity would accommodate the increased flow volumes. Analysis in Section 4.8 determined that impacts related to substantial flooding would be less than significant.

5.2.9.4 Exceedance of Capacity of Stormwater Drainage System

Compared to existing conditions, proposed maintenance activities would result in no appreciable change in the amount of runoff draining from District facilities and access roads. None of the proposed maintenance activities would increase impervious surfaces or sufficiently alter drainage patterns to measurably increase the volume of water entering storm drain systems. Analysis performed during the IS phase of the proposed program determined that impacts to groundwater would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.9.5 Other Degradation of Water Quality

Maintenance activities would maintain hydraulic capacity of existing basins (in accordance with program objectives), thus allowing more time for settling of sediments from detained surface flows. Increased hydraulic capacity of basins would also reduce the potential for downstream erosive scour, thus protecting downstream structures and public safety. As a result, beneficial erosion-related impacts would occur. However, an indirect impact related to those beneficial water quality impacts would be downstream deprivation of sand as a result of detention/debris basins. The magnitude of this impact would not be significant because these basins have been in place for several decades on most of the affected drainages, allowing time for downstream reaches to adjust to reduced sediment supply during non-flood years. Compared to the existing conditions, the difference in the amount of sediment that flows downstream would be incremental. In addition, the basins are designed to only allow low–medium flows, which

minimizes the potential for downstream erosion. As a result, impacts would be less than significant. Analysis is provided in Section 4.8.

5.2.9.6 Placement of Housing within a 100-Year Flood Hazard Area

The proposed program does not include the placement of housing within a 100-year flood hazard area, and no impacts would occur. The IS determined that further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.9.7 Placement of Structures That Would Impede or Redirect Flood Flows within a 100-Year Flood Hazard Area

Some of the proposed maintenance activities may be located within a 100-year flood hazard area; however, proposed maintenance activities would not include the construction of structures that would impede or redirect flood flows. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.9.8 Risk of Loss, Injury, or Death Due to Dam Inundation

Dams located in the County and maintained by the District include Alta Loma Basin, Demens Basin, Declez Basin, Deer Creek Debris Basin, Day Creek Dam, San Sevaine Basin, Jurupa Basin, Hickory Basin, Cucamonga Dam, Devil Canyon Dam, Little Mountain Dam, Sand Canyon Dam, and Seven Oaks Dam. Proposed maintenance activities would occur within the vicinity of these dams; however, these proposed activities would occur along existing infrastructure and along the dams in order to maintain the dams' integrity. The types of activities proposed would not increase the risk of loss, injury, or death as a result of flooding from levee or dam failure and instead would help protect people and structures from risk of loss or injury. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.9.9 Risk of Inundation from Seiche, Tsunami, or Mudflow

Compared to the existing conditions, the proposed program would have no effect on the exposure of structures to inundation by seiche, tsunami, or mudflow. In addition, the types of activities proposed do not involve structures that people would work or reside within. Proposed maintenance activities include sediment removal from basins and channels; if the sediment were not removed, it could increase the chances for mudflow. Thus, the proposed maintenance activities would reduce the risk that dams and basins would be overtopped and result in inundation by seiche or mudflow. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.10 Land Use and Planning

5.2.10.1 Physical Division of an Established Community

Proposed program activities involve the stockpiling of debris and sediment, mechanized land clearing and sediment removal, vegetation maintenance, the application of herbicides and rodenticides, access road maintenance, bank repair, flood control structure repair, graffiti removal, vector control, and stream gage maintenance. These activities would not be invasive or large enough to physically divide a community, they would occur within existing District facilities, and no impacts would occur. The IS determined that further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.10.2 Conflict with Any Land Use Regulation of an Agency with Jurisdiction

Proposed maintenance activities would occur throughout the County. The District, a public utility, is exempt from plans, policies, and/or regulations of agencies with jurisdiction over the proposed maintenance activities. Furthermore, proposed maintenance activities would occur on or along existing system facilities and infrastructure that would not result in change in zoning or land designation. Analysis performed during the IS phase of the proposed program determined that impacts to land use jurisdictions would be less than significant, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.11 Mineral Resources

The IS determined that less than significant impacts associated with mineral resources would occur, and no additional analysis in the EIR would be required. For a detailed discussion regarding mineral resources, see Appendix B.

5.2.12 Noise

5.2.12.1 Noise Levels in Excess of Standards

Based on a review of the local codes for jurisdictions potentially impacted by the proposed program, the proposed program activities are exempted from local noise standards through special provisions, exemptions, or exceptions outlined in the various noise codes related to construction or public utilities work. Maintenance activities associated with the proposed program would be limited to Mondays through Saturdays, 7:00 a.m. to 7:00 p.m., which is generally consistent with the applicable codes. Maintenance activities are not conducted on Sundays or during federal holidays, nor are they conducted during nighttime hours. In addition, as described in SOP-NOI-1 (Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks), the District would coordinate with local jurisdictions as necessary to ensure maintenance activities are not in violation with local policies and ordinances

(see Section 4.10, Noise). Therefore, impacts are considered less than significant. Analysis is provided in Section 4.10 of this EIR.

5.2.12.2 Excessive Groundborne Vibration or Groundborne Noise

Proposed maintenance activities would not result in exposure of persons to or generation of excessive groundborne noise levels. Activities that could generate excessive groundborne vibrations include pile-driving, blasting, and demolition, and these activities are not included as potential maintenance activities. Therefore, impacts associated with the generation of excessive groundborne noise levels would be less than significant. The IS determined that further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.12.3 Permanent Increase in Ambient Noise

The proposed program does not involve structures that currently generate, or would generate in the future, substantial amounts of noise. The proposed maintenance activities would not introduce new noise sources and are not anticipated to generate a substantial increase in permanent noise levels. Noise associated with maintenance activities would be short-term and temporary, only for the duration of the activity, and would not introduce a new permanent source of noise. The IS determined that no impacts would occur, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.12.4 Temporary Increase in Ambient Noise

Maintenance activities are expected to be short term at each location and would be consistent with the types of maintenance activities that currently occur routinely throughout the system. Additionally, these noise levels are consistent with other existing, non-program-related activities associated with local maintenance and infrastructure. With implementation of the noise minimization measures listed in SOP-NOI-1 (Avoidance of Impacts to Noise-Sensitive Receptors during Earthworks; see Section 4.10), in addition to the short-term, temporary nature of the noise, impacts related to a substantial temporary increase in ambient noise levels in the proposed program vicinity above levels existing without the proposed program would be less than significant. Analysis is provided in Section 4.10 of this EIR.

5.2.12.5 Exposure of People to Excessive Noise near a Public Airport

Existing District facilities are located within 2 miles of the San Bernardino and Los Angeles/Ontario international airports, the Chino Airport, Cable Airport, Municipal Rialto Airport, Redlands Municipal Airport, Tri-City Airport, Big Bear Airport, Southern Logistics Airport, Depue Airport, Yucca Valley Airport, Hi Desert Airport, and the Barstow Daggett County Airport. Proposed maintenance activities would not result in construction of facilities or

structures that would create permanent, long-term noise impacts. Although the proposed implementation of maintenance activities would result in higher noise levels associated with heavy equipment, these types of activities are ongoing in the area and proposed program-related activities would be short term and temporary. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.12.6 Exposure of People to Excessive Noise near a Private Airstrip

Existing District facilities are located within 2 miles of the Andy Jackson Airpark, Baker Airport, Cones Field, and Bauer Airport. Although the proposed implementation of maintenance activities would result in higher noise levels associated with heavy equipment, these types of activities are ongoing in the area and program-related activities would be short term and temporary. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.13 Population and Housing

The IS determined that no impacts associated with population growth and housing would occur, and no additional analysis in the EIR would be required. For a detailed discussion regarding population and housing, see Appendix B.

5.2.14 Public Services

5.2.14.1 Adverse Impacts on Fire Protection

Maintenance would typically employ the use of heavy equipment. Use of equipment around flammable vegetation and other materials that are fire hazards present a fire risk that could result in the need for fire suppression services. Although hot work, including welding, soldering, cutting, and brazing, is not anticipated to occur during maintenance activities, there could be risks associated with incidental sparks from the use of equipment or from the refueling of equipment. The District implements SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) to reduce potential impacts due to fire hazards. Furthermore, in the event that fire suppression services are required, existing fire stations and crews would be able to adequately support the proposed activities, and no new or additional fire protection services would be required. Therefore, impacts associated with maintenance activities would be less than significant. Analysis is provided in Section 4.11, Public Services, of this EIR.

5.2.14.2 Adverse Impacts on Police Protection

Proposed maintenance activities would not modify facilities in such a way as to present an attractive nuisance to the public, requiring the need for additional police services. Proposed maintenance activities would not require additional police protection nor would they require the expansion of any police facilities. The proposed program would have no impact on police protection services. The IS determined that further analysis in the EIR was not required. See Appendix B for further information.

5.2.14.3 Adverse Impacts on Schools

Some proposed maintenance activities may occur near a school; however, the proposed activities would not involve a housing component or expansion of existing facilities, which could result in population growth and increased demands on schools within the area. The proposed program would have no impact on schools. The IS determined that further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.14.4 Adverse Impacts on Parks

Proposed activities would be temporary and recurring throughout the County. Temporary limitations to access on trails within parks or recreational areas may occur as a result of proposed maintenance activities; however, the trails and parks would not be permanently closed to the public, leading to the increased use of surrounding parks. In the event that there is a temporary closure of a trail, the public would be directed around the maintenance site or onto an alternate trail or sidewalk. Analysis performed during the IS phase of the proposed program determined that impacts on parks would be less than significant, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.14.5 Adverse Impacts on Other Public Facilities

Proposed maintenance activities would not involve a housing component or other components that would result in population growth or increased demands on public facilities within the area. The proposed program would have no impact on other public facilities. The IS determined that further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.15 Recreation

5.2.15.1 Increased Use of Existing Parks

Temporary limited access on trails may occur as a result of the proposed ground-disturbing and non-ground-disturbing activities. However, the trails and parks would not be permanently closed to the public, leading to the increased use of surrounding parks. In the event that there is a

temporary closure of a trail, the public would be directed around the work site or onto an alternative trail or sidewalk. To ensure that physical deterioration of recreation areas does not occur, SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance), SOP-BIO-15 (Worker Environmental Awareness Program), SOP-BIO-16 (Best Management Practices), SOP-BIO-17 (Monitoring), SOP-BIO-18 (Restoration of Temporary Impacts), SOP-BIO-19 (Herbicide Application), and SOP-BIO-20 (Jurisdictional Waters Avoidance) (see Section 4.3, Biological Resources); SOP-HYD-1 (Scheduling), SOP-HYD-2 (Vegetation Management), SOP-HYD-3 (Minimization of Controllable Discharge of Sediment), and SOP-HYD-4 (Minimization of Controllable Discharge of Pollutants) (see Section 4.8, Hydrology and Water Quality); and SOP-PUB-1 (Fire Extinguisher) and SOP-PUB-2 (Fire Safety Measures) (see Section 4.11, Public Services) would be implemented as part of the District's standard practice. In addition, incorporation of SOP-REC-1 (Agency Coordination) would ensure that District scheduling of maintenance activities does not conflict with closures planned by applicable agencies. None of the proposed ground-disturbing activities would have substantial adverse physical impacts on the use of parks, and no new parks would need to be constructed or expanded as a result of implementation of the proposed program. Therefore, impacts to recreation resources as a result of proposed ground-disturbing activities would be less than significant. Analysis is provided in Section 4.12, Recreation, of this EIR.

5.2.15.2 Construction or Expansion of Recreational Facilities

Proposed activities would not involve any growth-inducing components through the construction of new or expansion of existing infrastructure, which would result in an increase in population and result in the need for new or expanded recreational facilities. Analysis performed during the IS phase of the proposed program determined that no impacts would occur, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.16 Transportation and Traffic

5.2.16.1 Conflict with Applicable Circulation Plan or Applicable Congestion Management Program

The proposed program does not meet the County criteria for preparing a traffic impact analysis. Not all of the worker and truck trips would occur during the peak hour; however, even if they did, the County threshold for conducting a traffic impact analysis would not be met. This small number of trips (fewer than 100 vehicle trips in the peak hour) represents a negligible increase in traffic related to the proposed program; therefore, further traffic impact analysis is not warranted and there would be no conflict with applicable plans, programs, policies, or ordinances. Impacts would be less than significant. Analysis is provided in Section 4.13, Traffic and Circulation, of this EIR.

5.2.16.2 Change in Air Traffic Patterns

Existing facilities are located within 2 miles of the San Bernardino and Los Angeles/Ontario international airports, the Chino Airport, Cable Airport, Municipal Rialto Airport, Redlands Municipal Airport, Tri-City Airport, Big Bear Airport, Southern Logistics Airport, Depue Airport, Yucca Valley Airport, Hi Desert Airport, and the Barstow Daggett County Airport. These proposed activities would not construct facilities or structures that could visually or physically obstruct flight paths leading to and from these airports. Proposed activities would not result in a change in the air traffic levels or flight path locations. Analysis performed during the IS phase of the proposed program determined that no impacts would occur, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.16.3 Hazards Due to Design Feature or Incompatible Use

Proposed maintenance activities would not include the construction or alteration of facilities for the purpose of expanding facility capacity. The projects included in the proposed program do not include new design features and therefore would not introduce hazards. If necessary, any temporary traffic control for ingress and egress during maintenance would follow the latest California Manual on Uniform Traffic Control Devices, Part 6: Temporary Traffic Control.

Maintenance equipment would be used as described in Table 3-4, Typical Flood Control Maintenance Activities (see Chapter 3, Program Description). However, this equipment would be used on a short-term, temporary basis. To avoid the potential for interference with roadway operations, such as lane closures during peak hours or detours, a traffic control plan would be prepared as described in SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5, Standard Operating Procedures). Therefore, there would be no substantial hazards from design features or incompatible uses with implementation of the proposed program activities, and impacts would be less than significant. Analysis is provided in Section 4.13.

5.2.16.4 Inadequate Emergency Access

The proposed program includes maintenance projects that would repair, restore, and/or protect existing flood control facilities; there would be no new facilities or changes in use of existing facilities that would result in inadequate emergency access. Proposed program activity areas would be repaired and/or maintained to provide for better access, stability, and safety; therefore, projects under the proposed program would maintain access in general. There could be some temporary obstructions to access associated with maintenance activities; however, these would be short term and temporary. The District would implement SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5), including notification of and coordination with local jurisdictions, emergency services providers, affected entities, and residents regarding any maintenance work that might have an impact on emergency access. The District would prepare a

traffic control plan if required by the local jurisdiction, as indicated in SOP-TR-1. Maintenance activities would be temporary, and access routes would be reopened upon completion. With implementation of SOP-TR-1 as part of the District's standard practice, the proposed program would not result in inadequate emergency access, and impacts would be less than significant. Analysis is provided in Section 4.13.

5.2.16.5 Conflict with Public Transit, Bicycle, or Pedestrian Policies

The proposed program activities may affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis. The District would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian access impediments associated with the proposed program. If required by the jurisdiction in which the work is occurring, the District would prepare a traffic control plan as indicated in SOP-TR-1 (District Coordination and Traffic Control Plan; see Section 4.13.5). Proposed program maintenance activities would be temporary, and once a maintenance activity has been completed, access would be restored. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of SOP-TR-1 as part of the District's standard practice, maintenance activities conducted under the proposed program would not result in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant. Analysis is provided in Section 4.13.

5.2.17 Utilities and Service Systems

5.2.17.1 Exceedance of Wastewater Treatment Requirements

Proposed maintenance activities would not generate additional wastewater treatment demands nor would they exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board. Analysis performed during the IS phase of the proposed program determined that no impacts would occur, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.17.2 Construction or Expansion of Water or Wastewater Treatment Facility

The purpose of the proposed maintenance activities is to repair, rehabilitate, and maintain existing facilities. Proposed activities would not require or result in the construction of new facilities or the expansion of existing water or wastewater facilities, and no impacts would occur. The IS determined that further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.17.3 Construction or Expansion of Stormwater Drainage Facility

Proposed maintenance activities are primarily related to the maintenance of various flood control channels, basins, and earthen levees and dams to ensure flood protection and allow District facilities to function at their current/designed capacity. These activities would not substantially alter the existing drainage pattern, because detention/recharge basins and flood control channels would include only minor alterations to update facilities to current standards or to increase stability. Implementation of SOP-HYD-2 (Vegetation Management; see Section 4.8, Hydrology and Water Quality) as part of the District's standard practice would minimize vegetation removal to the extent feasible, which would contribute to minimizing increased surface runoff as a result of maintenance activities. Post-maintenance conditions would approximate original design conditions, including a general lack of vegetation and sediment accumulation within the facilities, resulting in overall beneficial impacts. Therefore, the proposed program would not require construction of new stormwater drainage facilities or expansion of existing facilities and impacts would be less than significant. Analysis is provided in Section 4.14.

5.2.17.4 Adequate Water Supply

Proposed activities would not require additional water supplies. Proposed maintenance activities would increase the reliability and longevity of existing infrastructure; there would be no expansion of existing infrastructure. Proposed program activities may require water for maintenance-related activities, including dust suppression and washing down streets or paved areas. Existing entitlements and resources would be adequate to support potential needs. Analysis performed during the IS phase of the proposed program determined that no impacts to water supply availability would occur, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.17.5 Adequate Wastewater Treatment Capacity

There would be no activity that would result in impacts to wastewater treatment capacity because the proposed program does not involve new housing, commercial construction, or other wastewater generators. Analysis performed during the IS phase of the proposed program determined that no impacts would occur, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.2.17.6 Adequate Solid Waste Disposal Capacity

Waste produced during implementation of proposed activities would be removed following the activity and disposed of properly in accordance with federal, state, and local statutes and regulations. Maintenance activities are not anticipated to have a significant impact on solid waste disposal needs. The proposed activities would not involve major demolition that could generate a

significant amount of solid waste. The amount of solid waste generated by proposed maintenance activities would be much less than the available capacity of existing landfills. Analysis performed during the IS phase of the proposed program determined that impacts to solid waste disposal capacity would be less than significant, and further analysis in the EIR was not required. Additional information is provided in Appendix B.

5.2.17.7 Conflict with Solid Waste Regulations

Proposed activities would generate small amounts of solid waste, structural debris, and green waste during maintenance-related activities. Waste produced due to proposed program activities would be removed following the activity and disposed of properly in accordance with federal, state, and local statutes and regulations. Analysis performed during the IS phase of the proposed program determined that impacts would be less than significant, and further analysis in the EIR was not required. Further information is provided in Appendix B.

5.3 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

Adherence to County SOPs and implementation of the mitigation measures identified in the Chapter 4 analysis would reduce significant impacts to below a level of significance. Therefore, there are no significant and unavoidable impacts associated with implementation of the proposed program, and a Statement of Overriding Considerations will not be required.

5.4 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL IMPACTS

Pursuant to Section 15126.2(c) of the CEQA Guidelines, an EIR must consider any significant irreversible environmental changes that would be caused by the proposed program should it be implemented. Specifically, the CEQA Guidelines describe significant irreversible environmental changes as follows (14 CCR 15126.2(c)):

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Determining whether the proposed program may result in significant and irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

5.4.1 Large Commitment of Nonrenewable Resources

The proposed program involves maintenance, repair, and protection of existing aboveground infrastructure associated with the District's existing flood control system in San Bernardino County. The maintenance activities proposed under the proposed program are ongoing activities and are necessary for the District to maintain its infrastructure and protect the public from flooding impacts. Implementation of the proposed program would require the use and consumption of nonrenewable resources such as fossil fuels and maintenance materials during proposed program activities. Fossil fuels in the form of diesel oil and gasoline would be used for equipment and vehicles. Electricity, which requires the burning of fossil fuels, would also be consumed during maintenance activities and operation. Use of these energy resources would be irretrievable and irreversible; however, because the flood control system is already in place, because the repair and maintenance activities are minor projects with minimal impacts, and because these activities are currently ongoing, a large commitment of nonrenewable resources or change of use of nonrenewable resources from existing conditions is not anticipated. The nonrecoverable materials that would be used during proposed program activities would be accommodated by existing supplies, and their use would not constitute a large commitment of nonrenewable resources.

5.4.2 Irreversible Damage

There are no irreversible impacts anticipated from implementation of the proposed program. Although it is unlikely, if maintenance activities resulted in the release of contaminated materials and hazardous substances such as gasoline, diesel fuel, or oil from maintenance equipment or vehicles, irreversible damage to the environment could occur over time. Given federal, state, and local regulations governing the use of such substances and the minimal use of such materials under the proposed program, the proposed program is not expected to damage the environment or pose a risk to public health, and impacts would not create significant or irreversible effects.

Maintenance activities that result in loss or permanent degradation of an aspect of the physical environment that is nonrenewable have the most potential to result in irreversible changes. If any work along the flood control system were to damage or destroy unknown, unique paleontological or archaeological resources, destruction of these resources would be significant and irreversible. However, the District has determined where the areas of sensitivity are likely to be, and either the proposed work areas avoid these areas or SOPs and/or mitigation measures would be employed to avoid impacts to cultural resources.

5.4.3 Nonrenewable Energy Consumption

The proposed program would result in the use of nonrenewable resources and energy sources, including fossil fuels, natural gas, and electricity. Use of these energy sources would be considered a permanent commitment of resources. In addition, a variety of resource materials would be used during maintenance activities, including steel, concrete, and fabricated materials. Once these materials and fuels are used for maintenance activities, the commitment of such materials and fuels would be considered irreversible. Due to the nature and scale of the proposed program, however, impacts from the proposed program would be minimal. The use of maintenance materials and nonrenewable resources would not be unusual or extraordinary, and it is not expected to negatively impact the availability of these resources. As a result, there would be no significant and irreversible environmental effects related to resource consumption during maintenance activities.

Appendix F of the CEQA Guidelines requires that EIRs include a discussion of the potential energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (14 CCR 15000 et seq.). The CEQA Guidelines provide no specific thresholds for impacts associated with energy consumption. However, Appendix F provides guidance for evaluating whether a project may result in significant impacts with regard to energy. Based on Appendix F, a project could have a significant impact on energy consumption if the project would do any of the following:

- Result in wasteful, inefficient, or unnecessary consumption of energy
- Conflict with existing energy standards and regulations
- Place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity

5.4.3.1 Wasteful, Inefficient, or Unnecessary Consumption of Energy

Implementation of the proposed program may result in a small increase in consumption of electricity, natural gas, and petroleum during proposed maintenance activities. Furthermore, the maintenance activities are temporary and short term, and are currently ongoing, thus, the increase would likely be negligible. Electricity, natural gas, and petroleum would be used to power equipment used for maintenance activities. Petroleum would be used for off-road equipment, on-road hauling and vendor trucks, and worker vehicles. On a permanent, long-term basis, the proposed program would consume energy; however, the proposed program would use very little energy, as it comprises small maintenance projects and activities for existing flood control infrastructure that is already in place throughout the region. Therefore, the proposed program would not result in the excessive use of fuel or energy or the use of excessive amounts of power, and impacts would not be irreversible.

5.4.3.2 Conflict with Existing Energy Standards and Regulations

There are no statewide mandatory energy requirements that would apply to the proposed program. Although the proposed program would involve repair of structures such as culverts and settling basins and would include riprap and gabion placement, these structures would not require the use of electricity, natural gas, or petroleum to operate. Therefore, the proposed program would not be subject to the 2016 California Building Energy Efficiency Standards (24 CCR Part 6).

5.4.3.3 Significant Demand on Energy Supplies/Requirement of Substantial Additional Capacity

The proposed program would increase the demand for electricity, natural gas, and petroleum during implementation of maintenance activities. However, the proposed program would involve maintenance of existing flood control infrastructure that is already in place and used throughout the region. The proposed program would not involve the introduction of a land use or development associated with intensive energy consumption. Therefore, the proposed program would not create a significant demand on local or regional energy supplies, nor would it require a substantial amount of additional capacity.

5.5 GROWTH INDUCEMENT

CEQA requires a discussion of ways the proposed program could be growth-inducing. The CEQA Guidelines identify a project as growth-inducing if it fosters economic or population growth or results in the construction of additional housing, either directly or indirectly, in the surrounding environment (14 CCR 15126.2(d)). New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. A project could indirectly induce growth by reducing or removing barriers to growth, or by creating a condition that attracts additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors.

The proposed program would focus on the repair and maintenance of existing flood control infrastructure, and no expansion of facilities is proposed. Proposed program maintenance activities would likely be performed by workers hired from the local region or by existing District staff, so the proposed program is not anticipated to result in new population growth from outside the area. Maintenance activities under the proposed program are already occurring and will continue to be implemented by existing District staff and local contractors. Therefore, the proposed program would not induce growth.

5.6 REFERENCES

14 CCR 15000-15387 and Appendices A-L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Health and Safety Code, Section 7050.5. Human remains.

County of San Bernardino. 2007. *County of San Bernardino General Plan*. Accessed May 2014. http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGPtext20130718.pdf.

County of San Bernardino. 2011. *Greenhouse Gas Emissions Reduction Plan*.

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CHAPTER 6
ALTERNATIVES

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, environmental impact reports (EIRs) are required to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6(a)). The EIR "must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (14 CCR 15126.6(a)). This alternatives discussion is required even if these alternatives "would impede to some degree the attainment of the project objectives, or would be more costly" (14 CCR 15126.6(b)).

Under Section 15126.6(a) of the CEQA Guidelines, an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" (14 CCR 15126.6(f)). The focus is on informed decision making and public participation rather than providing a set of alternatives simply to satisfy format. The inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The final decision regarding the feasibility of alternatives lies with the decision maker for a given project, who must make the necessary findings addressing the potential feasibility of an alternative, including whether it meets most of the basic project objectives or reduces the severity of significant environmental effects per CEQA (California Public Resources Code, Section 21081; see also 14 CCR 15091). This chapter presents potential alternatives to the proposed San Bernardino County Master Storm Water System Maintenance Program (proposed program) that have been identified by the San Bernardino County Flood Control District (District) and evaluates them, as required by CEQA.

6.1 PROPOSED PROGRAM OBJECTIVES AND IMPACTS

6.1.1 Proposed Program Objectives

The following objectives have been established for the proposed program:

- Meet the District's mission to protect life and property by maintaining facilities in such a way as to allow existing facilities or structures to function at the current/designed capacity, to update facilities or structures through minor alterations to meet current standards, and to maintain structural integrity in a manner that is environmentally sensitive.
- Develop a formalized plan that would provide a systematic and scheduled approach to maintenance activities.

- Provide a comprehensive guide for the maintenance of existing stormwater infrastructure.
- Provide the basis for acquisition of long-term maintenance permits from a number of state and federal agencies for regulated maintenance activities.
- Obtain long-term regulatory permits to streamline the CEQA and permitting process and execute projects on a regular and timely basis.

6.1.2 Proposed Program Impacts

Based on the analysis presented in Chapter 4, Environmental Analysis, impacts under the proposed program would be mitigated to less than significant levels with implementation of the District's standard operating procedures and mitigation measures identified in this EIR. There would be no significant unavoidable impacts as a result of implementation of the proposed program.

6.2 ALTERNATIVES CONSIDERED AND ELIMINATED DURING THE PROGRAM PLANNING PROCESS

As described in this section, alternatives considered but eliminated during the planning process include a broader program scope and alternative locations, as described below. Maintenance activities proposed under the proposed program are generally small projects at specific locations, with limited options for methods of repair. For this reason, identification of feasible alternatives for the proposed program was limited. The following discussion presents the alternatives that were considered but rejected, and why they were rejected. These alternatives are not discussed in further detail in this EIR and have been eliminated from further consideration.

6.2.1 Background Information

During the proposed program scoping and mapping phase from 2012 to 2015, the District made substantial efforts to reduce environmental impacts.

In 2012, the District analyzed the number of routinely maintained facilities and determined that many of the facilities contained in its facility filing system were not routinely maintained by the District and did not need to be included in the proposed program. For example, there are facilities that are maintained very infrequently, that are maintained by others and only identified in the District's system for tracking purposes, or that are proposed facilities that have not been constructed. As a result, District staff was able to reduce the number of facilities in the project scope to less than 50% of the originally stated number, from 1,100 facilities to approximately 500.

In 2012, District staff began coordinating with County Surveyors – GIS staff to map flood control maintenance activities in the facilities, and their boundaries, in ArcGIS. Prior to this GIS effort, environmental impacts were calculated based on flood control right-of-way

acreages, not on the limits of the maintenance work itself. Therefore, the impacts calculated appeared larger than the actual work performed.

Between 2012 and 2014, the District held multiple rounds of meetings with Operations, GIS, and Environmental staff for the purpose of mapping maintenance activities, identifying maintenance activity limits, and compiling relevant data. Through these meetings, District staff was able to successfully reduce environmental impacts, either by reducing the maintenance activity limits or by limiting the type of maintenance activities occurring in the facilities. In 2014 the District began mapping federally mandated maintenance work in selected facilities. Finally, after reviewing the maps, District staff held a third round of meetings in 2015 to reevaluate maintenance activities in sensitive areas, for the purpose of further minimizing environmental impacts. Some examples of minimization efforts were reductions in vegetation management areas, reductions of upstream and downstream maintenance limits and widths of sediment removal areas, removal of stockpiles in sensitive areas where feasible, reviewing facilities with federal oversight to see if they can be exempted from federal dam and levee vegetation management requirements, reducing the number of facilities maintained in any given year, and reducing maintenance frequency where feasible.

In summary, during the program scoping and mapping phase, the District reduced environmental impacts by reducing maintenance footprints and frequency of work; substituted higher-impact maintenance activities with lower-impact activities, such as manual vegetation thinning; and revisited existing regulations to ensure that stringent vegetation removal requirements were applied only where absolutely necessary. Along with maintenance minimization efforts, the District also decided to further minimize impacts by maintaining approximately 30% of its total number of maintained facilities annually.

6.2.2 Alternatives

6.2.2.1 Alternative Locations

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project. There are legal constraints that prevent the District from relocating its facilities to other locations. Case law, including the 1966 *Keys v. Romley* decision (24 Cal 2d 396), prevents the District from redirecting a natural system of drainage in a manner that would impact a downstream property owner's interests in the use and enjoyment of his or her land, thereby reducing the exploration of off-site alternatives. In addition, federal regulations have specific definitions for what constitutes maintenance activities. Under federal regulations, maintenance activities are defined by their existing physical characteristics (size, dimensions, capacity) (82 FR 1860–2008). Alterations to physical characteristics such as location, size, and capacity may

not meet federal maintenance standards and could trigger new construction requirements or be considered a new project. This EIR does not address new construction activities; instead, it focuses on maintenance of existing facilities. Finally, because the proposed program involves routine maintenance of existing, improved facilities, alternative site analysis is not appropriate. Maintenance needs have been identified at specific locations associated with the existing flood control system; for the reasons specified previously, it would not be feasible to move maintenance activities to another location. Therefore, alternative locations were rejected and are not analyzed in detail in this EIR.

6.2.2.2 Program Encompassing Entire Flood Control Facility System (1,100 Facility Clearance)

In 2012, the scope was maintenance of 1,100 facilities. However, many of these facilities are underground storm drains that have no environmental value and are not maintained routinely. To consider 1,100 facilities was not reasonable, considering that the nature of the proposed program is to support routine maintenance of facilities.

6.2.2.3 Yearly Maintenance Alternative

The District has responsibility for more than 1,100 facilities countywide. Maintaining each of these facilities on an annual basis would provide the maximum protection of life and property by ensuring that the facilities are maintained in such a way as to allow existing facilities or structures to function at the current/designed capacity. However, committing the resources necessary to maintain all District facilities yearly is economically and logistically infeasible and would not achieve the other proposed program goals and objectives. Additionally, as stated in Section 6.1, Proposed Program Objectives and Impacts, many of the facilities were excluded because they did not require routine maintenance.

6.2.2.4 No Maintenance Alternative

The No Maintenance Alternative considered the effects of the District ceasing to conduct maintenance in the District's flood control facilities. Although it would potentially reduce biological impacts compared to the proposed program, this alternative was rejected because it would not achieve the District's mission to protect life and property by maintaining facilities in such a way as to allow existing facilities or structures to function at the current/designed capacity, it would not entail development of a formalized plan that would provide a systematic and scheduled approach to maintenance activities, and it would not provide a comprehensive guide for the maintenance of existing stormwater infrastructure. The District has a legal obligation to maintain its facilities. Several court cases, including *Arreola et al. v. County of Monterey et al.*, 2002, address the obligation public agencies have for flood control facilities within their jurisdiction.

Further, a lack of maintenance could lead to a failure of the flood control system, which could result in an emergency situation. Repairs associated with such an emergency situation could impact a more extensive area than a routine maintenance activity would, thus leading to a larger disturbance area. Additionally, mature vegetation (in particular, woody trees) is a significant factor in reducing facility capacity and obstructing flows, resulting in increased flooding. Much biological research has been done in support of maintenance, including nesting bird surveys, documenting and recording protected species occurrences, conducting annual brown-headed cowbird (*Molothrus ater*) trapping in both the Mojave and Santa Ana River main stems, removal of invasive species (including yellow star-thistle (*Centaurea solstitialis*), tree tobacco (*Nicotiana glauca*), prickly Russian thistle (*Salsola tragus*), castorbean (*Ricinus communis*), giant reed (*Arundo donax*), and tamarisk (*Tamarix ramosissima*)) through in-house and outside agency efforts, and finally, continual trash and debris removal.

From a hydrology and water quality perspective, without maintenance, roadways, basin walls, and channel slopes could continue to erode and the quality of downstream waters would continue to degrade as a result of increased sedimentation and turbidity. Also, the buildup of sediment would drastically impair the ability of these systems to convey and transport runoff. The potential for washout events during heavy rains would increase in the absence of adequately repaired and maintained drainage systems, and the increased occurrence of loose soils and sediment would increase the potential for vegetation to become uprooted, which would further destabilize soils and degrade the quality of downstream waters.

6.3 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of the “No Project” Alternative, which reflects the “circumstances under which the Project does not proceed.” When the project is an ongoing operation, the “No Project” Alternative is the continuation of the existing operation into the future. Therefore, the No Program/Existing Maintenance Approach Alternative was selected as the “No Project” Alternative. This alternative assumes that the existing flood control system in San Bernardino County would continue to operate as it currently does, remaining dependent upon separate permit approvals for discrete maintenance projects, which does not allow the County to implement a regular and defined schedule for maintenance activities. Additionally, a Deferred Maintenance Alternative was selected to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the proposed program but that may avoid or substantially lessen significant effects of the proposed program. The Deferred Maintenance Alternative would reduce the average maintenance cycle at each facility from once every 3 years to once every 6 years.

An EIR must identify an Environmentally Superior Alternative, and where the No Project Alternative is identified as environmentally superior, the EIR is then required to identify an

alternative from among the others that is evaluated as environmentally superior. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior; however, only those impacts found significant and unavoidable are used in making the final determination of whether an alternative is environmentally superior or inferior to the proposed project. None of the environmental impacts identified in the EIR were found to be significant and unavoidable. Section 6.4 identifies the Environmentally Superior Alternative.

6.3.1 No Program/Existing Maintenance Approach Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of a No Project Alternative. When the project is the revision of an existing land use or regulatory plan or policy or an ongoing operation, the No Project Alternative will be the continuation of the plan, policy, or operation into the future. Therefore, the No Program/Existing Maintenance Approach Alternative, as required by the CEQA Guidelines, analyzes the effects of continued implementation of the District's current approach to flood control facilities maintenance. This approach includes a project-by-project permitting approach that is somewhat ad hoc, depending on when permits are granted, and the timing of maintenance cannot follow a predictable schedule.

6.3.1.1 Analysis

Aesthetics

Under the No Program/Existing Maintenance Approach Alternative, maintenance would occur as permits were granted. This could result in less frequent maintenance because permit issuance would be based on County and agency staff availability. Vegetation growth could exceed that which would occur with more regular maintenance frequency. The visual changes could be drastic if maintenance had not occurred for a long time and major sediment or vegetation removal were required for the flood control facility to operate effectively. For example, if basins and channels were cleared of sediment and vegetation on an irregular basis and only when a permit was granted, the maintenance effort could be large, resulting in excessive impacts and mitigation requirements. The result, particularly in a natural channel, would be one of greater visual change than might be the case under the proposed program. In addition, deposition of dead foliage, debris, and trash as a result of deferred maintenance may occur during storm events and create an adverse visual impact. Therefore, due to greater impacts to visual quality and character and stronger visual contrast, this alternative would be environmentally inferior to the proposed program with regard to aesthetics.

Air Quality

Under the No Program/Existing Maintenance Approach Alternative, maintenance activities would occur on a project-by-project basis as permits were acquired. This would be likely to result in reduced maintenance frequency because permit approval would be based on County and agency staff availability. Reduced frequency would result in larger, more extensive maintenance efforts; therefore, maintenance efforts could require more equipment to remove sediment or vegetation and the air quality emissions would be greater than if maintenance were to occur on a more regular basis. Therefore, under this alternative, maintenance activity-related air quality impacts could be greater than under the proposed program even though maintenance would occur more regularly under the proposed program. Therefore, due to the greater potential for air quality impacts under this alternative, the No Program/Existing Maintenance Approach Alternative would be environmentally inferior to the proposed program with regard to air quality.

Biological Resources

Under the No Program/Existing Maintenance Approach Alternative, maintenance would occur as permits were granted. This could result in less frequent maintenance because permit issuance would be based on County and agency staff availability. Vegetation could have a longer period for regrowth and would provide increased habitat for flora and fauna between maintenance events. However, removal of this habitat during maintenance events would potentially impact a greater number of individuals and species that might have occupied the habitat since the prior maintenance event. Additionally, decreased management of vegetation could result in obstruction at culverts and decreased facility capacity, thereby contributing to the potential for emergency situations from flooding. Repairs associated with an emergency situation could impact a more extensive area than a routine maintenance activity would, thus leading to a larger disturbance area and increased impacts to habitat. Further, not having a long-term maintenance program in place would delay a comprehensive, long-term approach to biological resource conservation because District resources would be redirected to the administrative burden of obtaining maintenance approvals on a facility-by-facility, ad hoc basis. Therefore, this alternative would be environmentally inferior to the proposed program with regard to biological resources.

Cultural Resources

Under the No Program/Existing Maintenance Approach Alternative, a lack of predictable, regular maintenance could lead to a failure of the flood control system, which could result in an emergency situation. Repairs associated with such an emergency situation could impact a more extensive area than a routine maintenance activity would, thus leading to a larger disturbance area and increased impacts on cultural resources. Therefore, this alternative would be environmentally inferior to the proposed program with regard to cultural resources impacts.

Geology and Soils

Under the No Program/Existing Maintenance Approach Alternative, occurrences of soil erosion and slope failure could increase because eroded roadways, swales, slopes, and streambanks would not be repaired routinely, due to maintenance activities not occurring as regularly as they would under the proposed program. Further, because this alternative would not involve implementation of maintenance activities to address infrastructure problems, adoption of this alternative could expose people and structures to landslide risks if the existing flood control system were to rupture/fail and saturate the surrounding soils. Such unremediated events could also create unstable soils that would potentially result in subsidence or collapse of geologic units and soils. When compared to the proposed program, adoption of this alternative would result in greater impacts to geology and soils; therefore, the No Program/Existing Maintenance Approach Alternative would be environmentally inferior to the proposed program with regard to geology and soils impacts.

Greenhouse Gas Emissions

Under the No Program/Existing Maintenance Approach Alternative, maintenance activities would not occur on a regular and predictable basis, and heavier equipment might be needed to repair or maintain facilities. Further, lower-tier equipment might need to be used if there was an urgent need and the inventory of lower emissions equipment was limited. Air pollutant and greenhouse gas (GHG) emissions associated with off-road maintenance equipment and on-road maintenance vehicles (e.g., haul trucks and vendor/delivery trucks) and worker vehicles could be greater. Therefore, because this alternative could generate greater GHG emissions associated with heavier off-road maintenance equipment and on-road maintenance vehicles, the No Program/Existing Maintenance Approach Alternative would be environmentally inferior to the proposed program with regard to GHG emissions.

Hazards and Hazardous Materials

Under the No Program/Existing Maintenance Approach Alternative, maintenance activities would not occur regularly, and heavier equipment in greater numbers might be required to maintain facilities on a less frequent basis than is proposed under the program. Therefore, typical hazardous materials used during implementation of maintenance activities, including oils, lubricants, and vehicle fuels, could be used and transported in the proposed program area by District or contractor personnel in greater quantities. However, as discussed in the analysis of proposed program impacts in Section 4.7, Hazards and Hazardous Materials, the potential for impacts from use and transport of these quantities of hazardous materials is low. In addition, under the proposed program, maintenance activities would not pose a substantial risk associated with wildfires. However, because the proposed Maintenance Plan (see Appendix A to this EIR) would not be implemented under this alternative, vegetation along access roads and near District

infrastructure would not be maintained. Lack of vegetation maintenance in canyons, hillsides, and other natural environments would increase the fuel load/fire potential in these areas and could result in more severe wildfire events in the region if fires were to occur near unmaintained vegetation. Therefore, this alternative would be environmentally inferior to the proposed program with regard to hazards and hazardous materials.

Hydrology and Water Quality

Under the No Program/Existing Maintenance Approach Alternative, roadways, basin walls, and channel slopes could continue to erode, and the quality of downstream waters would continue to be impacted as a result of increased sedimentation and turbidity associated with ad hoc facility maintenance. As discussed in Section 4.8, Hydrology and Water Quality, increased sedimentation levels, including silt accumulation, can decrease infiltration capacity and concentrate pollutants conveyed from urban developments, and decaying vegetation, trash, and other debris deposited by storm events can also pose water quality concerns. Also, the buildup of sediment in channels and basins would impair the ability of these systems to convey and transport and store runoff by reducing the hydraulic capacity for which the system was designed. The potential for washout events during heavy rains could increase in the absence of adequately repaired and maintained flood control systems, and the increased occurrence of sediment and loose soils would increase the potential for vegetation to become uprooted, which would further destabilize soils and degrade the quality of downstream waters. Therefore, due to anticipated increased occurrence of erosion and sedimentation, this alternative would be environmentally inferior to the proposed program with regard to hydrology and water quality.

Land Use and Planning

Under the No Program/Existing Maintenance Approach Alternative, maintenance of infrastructure would not occur as frequently as it would under the proposed program, and potential conflicts with habitat conservation plans would occur less frequently. As discussed in the analysis of proposed program impacts in Section 4.9, Land Use and Planning, the proposed program does have the potential for land use policy/habitat conservation plan impacts. As part of standard practice, the District would coordinate with local jurisdictions as needed during proposed program implementation in order to avoid and/or minimize any potential land use conflicts from the proposed program. However, this alternative would likely result in decreased management over the habitat conservation plan areas, and a decrease in coordination with local jurisdictions. As such, this alternative would be environmentally inferior compared to the proposed program with regard to land use and planning.

Noise

Under the No Program/Existing Maintenance Approach Alternative, maintenance of infrastructure would not occur as frequently as it would under the proposed program, and heavier equipment might be required to maintain flood control facilities on a less frequent basis. Heavier equipment tends to be noisier, and maintenance activities might have to occur closer to sensitive receptors if the effort to remove sedimentation or vegetation is larger. Although the substantial noise typically associated with implementation of maintenance activities would not be generated on a regular basis, a greater/longer-duration maintenance effort might be required as needed under this alternative, which could result in greater noise impacts to sensitive receptors. Therefore, the No Program/Existing Maintenance Approach Alternative would be environmentally inferior to the proposed program with regard to noise.

Public Services

Under the No Program/Existing Maintenance Approach Alternative, implementation of maintenance activities near flammable vegetation would occur less frequently, thereby reducing the potential risk of wildfires. As discussed previously for hazards and hazardous materials, the Maintenance Plan (see Appendix A) would not be implemented under this alternative, and vegetation along access roads and near District infrastructure would not be maintained as regularly. Less frequent vegetation maintenance would increase the fuel load in the proposed program area, which includes canyons, hillsides, and other primarily undeveloped landscapes. If wildfires were to occur in these areas, increased fuel loads could result in more severe wildfire events in the region, which could result in greater impacts to fire services. Therefore, because this alternative could result in greater overall impacts to fire services but also would reduce the potential for increased risk due to reduction of activities near flammable vegetation, the No Program/Existing Maintenance Approach Alternative would be environmentally neutral compared to the proposed program with regard to public services.

Recreation

Under the No Program/Existing Maintenance Approach Alternative, maintenance of infrastructure would not occur as frequently as it would under the proposed program; therefore, it would potentially occur less frequently near recreational areas. However, because maintenance activities would occur less frequently, heavier equipment might be required to maintain flood control facilities when maintenance does occur. Heavier equipment tends to be noisier and maintenance activities might have to occur closer to recreational areas and for a longer period of time if the effort to remove sedimentation or vegetation is larger. The recreation impacts would be less than significant under the proposed program, whereas the greater maintenance effort that may be required as needed under this

alternative could result in greater impacts to recreational areas and park users; therefore, this alternative would be environmentally inferior to the proposed program with regard to recreation.

Traffic and Circulation

Under the No Program/Existing Maintenance Approach Alternative, the maintenance of flood control facilities would not occur as frequently as it would under the proposed program. Truck trips would not be generated as frequently, and potential use conflicts typical during maintenance would not occur as frequently. Under this alternative, no traffic and circulation impacts associated with new maintenance truck trip generation are anticipated; however, because maintenance of access roads would not occur as frequently, existing access to structures would continue to deteriorate. If infrastructure were to fail due to lack of necessary rehabilitation or repair, then reduced and/or diminished access to District infrastructure could threaten the reliability of the system and flood control efforts in the District's service area by extending repair times and delaying the full functionality of the flood control system. Furthermore, if an emergency situation were to develop as a result of a lack of continual maintenance, then the number of truck trips and equipment needed could greatly expand in localized areas; therefore, impacts from traffic and circulation could be greater in some situations under this alternative. Because the traffic generated as a result of the proposed program would be minimal and the traffic generation of this alternative is difficult to predict, the No Program/Existing Maintenance Approach Alternative would be considered environmentally neutral compared to the proposed program with regard to traffic and circulation.

Utilities and Service Systems

The proposed program requires continual monitoring and maintenance to ensure a reliable flood control system and to minimize the potential for emergency repairs. Rehabilitation, replacement, and repair of existing structures, as well as maintenance of access roads, are necessary to maintain reliable infrastructure. As discussed in the analysis of proposed program impacts to utilities and service systems in Section 4.14, the proposed program would have less than significant impacts on stormwater infrastructure. Under this alternative, the repair and maintenance of existing structures would have less than significant impacts to stormwater infrastructure. Therefore, this alternative would be environmentally neutral when compared to the proposed program with regard to utilities and service systems.

6.3.1.2 Conclusion

The No Program/Existing Maintenance Approach Alternative would not be considered environmentally superior in any resource areas. It would be considered inferior with regard to 10 resource areas: aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality,

noise, and recreation. It would be considered environmentally neutral in four resource areas: land use and planning, public services, traffic and circulation, and utilities and service systems. The adoption of this alternative would not meet the proposed program objectives identified by the District for system reliability, regularly occurring and predictable maintenance of the flood control system, and long-term permitting and environmental clearances. Because the No Program/Existing Maintenance Approach Alternative would result in increased impacts to aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, and recreation and it would not meet the proposed program objectives identified by the District, this alternative would be environmentally inferior to the proposed program.

6.3.2 Deferred Maintenance Alternative

The Deferred Maintenance Alternative would reduce the maintenance conducted to once every 6 years so that 15% of the facilities would be maintained once a year in a rotating cycle of maintenance. This alternative would reduce the maintenance impact of the proposed program, which proposes conducting maintenance on every facility every 3 years, so that approximately 33% of the facilities would be maintained once a year.

6.3.2.1 Analysis

Aesthetics

Under the Deferred Maintenance Alternative, maintenance would not occur as frequently as under the proposed program. As such, the quality of access roads could further degrade and access to facilities in the proposed program area might be reduced. Lack of maintenance of access roads could lead to the inability to access structures, resulting in maintenance needs going undetected and the increased chance of potential failure of the flood control system, which could result in emergency repairs. Repairs associated with an emergency situation could impact a more extensive area than a routine maintenance activity would, thus leading to a larger disturbance area and increased visual degradation of the aesthetic environment. Furthermore, under this alternative, channel slopes needing repair on a more frequent basis might not be stabilized. As a result, there would be greater potential for erosion of slopes and streambanks and general slope failure that, if these processes were to occur, would reduce overall visual quality and degrade the visual character of natural-appearing landscapes. In addition, increased erosion of slopes, access roads, and other areas where District infrastructure is located would result in increased visibility of infrastructure (and noticeable visual contrast with natural elements in the landscape) and increased sedimentation, debris and trash, and turbidity in downstream waters, which could also be considered a visual impact. Therefore, due to greater impacts to visual quality and character and stronger visual contrast, this alternative would be environmentally inferior to the proposed program with regard to aesthetics.

Air Quality

Under the Deferred Maintenance Alternative, maintenance activities to address access or infrastructure repair would not occur as frequently as under the proposed program. Because maintenance activities would not occur in the proposed program area as frequently, heavier equipment might be required, as well as increased time for maintenance activities at each location, which would likely generate greater air pollutant emissions at one time, resulting in a potential exceedance of daily thresholds. Air quality emissions would be greater under the Deferred Maintenance Alternative; therefore, this alternative would be environmentally inferior to the proposed program with regard to air quality.

Biological Resources

Under the Deferred Maintenance Alternative, vegetation would have a longer period for regrowth and would provide increased habitat for flora and fauna between maintenance events. However, removal of this habitat during maintenance events would potentially impact a greater number of individuals and species that might have occupied the habitat since the prior maintenance event. Additionally, decreased management of vegetation could result in obstruction at culverts and decreased facility capacity, thereby contributing to the potential for emergency situations due to flooding. Repairs associated with an emergency situation could impact a more extensive area than a routine maintenance activity would, thus leading to a larger disturbance area and increased impacts to habitat. Further, not having a long-term maintenance program in place would delay a comprehensive, long-term approach to biological resource conservation because District resources would be redirected to the administrative burden of obtaining maintenance approvals on a facility-by-facility, ad hoc basis. Additionally, invasive vegetation and trash and debris removal within the facilities proposed for maintenance under the proposed program would not occur as frequently under this alternative, resulting in impacts downstream. Therefore, this alternative would be environmentally inferior to the proposed program with regard to biological resources.

Cultural Resources

The implementation of maintenance activities to address access or infrastructure problems would not occur as frequently under a Deferred Maintenance Alternative as under the proposed program. However, less frequent maintenance could create a failure of the system, which could lead to an emergency situation. Repairs associated with such an emergency situation could impact a more extensive area than a more frequently scheduled routine maintenance activity would, thus leading to a larger disturbance area and increased impacts to cultural resources. Therefore, this alternative would be environmentally inferior to the proposed program with regard to cultural resources.

Geology and Soils

Under the Deferred Maintenance Alternative, occurrences of soil erosion and slope failure would increase because eroded roadways, swales, slopes, and streambanks would not be repaired as frequently and routine maintenance activities would not occur as frequently. Further, because this alternative would not involve repairing or upgrading existing structures or implementing maintenance activities to address infrastructure problems, adoption of this alternative could expose people and structures to erosion and flooding risks if the existing flood control system were to rupture/fail and saturate surrounding soils. Such unremediated events could also create unstable soils that would potentially result in subsidence or collapse of geologic units and soils. Therefore, when compared to the proposed program, adoption of the Deferred Maintenance Alternative would result in greater impacts to geology and soils. This alternative would therefore be environmentally inferior to the proposed program.

Greenhouse Gas Emissions

Under the Deferred Maintenance Alternative, maintenance activities would not occur in the proposed program area on a regular and predictable basis, and greater numbers of heavy equipment may be needed to repair or maintain facilities. Further, lower-tier equipment might need to be used if there was an urgent need and the inventory of lower emissions equipment was limited. Air pollutant and GHG emissions associated with off-road maintenance equipment and on-road maintenance vehicles (e.g., haul trucks and vendor/delivery trucks) and worker vehicles could be greater. Because the Deferred Maintenance Approach Alternative could generate greater GHG emissions associated with heavier off-road maintenance equipment and on-road maintenance vehicles, this alternative would be environmentally inferior to the proposed program with regard to GHG emissions.

Hazards and Hazardous Materials

Under the Deferred Maintenance Alternative, maintenance activities would not occur regularly, and heavier equipment in greater numbers might be required to maintain facilities on a less frequent basis than under the proposed program. Therefore, typical hazardous materials used during implementation of maintenance activities, including oils, lubricants, and vehicle fuels, could be used and transported in the proposed program area by District or contractor personnel in greater quantities. However, as discussed in the analysis of impacts under the proposed program in Section 4.7, the potential for impacts from use and transport of these quantities of hazardous materials is low. In addition, maintenance activities would not occur in the vicinity of flammable vegetation and would not pose a substantial risk associated with wildfires. However, under this alternative, regular maintenance would not be implemented as frequently, and vegetation along access roads and near District infrastructure would not be maintained. Lack of vegetation

maintenance in natural environments would increase the fuel load/fire potential in these areas and could result in more severe wildfire events in the region if fires were to occur near unmaintained vegetation. Therefore, this alternative would be environmentally inferior to the proposed program with regard to hazards and hazardous materials.

Hydrology and Water Quality

Under the Deferred Maintenance Alternative, roadways, swales, and slopes would continue to erode and the quality of downstream waters would continue to be impacted as a result of increased sedimentation and turbidity due to the lack of more regular facility maintenance. As discussed in Section 4.8, increased sedimentation levels, including silt accumulation, can decrease infiltration capacity and concentrate pollutants conveyed from urban developments, and decaying vegetation, trash, and other debris deposited by storm events can also pose water quality concerns. Also, the buildup of sediment and loose soils in channels and swales could impair the ability of these systems to convey and transport runoff by reducing the hydraulic capacity for which the system was designed. The potential for washout events during heavy rains would increase in the absence of adequately repaired and maintained drainage systems, and the increased occurrence of sediment and loose soils would increase the potential for vegetation to become uprooted, which would further destabilize soils and degrade the quality of downstream waters. Therefore, due to anticipated increased occurrence of erosion and sedimentation, this alternative would be environmentally inferior to the proposed program with regard to hydrology and water quality.

Land Use and Planning

Under the Deferred Maintenance Alternative, maintenance of infrastructure would not occur as frequently as it would under the proposed program, and there could be potential conflicts with any land use plans or habitat conservation plans. As discussed in the analysis of impacts under the proposed program in Section 4.9, the proposed program does have the potential for land use policy/habitat conservation plan impacts. As part of standard practice, the District would coordinate with local jurisdictions as needed during proposed program implementation in order to avoid and/or minimize any potential land use conflicts from the proposed program. However, because maintenance activities would occur less frequently, this alternative would likely result in decrease in coordination with local jurisdictions. As such, this alternative would be environmentally inferior compared to the proposed program with regard to land use and planning.

Noise

Under the Deferred Maintenance Alternative, maintenance of infrastructure would not occur as frequently in the proposed program area, and heavier equipment may be required to maintain flood control facilities on a less frequent basis. Heavier equipment tends to be noisier and maintenance activities may have to occur closer to sensitive receptors if the effort to remove

sedimentation or vegetation is larger. Although the substantial noise typically associated with implementation of maintenance activities would not be generated on a regular basis, a greater/ longer-duration maintenance effort may be required as needed under this alternative, which could result in greater noise impacts to sensitive receptors. Therefore, the Deferred Maintenance Alternative would be environmentally inferior to the proposed program with regard to noise.

Public Services

Under the Deferred Maintenance Alternative, implementation of maintenance activities near flammable vegetation would not occur as frequently. Lack of regular vegetation maintenance would increase the fuel load/fire potential in the proposed program area, which includes undeveloped landscapes. If wildfires were to occur in these areas, increased fuel loads could result in more severe wildfire events in the region, which could result in greater impacts to fire services. Because the Deferred Maintenance Alternative could result in greater overall impacts to fire services but also would not introduce the potential for increased risk due to proposed program implementation, this alternative would be environmentally neutral compared to the proposed program with regard to public services.

Recreation

Under the Deferred Maintenance Alternative, maintenance of infrastructure would not occur as frequently as it would under the proposed program; therefore, it would potentially occur less frequently near recreational areas. However, because maintenance activities would occur less frequently, heavier equipment might be required to maintain flood control facilities when maintenance does occur. Heavier equipment tends to be noisier and maintenance activities might have to occur closer to recreational areas and for a longer period of time if the effort to remove sedimentation or vegetation is larger. The recreation impacts would be less than significant under the proposed program, whereas the greater maintenance effort that may be required as needed under this alternative could result in greater impacts to recreational areas and park users; therefore, this alternative would be environmentally inferior to the proposed program with regard to recreation.

Traffic and Circulation

Under the Deferred Maintenance Alternative, the maintenance of flood control facilities would not occur as frequently as it would under the proposed program. Truck trips would not be generated as frequently, and potential use conflicts typical during maintenance would not occur as frequently. Under this alternative, no traffic and circulation impacts associated with new maintenance truck trip generation are anticipated; however, because maintenance of access roads would not occur as frequently, existing access to structures would continue to deteriorate. If infrastructure were to fail due to lack of necessary rehabilitation or repair, then reduced and/or

diminished access to District infrastructure could threaten the reliability of the system and flood control efforts in the District's service area by extending repair times and delaying the full functionality of the flood control system. Further, if an emergency situation were to develop as a result of a lack of continual maintenance, then the number of truck trips and equipment needed could greatly expand in localized areas; therefore, impacts from traffic and circulation could be greater in some situations under this alternative. Because the traffic generation under the proposed program would be minimal and the traffic generation under a Deferred Maintenance Alternative is difficult to predict, this alternative would be considered environmentally neutral compared to the proposed program with regard to traffic and circulation.

Utilities and Service Systems

The proposed program would require continual monitoring and maintenance to ensure a reliable flood control system and to minimize the potential for emergency repairs. Rehabilitation, replacement, and repair of existing structures, as well as maintenance of access roads, are necessary to maintain reliable infrastructure. As discussed in the analysis of proposed program impacts on utilities and service systems in Section 4.14, the proposed program would have less than significant impacts on stormwater infrastructure. Under the Deferred Maintenance Alternative, the repair and maintenance of existing structures would also have less than significant impacts on stormwater infrastructure. Therefore, this alternative would be environmentally neutral when compared to the proposed program with regard to utilities and service systems impacts.

6.3.2.2 Conclusion

Because less frequent maintenance would occur, resulting in potentially greater impacts than the proposed program, the Deferred Maintenance Alternative would be considered environmentally inferior with regard to 10 resource areas: aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, and recreation. It would not be considered environmentally superior in any areas. It would be considered environmentally neutral in four resource areas: land use and planning, public services, traffic and circulation, and utilities and service systems. The adoption of this alternative would not meet the proposed program objectives identified by the District for system reliability, development of a formalized plan for regular and predicable maintenance, and long-term permitting and environmental clearances. Because the Deferred Maintenance alternative would result in potential increased impacts to aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, and recreation and would not meet most of the proposed program objectives identified by the District, this alternative would be environmentally inferior to the proposed program.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

If an alternative is considered clearly superior to a proposed project relative to identified impacts, Section 15126.6 of the CEQA Guidelines requires that alternative to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives.

Six alternatives (Alternative Locations, Program Encompassing Entire Flood Control Facility System, Yearly Maintenance Alternative, No Maintenance Alternative, No Program/Existing Maintenance Approach Alternative, and Deferred Maintenance Alternative) to the proposed program were considered; however, four of these alternatives were not further considered and analyzed for the reasons stated in Section 6.2, Alternatives Considered and Eliminated during the Program Planning Process. The No Program/Existing Maintenance Approach Alternative and the Deferred Maintenance Alternative, both of which would meet some of the proposed program objectives, were analyzed in Section 6.3, Alternatives Selected for Further Analysis, to determine their environmental impacts relative to the proposed program; the results of this comparison are presented in Table 6-1.

Table 6-1
Comparison of Alternatives

Resource Topic	No Program/Existing Maintenance Approach	Deferred Maintenance
Aesthetics	−1	−1
Air Quality	−1	−1
Biological Resources	−1	−1
Cultural Resources	−1	−1
Geology and Soils	−1	−1
Greenhouse Gas Emissions	−1	−1
Hazards and Hazardous Materials	−1	−1
Hydrology and Water Quality	−1	−1
Land Use	−1	−1
Noise	−1	−1
Public Services	0	0
Recreation	−1	−1
Traffic and Circulation	0	0
Utilities and Service Systems	0	0
Total[a]	**−11**	**−11**
Eliminates a significant impact of the proposed program?	**No**	**No**

Notes: 0 = environmentally neutral; −1 = environmentally inferior; +1 = environmentally superior.
[a] Sum of superior findings with inferior findings factored in.

The proposed program would allow for maintenance of the existing flood control system and associated infrastructure in a predictable, regular, and environmentally sensitive manner, thus ensuring the continued reliability and security of the flood control system. Therefore, the proposed program would be the environmentally superior alternative.

6.5 REFERENCES

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

82 FR 1860–2008. Final Rule: Issuance and Reissuance of Nationwide Permits – General Conditions, District Engineer's Decision, Further Information, and Definitions. January 6, 2017.

California Public Resources Code, Section 21000–21177. California Environmental Quality Act (CEQA), as amended.

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CHAPTER 7
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