Draft Programmatic Environmental Assessment

# Los Angeles Regional Interoperable Communications System Joint Powers Authority Land Mobile Radio Project

*March 2016*

**Federal Emergency Management Agency**
**Department of Homeland Security**
1111 Broadway, Suite 1200
Oakland, California 94607

*This page intentionally left blank*

## TABLE OF CONTENTS

1.0 Introduction ..... 1-1
1.1 Project Background ..... 1-1
1.2 Regulatory Background and Use of This Programmatic Environmental Assessment ..... 1-3
1.2.1 Regulatory Background ..... 1-3
1.2.2 Use of this Programmatic Environmental Assessment ..... 1-5
1.3 Cooperating Agencies ..... 1-8
1.4 Other Federal Agencies ..... 1-8
1.5 Purpose Of and Need for Action ..... 1-9
1.6 Public Participation Process ..... 1-9
1.7 Organization of This Programmatic Environmental Assessment ..... 1-11

2.0 Description of Proposed Action and Alternatives ..... 2-1
2.1 No Action Alternative ..... 2-1
2.2 Proposed Action ..... 2-1
2.2.1 Geotechnical Investigations ..... 2-2
2.2.2 General Land Mobile Radio Project Description ..... 2-2
2.2.3 LMR Project Site Types ..... 2-3
2.2.4 LMR Project Site Components ..... 2-3
2.2.5 Construction ..... 2-14
2.2.6 Operations ..... 2-17
2.3 Alternatives Eliminated from Further Analysis ..... 2-18
2.3.1 Cell on Wheels ..... 2-18
2.3.2 Satellites ..... 2-18

3.0 Affected Environment ..... 3-1
3.1 Land Use and Planning ..... 3-2
3.1.1 Regulatory Background ..... 3-2
3.1.2 Resource Overview ..... 3-4
3.2 Geology, Seismicity, and Soils ..... 3-10
3.2.1 Regulatory Background ..... 3-10
3.2.2 Resource Overview ..... 3-11
3.3 Water Resources ..... 3-21
3.3.1 Regulatory Background ..... 3-21
3.3.2 Resource Overview ..... 3-25

# TABLE OF CONTENTS

3.4 Biological Resources ..... 3-34
3.4.1 Regulatory Background ..... 3-34
3.4.2 Resource Overview ..... 3-36
3.5 Human Health and Safety ..... 3-43
3.5.1 Regulatory Background ..... 3-43
3.5.2 Resource Overview ..... 3-46
3.6 Socioeconomics ..... 3-47
3.6.1 Regulatory Background ..... 3-47
3.6.2 Resource Overview ..... 3-47
3.7 Historic Properties ..... 3-50
3.7.1 Regulatory Background ..... 3-50
3.7.2 Resource Overview ..... 3-56
3.8 Infrastructure ..... 3-59
3.8.1 Regulatory Background ..... 3-60
3.8.2 Resource Overview ..... 3-60
3.9 Air Quality and Greenhouse Gas Emissions ..... 3-62
3.9.1 Regulatory Background ..... 3-62
3.9.2 Resource Overview ..... 3-65
3.10 Noise ..... 3-69
3.10.1 Regulatory Background ..... 3-69
3.10.2 Resource Overview ..... 3-69
3.11 Visual Quality ..... 3-72
3.11.1 Regulatory Background ..... 3-72
3.11.2 Resource Overview ..... 3-72
3.12 Recreation ..... 3-75
3.12.1 Regulatory Background ..... 3-75
3.12.2 Resource Overview ..... 3-76

4.0 Environmental Consequences ..... 4-1
4.1 Land Use ..... 4-2
4.1.1 No Action Alternative ..... 4-2
4.1.2 Proposed Action ..... 4-2
4.2 Geology, Soils, and Seismicity ..... 4-9
4.2.1 No Action Alternative ..... 4-9
4.2.2 Proposed Action ..... 4-9

# TABLE OF CONTENTS


4.3 Water Resources ..... 4-13
4.3.1 No Action Alternative ..... 4-13
4.3.2 Proposed Action ..... 4-13
4.4 Biological Resources ..... 4-21
4.4.1 No Action Alternative ..... 4-21
4.4.2 Proposed Action ..... 4-21
4.5 Human Health and Safety ..... 4-34
4.5.1 No Action Alternative ..... 4-34
4.5.2 Proposed Action ..... 4-34
4.6 Socioeconomics ..... 4-40
4.6.1 No Action Alternative ..... 4-40
4.6.2 Proposed Action ..... 4-40
4.7 Historic Properties ..... 4-44
4.7.1 No Action Alternative ..... 4-44
4.7.2 Proposed Action ..... 4-44
4.8 Infrastructure ..... 4-49
4.8.1 No Action Alternative ..... 4-49
4.8.2 Proposed Action ..... 4-49
4.9 Air Quality and Greenhouse Gas Emissions ..... 4-56
4.9.1 No Action Alternative ..... 4-56
4.9.2 Proposed Action ..... 4-56
4.10 Noise ..... 4-62
4.10.1 No Action Alternative ..... 4-62
4.10.2 Proposed Action ..... 4-62
4.11 Visual Quality ..... 4-65
4.11.1 No Action Alternative ..... 4-65
4.11.2 Proposed Action ..... 4-65
4.12 Recreation ..... 4-68
4.12.1 No Action Alternative ..... 4-68
4.12.2 Proposed Action ..... 4-68

5.0 Cumulative Impacts ..... 5-1
5.1 No Action Alternative ..... 5-5
5.2 Proposed Action ..... 5-5
5.2.1 Land Use ..... 5-5
5.2.2 Geology, Soils, and Seismicity ..... 5-6

5.2.3 Water Resources ..... 5-7
5.2.4 Biological Resources ..... 5-7
5.2.5 Human Health and Safety ..... 5-9
5.2.6 Socioeconomics ..... 5-9
5.2.7 Historic Properties ..... 5-9
5.2.8 Infrastructure ..... 5-10
5.2.9 Air Quality and Greenhouse Gas Emissions ..... 5-10
5.2.10 Noise ..... 5-10
5.2.11 Visual Quality ..... 5-11
5.2.12 Recreation ..... 5-11

6.0 List of Preparers ..... 6-1

7.0 References ..... 7-1

## LIST OF FIGURES

Figure 1.0-1: LA-RICS LMR Project Area ..... 1-2
Figure 1.2-1: The Federal Emergency Management Agency's Process in Applying this PEA ..... 1-7
Figure 2.2-1: Typical Building Mount Antenna Installation ..... 2-7
Figure 2.2-2: Typical 180-foot Lattice Tower Installation ..... 2-8
Figure 2.2-3: Generic Lattice Tower Site Plan ..... 2-9
Figure 2.2-4: Typical Monopole Installation ..... 2-10
Figure 2.2-5: Generic Monopole Site Plan ..... 2-11
Figure 3.1-1: The Coastal Zone in the Project Area ..... 3-6
Figure 3.1-2: Farmlands in the Project Area ..... 3-9
Figure 3.2-1: Geomorphic Provinces in the Project Area ..... 3-13
Figure 3.2-2: Geologic Hazards in the Project Area ..... 3-16
Figure 3.2-3: Mapped Faults in the Project Area ..... 3-17
Figure 3.2-4: California Shake Map ..... 3-19
Figure 3.2-5: Tsunami Inundation Areas in the Project Area ..... 3-20
Figure 3.3-1: Major Surface Water Features of the Project Area ..... 3-26
Figure 3.3-2: Impaired Water Bodies in the Project Area ..... 3-28
Figure 3.3-3: Groundwater Aquifers in the Project Area ..... 3-29
Figure 3.3-4: Designated Flood Zone Areas within the Project Area ..... 3-33
Figure 3.4-1: Level III Ecoregions in the Project Area ..... 3-37

# TABLE OF CONTENTS

## LIST OF TABLES


Table 2.2-1: Proposed Action - Project Components by Site Type ..... 2-3

Table 2.2-2: Estimated Maximum Geotechnical Investigation and Construction Disturbance by Site Type ..... 2-15

Table 3.3-1: Groundwater Basins in the Project Area ..... 3-30

Table 3.4-1: Federally Listed Threatened, Endangered, and Candidate Species in the Project Area ..... 3-40

Table 3.6-1: Demographic Profile ..... 3-48

Table 3.7-1: Federally Recognized Native American Tribes Affiliated with the LMR Project Area* ..... 3-58

Table 3.7-2: Federal Statutes and Executive Orders that form the Basis of FEMA's Policy on Native American Consultation ..... 3-59

Table 3.9-1: National Ambient Air Quality Standards ..... 3-62

Table 3.9-2: *De Minimis* Levels by Pollutant Type ..... 3-65

Table 3.9-3: Attainment Status within the Project Area ..... 3-66

Table 3.10-1: Typical A-Weighted Noise Levels ..... 3-70

Table 4.9-1: Composite LMR Project Site with Maximum Construction Activities ..... 4-58

Table 4.9-2: Construction Emissions per Composite Site versus *De Minimis* Standards in SCAB and MDAB ..... 4-59

Table 4.9-3: Total Project Operational Emissions for All LMR Project Sites versus *De Minimis* Standards in SCAB ..... 4-60

Table 4.9-4: Total Project Operational Emissions for All LMR Project Sites versus *De Minimis* Standards in MDAB ..... 4-60

Table 4.9-5: Greenhouse Gas Emissions for All LMR Project Sites within the Project Area ..... 4-61

Table 5.0-1. Example Potential Projects to Be Considered in a Cumulative Impacts Analysis ..... 5-2


## LIST OF APPENDICES


Appendix A: ..... Agency Correspondence

Appendix B: ..... LMR Potential Project Site List

Appendix C: ..... Scoping Letters

Appendix D: ..... Best Management Practices

Appendix E: ..... Proposed Project Equipment

Appendix F: ..... Mitigation Measures

# ACRONYMS AND ABBREVIATIONS

| Acronym/Abbreviation | Term |
|---|---|
| ACHP | Advisory Council on Historic Preservation |
| agl | above ground level |
| AIRFA | American Indian Religious Freedom Act |
| ALUC | airport land use commission |
| amsl | above mean sea level |
| APE | Area of Potential Effects |
| Authority | LA-RICS Joint Powers Authority |
| AVAQMD | Antelope Valley Air Quality Management |
| BA | biological assessment |
| BGEPA | Bald and Golden Eagle Protection Act |
| BLM | U.S. Bureau of Land Management |
| BMP | best management practice |
| BRR | biological resources report |
| °C | degrees Celsius |
| CAA | Clean Air Act |
| CalEEMod® | California Emissions Estimator Model |
| CALFIRE | California Department of Forestry and Fire Protection |
| Cal OES | California Governor's Office of Emergency Services |
| CARB | California Air Resources Board |
| CBC | California Building Code |
| CCA | California Coastal Act |
| CCC | California Coastal Commission |
| CEC | California Energy Commission |
| CEQ | Council on Environmental Quality |
| CEQA | California Environmental Quality Act |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CLUP | Comprehensive Land Use Plan |
| CM | conservation measure |
| CMU | concrete masonry unit |
| CO | carbon monoxide |
| County | Los Angeles County |
| COW | cell on wheels |
| CWA | Clean Water Act |
| CZMA | Coastal Zone Management Act |
| dB | Decibel |
| dBA | A-weighted decibel |
| DPM | diesel particulate matter |
| DTSC | Department of Toxic Substances Control |
| EA | environmental assessment |
| EFH | Essential Fish Habitat |
| EHP | Environmental and Historic Preservation |
| EHS | extremely hazardous substance |
| EIS | environmental impact statement |
| EMFAC2011 | CARB model for estimating emissions from on-road vehicles |
| EME | electromagnetic energy |
| EO | Executive Order |

# ACRONYMS AND ABBREVIATIONS

| Acronym/Abbreviation | Term |
|---|---|
| EPCRA | Emergency Planning and Community Right-to-Know Act |
| ESA | Endangered Species Act |
| °F | degrees Fahrenheit |
| FAA | Federal Aviation Administration |
| FCC | Federal Communications Commission |
| FEMA | Federal Emergency Management Agency |
| FIP | Federal Implementation Plan |
| FONSI | Finding of No Significant Impact |
| FPPA | Farmland Protection Policy Act |
| GCR | General Conformity Rule |
| GHG | greenhouse gas |
| GPD | Grants Program Directorate |
| GWH | gigawatt-hour |
| HAPC | habitat area of particular concern |
| HSGP | Homeland Security Grant Program |
| HUD | Office of Housing and Urban Development |
| HVAC | heating, ventilation, and air conditioning |
| IPaC | Information for Planning and Conservation |
| kW | Kilowatt |
| LACDPW | Los Angeles County Department of Public Works |
| LA-RICS | Los Angeles Regional Interoperable Communications System |
| Authority | LA-RICS Joint Powers Authority |
| $L_{dn}$ | day-night average sound level |
| LDV | light-duty vehicle |
| $L_{eq}$ | equivalent sound level averaged over a period of time |
| LED | light-emitting diode |
| LMR | Land Mobile Radio |
| LUP | land use plan |
| LWCF | Land and Water Conservation Fund |
| MBTA | Migratory Bird Treaty Act |
| MDAB | Mojave Desert Air Basin |
| $\mu g/m^3$ | micrograms per cubic meter |
| mgd | million gallons per day |
| $mg/m^3$ | milligrams per cubic meter |
| MHz | Megahertz |
| MM | mitigation measure |
| MOA | memorandum of agreement |
| MOU | memorandum of understanding |
| MPE | maximum permissible exposure |
| MW | Megawatt |
| $mW/cm^2$ | milliwatts per square centimeter |
| NAAQS | National Ambient Air Quality Standards |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| NAHC | Native American Heritage Commission |
| NEHRP | National Earthquake Hazards Reduction Program |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |

# ACRONYMS AND ABBREVIATIONS

| Acronym/Abbreviation | Term |
|---|---|
| NFIA | National Flood Insurance Act |
| NFIP | National Flood Insurance Program |
| NHL | National Historic Landmark |
| NHO | Native Hawaiian organization |
| NHPA | National Historic Preservation Act |
| NMFS | National Marine Fisheries Service |
| $NO_2$ | nitrogen dioxide |
| NOAA | National Oceanic and Atmospheric Administration |
| NOC | network operations center |
| $NO_X$ | Nitrous oxides |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |
| NPS | National Park Service |
| NRCS | National Resource Conservation Service |
| NRHP | National Register of Historic Places |
| NRI | National Rivers Inventory |
| NTIA | National Telecommunication and Information Administration |
| NWP | Nationwide Permit |
| $O_3$ | Ozone |
| OE/AAA | Obstruction Evaluation/Airport Airspace Analysis |
| OET | FCC Office of Engineering and Technology |
| OFA | other Federal agency |
| PA | programmatic agreement |
| Pb | Lead |
| PCE | primary constituent elements |
| PEA | programmatic environmental assessment |
| PIZ | project impact zone |
| $PM_{2.5}$ | particulate matter less than or equal to 2.5 micrometers in aerodynamic diameter; fine particulate matter |
| $PM_{10}$ | particulate matter less than or equal to10 micrometers in aerodynamic diameter; respirable particulate matter |
| POL | petroleum, oils, and lubricants |
| ppb | parts per billion |
| ppm | parts per million |
| RCRA | Resource Conservation and Recovery Act |
| REC | Record of Environmental Consideration |
| RF | Radiofrequency |
| ROG | reactive organic gases |
| RWQCB | Regional Water Quality Control Board |
| SCAB | South Coast Air Basin |
| SCAQMD | South Coast Air Quality Management District |
| SDWA | Safe Drinking Water Act |
| SEA | supplemental environmental assessment |
| SHPO | State Historic Preservation Officer |
| SIP | State Implementation Plan |
| SLO | State Liaison Officer |
| $SO_2$ | sulfur dioxide |

# ACRONYMS AND ABBREVIATIONS

| Acronym/Abbreviation | Term |
|---|---|
| $SO_X$ | sulfur oxides |
| SPCC | spill prevention, countermeasures, and control |
| State | State of California |
| SWPPP | Stormwater Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TCNS | Tower Construction Notification System |
| THPO | Tribal Historic Preservation Officer |
| TIP | Tribal Implementation Plan |
| TOWAIR | FCC landing slope facility calculator and screening tool |
| UAPJ | Los Angeles-Long Beach Urban Area Partner Jurisdiction |
| UASI | Urban Area Security Initiative |
| UHF | ultra high frequency |
| U.S. | United States |
| USACE | U.S. Army Corps of Engineers |
| U.S.C. | U.S. Code |
| USCB | U.S. Census Bureau |
| USDA | U.S. Department of Agriculture |
| USEPA | U.S. Environmental Protection Agency |
| USFS | U.S. Forest Service |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UST | underground storage tank |
| VOC | volatile organic compound |
| WRP | water reclamation plant |
| WSRA | Wild and Scenic Rivers Act |

# 1.0 Introduction

The United States (U.S.) Department of Homeland Security, Federal Emergency Management Agency (FEMA) proposes to fund the installation of emergency communications facilities at up to 90 sites in southern California, located primarily in the County of Los Angeles (County) and in adjacent portions of Orange and San Bernardino counties in southern California, referenced throughout this document as the Project Area (Los Angeles region). Figure 1.0-1 shows the Project Area. The sites would comprise the Los Angeles Regional Interoperable Communications System (LA-RICS) Land Mobile Radio (LMR) project (LMR project, or Proposed Action), which would be completed by the LA-RICS Joint Powers Authority (Authority). Although some LMR project sites (listed in Appendix B) could be located in adjacent counties, the LMR project service area is Los Angeles County.

The LMR project would provide coverage throughout the Authority's service area, which extends throughout Los Angeles County. During an initial planning process, 119 sites were considered, although some have been eliminated and some have been added since scoping, as presented in Appendix B. Locations were selected within or adjacent to existing communications facilities to the maximum extent feasible. If the Authority considers potential sites not included in Appendix B, the additional sites would be analyzed as described in Section 1.2 of this Programmatic Environmental Assessment (PEA). However, no more than 90 LMR project sites are proposed for construction.

Funding assistance would be provided by FEMA's Grant Programs Directorate Homeland Security Grant Program (HSGP) Urban Area Security Initiative (UASI) sub-program, through the California Governor's Office of Emergency Services (Cal OES) (recipient), to the Los Angeles-Long Beach Urban Area Partner Jurisdiction (UAPJ) (sub-recipient). The City of Los Angeles serves as the fiscal agent for the Los Angeles-Long Beach UAPJ. The UASI program focuses on enhancing regional preparedness and responsiveness in high-threat major metropolitan areas. Funding assistance would also be provided by FEMA's State Homeland Security Grant Program (HSGP) sub-program, through Cal OES, to Los Angeles County (sub-recipient). The Authority receives grant funding from HSGP for planning, constructing, operating, and maintaining the proposed LMR system.

## 1.1 Project Background

The Los Angeles region experiences many man-made and natural incidents that require a rapid, coordinated response among the region's first and secondary emergency responders. Within Los Angeles County, 50 law enforcement and 31 fire service agencies currently use obsolete radio systems. The majority of these radio systems do not allow users to communicate across these separate systems without extensive patching or routing of individual calls. Public safety radio users often experience unreliable performance throughout Los Angeles County. The lack of acceptable public safety grade radio communications exposes emergency responders to potentially dangerous situations when responding to an event.

**Figure 1.0-1: LA-RICS LMR Project Area**

Currently, public safety entities in Los Angeles County operate primarily on the Ultra High Frequency (UHF) T-Band,[1] but the Federal Communications Commission (FCC) has mandated that public safety users vacate the UHF T-Band by the year 2023. The LMR project would establish a hybrid UHF T-Band and 700-megahertz (MHz)[2] network. The LMR project design would allow radio communications on both the UHF T-Band and 700-MHz spectrums and would allow users of the LA-RICS LMR radio system to phase out of UHF T-Band usage and transition to the 700-MHz spectrum prior to 2023. In the interim, system users at different stages of transitioning to the 700-MHz spectrum would be able to communicate seamlessly between the UHF and 700-MHz spectrums. Implementation of the LMR project would allow transfer of public safety responders in Los Angeles County to the 700-MHz spectrums prior to the FCC-mandated deadline.

## 1.2 Regulatory Background and Use of This Programmatic Environmental Assessment

### 1.2.1 Regulatory Background

The National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code [U.S.C.] §§4321–4327), the Council on Environmental Quality (CEQ) regulations implementing NEPA found at Title 40 Code of Federal Regulations (CFR) Parts 1500 through 1508 (40 CFR §1500-1508), and FEMA's implementing regulations for NEPA found at 44 CFR Part 10 direct FEMA to consider the environmental consequences of proposed Federal activities (also referred to as projects) during decision making. The regulations specify that FEMA must comply with NEPA before taking an action including allocating Federal funds. Under these regulations, FEMA must use a systematic, interdisciplinary process that includes public involvement to evaluate the impacts of its activities on the environment.

The CEQ regulations at 40 CFR §§ 1500.4(i), 1502.4, and 1502.20 encourage the development of program-level NEPA environmental documents and the use of tiering to eliminate repetitive discussions and to focus on issues specific to subsequent actions. FEMA has developed this PEA in compliance with these regulations. FEMA has determined through experience that the majority of the types of activities associated with the LMR project can be evaluated in a PEA in compliance with CEQ regulations without the need to develop and produce an Environmental Assessment (EA) for each individual action at each LMR project site.

This PEA will also facilitate FEMA's compliance with other environmental and historic preservation requirements by providing a framework to address the impacts of implementation of the Proposed Action. FEMA coordinates and integrates to the maximum extent possible the review and compliance process required under laws and regulations such as Section 106 of the National Historic Preservation

---

[1] The UHF T-Band is the portion of the electromagnetic spectrum between 470 and 512 MHz, currently used by public safety and industrial/business licenses.

[2] 700 MHz is the portion of the electromagnetic spectrum from 769 to 775 MHz and from 799 to 805 MHz.

Act (NHPA), Section 7 of the Federal Endangered Species Act (ESA), the eight-step process of Executive Order (EO) 11988 and EO 11990, and others. This PEA integrates these requirements with NEPA for the Proposed Action.

FEMA utilizes three Programmatic Agreements (PAs) and one Program Comment to manage and streamline compliance with Section 106 of the NHPA for Undertakings such as the Proposed Action. These are:

- *Programmatic Agreement among the Federal Emergency Management Agency, The California State Historic Preservation Officer, and the California Governor's Office of Emergency Services* (October 2014), hereafter referenced as the California PA
- *Nationwide Programmatic Agreement for the Collocation of Wireless Antennas Executed by the Federal Communications Commission, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation* (March 2001), hereafter referenced as the Collocation Agreement
- *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission* (September 2004), hereafter referenced as the Nationwide Agreement

In addition to the three PAs, a Program Comment was issued by the Advisory Council on Historic Preservation (ACHP) in October 2009, which extended access to the two FCC PAs to three additional agencies, including FEMA.

- *Program Comment for the Rural Utilities Service, the National Telecommunications and Information Administration, and the Federal Emergency Management Agency to Avoid Duplicative Section 106 Reviews for Wireless Communication Facilities Construction and Modification* (Federal Register 2009, amended 2015), hereafter referenced as the Program Comment

On September 24, 2015, the ACHP amended the Program Comment to extend its duration to September 30, 2025, added agencies that can use the Program Comment, and provided for a monitoring system.

The use of these four documents and their applicability to this PEA are described in greater detail in Section 3.7, Historic Properties.

In addition to the documents addressing historic properties, the following memorandum of understanding (MOU) establishes the process of identifying the lead Federal agency for Federal environmental and historic preservation review for a FEMA-funded project that requires a permit from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. It identifies the roles and responsibilities between FEMA Region IX, USACE,

National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) in order to streamline and coordinate environmental reviews.

- *Memorandum of Understanding Regarding National Environmental Policy Act, Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, National Historic Preservation Act, Rivers and Harbors Act Section 10 permits, and Clean Water Act Section 404 Permits for Federal Emergency Management Projects in California, Nevada, and Arizona* was executed in 2015 by FEMA Region IX, NMFS, USACE, and USFWS.

### 1.2.2 Use of this Programmatic Environmental Assessment

Under the CEQ regulations, Federal agencies are encouraged to tier analysis to eliminate repetitive discussions and focus on issues "ripe for decision" (40 CFR 1502.20). This document is intended as a programmatic assessment under which subsequent analysis can be prepared, if necessary, in order to implement the proposed LMR project.

If the level of analysis and findings of a proposed activity at an LMR project site are fully and accurately described in this PEA, FEMA would document this determination in its administrative record via a Record of Environmental Consideration (REC), and no additional public or agency noticing would be required to obtain NEPA compliance. If additional analysis is required to determine whether impacts and mitigation measures have been adequately addressed and identified in this PEA, FEMA would request additional site-specific information to determine if the conclusions of this PEA are met. A REC would be prepared if the additional site-specific information would not change the conclusion of this PEA. If the additional site-specific information identifies different impacts or mitigation measures than those identified in this PEA, then a tiered site-specific supplemental environmental assessment (SEA) would be required. It is expected that tiered SEAs developed for the LMR project would focus on issues unique to the specific site or activity elements that generate impacts not analyzed and described in this PEA.

If the activities of a proposed LMR site are not analyzed in this PEA, and FEMA determines to potentially proceed with this LMR project site, FEMA would prepare a stand-alone EA for the LMR site. If FEMA concludes that activities under an LMR project site have the potential to result in a significant environmental impact and determines that a Finding of No Significant Impact (FONSI) cannot be issued, and FEMA determines to potentially proceed with this LMR project site, FEMA would issue a Notice of Intent to prepare an Environmental Impact Statement.

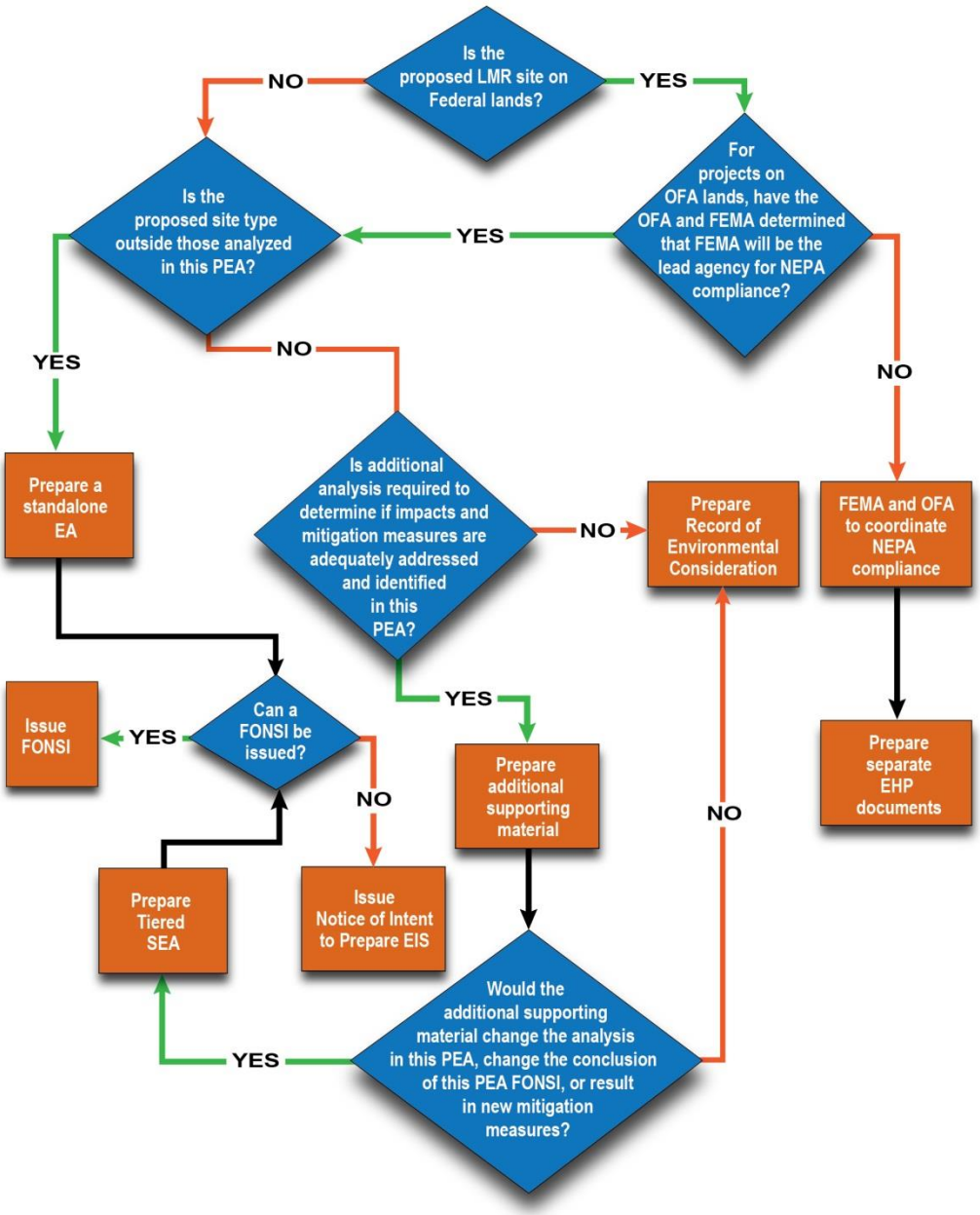
As a part of completing its REC, FEMA would confirm and document its compliance with all applicable Federal environmental regulations for each LMR project site. FEMA would ensure that it has complied with the National Historic Preservation Act, Federal Endangered Species Act, Coastal Barrier Resources Act, Federal Clean Water Act, Coastal Zone Management Act, Fish and Wildlife Coordination Act, Federal Clean Air Act, Farmland Protection Policy Act, Migratory Bird Treaty Act, Magnuson-Stevens Fisheries Conservation and Management Act, Wild and Scenic Rivers Act, Executive Order 11988, Executive Order 11990, Executive Order 12898, and NEPA. The completion of the REC for a LMR project site would be the final step in FEMA's compliance with the appropriate environmental and historic preservation

regulations for its grant for that project site. Acceptance of Federal funding requires the Authority to comply with all appropriate Federal, State, and local laws, as a condition of the FEMA grant. Failure to obtain all appropriate Federal, State, and local environmental permits and environmental compliance clearances may jeopardize Federal funding. Any change to the approved LMR project site will require re-evaluation for compliance with NEPA and the regulations and Executive Orders listed above. After the REC is completed, FEMA would proceed with its other internal grant program processes related to obligating its grant.

No more than 90 LMR project sites are proposed for construction. If the Authority considers potential sites not included in Appendix B, the additional sites would be analyzed in accordance with the process shown in Figure 1.2-1.

A flowchart showing FEMA's process in applying this PEA is included as Figure 1.2-1.

**Figure 1.2-1: The Federal Emergency Management Agency's Process in Applying this PEA**




| | | |
|---|---|---|
| EA | = | Environmental Assessment |
| EHP | = | Environmental and Historic Preservation |
| EIS | = | Environmental Impact Statement |
| FEMA | = | Federal Emergency Management Agency |
| FONSI | = | Finding of No Significant Impact |
| LMR | = | Land Mobile Radio |
| NEPA | = | National Environmental Policy Act |
| OFA | = | Other Federal Agency |
| PEA | = | Programmatic Environmental Assessment |
| SEA | = | Supplemental Environmental Assessment |

## 1.3 Cooperating Agencies

The FCC is the Federal agency charged with licensing the construction and operation of the LMR facilities and serves as lead agency for NHPA compliance. In a letter dated May 20, 2015 (Appendix A), FEMA requested FCC's involvement as a cooperating agency for purposes of PEA development. By letter dated June 19, 2015 (Appendix A), FCC confirmed they would be a cooperating agency for purposes of this PEA.

## 1.4 Other Federal Agencies

Some LMR project sites may be proposed for locations on land administered by other Federal agencies. These agencies and their regulations that implement NEPA include but are not limited to:

- National Park Service (NPS), Director's Order 12
- U.S. Forest Service (USFS), 36 CFR Part 220

Except for the potential LMR project sites within the jurisdiction of the USFS and the NPS, no other site among the candidate sites is located on land administered by Federal agencies. In the event that potential LMR project sites are considered, as shown in Figure 1.2-1, FEMA would coordinate with each Federal agency to conduct NEPA analysis for LMR activities proposed on land each of these agencies administers. For sites where FEMA is designated as the lead Federal agency, the NEPA process would be similar to that followed for other LMR project sites; and FEMA would utilize this PEA for its NEPA compliance. If the other Federal agency is designated as the lead, separate NEPA analysis in accordance with that agency's regulations would be prepared by that agency. This PEA does not address NEPA regulations specific to other Federal agencies that would govern implementation of LMR activities proposed on their lands.

For proposed LMR project sites that would occur on lands administered by NPS, as stated in the NPS letter to FEMA dated November 3, 2015, and included in Appendix A, prior to initiating geotechnical and construction activities on these sites, the Authority would submit a Standard Form 299 Application for Transportation and Utility Systems and Facilities on Federal Lands. The application would initiate the NPS process to evaluate, prepare, and issue the ROW permit.

Prior to initiating geotechnical or construction activities on proposed LMR project sites that would occur on USFS lands, the Authority would submit a proposal for screening requirements as defined in USFS regulations (36 CFR 251.54 (e)), NEPA and permitting processes, as provided by the USFS letter to FEMA dated January 21, 2016 (Appendix A). If the proposal passes screening requirements, the Authority would submit the cost recovery fees for processing the screening request.

## 1.5 Purpose Of and Need for Action

The purpose of the action is for FEMA to provide Federal financial assistance through its Grants Program Directorate (GPD) Homeland Security Grant Program (HSGP) to support construction of the LMR project. FEMA's GPD provides Federal funding to enhance public safety responders' capabilities to prevent, prepare for, respond to, and recover from natural and man-made disasters and terrorist attacks. FEMA's Federal grant funding assistance for the construction of the proposed LMR project would be consistent with the GPD's mission to enhance homeland security.

The need for the action is to provide a permanent interoperable communications system in the Los Angeles County area for first and secondary emergency responders. Currently, emergency responders in Los Angeles County use a variety of different radio systems, making communication between agencies difficult. This may result in a potentially dangerous situation when emergency responders are responding to an event. In addition, most public safety entities currently use a portion of the radiofrequency spectrum (UHF T-Band frequency spectrum at 470 to 512 MHz) that the FCC has mandated be vacated by 2023. The proposed LMR project would allow for phase-out of use of the UHF T-Band spectrum and a transition to the use of the 700-MHz spectrums.

As described in Section 1.1, the proposed LMR project would create a radio communication network that provides a single, shared countywide system for all public safety agencies (i.e., first and secondary emergency responders) in Los Angeles County. The proposed LMR project would support seamless interoperability and interagency radio communications among public safety responders and provide faster, better coordinated, large-scale response to emergencies. It would replace the aging patchwork of existing, disparate LMR systems in Los Angeles County with a single, countywide network and would improve overall system capacity and radio coverage for public safety responders countywide.

## 1.6 Public Participation Process

FEMA conducted a scoping process as part of its NEPA compliance through the submittal of a scoping letter, dated August 13, 2015, to agencies and interested parties,[3] soliciting input on the Proposed Action (Appendix A). The scoping comment period ended on September 15, 2015. Copies of the letters received in response to the scoping letter are provided in Appendix C. A total of nine response letters was received. Attachments to some of the response letters included other letters submitted previously for another communication-towers project (Broadband Technology Opportunities Program Environmental Assessment) or comments submitted during the scoping process conducted for the proposed LMR project as part of the environmental review under the California Environmental Quality Act (CEQA). Comments provided in the response letters included the following:

[3] Interested parties includes jurisdictional entities that own the land on which a site was proposed, entities that may issue permits for project sites, and entities that requested the opportunity to be apprised of the project during scoping as well as through public outreach and coordination efforts.

- Request for the list of the proposed LMR project sites
- Request for coordination with local jurisdictions during the environmental process
- Request to complete an environmental review in compliance with NEPA requirements
- Request to receive the NEPA document, when complete, along with any other associated environmental analyses
- Concern regarding the location of specific sites and the potential impacts associated with these site locations in relation to aesthetics, scenic resources, open space, health and public safety, biological resources, cultural resources, hazardous materials, land use, geology, seismicity and soils, water resources, noise, and traffic
- Request for the consideration of alternate sites to some of the proposed site locations or a site-specific NEPA and CEQA analysis
- Inquiry about the local permitting process and the selection of LMR project sites in relation to participation of local jurisdictions in the scope of this project
- Note the appropriate permits and administrative process for installing LMR project facilities within specific local jurisdictions
- Support of the proposed LMR project for the purpose of establishing a communications system for emergency responders

All scoping comments have been considered by FEMA and addressed, where appropriate, in this PEA. Section 1.2 describes the programmatic review of this document and provides a framework of the site-specific analysis of the proposed LMR project sites. The process and threshold for analyzing site-specific impacts is described, as needed, under each of the resource topics analyzed in this PEA (Section 4.1 through Section 4.12). Following the release of the scoping letter, LA-RICS has conducted further screening of the potential sites as described in Section 1.0; and a few LMR project sites are no longer considered as part of the proposed LMR project as identified in Appendix B, LMR Sites List – Potential and Eliminated Sites. Although some cities have elected not to participate in the LMR project, sites within those cities may still be considered to provide full voice coverage of the system with the fewest number of sites possible.

For this Draft PEA, FEMA has sent a public notice of availability to the agencies and interested parties and published the notice of availability in the local newspapers. Copies of this Draft PEA have been provided to interested parties upon request. The Draft PEA has been posted on the Authority's website and FEMA's website. Comments received on this Draft PEA will be considered by FEMA, and substantive comments will be addressed in the Final PEA.

For any tiered SEA(s), FEMA would conduct an appropriate level of public review before making a NEPA compliance determination, in accordance with applicable regulations, guidelines, and orders. FEMA

would determine the need for public involvement and circulation of any tiered SEA based on the issues identified during analysis for that SEA.

## 1.7 Organization of This Programmatic Environmental Assessment

This PEA is organized into the following sections:

- Section 1 provides an introduction and background of the project, the purpose and need for the project, and the organization of this PEA.
- Section 2 describes the activities that are covered by this PEA.
- Section 3 describes the affected environment, the regulatory environment, and the process of addressing the various environmental regulations.
- Section 4 describes the potential environmental consequences of implementing the proposed activities.
- Section 5 describes the cumulative impact assessment of implementing the proposed activities.
- Section 6 is a list of preparers who contributed to this PEA.
- Section 7 provides the list of references.

In addition to the main text, this PEA includes the following appendices:

- Appendix A: Agency Correspondence
- Appendix B: LMR Potential Project Site List
- Appendix C: Scoping Letters
- Appendix D: Best Management Practices
- Appendix E: Proposed Project Equipment
- Appendix F: Mitigation Measures

# 2.0 Description of Proposed Action and Alternatives

This section provides a description of the No Action Alternative and the Proposed Action. It also provides a description of alternative actions that were considered but have been eliminated from further analysis.

## 2.1 No Action Alternative

CEQ's NEPA implementing regulations (40 CFR §1502.14) require the inclusion of a No Action Alternative in environmental analysis and documentation. The No Action Alternative evaluates the potential impacts of not implementing the LMR project and provides a benchmark against which the proposed alternative activities may be evaluated. Under the No Action Alternative, FEMA would not provide Federal grant assistance for the LMR project. It is assumed that under this alternative, the LMR project would not be implemented by the Authority due to lack of funding. The No Action Alternative would not meet the purpose of the action, which is for FEMA to provide funding for the completion of the LMR project. Additionally, the No Action Alternative would not meet the need for action, preventing the implementation of the new interoperable communications system to provide rapid and coordinated response among first and secondary emergency responders. Under the No Action Alternative, the 50 law enforcement and 31 fire service agencies of Los Angeles County would continue to use disparate or obsolete radio systems. Therefore, the ability of public safety agencies to provide effective public safety services would remain limited. Users will continue to rely on extensive patching or routing of individual calls in order to communicate across these separate systems. Public safety radio users will continue to experience unreliable and unacceptable radio coverage and reliability performance throughout Los Angeles County.

## 2.2 Proposed Action

The Proposed Action would result in FEMA providing Federal grant funding through Cal OES that would allow for the installation and operation of up to 90 LMR project sites within the Project Area. The Proposed Action is intended to serve municipalities within and including Los Angeles County. The LMR system was designed to provide voice coverage throughout the Authority's service area, which extends throughout Los Angeles County, with the fewest number of sites possible. The Project Area was expanded outside the Los Angeles County boundary to include potential LMR project sites that provide sufficient elevation and clear line of sight (in areas where this did not exist within Los Angeles County) to achieve coverage throughout all of the County. Locations were selected within or adjacent to existing communication facilities to the maximum extent feasible. The sites considered include a variety of types (e.g., water tanks, rooftops, police and fire stations, hospitals, mountain peaks, etc.). All LMR project site activities would be conducted in compliance with applicable regulatory agency requirements. This section provides a description of geotechnical investigations which would be conducted at some LMR

project sites as part of project design, followed by descriptions of general LMR project site structures and construction and operation activities.

### 2.2.1 Geotechnical Investigations

Geotechnical investigation is a site-specific scientific investigation of soil properties and local geology that is undertaken to support project design. Geotechnical investigations at a proposed LMR project site would take less than one day and would require the use of a drill rig, an additional truck for worker transportation, and possibly a water truck for dust control. The investigation would involve drilling a hole up to 8 inches in diameter and up to 100 feet deep to collect a soil sample that is then analyzed in a laboratory to determine soil types and properties. The drilled hole would be reinstated and backfilled with bentonite (a soil-concrete mix) to the level of the surrounding surface after soil samples have been taken. Minimal ground disturbance occurs with geotechnical investigation activity. The investigation is needed at some LMR project sites to verify that the structural design of the foundation complies with applicable building safety codes and system reliability requirements.

### 2.2.2 General Land Mobile Radio Project Description

The proposed LMR project would consist of the installation and operation of antennas and radio equipment at each site. The number of antennas would vary by site. Components common to the LMR project sites would include:

- a support structure for the antennas, such as an existing building, lattice tower, or monopole or a new lattice tower or monopole
- an equipment shelter
- an emergency generator

Antennas would be installed on existing buildings, towers, or support structures (known as collocation), which may include lattice towers or monopoles; or a new antenna support structure would be constructed. Radio equipment would be installed in existing shelters, or new shelters would be constructed for LMR project equipment. Emergency generators with double-walled fuel tanks would be required at most sites to provide backup power. The need for these specific components at each LMR project site would be determined by site design or permitting requirements at each specific site.

The LMR project would include one or more network operations centers (NOCs) to provide for LMR project system surveillance. The NOC would have the capability of assessing equipment performance and remotely or locally managing the equipment and network to prevent degradation or failure of performance. The NOC(s) would operate 24 hours per day, seven days per week. NOC equipment would be installed internally in an existing facility, such as an existing commercial or public safety facility. Each NOC would be equipped with antennas and infrastructure in a configuration similar to that described below for building mount facilities. No new construction would occur for the NOCs.

Included in the Proposed Action are best management practices (BMPs) that have been developed to avoid or minimize impacts to environmental resources that may be present on some potential LMR project sites. A list of BMPs considered in this PEA analysis is presented in Appendix D. BMPs represent best professional practices and/or use of accepted technology to ensure desired regulatory compliance is achieved and are often included in construction permits, which would be required for all site types, or other regulatory conditions.

### 2.2.3 LMR Project Site Types

Four LMR project site types are described, based on the type of antenna support structure that would be used at the site. These are:

- building mount
- existing lattice tower or monopole
- new lattice tower
- new monopole

### 2.2.4 LMR Project Site Components

Descriptions of the components of these four LMR project site types are provided in Table 2.2-1.

**Table 2.2-1: Proposed Action - Project Components by Site Type**

| Project Component | Building Mount | Existing Lattice Tower or Monopole | New Lattice Tower | New Monopole |
|---|---|---|---|---|
| Antennas | Whip antennas and/or microwave antennas mounted on roof or façade of existing building | Whip antennas and/or microwave antennas mounted on existing lattice tower or monopole | Whip antennas and/or microwave antennas mounted on proposed new lattice tower | Whip antennas and/or microwave antennas mounted on proposed new monopole |
| Equipment Shelters | Existing or new room within existing building, or new shelter on concrete pad adjacent to the building | Existing shelter or new shelter on concrete pad | Existing shelter or new shelter on concrete pad | Existing shelter or new shelter on concrete pad |

**Table 2.2-1: Proposed Action - Project Components by Site Type**

| Project Component | Building Mount | Existing Lattice Tower or Monopole | New Lattice Tower | New Monopole |
|---|---|---|---|---|
| Emergency Generators | Existing generator or new generator on concrete pad adjacent to building | Existing generator or new generator on concrete pad | Existing generator or new generator on concrete pad | Existing generator or new generator on concrete pad |
| Other | | | | |
| Grounding | Around foundation of new equipment shelter and emergency generator, as applicable | Around foundation of new equipment shelter and emergency generator, as applicable | Around foundation of new lattice tower, equipment shelter, and emergency generator, as applicable | Around foundation of new monopole, equipment shelter, and emergency generator, as applicable |
| Cable Raceway | Not applicable | Between existing lattice tower or monopole and equipment shelter, if not already present, at sites subject to snow and ice | Between new lattice tower and equipment shelter at sites subject to snow and ice | Between new monopole and equipment shelter at sites subject to snow and ice |
| Utilities | Existing electrical power on site or adjacent | Existing electrical power on site or adjacent; solar panels at some remote sites | Existing electrical power on site or adjacent; solar panels at some remote sites | Existing electrical power on site or adjacent; solar panels at some remote sites |
| Fencing | Chain link or concrete masonry fencing may be required. | Chain link or concrete masonry fencing may be required. | Chain link or concrete masonry fencing may be required. | Chain link or concrete masonry fencing may be required. |
| Access | On-site improvements may be required | On-site improvements may be required | On-site improvements may be required | On-site improvements may be required |

**Table 2.2-1: Proposed Action - Project Components by Site Type**

| Project Component | Building Mount | Existing Lattice Tower or Monopole | New Lattice Tower | New Monopole |
|---|---|---|---|---|
| Lighting | Security lighting on new equipment shelter, if applicable (motion-sensing lighting for rural sites) | Security lighting on new equipment shelter, if applicable (motion-sensing lighting for rural sites) | Security lighting on new equipment shelter, if applicable(motion-sensing lighting for rural sites); lighting on new lattice tower if required by the Federal Aviation Administration | Security lighting on new equipment shelter, if applicable(motion-sensing lighting for rural sites); lighting on new monopole if required by the Federal Aviation Administration |

#### *2.2.4.1 Antennas*

The types of antennas that would be installed at LMR project sites would depend on the extent of radio coverage, availability in market, operating frequency, and other factors. The primary two types are whip antennas and microwave antennas. Whip antennas are used to provide two-way radio communications. These are cylindrical structures designed to provide 360-degree radio signal patterns. They are typically 10 to 15 feet in length. Microwave antennas are parabolic dishes that beam line-of-sight signals between sites and form a network that would provide connectivity to all sites in the LMR project. Microwave antennas typically range from 2 to 6 feet in diameter.

**Building Mount**

At some LMR project sites, antennas and ancillary equipment would be installed on an existing building (collocation). At these sites, whip and/or microwave antennas would be mounted to a penthouse façade or the top of the roof deck. Figure 2.2-1 shows typical roof-mounted and penthouse-mounted whip and microwave antennas.

At a building mount site, up to 20 whip antennas and 4 microwave antennas would be installed. Alteration to the building may be required to install the antenna (e.g., structural upgrade to a roof).

**Existing Lattice Towers and Monopoles**

At some LMR project sites, equipment would be mounted to existing lattice towers and monopoles (collocation). Collocation on existing antenna support structures is proposed for existing telecommunications facilities where space on an existing lattice tower or monopole is sufficient for mounting the LMR project antennas, where the weight and configuration of the proposed antennas are compliant with applicable building codes for structural and seismic stability, where radiofrequency (RF) interference would not occur, and where the existing structure can provide the required lines of sight. At a collocation site with an existing lattice tower, up to 40 whip antennas and 9 microwave antennas would be installed. At a collocation site with an existing monopole, up to 20 whip antennas and

5 microwave antennas would be installed. An additional lightning rod up to 15 feet tall may be installed on the existing lattice tower or monopole to protect the LMR project equipment from lightning strikes.

Collocation activities for the LMR project may require modifications to increase the height or strength of existing antenna support structures to allow for installation of additional LMR antennas.

**New Lattice Towers**

New lattice towers installed at LMR project sites would generally be up to 180 feet in height. To protect the equipment from lightning strikes, a lightning rod up to 15 feet in length would be installed, extending the total structure height of a 180-foot tower to 195 feet above ground level (agl). A typical new 180-foot lattice tower would require a new concrete pad up to 50 feet by 50 feet and up to 10 feet deep. New lattice towers would be free-standing and would not require the use of guy anchors or guy wires. Whip antennas and microwave antennas would be installed on a new tower (Figure 2.2-2). A generic lattice tower site plan is shown in Figure 2.2-3.

New lattice towers could be installed at existing communications facilities but would also be necessary at LMR project sites where antenna support structures do not exist or where the current infrastructure is inadequate. Inadequate infrastructure would include existing antenna support structures with insufficient space for installation of LMR project equipment, where the weight and configuration of the LMR project antennas would not comply with applicable building codes for structural and seismic stability, or where the existing structure does not offer the line(s) of sight.

**Figure 2.2-1: Typical Building Mount Antenna Installation**

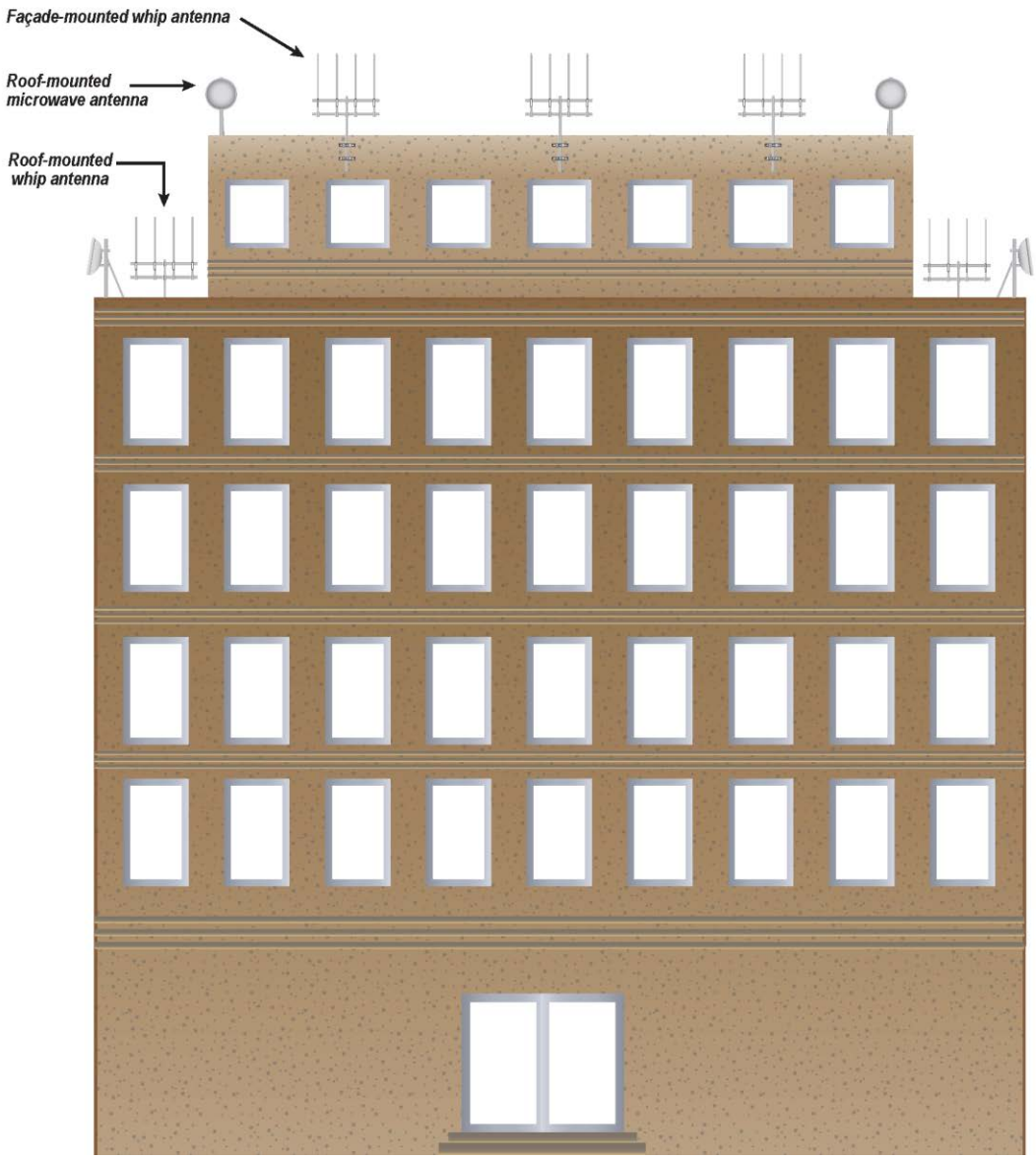


**Figure 2.2-2: Typical 180-foot Lattice Tower Installation**

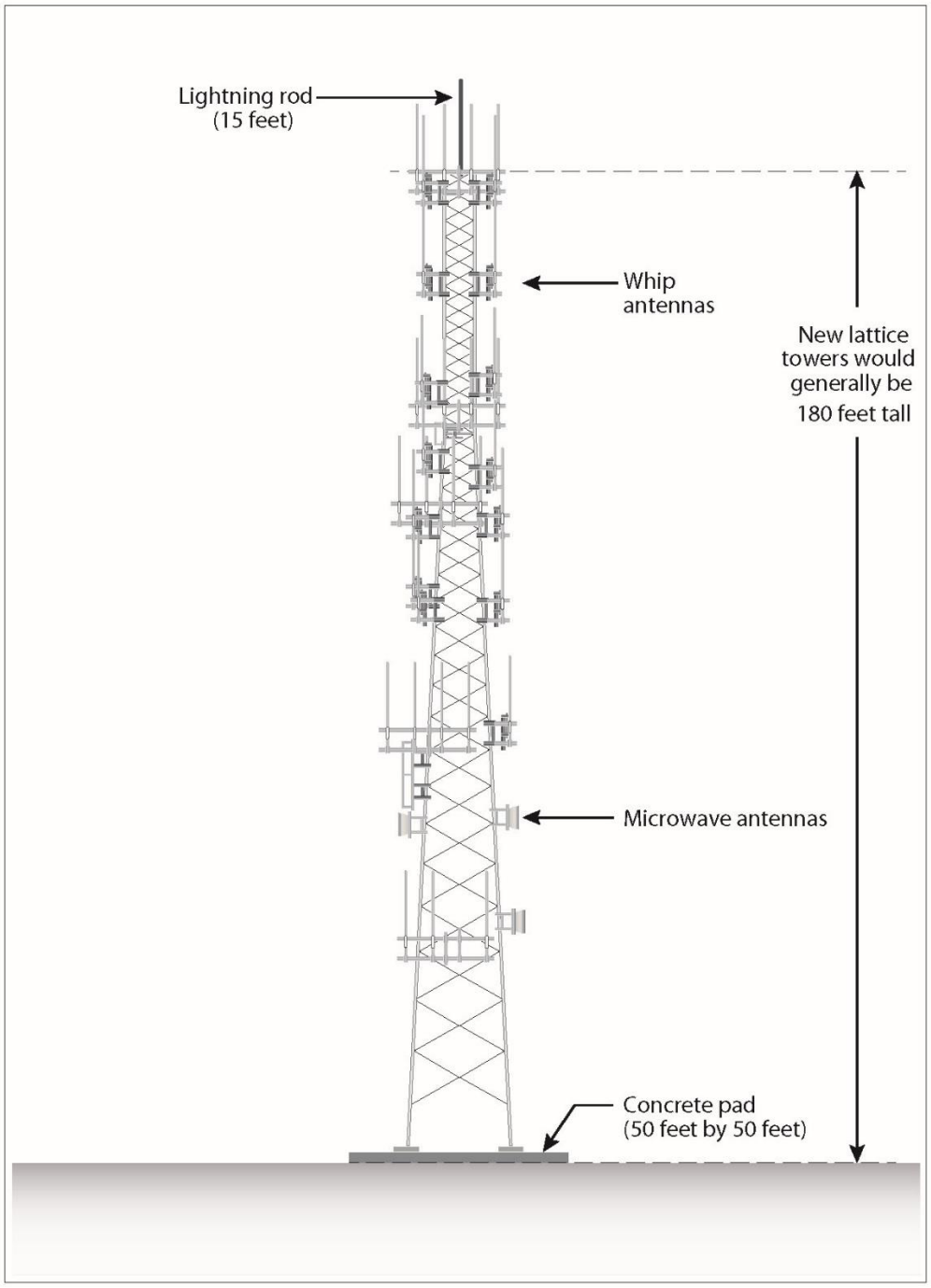
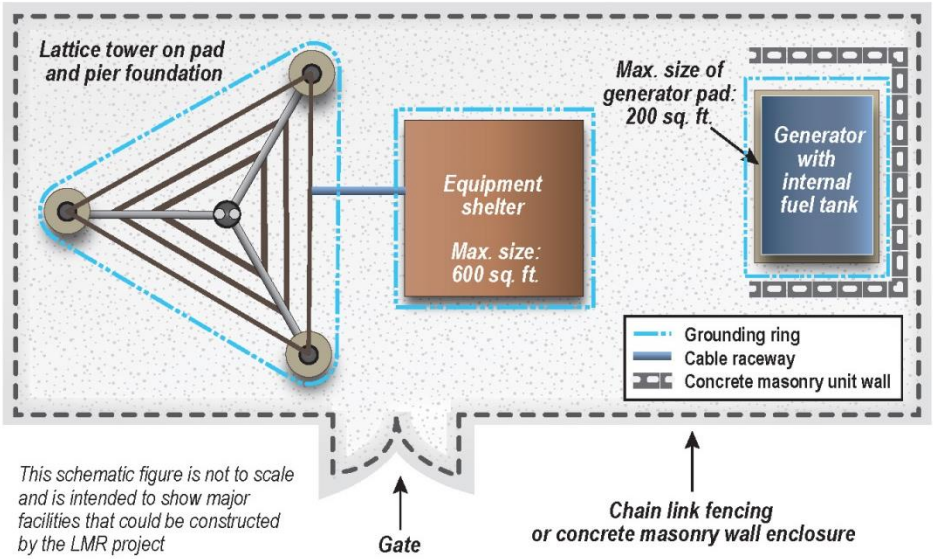


**Figure 2.2-3: Generic Lattice Tower Site Plan**




## New Monopoles

New monopoles are generally proposed for locations such as police or fire stations where an existing lattice tower or monopole is not present; or an existing structure is present but it cannot support the LMR project antennas because space is insufficient for installation of LMR project equipment, the weight and configuration of the proposed whip and microwave antennas would not comply with applicable building codes for structural and seismic stability, or the existing structure would not provide the required lines of sight. Proposed new monopoles would typically be no more than 70 feet in height without appurtenances but may be up to 180 feet. Lightning rods up to 15 feet high may be installed on the top of the monopole. Monopoles are free-standing structures with a single footing and would be installed by drilling a caisson up to 36 feet deep. The width of the monopole and depth of the caisson would vary based on monopole height and site conditions. Up to 20 whip antennas and 5 microwave antennas would be installed on the new monopole (Figure 2.2-4). A generic monopole site plan is shown in Figure 2.2-5.

**Figure 2.2-4: Typical Monopole Installation**

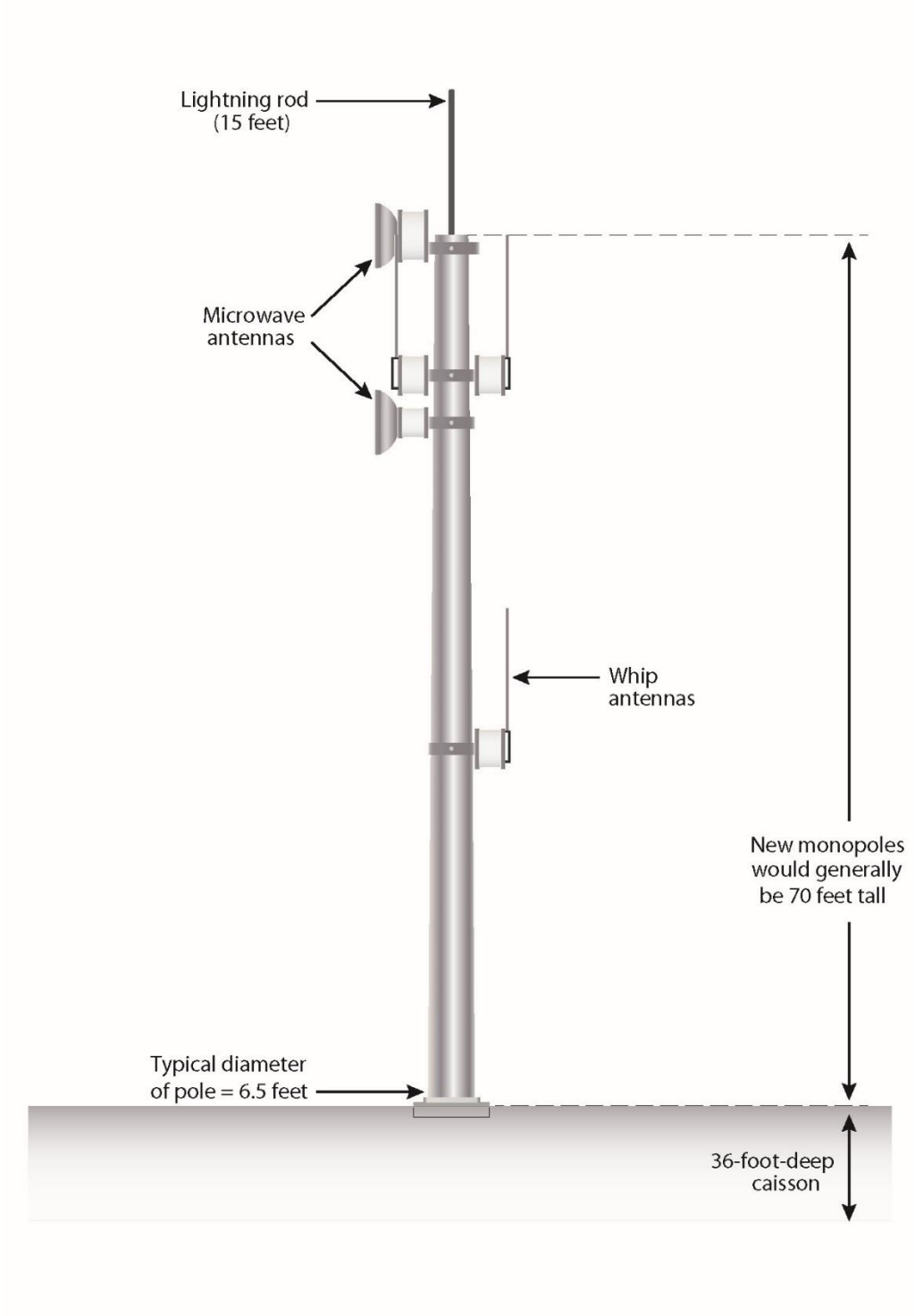
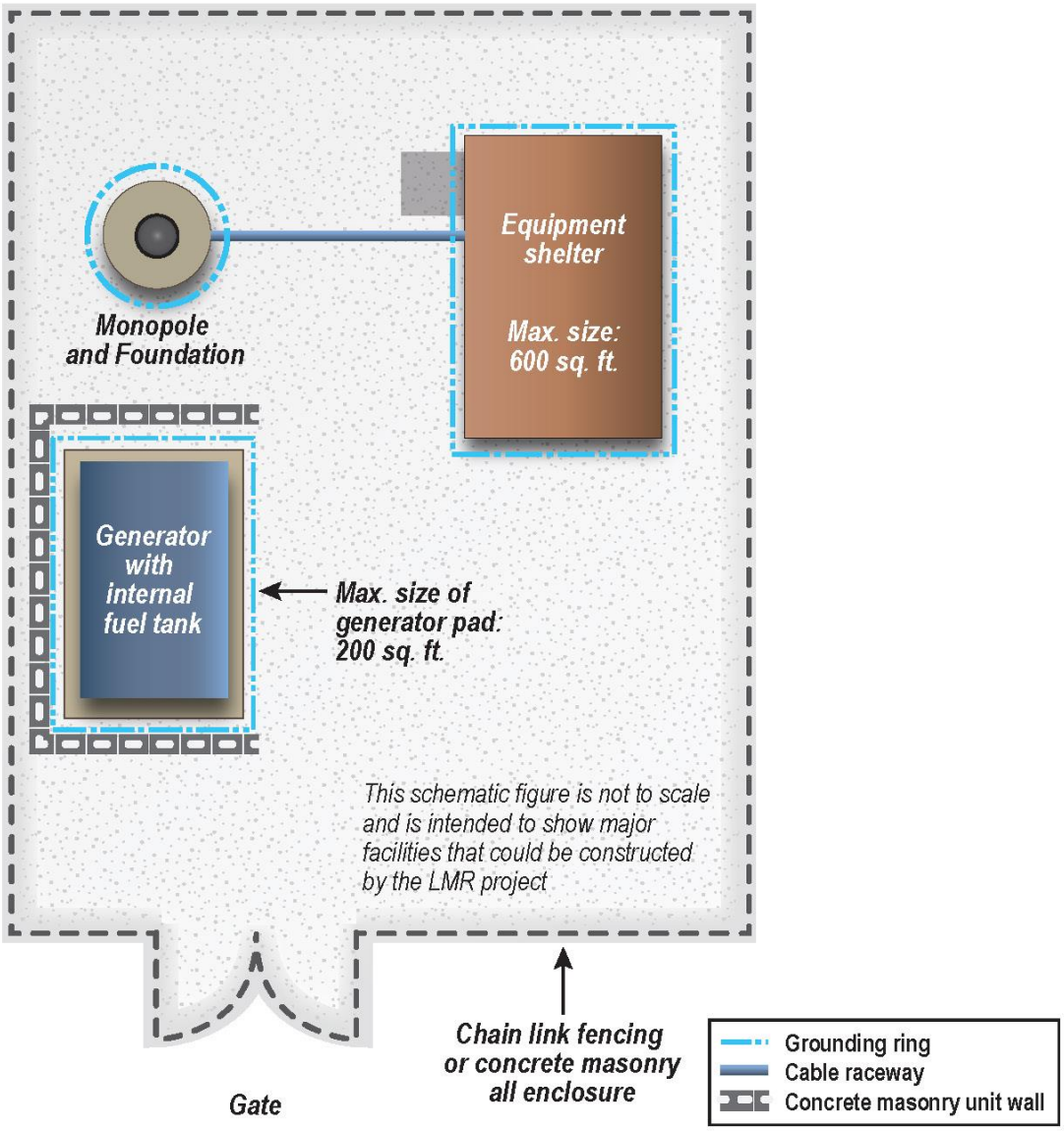


**Figure 2.2-5: Generic Monopole Site Plan**



#### *2.2.4.2 Equipment Shelters*

Each LMR project site would require installation of new radio communication equipment. At some locations, existing equipment shelters have space to accommodate the new equipment, or an existing shelter would be modified or expanded. At other sites, a new, up to 600-square-foot, one- or two-story equipment shelter would be required because no existing shelter is on site or one is present but it does not have sufficient room to accommodate the radio communication equipment. New equipment shelters would typically be concrete masonry unit (CMU) constructed on site or prefabricated shelters delivered to the site. All new shelters would be installed on concrete pads of up to 600 square feet in area and up to 18 inches deep. Shelters would require heating, ventilation, and air conditioning (HVAC) to maintain interior temperature and humidity. Equipment shelters would generally require exterior security lighting equivalent to up to a 100-watt light bulb. Shelters would have a valve-regulated (sealed) gel cell, or absorbed glass mat type lead-acid battery, or fuel cell battery emergency power system. The shelter roof would be designed so that burning embers would not collect under eaves. All shelters would be constructed in accordance with applicable building codes for each jurisdiction.

#### *2.2.4.3 Emergency Generators*

LMR project sites would require backup power. At many sites this would be supplied by a new emergency diesel generator of up to 85 kilowatts (kW). An evaluation of existing back-up power at all sites would be completed prior to final design and construction. For purposes of impact analysis, it is assumed that each site would include a new emergency generator.

New emergency generators would generally be mounted outdoors on a concrete pad, potentially with curbs. A CMU wall would be installed around most outdoor generators. In some cases, the generator may be installed within its own shelter or building enclosure. Foundation size for new generators would not exceed 200 square feet. Emergency generators would be equipped with spark arrestors and cooling and heating mechanisms. Automatic transfer switches would be installed to allow automatic transfer of power sources in the event of an electrical utility outage and would be capable of being monitored remotely. Generators would have a remote start function. Diesel fuel for the generators would be stored in integrated double-walled steel tanks up to 1,500 gallons in volume. All tanks would be constructed in accordance with current codes and standards, and installation would include secondary containment where applicable. Generator fuel tanks would be sized to allow for up to 168 hours of site operation at full-rated load at most sites. At dispatch centers, remote sites on mountains, and on Santa Catalina Island, fuel tanks would be sized to provide up to 336 hours of operation. Routine testing of emergency generators would occur during scheduled maintenance of the LMR project sites.

#### *2.2.4.4 Other Components*

**Grounding**

The LMR project facilities would require grounding to protect persons and equipment from hazardous power surges and lightning strikes. The new constructed structure foundations for towers or monopoles, equipment shelters, and emergency generators would be surrounded by an underground ground ring installed in a trench typically about 30 inches below grade.

**Cable Raceway**

Communications cables that connect the antennas and the radio equipment in a shelter typically would be routed via an aboveground cable tray supported by steel posts at regular intervals or via underground conduits in a trench typically about 36 inches below grade. The aboveground cable raceway may be covered with a metallic mesh to protect the cables against falling ice from the monopole or lattice tower at locations subject to snow and ice. At proposed sites where antennas would be mounted on the rooftop of a building, the antennas would be connected to indoor radio equipment via surface-mounted conduits and the building weatherhead.

**Utilities**

Electricity is generally available at all of the LMR project sites. At some sites, sufficient electrical power is present on site. At other sites, new electrical lines may be required between the LMR project facility and the nearest existing interconnection point at a transformer or utility pole off site. Similarly, connection to commercial fiber may be required at urban sites between the LMR facility (the communications equipment within an existing or new shelter or building) and the nearest fiber point of presence or equipment vault. The electrical or fiber connection may be an overhead or an underground line and may extend beyond the perimeter of the telecommunications site. At most sites, underground electrical conduit would be installed between new emergency generators and the equipment shelter. This would occur within the boundary of the communications site. The total amount of trenching required to install electrical conduit (both between the generator and the shelter and between the site and a power source) and to install the communications conduit for fiber connection (between the utility source and the LMR project equipment and between the LMR project antennas and the indoor radio equipment) would vary by site but is not expected to exceed 800 linear feet at any site. The electrical and communications underground conduits would be laid in the same trench where the conduit paths coincide, to the greatest extent possible.

At a few remote sites where electrical utilities are not available, solar panels may be installed to provide power. At these sites, solar panel arrays would be installed on footings and would cover an area of up to 1,500 square feet; and at these sites a total of up to 10,000 square feet of ground disturbance would occur within the site boundary.

No other utilities infrastructure would be installed as part of the Proposed Action. The LMR project sites would not require water or natural gas, and no wastewater would be generated.

**Fencing**

LMR project sites may require fencing. LMR project facilities may be installed within existing CMU walls or chain link fencing at a site or may require expansion of an existing walled or fenced area or construction of a new walled or fenced area adjacent to an existing enclosure. In a few cases the LMR project site may be installed in a new fenced or walled facility near to but not contiguous with an existing fenced facility. Up to 800 linear feet of new chain link fencing or CMU wall of up to 12 feet high may be required at a site. In general, new fencing or walls would include swing or sliding gates to accommodate access for maintenance vehicles and would enclose an area of up to 5,000 square feet. Aggregate may be applied to the enclosed area of the facility to minimize dust and erosion at the LMR project site.

**Access**

No new roads or off-site road improvements are anticipated to be required to access the LMR project sites. Some improvements to existing access roads within the LMR project site boundary may be proposed to allow for creation of on-site vehicle turnaround and parking areas, as long as these improvements do not result in total permanent disturbance at the site exceeding the disturbance footprint identified in Table 2.2-2. Aggregate may be applied to access roads, turnarounds, and parking areas.

**Lighting**

The sites would have motion-sensing security lighting in rural locations and continuous night security lighting in urban locations. New equipment shelters would generally require exterior security lighting equivalent to a 100-watt light bulb. Where required by the Federal Aviation Administration (FAA), new lattice towers and monopoles would be lighted and/or marked to be consistent with FAA Advisory Circular, AC 70/7460-1L *Obstruction Marking and Lighting*, dated December 4, 2015, for visibility to aircraft based on proposed structure height and location. FAA lighting is not generally required for towers less than 200 feet agl; however, lighting for air navigation safety may be required at specific locations for shorter structures, depending on site conditions. If tower obstruction lighting is installed on a tower, it may include red or white light-emitting diode (LED) lamps or strobe lights that are steady and/or flashing.

### 2.2.5 Construction

Construction at the proposed LMR project sites would be phased and would be expected to begin in spring-summer 2016 and be completed in 2017. Construction phasing is based on an average duration of six weeks of construction activity at each site. Ground disturbance from construction activities by the four general LMR project site types is summarized in Table 2.2-2.

**Table 2.2-2: Estimated Maximum Geotechnical Investigation and Construction Disturbance by Site Type**

| Disturbance Type | Building Mount | Existing Tower or Monopole | New Lattice Tower | New Monopole |
|---|---|---|---|---|
| Temporary Disturbance (includes staging)[1] | Up to 5,000 square feet | Up to 5,000 square feet | Up to 5,000 square feet | Up to 5,000 square feet |
| Permanent Disturbance | Up to 3,000 square feet | Up to 2,000 square feet | Up to 4,000 square feet | Up to 3,000 square feet |
| Excavation (including geotechnical investigation) | Up to 100 cubic yards | Up to 100 cubic yards | Up to 600 cubic yards | Up to 150 cubic yards |
| Trenching | Proposed trenching for underground conduits to accommodate power and/or fiber not to exceed 800 linear feet length, up to 48 inches below grade, up to 24 inches wide. | Proposed trenching for underground conduits to accommodate power, grounding rings and/or communications cables (including fiber) not to exceed 800 linear feet length, up to 48 inches below grade, up to 24 inches wide. | Proposed trenching for underground conduits to accommodate power, grounding rings and/or communications cables (including fiber) not to exceed 800 linear feet length, up to 48 inches below grade, up to 24 inches wide. | Proposed trenching for underground conduits to accommodate power, grounding rings and/or communications cables (including fiber) not to exceed 800 linear feet length, up to 48 inches below grade, up to 24 inches wide. |
| Foundation Construction | Up to 600-square-foot by 18-inch concrete slab, or raised foundation for equipment shelter<br>Up to 200-square-foot by 18-inch concrete slab for generator. | Up to 600-square-foot by 18-inch concrete slab, or raised foundation for equipment shelter<br>Up to 200-square-foot by 18-inch concrete slab for generator. | Up to 50-foot by 50-foot by 5-foot concrete slab with up to 10-foot deep by 3-foot diameter concrete piers for tower foundation; or pier foundation consisting of up to 6-foot diameter by up to 70-foot deep concrete piers under each leg.<br>Up to 600-square-foot by 18-inch concrete slab, or raised | Up to 8-foot diameter by 36-foot deep drilled caisson with concrete cap for monopole support; or up to 16-foot by 16-foot by 10-foot deep concrete mat foundation.<br>Up to 600-square-foot by 18-inch concrete slab, or raised foundation for equipment shelter<br>Up to 200-square-foot by 18-inch concrete |

**Table 2.2-2: Estimated Maximum Geotechnical Investigation and Construction Disturbance by Site Type**

| Disturbance Type | Building Mount | Existing Tower or Monopole | New Lattice Tower | New Monopole |
|---|---|---|---|---|
| | | | foundation for equipment shelter Up to 200-square-foot by 18-inch concrete slab for generator. | slab for generator. |
| Demolition | Existing pavement and/or structures | Existing pavement and/or structures | Existing pavement and/or structures | Existing pavement and/or structures |
| [1] At locations where solar panels are installed, disturbance may be up to 10,000 square feet. | | | | |

Typical construction equipment required would include four-wheel drive vehicles, antenna and line trucks, water trucks, excavators, skid steer loaders, cranes, forklifts, dump trucks, and concrete trucks. Assumptions regarding construction equipment anticipated for use on LMR project sites are provided in Appendix E. Almost all LMR project facilities would be constructed within or adjacent to existing telecommunications or other facilities, such as water tanks, or at developed locations that currently have public radio service such as police and fire stations. At facilities such as urban police and fire stations, LMR project construction may occur within paved or landscaped areas of the facility property.

Construction activities including use of staging areas at each site would result in temporary disturbance of a maximum of approximately 5,000 square feet (0.11 acre), except at sites that require installation of solar arrays for power. At these sites, the disturbance footprint may be up to 10,000 square feet (0.23 acre). At sites that require the most new construction (i.e., locations that require installation of new concrete pads for a tower, shelter, and generator), a maximum of approximately 4,000 square feet (0.1 acre) of new impermeable surface would be created. At sites constructed at locations that are already entirely or mostly paved (e.g., at an urban police station parking area), the increase in impermeable surface may be minimal to none.

The LMR project site would be graded so that water drains away from structures. A minimum of a 2-percent grade would be provided. After completion of construction and grading, the LMR project sites would be covered in aggregate (gravel) from a permitted local source. Where existing surface cover, such as asphalt, concrete, or gravel, is disturbed or removed during construction, the ground surface would be repaired, patched, and reinstated. Areas disturbed during construction that are not to be permanently covered by aggregate would be seeded for erosion prevention.

Excavated material of suitable quality could be used as backfill or fill on site. Unsuitable or excess excavated material would be removed for disposal off site at an appropriate facility.

Site construction may require removal of existing paved surfaces, fencing, towers, and shelters to allow for installation of the LMR project facilities. Demolition materials would be reused or recycled to the extent practicable or otherwise properly disposed at suitable landfills.

Because the entire Project Area is seismically active, the provisions of the Earthquake Hazards Reduction Act of 1977 apply to the LMR project. Structure design and construction activities would be conducted in accordance with the provisions of the Earthquake Hazards Reduction Act to achieve earthquake resistance for new LMR project structures.

### 2.2.6 Operations

Under the Proposed Action, FEMA would not provide funding for operation of the LMR project. Operations are described in this PEA because operational activities would result in indirect environmental impacts as a result of FEMA funding of the Proposed Action.

Prior to becoming operational, the LMR project system would undergo systems acceptance testing before it is made available to the LA-RICS users. Systems acceptance testing would be conducted after most construction at the LMR project sites is complete. LMR system acceptance is anticipated to occur prior to the end of 2018.

No staff would be required at any of the LMR project sites to operate the LMR project equipment, except at the NOCs, which would be collocated with an existing staffed facility. Operational activities would include routine inspections, maintenance, and repairs of the LMR equipment and structures.

Maintenance activities would involve both routine preventive maintenance and emergency procedure testing, including emergency generator testing, to maintain service continuity. Emergency generators would be tested on a monthly basis. The test run time each month would be approximately one hour. Fuel tanks in the emergency generators would require occasional refilling. LMR project structures and equipment would be inspected annually, at a minimum, for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Maintenance activities may require use of bucket trucks (man-lifts), standard vans, or utility pickup trucks, depending on the scope of maintenance. The LMR components may need to be repaired or replaced to maintain uniform, adequate, safe, and reliable service. Equipment replacement or repair that cannot be diagnosed and performed remotely may require a technician on site, typically in a standard van or utility pickup truck. Where replacement or repair involves installed antennas, a four-person crew with one truck, a boom (aerial lift) truck, and an assist van sport utility vehicle might be required.

Each LMR project site would continually draw power for LMR project operations and security and safety lighting (including that required by FAA).

As part of site maintenance, vegetation on or immediately adjacent to an LMR project site would continue to be removed, as needed, in accordance with plans or procedures applicable to the site (i.e.,

jurisdictional requirements; type of infrastructure to be protected; and site factors including vegetation type, slope, and aspect).

## 2.3 Alternatives Eliminated from Further Analysis

In addition to the No Action Alternative and the Proposed Action (described above), other alternatives were considered but eliminated from further consideration in this PEA because they fail to satisfy the purpose and need for action. These include deployment of a system based on Cell on Wheels (COW) technology and a system based on use of satellites for LMR communication. A discussion of these alternatives and why they were eliminated from detailed analysis is provided below.

### 2.3.1 Cell on Wheels

A COW is a mobile cell tower with self-contained equipment and generator; COWs are not permanent and are inadequate to support the number of antennas required for system coverage. COWs are often deployed for localized use to supplement an existing network and are often used to support communications associated with special events. Because they are portable, COWs generally do not offer sufficient tower height to meet permanent LMR needs, whereas antennas generally provide better coverage when they are placed higher above ground and on fully supportive structures that meet public safety grade reliability standards. In addition, because these are portable, the masts on COWs typically are small in relation to the area available for mounting antennas on buildings, existing lattice towers or monopoles, or new lattice towers or monopoles. Because the use of COWs would not meet the need to provide a permanent interoperable communications system in Los Angeles County, this alternative was not considered further.

### 2.3.2 Satellites

Satellite communication is often used as a fallback means of terrestrial communication. The use of satellites as a primary form of LMR communications, however, is limited because of the limitations of the technology. Satellite communications function only when the end user has direct line of sight to a satellite in orbit. If an individual is in or behind a building or under a tree canopy, for example, connectivity may be substantively limited. This limits coverage of the system dramatically. Additionally, there is a lag or latency issue with satellite systems, as the time required to process and transmit received signals is delayed compared to non-satellite systems. The lag associated with satellites does not allow for quick, interactive, multi-party communication that is necessary during an emergency response; and users would be in a position to either wait or talk past each other during these lag intervals. Therefore, use of a satellite system would not meet proposed LMR project purpose and need, and was not considered further.

# 3.0 Affected Environment

This section describes the primary resources of concern that could potentially be affected by the proposed LMR project activities described in Section 2. The existing conditions of these resources serve as a baseline from which to identify and evaluate potential impacts.

This PEA evaluates the impacts to the human environment associated with the Proposed Action. The Proposed Action would be located in Los Angeles County and adjacent portions of Orange and San Bernardino counties in southern California. Proposed LMR project activities could be located in geographically diverse areas (urban, suburban, and rural), generally within or contiguous with previously disturbed sites. The Project Area includes diverse landforms such as Santa Catalina Island, the Santa Monica and San Gabriel mountain ranges, Los Angeles Basin, and the Mojave Desert. This section characterizes and describes in general terms those resources of the human environment determined by FEMA to likely be affected by the proposed LMR project. A discussion of applicable regulations for each resource is included to define the regulatory framework for this PEA.

The following subsections discuss the regulatory setting and affected environment of 12 resource areas in the Project Area:

- Land Use and Planning
- Geology, Seismicity, and Soils
- Water Resources
- Biological Resources
- Human Health and Safety
- Socioeconomics
- Historic Properties
- Infrastructure
- Air Quality and Greenhouse Gas Emissions
- Noise
- Visual Quality
- Recreation

## 3.1 Land Use and Planning

Land use is the way in which, and the purposes for which, people utilize the land and its resources. Land use planning varies depending on land ownership and jurisdictional boundaries. Land use is generally guided by comprehensive plans that specify the allowable types and locations of present and future land use. In most cases, that comprehensive plan is developed through a public participation process is approved by publicly elected officials, and captures local values and attitudes toward planning and future development. Zoning ordinances and regulations that establish zones of compatible land uses vary throughout the Project Area.

### 3.1.1 Regulatory Background

#### *3.1.1.1 Coastal Zone Management Act*

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. § 1451 et seq.) is administered by the Department of Commerce's Office of Ocean and Coastal Resource Management within the National Oceanic and Atmospheric Administration (NOAA). It applies to all coastal states. The CZMA was established to help prevent any additional loss of living marine resources, wildlife, and nutrient-enriched areas; alterations in ecological systems; and decreases in undeveloped areas available for public use. The CZMA gives states the authority to determine whether activities of governmental agencies are consistent with federally approved coastal zone management programs. Each state coastal zone management program must include provisions protecting coastal natural resources, fish, and wildlife; managing development along coastal shorelines; providing public access to the coast for recreational purposes; and incorporating public and local coordination for decision-making in coastal areas. This voluntary Federal-state partnership addresses coastal development, water quality, shoreline erosion, public access, protection of natural resources, energy facility siting, and coastal hazards.

The CZMA applies to Federal activities, development projects, permits and licenses, and similar project activities that would be located within coastal resources or have the potential to affect them. Congress later delegated coastal resource management to states' coastal management programs. Upon certification of a state's coastal management program, FEMA must conduct its activities (including Federal development projects, permits and licenses, and assistance to state and local governments) in a manner consistent with the state's certified program. The processes established to implement this requirement are called "consistency determinations" for Federal activities and development projects, and "consistency certifications" for Federal permits and licenses and Federal support to state and local agencies.

**California Coastal Commission**

In 1977, the Federal government certified the California Coastal Management Program. The enforceable policies of that document are in Chapter 3 of the California Coastal Act of 1976 (CCA, California Public Resources Code, Division 21 § 30000 et seq.) and are administered by the California Coastal Commission (CCC).

The mission of the CCC is to protect, conserve, restore, and enhance environmental and human-based resources of the California coast and ocean for environmentally sustainable and prudent use. The CCA addresses issues such as shoreline public access and recreation, reduced cost for visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. The policies of the CCA constitute the statutory standards applied to planning and regulatory decisions made by the CCC and by local governments.

The CCC makes coastal development permit decisions and reviews local coastal plans prepared by local governments. It also reviews Federal activities that affect the coastal zone.

**Local Coastal Plans**

Local coastal plans are the basic planning tools used by the state and local governments in their shared stewardship of the coast. They specify appropriate location, type, and scale of new or changed uses of land and water by inclusion of a land use plan and measures to implement the plan (such as a zoning ordinance). Once certified by the CCC, local coastal plans govern decisions that determine the short- and long-term conservation and use of coastal resources. While each local coastal plan reflects the unique characteristics of its local coastal community, all regional and statewide interests and concerns must also be addressed in the local coastal plan to conform to CCA goals and policies.

All local coastal programs must be consistent with the CZMA, specifically with Chapter 3, which sets broad coastal zone policy for planning and managing coastal resources. While the CCA's policies do not specifically address communication facilities development, any new development must be consistent with the Chapter 3 policies. Therefore, communication facility projects within the coastal zone are expected to demonstrate that they would not be detrimental to land resources such as sensitive habitats, agricultural lands, and archaeological resources. Similarly, communication facility projects should demonstrate that they support policies for coastal access, visitor-serving uses, coastal-dependent development, and preservation of aesthetic resources. For coastal zone segments without a certified local coastal plan, Chapter 3 policies prevail as guiding land use policy.

#### *3.1.1.2 Farmland Protection Policy Act*

Prime and unique farmlands and farmlands of state and local importance are protected under the Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 4201 et seq.). Prime farmland is characterized as land with the best physical and chemical characteristics for the production of food, feed, forage, fiber, and oilseed crops. Prime farmland is used for either food or fiber crops or is available for those crops; it is not urban, built-up land, or water areas. Unique farmland is defined as land that is used for the production of certain high-value crops, such as citrus, tree nuts, olives, and fruits. The FPPA requires Federal agencies to examine the potentially adverse effects to these resources before approving any action that would irreversibly convert farmland to non-agricultural uses. U.S. Department of Agriculture

(USDA) Natural Resources Conservation Service (NRCS) has purview over the FPPA, with implementing regulations at 7 CFR 658. NRCS uses the Farmland Conversion Impact Rating Form (Form AD-1006) to evaluate potential impacts to prime and unique farmland.

#### *3.1.1.3 California State Aeronautics Act*

FAA has the authority to require that sponsors of new objects that could be airspace obstructions submit a notice to the agency prior to construction. With regard to the State Aeronautics Act (California Public Utilities Code § 21001-21020), the California Public Utilities Code § 21403 specifies the right of flight within the zone of approach of any public airport be without restriction or hazard, and § 21659 specifies that no person shall construct or alter any structure that exceeds the obstruction standards set forth in the FAA regulations relating to objects affecting navigable airspace contained in 14 CFR Part 77, Subpart C unless a permit allowing the construction or alteration is issued by the Department of Transportation.

State law (California Public Utilities Code §§ 21670 – 21679.5) requires the creation of airport land use commissions (ALUCs) to coordinate planning for areas surrounding public use airports. The ALUC includes compliance with Federal and State statutes and regulations pertaining to airspace hazards, including FAA regulations.

In Los Angeles County, the Regional Planning Commission has the responsibility for acting as the ALUC and for coordinating the airport planning of public agencies within the County. The Los Angeles County ALUC prepared and adopted its required Comprehensive Land Use Plan (CLUP) in December 1991 and revised the plan in December 2004. For each of the public use airports in Los Angeles County, the ALUC has adopted planning boundaries that delineate areas subject to noise impacts and safety hazards and may be subject to height restrictions.

#### *3.1.1.4 Local Land Use Plans, Policies, and Regulations*

Each incorporated city within the Project Area has its own land use plan and municipal ordinances. Compliance with local land use plans and policies may require obtaining special use permits for the use of a tract of land that does not fall directly under the permitted usage for that specifically zoned area. Other types of permits that could apply to the LMR project include a right-of-entry permit to access and install LMR systems on private properties. The Authority is not subject to certain local land-use plans and policies because, under the California Government Code § 53090(a) and 53091(a), the Authority is exempt from the definition of “Local Agency”; and therefore the Authority is not required to comply with “all applicable building ordinances and zoning ordinances of the county or city in which the territory of the local agency is situated.”

### 3.1.2 Resource Overview

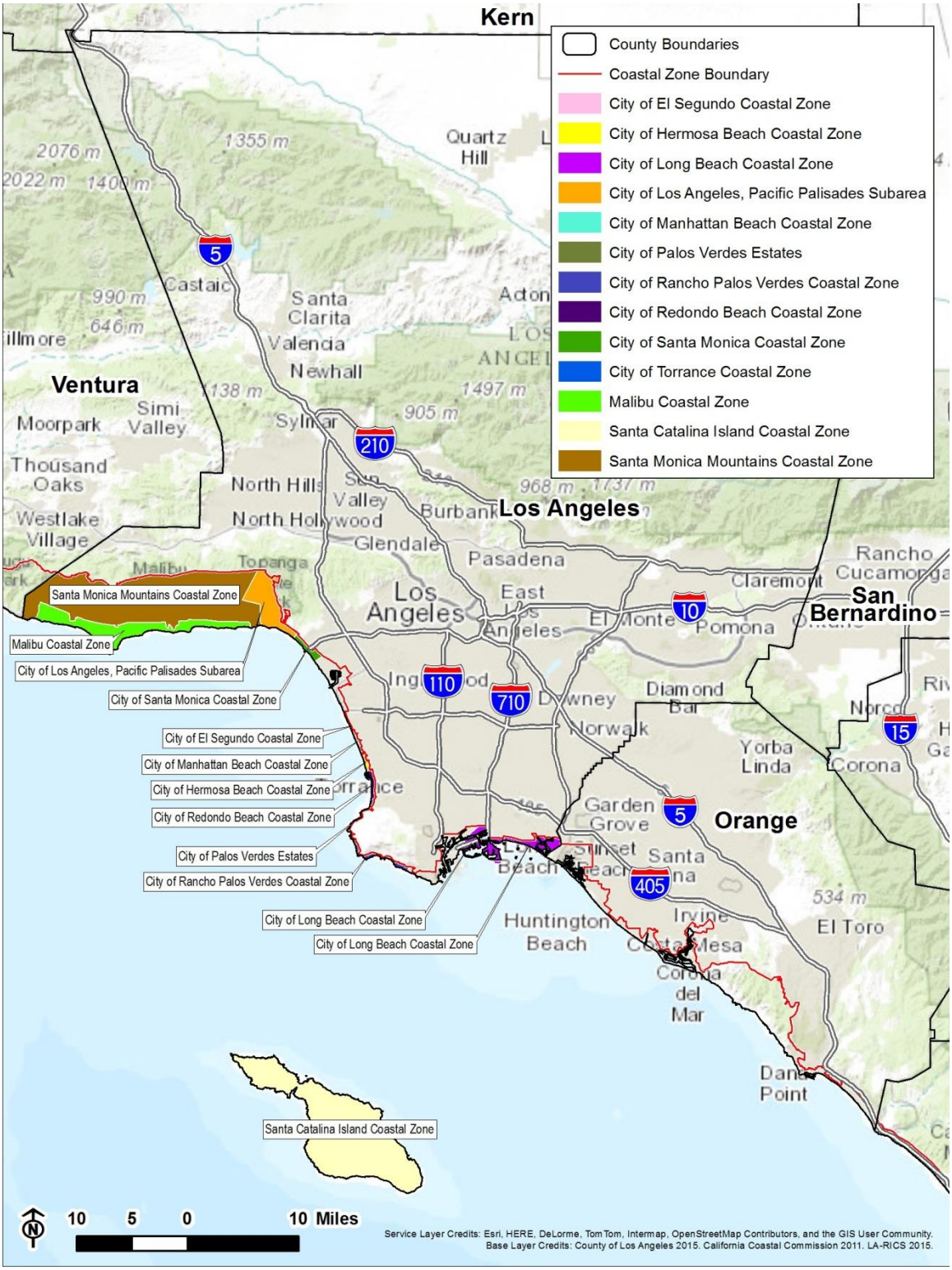
This section describes land use designations within the Project Area including coastal zones, prime and unique farmland, and airport land use comprehensive plans, as well as local land use.

#### *3.1.2.1 Coastal Zones*

The coastal zone in the Project Area is shown in Figure 3.1-1 and includes the following Local Coastal Program segments (California Coastal Commission 2015b):

- City of Los Angeles, Pacific Palisades Subarea
- City of Santa Monica Coastal Zone (uncertified as of January 2015, but with grant to complete LCP)
- City of Malibu Coastal Zone (certified in 2002)
- Santa Catalina Island Coastal Zone (certified in 1981)
- Santa Monica Mountains Coastal Zone (certified in 2014)
- City of Redondo Beach Coastal Zone (certified in 2010)
- City of El Segundo Coastal Zone (certified in 1982)
- City of Manhattan Beach Coastal Zone (certified in 1994)
- City of Hermosa Beach Coastal Zone (uncertified as of January 2015, but with grant to complete LCP)
- City of Torrance Coastal Zone (uncertified as of January 2015)
- City of Rancho Palos Verdes Coastal Zone (certified in 1983)
- City of Palos Verdes Estates (certified in 1991)
- City of Long Beach Coastal Zone (certified in 1980)

**Figure 3.1-1: The Coastal Zone in the Project Area**



#### *3.1.2.2 Prime or Unique Farmland*

In 2012, the inventoried prime farmland, unique farmland, and farmland of statewide or local importance in Los Angeles County totaled 35,333 acres — approximately 3.2 percent of the total Los Angeles County area (California Department of Conservation 2012). Most of the farmlands are located in the northern portion of the Project Area, north and northeast of Angeles National Forest, as shown in Figure 3.1-2. None of the currently-identified LMR project sites are located in prime or unique farmland or farmland of statewide or local importance.

#### *3.1.2.3 Airport Comprehensive Land Use Plans*

Los Angeles County has 15 commercial and general aviation airports, including Los Angeles International Airport, which is owned by and located in the City of Los Angeles (Los Angeles County Airport Land Use Commission 2004). These airports include:

- Agua Dulce Airport
- Brackett Field
- Bob Hope Airport (Burbank)
- Catalina Airport in the Sky
- Compton – Woodley Airport
- Fox Airfield
- Hawthorne Municipal Airport/Jack Northrop Field
- Long Beach Municipal
- Los Angeles International
- Palmdale Regional Airport
- San Gabriel Valley Airport
- Santa Monica Municipal Airport
- Torrance Municipal (also known as Zamperini Field)
- Van Nuys Airport
- Whiteman Airport

The Project Area extends beyond the Los Angeles County boundary into adjoining Orange and San Bernardino counties. The Project Area includes Cable Airport, a general aviation airport with an ALUC and CLUP that is located in Upland in adjoining San Bernardino County.

#### *3.1.2.4 Local Land Use Plans, Policies, and Regulations*

The Project Area contains proposed LMR project sites that are located in areas subject to land use planning by multiple agencies. These include sites in unincorporated areas that are under the jurisdiction of county planning agencies, and sites within incorporated cities that are under the jurisdiction of city planning agencies. Land uses within the Project Area are characterized by an urban setting including residential, commercial, industrial, or mixed-use zones with existing infrastructure. The Project Area also includes non-urban settings that may include areas zoned for open space, agriculture, or recreation.

**Figure 3.1-2: Farmlands in the Project Area**

## 3.2 Geology, Seismicity, and Soils

The geology of an area refers specifically to the surface and near-surface materials of the earth and to how those materials were formed. These resources are typically described in terms of regional or local geology, including mineral resources, earth materials, soil resources, and topography. Seismicity refers to the relative frequency and distribution of earthquakes in an area. Geology and soils, and seismicity, are discussed in this section.

### 3.2.1 Regulatory Background

#### *3.2.1.1 Earthquake Hazards Reduction Act*

The Earthquake Hazards Reduction Act of 1977 (42 U.S.C. § 7704), as amended by Public Laws 101-614, 105-47, 106-503, and 108-360, created the framework for research into seismic safety of buildings and structures. The purpose of this Earthquake Hazards Reduction Act, as amended, is to reduce the risks of life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program (NEHRP 2009). With the Act, Congress established the National Earthquake Hazards Reduction Program (NEHRP). The four primary NEHRP agencies that contribute to earthquake mitigation efforts are the FEMA, National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey (USGS).

#### *3.2.1.2 Executive Order 12699*

EO 12699 requires that an examination of alternative provisions and requirements for reducing earthquake hazards at buildings owned or leased by the Federal government and those buildings with federally financed construction, grants, loans, loan guarantees, insurance programs, and licenses [42 U.S.C. 7704(f)(3. 4)], and the incorporation of seismic safety requirements into new building construction. The purposes of these requirements are to reduce risks to the lives of occupants of buildings owned by the Federal government and to persons who would be affected by the failures of Federal buildings in earthquakes, to improve the capability of essential Federal buildings to function during or after an earthquake, and to reduce earthquake losses of public buildings, all in a cost-effective manner. A building means any structure, fully or partially enclosed, used or intended for sheltering persons or property.

#### *3.2.1.3 Alquist-Priolo Earthquake Fault Zoning Act*

The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code, Division 2, Chapter 7.5 § 2621-2630) was passed in 1972 to mitigate the hazard of surface faulting to homes, commercial buildings, and other structures. The Seismic Hazard Mapping Act of 1990 was enacted, in part, to address seismic hazards not covered in the Alquist-Priolo Earthquake Fault Zoning Act, including strong ground-shaking, landslides, and liquefaction (a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading). The most stringent standards and

requirements are applied within "Alquist-Priolo Earthquake Fault Zones" where faults are known to have ruptured in the past 11,000 years (Holocene time).

#### *3.2.1.4 Seismic Hazards Mapping Act*

The Seismic Hazards Mapping Act (California Public Resources Code, Division 2, Chapter 7.8 § 2690-2699) was passed in 1990 to mitigate other hazards associated with earthquake faults. It is the intent of the State Legislature to provide statewide seismic hazard mapping and a technical advisory program to assist cities and counties in fulfilling their responsibilities for protecting the public health and safety from the effects of strong ground shaking, liquefaction, landslides, ground failure, and other seismic hazards caused by earthquakes. Provisions under this law require that a qualified geologist and civil engineer prepare a geotechnical report to evaluate and assess the geologic hazards that may be present and that the local city and/or county review and approve any such report prior to construction.

#### *3.2.1.5 California Building Code*

New construction in California may be subject to the applicable sections of the California Building Code (CBC), which is administered by the California Building Standards Commission, Department of Building Safety. If the issuing agency for the construction permit is a state or local entity, then the CBC will be applicable. If the issuing agency for the construction permit is a Federal agency, the CBC may not be applicable, and the construction permit would be under the discretion of the issuing Federal agency. The building departments of each city (or the county for unincorporated areas) are responsible for ensuring that CBC requirements are met, including provisions for soils and foundations to evaluate the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects.

### 3.2.2 Resource Overview

This section identifies geology and soils and seismicity conditions in the Project Area. Each is discussed below.

#### *3.2.2.1 Geology and Soils*

Descriptions of geologic resources include bedrock or sediment type and structure, unique features, depositional or erosional environment, and age or history. Mineral resources include usable geological materials that have some economic or academic value. Soil is the unconsolidated loose covering of broken rock particles and decaying organic matter overlying the bedrock or parent material. Soils are typically described by their complex type, slope, and physical characteristics. Topography consists of the geomorphic characteristics of the land or sea floor surface, including the change in vertical elevation of the earth's surface across a given area, the relationship with adjacent land features, and geographic location (Bilodeau et al. 2007).

Soil characteristics within an area depend on the parent material located in that area. Soil characteristics vary across the United States and its territories. Areas with similar soils are grouped and labeled as soil

series because of their similar origins and chemical and physical properties that cause the soils to perform similarly for land use purposes.

The geological makeup of the United States is broken down into physiographic divisions, as established by USGS. Physiographic divisions are broad-scale regions established by common terrain texture, rock type, and geologic structure and history.

Geologic, topographic, and soil characteristics may impose limitations on potential uses for a particular site. Areas characterized by susceptibility to seismic or volcanic activity, tsunamis, landslides, mudslides, structural instability, excessive erodibility, or steep slopes may entirely preclude the implementation of a proposed action at a particular location or may require the use of certain engineering technologies or require consultation with State or Federal agencies before the proposed action may proceed.

The Project Area has a complex and unique geology. The Project Area comprises several unique geologic environments and, as such, spans several geomorphic provinces. Geomorphic provinces are defined by areas with similar geologic features and backgrounds. Figure 3.2-1 shows the geomorphic provinces in the Project Area, of which three are primary: the Mojave Desert, Peninsular Ranges, and the Transverse Ranges.

The Peninsular Ranges can be further subdivided up into defined basins, ranges, and off shore islands. The Los Angeles Basin is the largest and most dominant of the various basins within the Peninsular Ranges geomorphic province. Santa Catalina Island is within the Project Area and is also part of the Peninsular Ranges geomorphic province.

The Los Angeles Basin is the coastal sediment-filled plain located at the north end of the Peninsular Ranges province in southern California and contains the central part of the city of Los Angeles as well as its southern and southeastern suburbs (both in Los Angeles and Orange counties). It is approximately 50 miles long and 25 miles wide, bounded on the north by the Santa Monica Mountains and San Gabriel Mountains, on the east by the Santa Ana Mountains, and on the south by the Pacific Ocean and the Palos Verdes Hills, along the coast. The confluence of the Los Angeles and Rio Hondo rivers is the center of the basin (CGS 2015a).

The northern part of the Project Area sits in the Mojave Desert geomorphic province, which lies to the north of the San Gabriel Mountains and south of the Tehachapi Mountains at the southern tip of the Sierra Nevada. The Mojave Desert geomorphic province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage and many playas (an area of flat, dried-up land, especially a desert basin from which water evaporates quickly).

**Figure 3.2-1: Geomorphic Provinces in the Project Area**

Two important fault trends control the topography of the Mojave Desert geomorphic province: a prominent northwest-southeast trend and a secondary east-west trend. The Mojave Desert geomorphic province is wedged in a sharp angle between the Garlock Fault (the southern boundary of the Sierra Nevada) and the San Andreas Fault where it bends west from its northwest trend. The northern boundary of the Mojave Desert geomorphic province is separated from the prominent Basin and Range geomorphic province, located northeast of the Project Area, by the eastern extension of the Garlock Fault (Digital Desert 2015a).

The San Gabriel and Santa Monica mountains are part of the Transverse Ranges geomorphic province. The Transverse Ranges are an east-west trending series of steep mountain ranges and valleys. The east-west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California, hence the name "Transverse." The province extends offshore to include San Miguel, Santa Rosa, and Santa Cruz islands. The Transverse Ranges are some of the fastest-growing mountain ranges in the world. Great thicknesses of Cenozoic, petroleum-rich sedimentary rocks have been folded and faulted, making this one of the important oil-producing areas in the United States (Digital Desert 2015b).

Surface soils in the Project Area are composed of sands, silts, and clays derived from mechanical and chemical weathering of igneous, metamorphic, and sedimentary rocks. Fine-textured soils that are high in clay have low soil erodibility because the particles are resistant to detachment (cohesive soils). Coarse-textured soils, such as sandy soils, are easily detached but have low soil erodibility because water infiltrates them rapidly, resulting in low runoff. Medium-textured soils, such as a silt loam, have moderate soil erodibility because they are moderately susceptible to particle detachment and have low infiltration rates. Runoff from medium-textured soils is moderate. Soils having high silt content are especially susceptible to erosion and have a high soil erodibility. Silt-size particles are easily detached and tend to crust, producing high runoff rates and large runoff volumes (California EPA 2015).

Soils in the Project Area generally fall into one of three major soil categories: urban, desert, and steep rocky slopes. Urban sites often are covered in hard surfaces with only limited soil data available. Urban soils include sands, silty sands, and silts. Soils developed in the Transverse Ranges are rocky loam or steep sandy loam; soils at these sites are generally very shallow and rocky and vary from a sandy loam to sandy rocky loam. The sites may have rock outcrops with steep to very steep slopes (USDA 2015b).

A landslide, also known as a landslip, is a geological phenomenon that includes a wide range of ground movements such as rock falls, deep failure of slopes, and shallow debris flows. Landslides can occur in offshore, coastal, and onshore environments (Geologypage 2015). Although the action of gravity is the primary driving force for a landslide to occur, other contributing factors may affect the original slope stability. Typically, preconditional factors build up specific subsurface conditions that make the area/slope prone to failure, whereas the actual landslide often requires a trigger before being released (Geologypage 2015). In southern California two primary causes may trigger a landslide: seismic shaking and/or significant amount of rain. Steep, mountainous areas are also subject to debris flows which may occur in areas that have been recently burned followed by the significant rain events (Geologypage

2015). Figure 3.2-2 shows areas, as mapped by the California Geological Survey, that have the potential for a landslide occurrence based on known geologic conditions.

#### *3.2.2.2 Seismicity*

Potentially active faults occur throughout the Project Area. Seismic damage to structures within and outside earthquake fault zones depends on the underlying foundation materials. Structures on competent geologic formations, such as igneous and metamorphic rock, may experience intense shaking but no liquefaction, whereas structures on unconsolidated hillsides and alluvium would be prone to landslides and liquefaction. Earthquake fault zones, seismic shaking, liquefaction zones, and landslides potentially associated with the Project Area are discussed below. Figure 3.2-3 provides an overview of mapped faults in the Project Area (CGS 2015b).

**Figure 3.2-2: Geologic Hazards in the Project Area**

Source: California Geological Survey 2015b

**Figure 3.2-3: Mapped Faults in the Project Area**

Source: California Geological Survey, 2015b

**Earthquake Fault Zones and Seismic Shaking**

All of the Project Area lies within a seismically active area and thus is subject to some degree of seismic shaking (LACDPW 2015b). Figure 3.2-4 shows the severity, in terms of a percent of acceleration due to gravity, of the shaking one may experience. The map is based on probable maximum magnitude earthquake an area may be expected to experience in a 50-year period. Soil type and distance from the epicenter of an earthquake have a significant influence on the amount of shaking a site may experience; the closer to an active fault, the higher degree of shaking one may experience. A site set on bedrock would experience much less severe shaking at the same distance from a seismic event than if it were located on unconsolidated alluvial materials.

**Liquefaction**

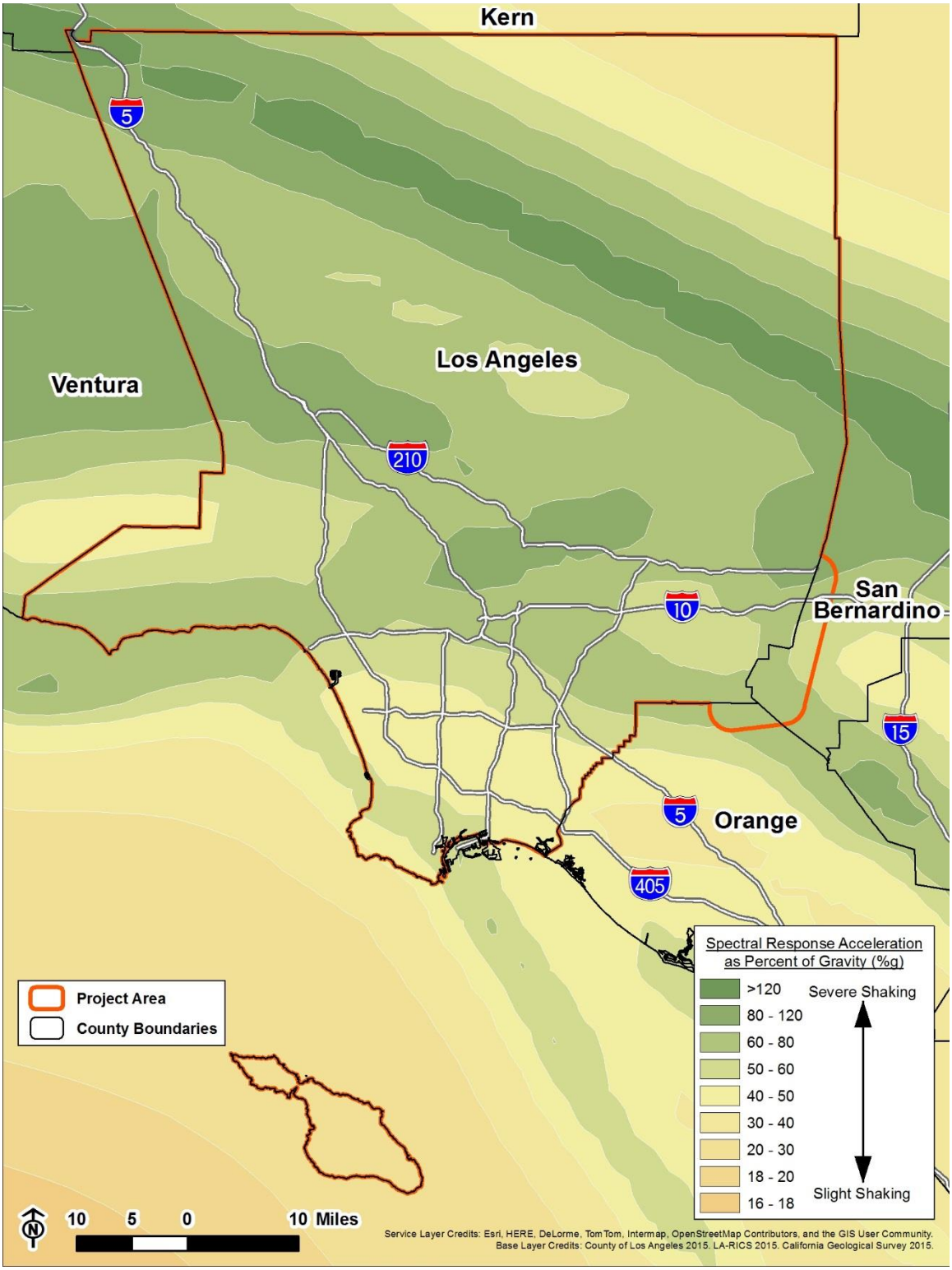
Liquefaction occurs when vibrations or water pressure within a mass of soil cause the soil particles to lose contact with one another. As a result, the soil behaves like a liquid, has an inability to support weight, and can flow down very gentle slopes (Geology.com 2015). This condition is usually temporary and is most often caused by an earthquake vibrating water-saturated fill or unconsolidated soil (Geology.com 2015). Liquefaction may occur at sites that sit on unconsolidated younger alluvial material and have a high groundwater table (groundwater is within 25 feet of the surface). Figure 3.2-2 shows areas mapped by the California Geological Survey that may be subject to liquefaction. Proposed structures that lie within liquefaction areas require special study and, depending on the results of the study, may require modified foundations (piles driven or deeper foundations below the liquefaction zone) to provide a stable foundation (CGS 2015a).

**Tsunamis**

Some coastal areas of the Project Area are subject to inundation from tsunamis, as shown in Figure 3.2-5. Tsunamis are a series of catastrophic ocean waves generated by submarine movements, which may be caused by earthquakes, volcanic eruptions, landslides beneath the ocean, or an asteroid striking the earth.

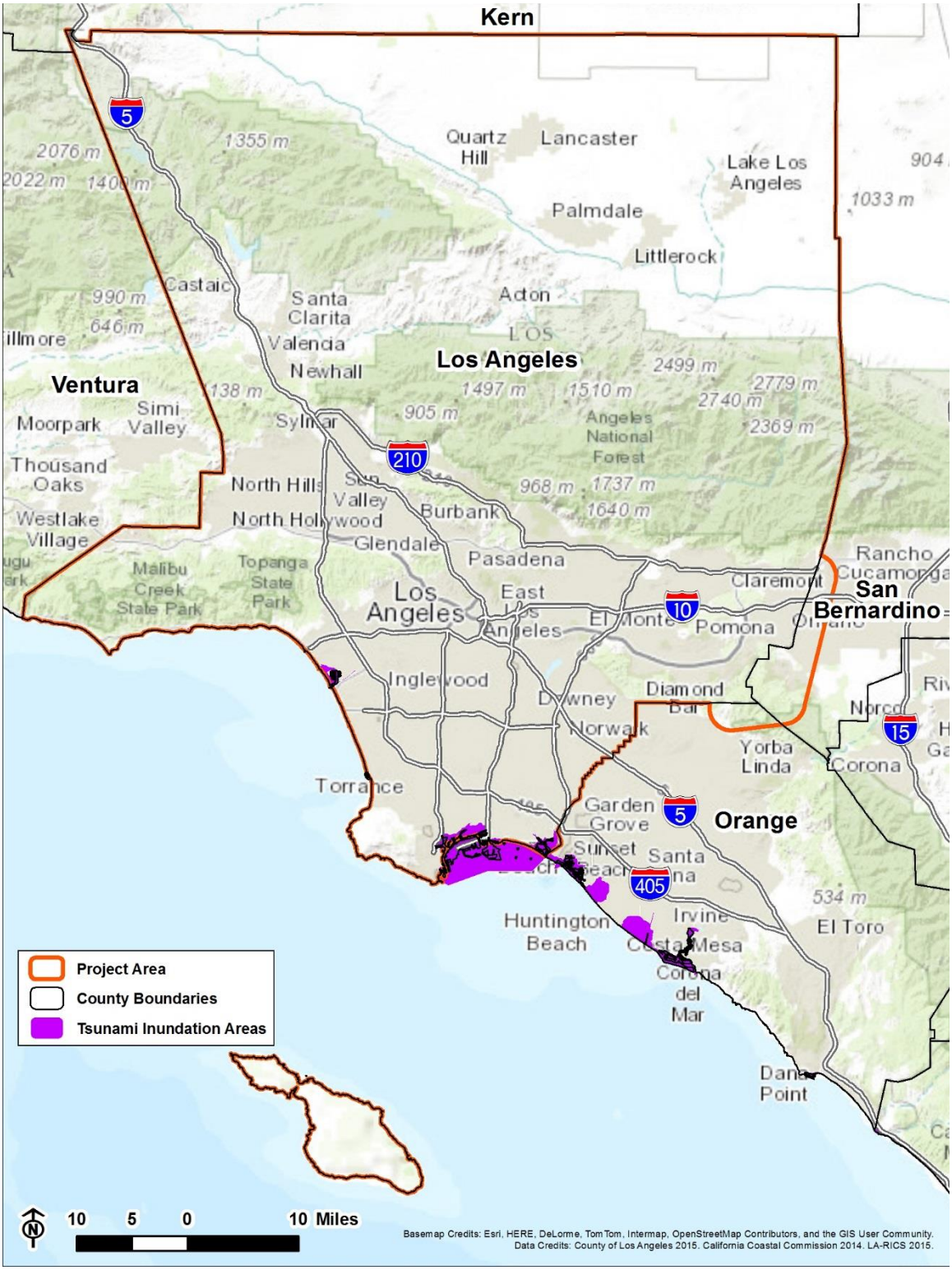
In the open ocean, tsunamis may have wavelengths of up to several hundred miles and travel at speeds up to 500 miles per hour yet have wave heights of less than 3 feet and pass unnoticed beneath a ship at sea. When tsunamis approach shallow water along a coast, they are slowed, causing their length to shorten and their height to rise sometimes as high as 100 feet. When they break, they often destroy piers, buildings, and beaches and take human life. Waves tend to rise to greater heights along gently sloping shores, along submarine ridges, or in coastal embayments. Tsunamis give little warning of approach (CEE 2015). Tsunamis principally occur in the Pacific Ocean following shallow-focus earthquakes over magnitude 6.5 on the Richter scale.

**Figure 3.2-4: California Shake Map**




Source: California Geological Survey 2015b

**Figure 3.2-5: Tsunami Inundation Areas in the Project Area**




Source: California Geological Survey, 2015a

## 3.3 Water Resources

Water resources refer to the occurrence, availability, and physical, chemical, and biological characteristics of surface water and groundwater, including hydrologic properties and water quality for aquatic plant and animal communities and public water supplies. Waterbodies include aquifers, springs, streams, rivers, lakes, reservoirs, estuaries, and nearshore and offshore marine waters. Water quality encompasses the level of pollutants that affect the suitability of water for a given use. Water use classifications generally include public water supply, recreation, propagation of fish and other aquatic life, agricultural use, and industrial use.

### 3.3.1 Regulatory Background

#### *3.3.1.1 Federal Water Pollution Control Act of 1972 (Clean Water Act), Sections 303, 401, 402, and 404*

The Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.), establishes the basic structure for regulating discharges of pollutants into the waters of the United States and for regulating water quality standards for surface water. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. These waters include all navigable waters and tributaries thereto as well as adjacent wetlands. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act but was reorganized and expanded in 1972, at which time it became more commonly known as the CWA.

Sections 303 (33 U.S.C. § 1313), 401 (33 U.S.C § 1341), 402 (33 U.S.C. § 1342(p)), and 404 (33 U.S.C. § 1344) of the CWA protect the water quality of jurisdictional surface waters. The CWA requires states to: (1) protect specific beneficial uses of surface water and groundwater, (2) comply with applicable effluent limitations, (3) implement BMPs to eliminate or reduce discharges of pollutants, and (4) regulate the discharge of dredged or fill material into streams, rivers, wetlands, non-wetland and other surface waters.

Section 303 (d) of the CWA requires the State to develop a list of impaired water bodies and restrict the water discharge into those impaired water bodies. Section 401 regulates discharge of water into navigable waters. Section 402 establishes the framework and requirements for how agencies issue a National Pollutant Discharge Elimination System (NPDES) permit under CWA. Formal legal protection of jurisdictional wetlands and other waters of the United States is promulgated through Section 404 of the CWA. Each of these sections of the CWA is discussed in detail in the following paragraphs.

Section 303(d) of the CWA requires states and certain Native American Tribes to develop lists of impaired water bodies where CWA-required pollution controls are not sufficient to attain or maintain applicable water quality standards. The State Water Resources Control Board (SWRCB) governs creation of California's list of Section 303(d) impaired waters and updates the list every two years.

Section 401 of the CWA provides states and authorized Tribes with an effective tool to help protect water quality by providing them an opportunity to address the aquatic resource impacts of federally issued permits and licenses. Under Section 401, a Federal agency cannot issue a permit or license for an activity that may result in a discharge to waters of the United States until the state or Tribe where the discharge would originate has granted or waived Section 401 certification. The central feature of CWA Section 401 is the state or Tribe's ability to grant, grant with conditions, deny, or waive certification. Granting certification, with or without conditions, allows the Federal permit or license to be issued consistent with any conditions of the certification. Denying certification prohibits the Federal permit or license from being issued. A waiver allows the permit or license to be issued without state or Tribal comment. States and Tribes make their decisions to deny, certify, or condition permits or licenses based in part on the proposed action's compliance with the U.S. Environmental Protection Agency (USEPA)-approved water quality standards. In addition, states and Tribes consider whether the activity leading to the discharge will comply with any applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and other appropriate requirements of state or Tribal law.

Examples of Federal licenses and permits subject to Section 401 certification include CWA Section 404 permits for discharge of dredged or fill material issued by the USACE and Rivers and Harbors Act Sections 9 and 10 permits for activities that have a potential discharge in navigable waters issued by USACE. Many states and Tribes rely on Section 401 certification to ensure that discharges of dredge or fill material into a water of the United States do not cause unacceptable environmental impacts and, more generally, as their primary regulatory tool for protecting wetlands and other aquatic resources (USEPA 2010).

The 1972 amendments specify that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a NPDES permit (Section 402 permit). Subsequent amendments and regulations to the CWA, including the Water Quality Act of 1987 (33 U.S.C. § 1251), established a framework for regulating municipal and industrial stormwater discharges and permit application requirements.

The USEPA has delegated the implementation of this program to the State of California for implementation through the SWRCB and the Regional Water Quality Control Boards (RWQCBs). On August 19, 1999, the SWRCB reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ). On December 8, 1999, the SWRCB amended Order 99-08-DWQ to apply to sites as small as 1.0 acre. The General Construction Storm Water Permit for the State is administered through the local RWQCBs (Los Angeles, Lahontan, and Santa Ana for the LMR Project Area).

Dewatering discharge within the coastal watersheds of Los Angeles County is regulated by Los Angeles RWQCB and covered under General Permit NO. R4-2013-095, Waste Discharge of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura counties. Lahontan RWQCB has a similar permit that regulates dewatering activities called Renewal of Waste Discharge Requirements and National Pollutant Discharge Elimination System General

Permit for Limited Threat Discharges to Surface Waters NPDES NO. CAG996001. Dewatering activities in the City of Long Beach, which is excluded from the Los Angeles RWQCB dewatering permit, are under the SWRCB General Construction Storm Water Permit (Water Quality Order 99-08-DWQ). For any sites within Orange County, dewatering activities would be permitted under the Santa Ana RWQCB order No. R8-2009-0030 NPDES No. CAS618030.

Each state has an opportunity to establish specific criteria for water quality protection under Section 401 of the CWA. These provisions must be satisfied prior to issuance of permits under sections 402 and 404 of the CWA (USEPA 2015a).

Formal legal protection of jurisdictional wetlands and other waters of the United States is promulgated through Section 404 of the CWA. A permit from USACE must be obtained for most dredge or fill activities within jurisdictional wetlands or other waters of the United States. The USACE issues two types of permits under Section 404 of the CWA:

- General Permits are issued on a state, regional, and nationwide basis and cover a variety of activities, including minimal individual and cumulative adverse effects. These permits fit into specific categories established by the USACE.
- Individual Permits may be issued for a case-specific activity for wetlands or other waters of the United States.

The Nationwide Permit (NWP) program has numerous guidelines and conditions that must be met for an activity to qualify for a permit. NWPs are subject to review by the states under Section 401 of the CWA, as are all aspects of the USACE permitting program. Several NWPs apply to activities in waters of the United States that may cover specific aspects of the development of the proposed activities. For example, NWP 3 (Maintenance) may apply to activities related to the repair, rehabilitation, or replacement of an existing structure; NWP 12 (Utility Line Activities) or NWP 14 (Linear Transportation Projects) may apply to the construction of utility lines and access roads for new facilities; and NWP 18 (Minor Discharges) or NWP 19 (Minor Dredging) may apply to many sites where water impacts are minimal. Various USACE Districts also have Regional General Permits that function similarly to NWPs; however, Regional General Permits are typically more specific in the types of actions that they cover and typically necessitate more stringent conditions and reporting requirements.

As described in Section 1.2 Specific for FEMA Region IX and the USACE, an MOU has been executed between these agencies, along with the USFWS and NMFS, that establishes the process of identifying the lead Federal agency for Federal environmental and historic preservation review for a FEMA-funded project that requires a permit from the USACE under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The MOU identifies the roles and responsibilities between FEMA, USACE, NMFS, and USFWS in order to streamline and coordinate environmental reviews. The MOU requires for FEMA to notify the USACE, NMFS, and USFWS of a proposed FEMA-funded action that may require a permit from the USACE under Section 404 of the Clean Water Act or Section 10 of the Rivers and

Harbors Act. The determination of the lead Federal agency is based on the project-type, USACE permit type(s), and any Federal environmental compliance processes that have already been established.

#### *3.3.1.2 Wild and Scenic Rivers Act*

The Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271-1287) (WSRA) establishes a National Wild and Scenic Rivers System to preserve and protect selected wild and scenic rivers in a free-flowing condition for the benefit and enjoyment of present and future generations (NWSRS 2015). Under the WSRA, a river may be designated for study (study rivers); and once the study is complete, the results of the study are sent to Congress for the study river to be considered as part of the WSRA system through an amendment. The WSRA requires that a National Rivers Inventory (NRI) be developed and maintained with rivers that are designated as wild and scenic.

#### *3.3.1.3 Executive Order 11988 Floodplain Management*

EO 11988, Floodplain Management, was issued in 1977 to eliminate the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of the base floodplain development (an area having a 1 percent or greater chance of flooding in any given year [100 year floodplain]) including in coastal high hazard areas or in a floodway (a channel built to allow floodwater to escape) wherever an alternative for locating a project outside the floodplain is practicable. EO 11988 applies to federally funded projects and directs agencies to consider alternatives to siting projects within a floodplain. FEMA's regulations in 44 CFR Part 9 implement EO 11988 for the agency. These regulations require FEMA to engage in an eight-step decision-making process before undertaking an action within the floodplain or one that would be affected by the floodplain. These steps involve: (1) determination that the action is in the floodplain, would affect the floodplain, or would indirectly support development in the floodplain; (2) early public notice; (3) identification and evaluation of alternatives to locating in the floodplain; (4) identification of the impacts of the proposed action; (5) selection of minimization, restoration, and preservation measures; (6) reevaluation of alternatives; (7) publication of findings and public explanation; and (8) implementation of the action. EO 11988 was amended in 2015 by Executive Order 13690, establishing a Federal Flood Risk Management Standard and a process for further soliciting and considering stakeholder input. FEMA is currently in the process of developing implementing regulations for the new Executive Order.

#### *3.3.1.4 Executive Order 11990 Protection of Wetlands*

EO 11990, Protection of Wetlands, was issued in 1977 to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. To meet the objective, FEMA must consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The procedure follows the same eight steps as described by EO 11988, Floodplain Management, in Section 3.3.1.3.

#### *3.3.1.5 Sole Source Aquifers*

The Safe Drinking Water Act (SDWA) authorizes USEPA (42 U.S.C. § 300h-3(e)) to designate aquifers that are the sole or principal source of drinking water for an area. To meet the criteria for designation, a sole-source aquifer must supply at least 50 percent of the drinking water to persons living over the aquifer; and no feasible alternate source of drinking water is available. Once an aquifer is designated, USEPA can review proposed actions that are to receive Federal funds and that have the potential to contaminate the aquifer. Federal agencies cannot provide financial assistance to a project for which the USEPA finds that a significant hazard to public health would be created by contaminating a designated sole-source aquifer.

#### *3.3.1.6 Section 10 of the Rivers and Harbors Act*

The Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.) requires authorization from USACE for construction activities in or near any navigable water of the United States.

### 3.3.2 Resource Overview

This section identifies water resources including surface waters and groundwater aquifers and floodplains in the Project Area. Each is discussed below.

#### *3.3.2.1 Surface Water and Groundwater Aquifers*

Los Angeles County, which comprises the vast majority of the Project Area, is 25 percent mountains, 10 percent coastal plain, and 65 percent foothills, valley, and desert (LACDPW 2006). Elevations in the Project Area range from sea level to 10,064 feet above mean sea level (amsl) at the summit of Mount San Antonio. Most mountains are less than 5,000 feet amsl with only 210 square miles (5 percent) above this elevation. Surface water in streams is derived principally from precipitation, runoff and, in some cases, groundwater.

Average annual precipitation in the Project Area ranges from approximately 14.5 inches in the coastal plain to 35 inches in mountainous areas (San Gabriel Mountains) (LACDPW 2006). Average annual precipitation in portions of the Mojave Desert (North Los Angeles County) area is as low as 2.5 inches. Rainfall intensity in southern California can range from 0.1 inch per day to more than 1 inch per hour. Snowfall at elevations above 5,000 feet frequently occurs during winter storms but melts rapidly except on the higher peaks and north-facing slopes. Most precipitation occurs between December and March. Dry periods of several months are common (LACDPW 2006).

Surface water runoff characteristics are influenced by soil type, terrain, vegetation, and other conditions. Precipitation during periods of low soil moisture is almost entirely absorbed by porous soils. Substantial surface runoff occurs after soil moisture is near field capacity and during extreme, intense rainfall events (LACDPW 2006). Because much of the coastal plain is urbanized, natural soil and vegetation have been replaced by impervious surfaces. In urban areas, stormwater runoff is directed to

**Figure 3.3-1: Major Surface Water Features of the Project Area**

Source: Los Angeles County GIS Data Portal. 2015

storm drains and lined channels with little opportunity for natural infiltration to groundwater aquifers. Figure 3.3-1 shows major surface water features of the Project Area.

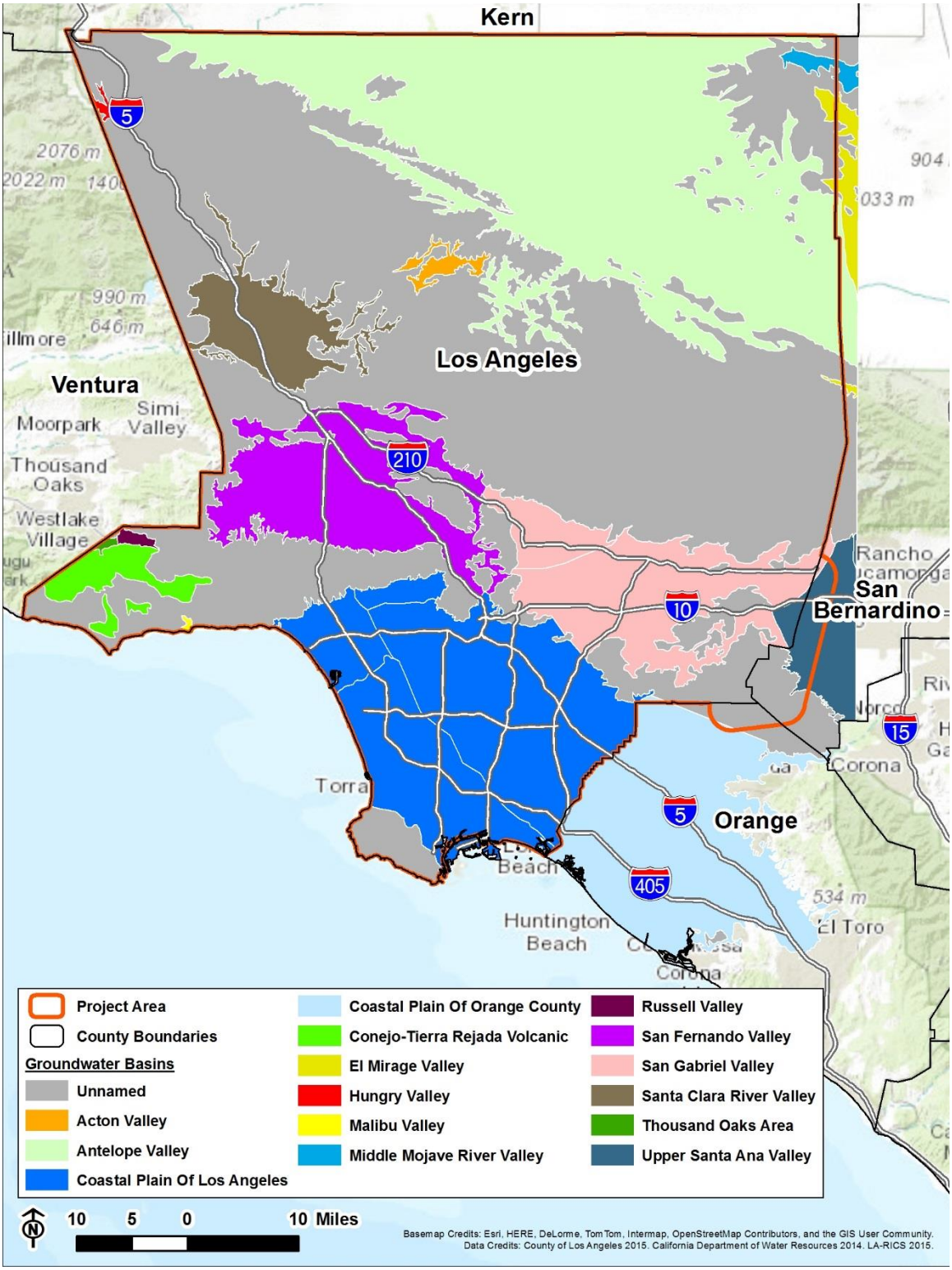
Some of the surface waters in the Project Area have been identified by the SWRCB, in accordance with Section 303(d) of the CWA, as impaired water bodies (Figure 3.3-2). Applicable NPDES permits take into account waste load allocations for point sources that might result in discharge to these waters.

A reach of Piru Creek in northwest Los Angeles County is the only Wild and Scenic River identified in the Project Area (Interagency Wild and Scenic Rivers Coordinating Council 2015). An approximately 7.3-mile reach of Piru Creek flowing from approximately 0.5 mile south of Pyramid Lake Dam to the Ventura County line is included in the National Wild and Scenic Rivers System (see Figure 3.3-1). This includes 4.3 miles of Piru Creek designated as Wild and 3.0 miles designated as Recreational. The managing agency of the river is the USFS (Angeles National Forest and Los Padres National Forest). A specific comprehensive management plan has not been developed for this river; however, under the WSRA designated boundaries are generally 0.25 mile on either side of the bank. The USFS may restrict certain development within the area. While over 140 rivers have been authorized for study nationwide, no study rivers occur in the Project Area.

Most groundwater production is concentrated in populated areas, particularly in southern Los Angeles County and Orange County (NTIA 2014). Published information for depth to groundwater and other aquifer parameters is scarce or unavailable in sparsely populated areas or where groundwater resources have not been used extensively. Descriptions of aquifers within specific groundwater basins are provided in Table 3.3-1. Groundwater aquifers in the Project Area are shown in Figure 3.3-3. There are no sole source aquifers within or adjacent to the Project Area.

**Figure 3.3-2: Impaired Water Bodies in the Project Area**

**Figure 3.3-3: Groundwater Aquifers in the Project Area**




Source: Los Angeles County GIS Data Portal. 2015

**Table 3.3-1: Groundwater Basins in the Project Area**

| Groundwater Basin | Description |
|---|---|
| Unnamed | Isolated aquifers in these mountainous and hilly areas may occur in unconsolidated alluvial sediments at the base of valleys and in porous or fractured bedrock. |
| Acton Valley | Aquifers in this basin are composed of unconsolidated alluvial sediments. Aquifer thickness typically ranges from 50 to 225 feet, and groundwater elevations range from 15 to 100 feet below ground surface |
| Antelope Valley | Aquifers in this basin are composed of unconsolidated alluvial and lacustrine deposits. Depth to groundwater typically ranges from 50 to 350 feet below ground surface. |
| Coastal Plain of Los Angeles | Aquifers in this basin are composed of unconsolidated alluvial sediments. Aquifer thickness typically ranges from 30 to 500 feet, and groundwater elevations typically range from approximately 110 to 230 feet below mean sea level due to extensive overdraft. Perched groundwater or non-producing aquifers may occur at shallow depths of 20 feet or more. |
| Coastal Plain of Orange County | Aquifers in this basin are composed of a deep structural depression containing a thick accumulation of fresh water-bearing interbedded marine and continental sand, silt, and clay deposits. Aquifer thickness is up to 2,000 feet. Groundwater elevations typically range from 30 to 165 below ground surface. |
| Conejo-Tierra Rejada | Aquifers in this basin are composed of unconsolidated alluvial sediments and sedimentary and volcanic rocks of the Modelo, Topanga, and Conejo formations. Alluvium is generally only a few feet thick and is not a significant source of groundwater. The sedimentary and volcanic rocks are the primary sources of groundwater and have a combined thickness up to approximately 19,500 feet. |
| El Mirage | Aquifers in this basin are composed of quaternary alluvium that includes unconsolidated younger alluvium deposits and underlying unconsolidated to semi-consolidated older alluvium deposits. Groundwater levels vary depending on location within the basin. Groundwater depth in the southern portion of the basin range from 6 to 17 feet and in northern areas range from 200 to 450 feet below ground surface. |
| Hungry Valley | Aquifers in this basin are mainly found in the alluvium and the Hungry Valley Formation. Quaternary alluvium forms the chief aquifer and consists of coarse to fine-grained sands that average 40 feet in thickness. |
| Malibu Valley | Aquifers in this basin are composed of Holocene alluvium which consists of clays, silts, sands, and gravel. Thickness of the alluvium ranges from 90 to 140 feet. Groundwater depth varies depending on seasonal rainfall. |
| Middle Mojave River Valley | The two primary water-bearing units consist of a regional Pliocene and younger alluvium fan deposits and overlying Pleistocene and younger river channel and floodplain deposits. Pleistocene and younger floodplain is up to 200 feet thick; Pliocene and younger alluvium deposits are up to 2,000 feet thick. Depth to groundwater varies and may be at or just below the surface along the Mojave River. In the younger alluvium fan deposits, the depth varies from 15 to over 200 feet. |

**Table 3.3-1: Groundwater Basins in the Project Area**

| Groundwater Basin | Description |
|---|---|
| Russell Valley | Aquifers in this basin are composed of Holocene age alluvium, although some groundwater is extracted from underlying volcanic rocks and older Tertiary sedimentary rocks. Holocene age alluvium consists of unconsolidated, poorly bedded, poorly sorted to sorted sand, gravel, silt, and clay with some cobbles and boulders and averages about 35 to 55 feet thick. |
| San Fernando Valley | Aquifers in this basin are composed of unconsolidated alluvial sediments. Depth to groundwater typically ranges from 24 to 400 feet below ground surface. |
| San Gabriel Valley | Aquifers in this basin are composed of unconsolidated alluvial sediments. Aquifer thickness typically ranges from approximately 300 to more than 3,000 feet, and groundwater elevations typically range from 110 to 1,200 amsl. |
| Santa Clara River Valley | Aquifers in this basin are found in the alluvium, terrace deposits, and Saugus formation. Groundwater in the subbasin is generally unconfined in the alluvium but may be confined or unconfined in the Saugus Formation. Aquifer thickness in the alluvium and terrace deposits is up to 240 feet. Aquifers in in the Saugus Formation may be as thick as 5,500 feet. |
| Thousand Oaks Area | Aquifers in this basin are composed of unconsolidated, sedimentary rocks of the Modelo and Topanga formations and volcanic rocks of the Conejo Formation. |
| Upper Santa Ana River Valley | The aquifer of this basin is composed of Quaternary-age alluvium consisting of unconsolidated to loosely consolidated sand, gravel, and silt with a few beds of compacted clay deposit by streams draining the San Gabriel Mountains. The gravels of Cucamonga Subbasin are relatively coarse throughout the basin. Depth to groundwater varies significantly throughout the basin depending on rainfall and location within the basin relative to faults that subdivide the basin. Groundwater depth may be as shallow as 40 to 50 feet to well over 500 feet. |
| None-Catalina Island | No aquifers are identified on Catalina Island. |
| Source: California Department of Water Resources 2015. | |

#### *3.3.2.2 Floodplains*

Floodplains are the lowland and relatively flat areas adjoining inland and coastal waters. For this PEA, floodplains are defined as those areas subject to a 1 percent or greater chance of flooding in any given year (EO 11988). This area is also referred to as the 100-year flood zone. Floodplains perform a variety of essential functions including floodwater conveyance and storage, groundwater recharge, wave attenuation, prevention of streambank erosion, reduction in sedimentation rates, water quality maintenance, and support of highly productive ecosystems (FEMA 2015).

Most floodplains are adjacent to streams, lakes, or oceans. Beaches (including coastal high hazard areas) and small river valleys are usually easily recognizable as floodplains; but less obvious floodplains occur in dry washes and on alluvial fans in arid parts of the Project Area, around prairie potholes, in areas subject

to high groundwater levels, and in low-lying areas where water may accumulate. Sheet flooding and ponding occur in areas where a channel is not clearly defined and the path of flooding is unpredictable (FEMA 2015).

FEMA is charged with the implementation of the National Flood Insurance Act (NFIA) (42 U.S.C. 4001) as amended. The NFIA creates the National Flood Insurance Program (NFIP), makes flood insurance available for structures within communities participating in the NFIP, and requires the acquisition of flood insurance for structures in special flood hazard areas as a precondition of receiving Federal assistance. As part of its implementation of the NFIP, FEMA identifies special flood hazard areas in Flood Insurance Rate Maps (FIRMs) and requires communities to adopt local floodplain ordinances that meet, at a minimum, FEMA's floodplain management criteria found at 44 CFR 60 et seq.

Figure 3.3-4 provides an overview of designated 100-year flood zone areas within the Project Area.

#### *3.3.2.3 Wetlands*

Wetlands are areas which are inundated or saturated by surface or groundwater with a frequency sufficient to support, or that under normal hydrological conditions does or would support, a prevalence of vegetation or aquatic life typically adapted for these soil conditions. Examples of wetlands include swamps, marshes, estuaries, bogs, beaches, wet meadows, sloughs, and mud flats, among others (FEMA 2010). USEPA and USACE published the Final Clean Water Rule defining "waters of the United States" in the Federal Register on June 29, 2015, giving greater clarity regarding, among other wetland resources located throughout the United States, how vernal pools are defined in California.

Wetlands have important ecological functions and are biologically diverse. They assimilate nutrients in surrounding surface waters, remove suspended solids and pollutants from stormwater, and protect shorelines from wind and wave action and storm-generated forces (FEMA 2010).

**Figure 3.3-4: Designated Flood Zone Areas within the Project Area**

Source: LACDPW 2015c

## 3.4 Biological Resources

Biological resources refer to the living landscape, including plants and animals. For purposes of discussion, biological resources are described by vegetation, wildlife, special status species, and sensitive habitats.

### 3.4.1 Regulatory Background

Several Federal statutes, regulations, and executive orders have been promulgated to protect and promote general environmental quality for biological resources. These are discussed below.

#### *3.4.1.1 Federal Endangered Species Act*

The purpose of the Federal Endangered Species Act (ESA) (16 U.S.C. 1531) is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by USFWS and the Department of Commerce NMFS. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife, such as whales, and anadromous fish, such as salmon.

Under the ESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened. For the purposes of the ESA, Congress defined species to include subspecies; varieties; and, for vertebrates, distinct population segments. Also considered in this analysis are species designated by the USFWS or NMFS as “Proposed” for listing or “Candidate” for listing.

Critical habitat is also protected under the ESA. Critical habitat includes specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection. Critical habitat may also include areas that are not currently occupied by the species but will be needed for its recovery.

All Federal agencies are required to consult with the USFWS and NMFS under Section 7 of the ESA to determine if a proposed action may affect threatened or endangered species or designated critical habitat. The purpose of the consultation process is to ensure avoidance or minimization of potential adverse impacts on listed species or critical habitats. Consultation is not required if the Federal agency determines that the action would have no effect on endangered or threatened species or designated critical habitat.

Through the consultation process, activities to avoid or minimize effects to threatened and endangered species and critical habitat would be identified. Project proponents would be required to satisfy any conditions placed on a project as a result of USFWS or NMFS consultation. A discussion on the current status of the Section 7 consultation process for the Proposed Action is provided in Section 4.4.2.

Habitat conservation plans are developed under the ESA. They provide for partnerships with non-Federal parties to conserve the ecosystems upon which listed species depend, ultimately contributing to their recovery. Habitat conservation plans can apply to both listed and non-listed species, including those that are candidates or have been proposed for listing.

#### *3.4.1.2 Migratory Bird Treaty Act*

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703–712) provides protection for migratory birds (including the nests and eggs of birds protected under the MBTA) in the United States, regardless of their official listing status. The provisions of MBTA make it unlawful to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, transport, or import migratory birds, their eggs, parts, and nests (16 U.S.C. §703(a)). The MBTA does not discriminate between live or dead birds and grants full protection to any bird parts including feathers, eggs, and nests. The law applies to the removal or disturbance of nests occupied by migratory birds during the breeding season. Birds protected under the MBTA are listed at 50 CFR §10.13.

On January 10, 2001, President Clinton signed EO 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds." One of the requirements of EO 13186 is that each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement a Memorandum of Understanding with USFWS that will promote the conservation of migratory bird populations.

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

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. §§ 668-668d) prohibits unpermitted take, possession, and commerce of such birds, including their parts, nests, or eggs, and establishes civil and criminal penalties for violation. The BGEPA defines take as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Federal regulations implementing the BGEPA further define disturb to mean "agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 Federal Register 31132; 50 CFR 22.3).

The USFWS interprets "disturb" to include impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits and causes injury, death, or nest abandonment (USFWS 2007).

#### *3.4.1.4 Magnuson-Stevens Fishery Conservation and Management Act*

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires Federal agencies to consider activities that may adversely affect Essential Fish Habitat (EFH).

The objective of an EFH assessment is to determine whether a proposed action(s) "may adversely affect" designated EFH for relevant commercial, federally managed fisheries species. For the Proposed Action, these species are identified in the Pacific Coast Groundfish Fishery Management Plan, which also describes conservation measures proposed to avoid, minimize, or otherwise offset any identified potential effects to designated EFH resulting from proposed activities.

#### *3.4.1.5 Noxious Weeds and Invasive Species*

Executive Order 13112 (EO 13112), Invasive Species, requires Federal agencies to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species cause. Specifically, EO 13112 requires that Federal agencies not authorize, fund, or implement activities that are likely to introduce or spread invasive species unless the agency has determined that the benefits outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize harm have been implemented. The USDA Animal and Plant Health Inspection Service maintains a Federal Noxious Weed List which includes Introduced, Invasive, and Noxious Plants (USDA 2015a).

### 3.4.2 Resource Overview

This section identifies vegetation, wildlife, special status species, and sensitive habitats in the Project Area. Each is discussed below.

#### *3.4.2.1 Vegetation*

All of the proposed LMR Project Area is located within three USEPA Level III Ecoregions: Southern California/Northern Baja Coast, Southern California Mountains, and Mojave Basin and Range (USEPA 2015b). These ecoregions are illustrated in Figure 3.4-1.

The Southern California/Northern Baja Coast Ecoregion is described as historically dominated by coastal sage scrub and chaparral vegetation communities, with oak and walnut woodlands dispersed throughout.

The Southern California Mountains Ecoregion is predominated by Mediterranean types of vegetation such as chaparral and oak woodlands. These areas are cooler and wetter in the winter than surrounding regions, resulting in the ecoregion containing vegetation denser than surrounding ecoregions and occasional large stands of coniferous woodlands.

The Mojave Basin and Range Ecoregion stretches across the northern portion of the Project Area and is composed of broad basins and scattered mountains. This ecoregion is largely underlain by thermic Entisol and Aridsol soils. This arid ecoregion is dominated by creosote bush scrub, Joshua tree woodland, and blackbush scrub communities.

A characterization of land and vegetative cover for individual LMR project sites would generally follow the classification system found in *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009).

**Figure 3.4-1: Level III Ecoregions in the Project Area**

The predominant land cover on LMR project sites proper is Urban or Built-up Land, Ruderal, or Ornamental, all of which contain minimal native vegetation due to most areas in consideration having been already extensively disturbed or developed. These areas do not generally serve as high-quality habitat for common or sensitive species. Site-specific descriptions of land cover would be provided in later analyses, to ascertain habitat quality.

#### *3.4.2.2 Wildlife*

More than 500 wildlife species occur in the Project Area, not including invertebrates (Garrett et al. 2006). Since the distribution of habitats varies throughout the Project Area, so does the distribution of wildlife species. Most wildlife species occur in rural and conserved lands of the Project Area; however, due to the growing urban-wildland interface, a number of species have come to coexist or conflict with humans in developed lands (Gehrt et al. 2010 *in* NTIA 2014).

Aquatic species are not common in the Project Area. Much of their habitat has been converted throughout the Project Area, particularly due to the channelization of streams and rivers and the introduction of nonnative species such as mosquito fish (*Gambusia* sp.) (Friends of the LA River 2008; McGinnis 2006 *in* NTIA 2014). Most freshwater species in the Project Area are special status species such as Santa Ana speckled dace (*Rhinichthys osculus*) and unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) (NTIA 2014).

Herpetological species occur throughout the Project Area, the majority of which are residents. Most species are active during warm weather, from February to October, and remain in burrows throughout the remainder of the year. The western side-blotched lizard (*Uta stansburiana elegans*) and western fence lizard (*Scleroporus occidentalis*) are common species that inhabit a variety of habitats, including urban areas (Grinnell and Grinnell 1907 *in* NTIA 2014). Common inhabitants of streams and ponded waters in the coastal regions of the Project Area are the Pacific treefrog (*Pseudacris cadaverina*), California toad (*Anaxyrus boreas halophilus*), and black-bellied salamander (*Batrachoseps nigriventris*) (Fisher and Case 2014; Nafis 2014 *in* NTIA 2014). Many herpetological species in the Project Area are special status species; these species include coast horned lizard (*Phrynosoma blainvillii*), desert tortoise (*Gopherus agassizii*), green sea turtle (*Chelonia mydas*), and Pacific pond turtle (*Actinemys marmorata*).

The Project Area hosts a variety of resident and migratory birds. Resident birds include common species such as black phoebe (*Sayornis nigricans*), mourning dove (*Zenaida macroura*), California quail (*Callipepla californica*), red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), and common raven (*Corvus corax*) but also include federally listed species such as coastal California gnatcatcher (*Polioptila californica*) and California condor (*Gymnogyps californianus*) (Garrett 2006 in *NTIA 2014*).

Various mammal species inhabit the Project Area. The majority of terrestrial mammals in the area are residents whose home ranges are as small as half an acre for the California ground squirrel (*Spermophilus beecheyi*) (Polite and Ahlborn 1999) to as large as 128,000 acres for male mountain lions

(*Puma concolor*) (NPS 2014 *in* NTIA 2014). Mammals in the Project Area are herbivores, omnivores, or carnivores. Many smaller terrestrial species are herbivorous, while most bat species are insectivorous. Common terrestrial mammalian species include coyote (*Canis latrans*), Audubon's cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and desert woodrat (*Neotoma lepida*).

#### *3.4.2.3 Special Status Species*

Activities by humans, such as over-harvesting of wildlife; spreading of invasive exotic species; development resulting in the destruction of habitat; and the release of contaminants into the air, water, and soil, have resulted in reductions in the abundance and distribution of native wildlife species with numerous species nearing extinction or becoming extinct. Federal and State regulatory programs have been enacted in an attempt to prevent extinction of special status species. For purposes of this PEA, special status species include:

- species listed as endangered, threatened, proposed for listing, or having candidate status under the ESA. USFWS provided a list of such species with potential to occur in the Action Area as part of the informal consultation process under Section 7 of the ESA. USFWS-designated and proposed critical habitat is discussed separately in Section 3.4.2.4, Sensitive Habitats. For purposes of the ESA, "Action Area" is not limited to the immediate area involved in the action (50 CFR § 402.02). As part of the informal consultation process for the Proposed Action, USFWS has identified an "action area" that covers all of the Project Area.
- bald and golden eagles, due to their inclusion in the BGEPA
- species protected under the MBTA

**<u>Species Protected Under the Federal Endangered Species Act</u>**

The USFWS and NMFS are responsible for compiling the lists of threatened and endangered species. The USFWS provided a list of 42 federally listed endangered, threatened, and candidate species and their critical habitats in the Action Area in a letter dated April 20, 2015 (Appendix A). No species proposed for listing were identified by USFWS in the Action Area for the LMR project. The species list is presented in Table 3.4-1.

The USFWS Information for Planning and Conservation (IPaC) list for southern California was searched, and no additional species were identified. As individual project sites are identified, a CNDDB query would be conducted to determine if any special status species has been recorded within 1 mile of the proposed project site. The consultation process for species protected under the ESA is provided in Section 4.4.2.

**Table 3.4-1: Federally Listed Threatened, Endangered, and Candidate Species in the Project Area**

| Common Name | Scientific Name | Status |
|---|---|---|
| **PLANTS** | | |
| Braunton's milk-vetch | *Astragalus brauntonii* | E, CH |
| California Orcutt grass | *Orcuttia californica* | E |
| Conejo dudleya | *Dudleya abramsii* ssp. *parva* | T |
| Lyon's pentachaeta | *Pentachaeta lyonii* | E, CH |
| marcescent dudleya | *Dudleya cymosa* ssp. *marcescens* | T |
| salt marsh bird's-beak | *Cordylanthus maritimus* ssp. *maritimus* | E |
| Nevin's barberry | *Berberis nevinii* | E |
| Santa Monica Mountains live-forever | *Dudleya cymosa* ssp. *ovatifolia* | T |
| San Fernando Valley spineflower | *Chorizanthe parryi* var. *fernandina* | C |
| slender-horned spineflower | *Dodecahema leptoceras* | E |
| spreading navarretia | *Navarretia fossalis* | T, CH |
| Verity's dudleya | *Dudleya verityi* | T |
| marsh sandwort | *Arenaria paludicola* | E |
| Gambel's watercress | *Rorippa gambellíi* | E |
| Ventura marsh milk vetch | *Astragalus pycnostachyus* var. *lanosissimus* | E |
| coastal dunes milk-vetch | *Astragalus tener* var. *titi* | E |
| thread-leaved brodiaea | *Brodiaea filífolia* | T, CH |
| Brand's phacelia | *Phacelia stellaris* | C |
| **INVERTEBRATES** | | |
| conservancy fairy shrimp | *Branchinecta conservatio* | E |
| Riverside fairy shrimp | *Streptocephalus woottoni* | E |
| San Diego fairy shrimp | *Branchinecta sandiegonensis* | E |
| El Segundo blue butterfly | *Euphilotes battoides allyni* | E, CH |
| Palos Verdes blue butterfly | *Glaucopsyche lygdamus palosverdensis* | E |
| quino checkerspot butterfly | *Euphydryas editha quino* | E |
| **FISH** | | |
| tidewater goby | *Eucyclogobius newberryii* | E, CH |
| unarmored threespine stickleback | *Gasterosteus aculeatus williamsoni* | E |
| Santa Ana sucker | *Catostomus santaanae* | T, CH |
| steelhead trout | *Oncorhynchus mykiss* | E |
| **AMPHIBIANS** | | |
| California red-legged frog | *Rana draytonii* | T, CH |
| arroyo toad | *Anaxyrus californicus* | E, CH |
| mountain yellow-legged frog | *Rana muscosa* | E, CH |
| **REPTILES** | | |
| desert tortoise | *Gopherus agassizii* | T, CH |

**Table 3.4-1: Federally Listed Threatened, Endangered, and Candidate Species in the Project Area**

| Common Name | Scientific Name | Status |
|---|---|---|
| **BIRDS** | | |
| California condor | *Gymnogyps californianus* | E, CH |
| coastal California gnatcatcher | *Polioptila californica* | T, CH |
| California least tern | *Sterna antillarum browni* | E |
| southwestern willow flycatcher | *Empidonax traillii extimus* | E, CH |
| least Bell's vireo | *Vireo bellii pusillus* | E, CH |
| western snowy plover | *Charadrius alexandrinus nivosus* | T, CH |
| yellow-billed cuckoo | *Coccyzus americanus* | T |
| light-footed clapper rail | *Rallus longirostris levipes* | E |
| **MAMMALS** | | |
| San Bernardino kangaroo rat | *Dipodomys merriami parvus* | E |
| Pacific pocket mouse | *Perognathus longimembris pacificus* | E |
| C = Candidate<br>CH = Critical habitat designated<br>E = Endangered<br>T = Threatened | | |

**Species Protected Under Other Federal Laws**

Other Federal laws protect various species that have the potential to occur in the Project Area. These include:

- bald and golden eagles protected under the BGEPA
- migratory bird species including warblers, finches, flycatchers, and others that travel along the Pacific Flyway and that are protected under the MBTA

#### *3.4.2.4 Sensitive Habitats*

Sensitive habitats considered in this PEA include critical habitat, as designated under the ESA, EFH, and sensitive habitats classified by CDFW recorded in the CNDDB. These habitats are found throughout the Project Area and may occur at proposed LMR project sites.

Field methodology to determine if sensitive habitats may be impacted by project activities would include mapping vegetation within a 500-foot radius of the proposed site and classifying habitats using *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Field surveys would be conducted and lists of plant species and their cover values would be documented in field notes. A CNDDB data query of sensitive habitats within 1 mile of the proposed site would be conducted.

**Endangered Species Act Designated Critical Habitat**

As shown in Table 3.4-1, critical habitat has been designated by USFWS for several ESA-listed species. Within the boundary of each area designated as critical habitat, USFWS has identified primary constituent elements (PCEs) that are essential to the conservation of a given species (50 CFR 424.12). These PCEs may include, but are not limited to, the following:

- space for individual and population growth and for normal behavior
- food, water, air, light, minerals, or other nutritional or physiological requirements
- cover or shelter
- sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal
- in general, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species

**Essential Fish Habitat**

The coastal Pacific Ocean and several harbors and bays in southern California have been designated as EFH for groundfish by NMFS. Habitat areas of particular concern (HAPCs), a subset of EFH, also occur in southern California. Along the coastal portions of the Project Area, these include estuarine, sea grass, and rocky reef HAPCs (NMFS 2015).

## 3.5 Human Health and Safety

For purposes of this analysis, impacts to human health and safety include potential human exposure to hazardous substances (including hazardous materials and wastes), management of risks associated with airspace obstructions and management of RF electromagnetic energy (RF-EME) exposures.

### 3.5.1 Regulatory Background

#### *3.5.1.1 Resource Conservation and Recovery Act of 1976*

The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.) establishes national goals to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. RCRA outlines duties and responsibilities for hazardous waste generators, transporters, storers, treaters, and disposers of hazardous waste. RCRA requires the regulation of underground storage tanks (USTs) by imposing structural integrity and management practice requirements. Waste management regulations by USEPA are codified at 40 CFR Parts 239–282; regulations for management of hazardous waste begin at 40 CFR Part 260. Nearly all developed areas in the continental United States have solid waste management services or programs, with municipal solid waste generally regulated and managed at the state and community level. States have enacted laws and promulgated regulations that are at least as stringent as the Federal regulations. In addition, states have the authority to carry out many of the functions of RCRA through their own hazardous waste programs (and state laws), if such programs have been approved (authorized) by USEPA.

#### *3.5.1.2 Comprehensive Environmental Response, Compensation, and Liability Act of 1980*

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. § 9601 et seq.) a trust fund has been established to provide authority for cleanup of releases or threatened release of hazardous substance that could endanger public health or the environment. Funding for CERCLA was reauthorized under the Superfund Amendments and Reauthorization Act of 1986 (SARA). As part of CERCLA, the USEPA compiles a list of national priorities among the known releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories, known as the National Priorities List (NPL). These locations, commonly referred to as "Superfund" sites, occur throughout the Project Area.

#### *3.5.1.3 Emergency Planning and Community Right-to-Know Act of 1986*

The Emergency Planning and Community Right-to-Know Act (EPCRA) (42 U.S.C. § 11001 et seq.) establishes requirements for Federal, state, and local governments, Native American Tribes, and industry regarding emergency planning and "community right-to-know" reporting on hazardous and toxic chemicals. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment. Under EPCRA, local governments are

required to prepare chemical emergency response plans and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHSs) on site in quantities greater than corresponding Threshold Planning Quantities must cooperate in emergency plan preparation. Additionally, facilities must immediately report accidental releases of extremely hazardous substance (EHS) chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities defined in CERCLA to state and local officials. This information must be made available to the public. Facilities manufacturing, processing, or storing designated hazardous chemicals must make Material Safety Data Sheets (MSDSs) describing the properties and health effects of these chemicals available to state and local officials and local fire departments. Facilities must also report to state and local officials and local fire departments inventories of all on-site chemicals for which MSDSs exist. This information must be made available to the public. Facilities must complete and submit a Toxic Chemical Release Inventory Form annually for each of the more than 600 Toxic Release Inventory chemicals that are manufactured or otherwise used above the applicable threshold quantities.

#### *3.5.1.4 Protection of the Environment, Oil Pollution Prevention*

40 CFR Chapter 1, Part 112, addressing oil pollution prevention, establishes procedures, methods, equipment, and other requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines. The regulation requires the development of a Spill Prevention Control and Countermeasures Plan (SPCC Plan) that addresses the safe storage of oil products.

#### *3.5.1.5 Construction, Marking, and Lighting of Antenna Structures*

The rules established in 47 CFR Part 17 are issued pursuant to the authority contained in Title III of the Communications Act of 1934 (47 U.S.C § 151 et seq.), as amended, which vests authority in the FCC to issue licenses to radio stations when it is found that the public interest, convenience, and necessity would be served thereby and to require the painting and/or illumination of antenna structures if and when, in its judgment, such structures constitute, or there is reasonable possibility that they may constitute, a menace to air navigation. The FCC website provides a landing slope facility calculator and screening tool, known as the TOWAIR, which assists in forecasting whether a proposed construction or modification of an antenna support structure requires notification to the FAA and registration with the FCC.

#### *3.5.1.6 Evaluating Aeronautical Effect*

The FAA regulates obstructions in navigable airspace, administers notice requirements that apply to certain construction activities, provides for aeronautical studies to determine a potential project's effect on the safe and efficient use of airspace, and conducts public hearings on the hazardous effect of proposed construction or alteration. Regulations pertaining to airspace safety are provided in 14 CFR Part 77. Part of FAA's mandate is to evaluate potential obstructions (including communication towers) and other criteria that may potentially affect air safety (as described in 14 CFR subpart 77.29), using the

Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) process and determine whether a proposed construction or alteration would be a hazard to air navigation. A notice of proposed new construction or alteration to an existing antenna support structure provides a basis for the FAA to evaluate the effect on operational procedures. After reviewing proposed antenna structures submitted for review, FAA provides determinations on sites that have no impact on air safety and provides further review/public noticing requirements for sites that may impact air safety. FAA's determinations may include measures for continued safety (if needed) of air navigation beyond that required by the current FAA Advisory Circular AC 70/7460-1L, *Obstruction Marking and Lighting*, dated December 4, 2015.

#### *3.5.1.7 Federal Communication Commission Office of Engineering and Technology Bulletin 65 (Edition 97-01)*

The FCC is responsible for evaluating the effect of exposure from FCC-regulated transmitters on the quality of the human environment. Safe exposure limits are specified by the FCC in terms of maximum permissible exposure (MPE) limits that vary with frequency. The requirements for RF-EME exposure compliance are contained in FCC Office of Engineering and Technology (OET) Bulletin 65, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* (FCC 1997).

#### *3.5.1.8 California Occupational Safety and Health Administration*

The California Occupational Safety and Health Administration (California Code of Regulations Title 8) protects workers and the public from safety hazards through its occupational safety and health programs, and it provides consultative assistance to employers. Handling and storage of fuels, flammable materials, and common construction-related hazardous materials are governed by this agency.

#### *3.5.1.9 California Resource Conservation Recovery Act*

California's hazardous waste program (California Resource Conservation Recovery Act, 22 California Code of Regulations Division 4.5) is more stringent than the Federal counterpart, and certain wastes that would not qualify as hazardous based on Federal standards may still qualify as hazardous waste according to California standards (termed non-RCRA hazardous waste). California Government Code Section 65962.5 requires the California Department of Toxic Substance Control (DTSC) to compile and update as appropriate, but at least annually, and submit to the Secretary for Environmental Protection a list of potential hazardous waste sites. This list of sites is known as the "Cortese List." Since the law has been enacted, advances in tracking data though web-based programs have largely replaced the Cortese List. The online website (http://www.calepa.ca.gov/SiteCleanup/CorteseList/default.htm) provides links to these sites that now meet Cortese List requirements.

#### *3.5.1.10 California Fire Code, Chapter 57 Flammable and Combustible Liquids*

Federal standards flow down to the State for overseeing the safe storage of flammable and combustible liquids. The chapter of the California Fire Code addressing flammable and combustible liquids (California

Code of Regulations Title 19, Division 1) gives authority to the State Fire Marshal for this responsibility. Chapter 57 of the California Fire Code, scope and application is the prevention, control and mitigation of dangerous conditions related to the storage, use, dispensing, mixing and handling of flammable and combustible liquids. This section of the California Fire Code provides specific requires for the storage and safe handling of flammable and combustible liquids.

## 3.5.2 Resource Overview

### *3.5.2.1 Hazardous Substances*

Hazardous substances are defined as any solid, liquid, contained gaseous, or semisolid waste or any combination of wastes that pose a substantial present or potential hazard to human health and the environment. Improper management and disposal of hazardous substances can lead to contamination of groundwater and surface water, including drinking water supplies, soils, and air.

### *3.5.2.2 Airspace and Airspace Hazards*

Airspace is a finite resource that can be defined vertically and horizontally, as well as temporally, when describing its use for aviation purposes. As such, it must be managed and utilized in a manner that best serves the competing needs of commercial, general, and military aviation interests. The FAA is responsible for the overall management of airspace and has established different airspace designations that are designed to protect aircraft while operating to or from an airport or transiting en route between airports. As noted in Section 3.1.1.3, there are 16 commercial and general aviation airports in the Project Area.

### *3.5.2.3 Radiofrequency Exposures*

The FCC has established an occupational/controlled MPE of 5 milliwatts per square centimeter ($mW/cm^2$) and an uncontrolled MPE of 1 $mW/cm^2$ for equipment that operates above the 1500-MHz frequency range. For equipment operating at 700 MHz, the occupational MPE is 2.83 $mW/cm^2$ and an uncontrolled MPE of 0.57 $mW/cm^2$. The occupational/controlled exposure limits apply in situations in which persons are exposed during employment or are otherwise temporarily in a location where these limits apply. Application of this limit can be used only when individuals are fully aware of the potential for exposure and can therefore exercise control over that exposure. The general population/uncontrolled exposure limits apply in situations where persons may not be fully aware of the potential for exposure and therefore do not exercise control over exposure. The FCC further requires that antenna sites be placarded, that workers be trained to preclude any potential occupational exposures at sites, and that other control measures such as fencing out unauthorized persons and/or shielding of antennas are put into place, where warranted.

## 3.6 Socioeconomics

Socioeconomic resources include demographics, housing, and the regional economy. The general basis for socioeconomic considerations is data obtained from the U.S. Census Bureau (USCB). An element of socioeconomic consideration is Environmental Justice, which pertains to activities that have disproportionately high and adverse human health or environmental effects on minority and low-income populations.

### 3.6.1 Regulatory Background

#### *3.6.1.1 Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*

Under EO 12898, FEMA and all other Federal agencies are required to identify and correct all programs, policies, and activities that have disproportionately high and adverse human health or environmental effects on minority or low-income populations. The EO also tasks Federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible. The general purposes of EO 12898 are as follows:

- to focus the attention of Federal agencies on human health and environmental conditions in minority communities and low-income communities with the goal of achieving environmental justice
- to foster nondiscrimination in Federal programs that substantially affect human health or the environment
- to give minority communities and low-income communities greater opportunities for public participation in, and access to, public information on matters relating to human health and the environment

### 3.6.2 Resource Overview

#### *3.6.2.1 Socioeconomics*

The USCB provides relevant data on demographics and housing that may be obtained and analyzed by political subdivisions, such as by states, counties, and cities.

**Demographics and Housing**

The Project Area includes all of Los Angeles County and extends to parts of Orange and San Bernardino counties. Table 3.6-1 provides the demographic profile of California and these three counties.

**Table 3.6-1: Demographic Profile**

| | State | Counties | | |
|---|---|---|---|---|
| | California | Los Angeles | Orange | San Bernardino |
| Population, 2014 estimate | 38,802,500 | 10,116,705 | 3,145,515 | 2,112,619 |
| Population, 2010 estimate | 37,254,503 | 9,818,664 | 3,010,269 | 2,035,215 |
| Population, percent change | 4.2 | 3.0 | 4.5 | 3.8 |
| White alone (%) | 73.2 | 71.3 | 73.5 | 77.3 |
| Black or African American alone (%) | 6.5 | 9.2 | 2.1 | 9.5 |
| American Indian and Alaska Native alone (%) | 1.7 | 1.5 | 1.1 | 2.0 |
| Asian alone (%) | 14.4 | 14.8 | 19.6 | 7.3 |
| Native Hawaiian and Other Pacific Islander along (%) | 0.5 | 0.4 | 0.4 | 0.5 |
| Two or more races (%) | 3.7 | 2.9 | 3.3 | 3.4 |
| Hispanic or Latino[a] (%) | 38.5 | 48.2 | 34.3 | 51.7 |

[a] Hispanics may be of any race, so also are included in applicable race categories
Percent by race is based on 2014 population estimates
Source: U.S. Census Bureau 2015

Based on the 2009-2013 five-year estimates, Los Angeles County had approximately 3.45 million housing units with a 93.6 percent occupancy rate, leaving 222,518 units vacant. Median value of owner-occupied units was $420,200; and the median rent per unit was $1,204 per month (USCB 2013c).

**Regional Economy**

Because the service area of the proposed LMR project is Los Angeles County and nearly all LMR project sites would be in Los Angeles County, the county was used to characterize the regional economy. In 2013, Los Angeles County had nearly 3.8 million paid employees and annual payroll of $194 billion (USCB 2013a). Based on 2014 American Community Survey data for Los Angeles County, unemployment in the civilian labor work force was 8.8 percent (down from 10.2 percent in 2013), median household income was $55,746 (up from $54,529 in 2013), and 18.7 percent of families and people were living below poverty level (down from 18.9 percent in 2013) (USCB 2014, 2013b).

### *3.6.2.2 Environmental Justice*

Potential environmental justice impacts are evaluated by analyzing the socioeconomic makeup of the community where a project is proposed to be located. Some general category descriptions help define and weigh Federal action impacts on socioeconomic resources and environmental justice including low-income areas and areas with a high percentage of minorities. For this analysis, CEQ guidance was followed to define low-income and minority populations and assist in the evaluation of whether the

Proposed Action would result in disproportionately high and adverse human health or environmental effects on these populations (CEQ 1997).

Low-income populations can be identified using the statistical data from the USCB. As a baseline, the lowest level of jurisdiction that encompasses the entire Project Area is the State of California, which in 2013 had a median income of $61,094 (USCB 2015). Following CEQ guidance, areas with median income of up to 80 percent of California's median income, or $48,875, would be of concern.

Minority populations include persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic (CEQ 1997). Within the State of California, total minority population as defined by CEQ was 61 percent in 2013 (USCB 2015). Following CEQ guidance, a minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater (i.e., more than 10 percent) than in the general population of California. As a result, the threshold for identification of minority populations in the Project Area is 71 percent.

## 3.7 Historic Properties

The broad, often-used term for the physical remains and sites associated with human activity is cultural resources. This includes, but is not limited to, prehistoric and ethnohistoric archaeological sites (Native American or other cultures); historic archaeological sites; historic buildings, structures, objects, or other features or items; and elements or areas of the natural landscape that have cultural character and significance to a culture, subculture, or community (King 1998). Whether archaeological, architectural, or ethnic in nature, cultural resources that are listed in or eligible for listing in the National Register of Historic Places (NRHP) are called "Historic Properties."

### 3.7.1 Regulatory Background

Multiple Federal statutes and regulations require consideration of the effects of an agency's Undertakings on historic properties. These include the NHPA of 1966, as amended (54 U.S.C. 300101 et seq. [formerly 16 U.S.C § 470 et seq.]), the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001 et seq.), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. § 470aa et seq.). Among the historic preservation laws and regulations, the primary mandate for the LMR project and interaction with NEPA is the NHPA, particularly, Section 106.

Under 54 U.S.C. 306107 (formerly 16 U.S.C. § 470h-2(f)), a higher standard is applicable to historic properties that are designated as National Historic Landmarks (NHLs). In accordance with this guidance, Federal agencies must, to the maximum extent possible, minimize harm to NHLs that are directly and adversely affected by their actions. In addition, Federal agencies must notify and formally invite the Secretary of the Interior to join the consultation process and invite the ACHP to participate in the consultation process to resolve any adverse effects.

#### *3.7.1.1 Section 106 of the National Historic Preservation Act*

Section 106 of the NHPA and its implementing regulations (36 CFR § 800) direct Federal agencies to consider the effects of their undertakings on historic properties and to afford the ACHP a reasonable opportunity to comment. An undertaking, in the context of Section 106 and as used throughout this document, refers to a "project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval" (36 CFR § 800.16(y)). Alternate procedures are often used to streamline the Section 106 review process and may be in the form of a Programmatic Agreement (PA), Memorandum of Agreement (MOA), or other legal document developed among the agency, the appropriate State Historic Preservation Officer (SHPO), the ACHP, a Tribal Historic Preservation Officer (THPO), and/or other stakeholders as appropriate to the undertaking. For the LMR project, FEMA will utilize, to the extent possible, two existing PAs and one ACHP Program Comment to satisfy LMR Section 106 compliance requirements. Details of the PA compliance process are provided in Section 3.7.1.3.

#### *3.7.1.2 Agency Participation for the Purposes of Section 106 Review*

**Federal Communications Commission as a Cooperating Agency**

FEMA has assumed lead agency responsibility under NEPA for determining whether proposed LMR facilities will have a significant effect on the quality of the human environment and anticipates that the PEA will satisfy the FCC's NEPA procedures under 47 CFR § 1.1311 (e). In accordance with 40 CFR § 1501.6, FEMA requested the participation of FCC in the PEA as a cooperating agency. The FCC accepted FEMA's request to be a cooperating agency in the interest of most efficiently integrating Section 106 requirements and findings into the PEA process.

For FEMA actions within the jurisdiction of the FCC and within the scope of the FCC's Collocation Agreement and Nationwide Agreement for communication facilities (see Section 3.7.1.3), FEMA has deferred Section 106 review to the FCC pursuant to Stipulation I.A.1 of the California PA among FEMA, the California SHPO, and Cal OES (see Section 3.7.1.4). This includes any required consultation with Tribes. For LMR project sites on land administered by other Federal agencies, FEMA would defer their Section 106 review to that agency.

**Federal Communications Commission Form 620/621 Process**

To comply with the FCC PAs described in Section 3.7.1.3, a New Tower Submission packet (FCC Form 620) or a Collocation Submission packet (FCC Form 621) will be prepared for LMR project sites as applicable and submitted to the SHPO for review and concurrence. A discussion of the associated Tower Construction Notification System (TCNS) is provided in Section 4.7.2.1.

#### *3.7.1.3 Federal Communications Commission Programmatic Agreements*

To the extent appropriate, the following two PAs would be utilized to streamline the LMR Section 106 process. The FCC PAs do not apply on Federal lands and where LMR sites are proposed on Federal lands. The land managing agency would be the lead agency for Section 106 process. Neither FCC PA applies to projects undertaken on Tribal land; however, none of the proposed LMR project sites are situated on Tribal land.

The two PAs are:

- *National Programmatic Agreement for the Collocation of Wireless Antennas* (March 2001) (Collocation Agreement) which was formulated to streamline the process for collocating antennas on existing towers and other structures to reduce the need for the construction of new towers. The Collocation Agreement constitutes a substitute for the FCC's compliance with the ACHP's regulations implementing Section 106 of the NHPA for the collocation of antennas as defined in the Collocation Agreement.
- *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission (FCC)* (September 2004)

(Nationwide Agreement). The Nationwide Agreement was formulated to further streamline the NHPA's Section 106 process for facilities that were not excluded from Section 106 review under the Collocation Agreement.

Both of these PAs were developed through consultation among, and approved by, the FCC, the ACHP, and the National Conference of State Historic Preservation Officers.

***Advisory Council on Historic Preservation Program Comment***

Construction and operation of the proposed LMR system is subject to licensing by the FCC. FEMA is applying the ACHP's *Program Comment for Streamlining Section 106 Review for Wireless Communication Facilities Construction and Modification Subject to Review under the FCC Nationwide Programmatic Agreement and/or Nationwide Programmatic Agreement for the Collocation of Wireless Antennas,* dated October 2009 as amended September 2015, described above, to comply with the NHPA for towers and collocation sites that are proposed to be constructed on non-Federal lands. Application of the *Program Comment* relieves FEMA's responsibility for NHPA compliance for these sites and renders the FCC as the lead agency for their Section 106 review. Simply stated, the ACHP's Program Comment allows additional agencies, including FEMA, to utilize the guidance provided in the two PAs.

***Exclusions under the FCC's 2001 Collocation Agreement***

Based on the Collocation Agreement, certain LMR locations may be excluded from NHPA Section 106 review. The exclusion(s) may, therefore, eliminate the need for archaeological and/or architectural survey. The intent of the exclusions is to streamline the environmental review process as it applies to the collocation of antennas on existing towers, buildings, and structures and to reduce the need for the construction of new towers. The Collocation Agreement does *not* apply to Native American tribal lands.

The Collocation Agreement allows for the collocation of LMR antennas on an existing tower, building, or structure for the purpose of transmitting and/or receiving RF signals for communications purposes. A tower is defined as any structure built for the sole or primary purpose of supporting FCC-licensed antennas and their associated facilities.

LMR project locations would be screened for possible exemption under the stipulations of the Collocation Agreement. Details about each proposed exempted site would be submitted to the SHPO by FEMA for review, comment, and concurrence. Guidance for use of the Collocation Agreement includes:

- *Towers constructed on or before March 16, 2001.* In accordance with Collocation Agreement Stipulation III.A.1-4, an antenna may be mounted on an existing tower constructed on or before March 16, 2001, without further NHPA Section 106 review unless:
    - the mounting will substantially increase the size of the tower as described in Stipulation I.C.1-3 or would involve excavation outside the current tower site, including any access or utility easements related to the site (Collocation Agreement Stipulation I.C.4); or

- the tower has been previously determined by the FCC to have an effect on one or more historic properties, unless the effect has been determined to be *not* adverse or the adverse effect has been resolved; or
- the tower is the subject of a pending environmental review or related proceeding before the FCC involving compliance with NHPA Section 106; or
- the collocation licensee or owner of the tower has received a written complaint from the public, a SHPO, or the Council that there will be an adverse effect on one or more historic properties.

- *Towers constructed after March 16, 2001.* In accordance with Collocation Agreement Stipulations IV.A. 1-4, an antenna may be mounted on an existing tower constructed after March 16, 2001, without further NHPA Section 106 review unless:
  - the NHPA Section 106 review process and any associated environmental reviews required by the FCC have not been completed; or
  - the new antenna will result in a substantial increase in the size of the tower as described in Stipulation I.C.1-3 or would involve excavation outside the current tower site, including any access or utility easements related to the site (Collocation Agreement Stipulation I.C.4); or
  - the tower as built or proposed has been previously determined by the FCC to have an effect on one or more historic properties, unless the effect has been determined to be *not* adverse or the adverse effect has been resolved; or
  - the collocation licensee or owner of the tower has received a written complaint from the public, a SHPO, or the Council that there will be an adverse effect on one or more historic properties.
- *Collocation of antennas on buildings or non-tower structures outside of historic districts.* An antenna may be mounted on a building or non-tower structure without further NHPA Section 106 review unless:
  - the building or structure is over 45 years old; or
  - the building or structure is inside the boundary of a historic district, or if the antenna is visible from the ground level of the historic district, the building or structure is within 250 feet of the boundary of the historic district; or
  - the building or non-tower structure is a designated National Historic Landmark, or listed in, or eligible for listing in the National Register of Historic Places based on a review of the licensee, tower company, or applicant for antenna license; or

- the collocation licensee or owner of the tower has received a written complaint from the public, a SHPO, or the Council that there will be an adverse effect on one or more historic properties.

***Exclusions under the FCC's 2004 Nationwide Agreement***

In accordance with the Nationwide Agreement, Section III. A–F, the following undertakings are excluded from Section 106 review by the SHPO/THPO, the FCC, and the ACHP:

A. Enhancement of a tower and any associated excavation that does not involve a collocation and does not substantially increase the size of the existing tower, as defined in the Collocation Agreement. For towers constructed after March 16, 2001, this exclusion applies only if the tower has completed the Section 106 review process and any associated environmental reviews required by the FCC.

B. Construction of a replacement for an existing communications tower and any associated excavation that does not substantially increase the size of the existing tower under elements 1-3 of the definition as defined in Stipulation I.c.1-3 of the Collocation Agreement and that does not expand the boundaries of the leased or owned property surrounding the tower by more than 30 feet in any direction or involve excavation outside these expanded boundaries or outside any existing access or utility easement related to the site. For towers constructed after March 16, 2001, this exclusion applies only if the tower has completed the Section 106 review process and any associated environmental reviews required by the FCC's rules. The full text of the FCC's rules (Title 47 of the Code of Federal Regulations) can be found at http://www.fcc.gov/encyclopedia/rules-regulations-title-47.

C. Construction of any temporary communications tower, antenna structure, or related facility that involves no excavation or where all areas to be excavated will be located in areas described in Section VI.D.2.c.i of the Nationwide Agreement, including but not limited to the following:

    1. A tower or antenna authorized by the FCC for a temporary period, such as any facility authorized by an FCC grant of Special Temporary Authority (STA) or emergency authorization;

    2. A cell on wheels (COW) transmission facility;

    3. A broadcast auxiliary services truck, television pickup station, remote pickup broadcast station (e.g., electronic newsgathering vehicle) authorized under 47 CFR Part 74 or temporary fixed or transportable earth station in the fixed satellite service (e.g., satellite newsgathering vehicle) authorized under 47 CFR Part 25 of the FCC's rules;

    4. A temporary ballast mount tower;

5. Any facility authorized by an FCC grant of an experimental authorization.

For purposes of Section III.C of the Nationwide Agreement, the term "temporary" means "for no more than twenty-four months duration except in the case of those Facilities associated with national security."

D. Construction of a facility less than 200 feet in overall height above ground level in an existing industrial park, commercial strip mall, or shopping center that occupies a total land area of 100,000 square feet or more, provided that the industrial park, strip mall, or shopping center is not located within the boundaries of or within 500 feet of a historic property, as identified by the Authority after a preliminary search of relevant records. Proposed facilities within this exclusion must complete the process of participation of Indian tribes and Native Hawaiian organizations (NHOs) pursuant to Section IV of the Nationwide Agreement. If as a result of this process the Authority or the FCC identifies a historic property that may be affected, the Authority must complete the Section 106 review process pursuant to the Nationwide Agreement, notwithstanding the exclusion.

E. Construction of a facility in or within 50 feet of the outer boundary of a right-of-way designated by a Federal, State, local, or Tribal government for the location of communications towers or aboveground utility transmission or distribution lines and associated structures and equipment and in active use for such purposes, provided:

1. The proposed facility would not constitute a substantial increase in size, under elements 1-3 of the definition in the Collocation Agreement, over existing structures located in the right-of-way within the vicinity of the proposed facility; and

2. The proposed facility would not be located within the boundaries of a historic property, as identified by the Applicant after a preliminary search of relevant records.

Proposed facilities within this exclusion must complete the process of participation of Indian tribes and NHOs pursuant to Section IV of the Nationwide Agreement. If as a result of this process the Applicant or the FCC identifies a historic property that may be affected, the Applicant must complete the Section 106 review process pursuant to the Nationwide Agreement, notwithstanding the exclusion.

F. Construction of a facility in any area previously designated by the SHPO/THPO at its discretion, following consultation with appropriate Indian tribes and NHOs, as having limited potential to affect historic properties. Such designation shall be documented by the SHPO/THPO and made available for public review.

As well, archaeological survey would not be required for the identification of historic properties if:

- Evidence is documented that the depth of the previous disturbance at the LMR location exceeds the proposed construction depth (excluding footings and other anchoring mechanisms) by at least 2 feet (Nationwide Agreement, Section VI.D.2.c.i).
- Geomorphological evidence indicates that cultural resources-bearing soils do not occur within the Project Area or may occur but at depths that exceed 2 feet below the proposed construction depth. (Nationwide Agreement, Section VI.D.2.c.ii).

Unless formal agreements dictate otherwise (e.g., a State-specific agreement document), it is FEMA's practice to ensure completion of Section 106 review (regardless of whether the review is deferred to other Federal agencies) before making any site-specific determinations under NEPA.

#### *3.7.1.4 FEMA California Programmatic Agreement 2014*

In October 2014, FEMA, the California SHPO, and Cal OES finalized a PA (California PA) to satisfy and streamline FEMA's Section 106 and Section 110(k) responsibilities for Undertakings in the State of California. FEMA would utilize the PA to fulfill its Section 106 responsibilities pursuant to 36 CFR Part 800.2(a)(2). Stipulation I.A.1 of the California PA provides for FEMA to defer Section 106 review to the FCC in accordance with the ACHP Program Comment of October 23, 2009 (extended to September 2025). The approval of funding for the FEMA Undertaking would be conditioned upon the compliance of the subgrantee with FCC's applicable Section 106 review, including any required consultation with Tribes. FEMA would notify the SHPO/THPO when it applies the ACHP Program Comment to an Undertaking.

### 3.7.2 Resource Overview

The NRHP was established by the NHPA in 1966. NRHP listings are maintained by the Department of the Interior, NPS. Properties may be eligible for listing in the NRHP if they possess significance at the national, tribal, state, territory, or local level and within the context of American history, architecture, archaeology, engineering, or culture. In order for a property to be considered historic, it must meet at least one of four NRHP criteria and retain the historic integrity of those features that convey its significance. To convey integrity, historic properties will always possess several, and usually most, of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association (NPS 1991).

For the purpose of this PEA, potential impacts on historic properties are undertaken by site type: archaeological resources, including Native American resources and architectural resources (e.g., buildings, structures, objects). A definition of each site type is provided in Sections 3.7.2.1 and 3.7.2.2, and a discussion of the Native American consultation process and the identified affiliated Native American Tribes is provided in Section 3.7.2.3.

**Area of Potential Effects**

In accordance with the FCC's 2004 *Nationwide Agreement*, Section VI.C, for each project location, the Area of Potential Effect (APE) is defined as the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE for direct effects is limited to the area of potential ground disturbance and any property, or any portion thereof, that will be physically altered or destroyed by the undertaking. The APE for visual effects (indirect APE) is the geographic area in which a project has the potential to introduce visual elements that diminish or alter the setting, including the landscape, where the setting is a character-defining feature of a historic property that makes it eligible for listing in the NRHP. Unless otherwise established through consultation with the SHPO/THPO, the presumed APE for visual effects is the area from which a tower will be visible. For the LMR project this is defined as a maximum radius of 0.5-mile from the project site based on the visibility of a tower 200 feet or less in overall height.

Because of the large geographic area and diverse placement of LMR project locations, the presence of historic properties within the direct and indirect APEs of some sites is likely. Once the APEs are established, background research with the SHPO/THPO, Native American Tribes, local libraries, government offices, historical societies, and others, as necessary, would provide information on previously identified historic properties. As per Nationwide Agreement Section VI.D.2, the Authority would make a reasonable good faith effort to identify other aboveground and archaeological Historic Properties, including buildings, structures, and historic districts, that lie within the APE for direct effects. Such reasonable and good faith efforts may include a field survey where appropriate.

### *3.7.2.1 Historic Properties – Archaeological*

This historic property type or category consists of sites as defined by the NPS in National Register Bulletin 15 (NPS 1991), and may include prehistoric and ethnohistoric archaeological sites (Native American or other cultures); historic archaeological sites; or other features or items; and elements or areas of the natural landscape that have cultural character and significance to a culture, subculture, or community (King 1998). These property types may be affected by direct, ground-disturbing activities, as well as indirect activities (visual or auditory intrusions) from construction and/or operational activities.

### *3.7.2.2 Historic Properties – Architectural*

This historic property type or category consists of buildings, structures, objects, and districts as defined by the NPS in National Register Bulletin 15 (NPS 1991). These property types may be affected by direct activities (physical alteration), as well as indirect activities (visual or vibrational) from construction and/or operational activities.

### *3.7.2.3 Native American Consultation*

Table 3.7-1 provides a list of federally recognized Tribes identified within the LMR Project Area. The list has been generated from the FCC's TCNS, which is used to notify Tribes having interest in the geographic area of the LMR project. As the agency responsible for maintaining the list of Tribes located in California,

the California Native American Heritage Commission (NAHC) was also contacted to confirm or augment the list of appropriate Tribes with which to coordinate and to request a search of their Sacred Lands File, in support of the FCC 620/621 consultation process with SHPO.

In addition to the applicable sections of the NHPA (Section 101(d)(6)(A), Section 101(d)(6)(B)), and Section 106), Native American consultation policies outlined by the ACHP are based on the Federal statutes and Executive Orders (EOs) described in Table 3.7-2.

**Table 3.7-1: Federally Recognized Native American Tribes Affiliated with the LMR Project Area***

| Tribe | Point of Contact | Title |
|---|---|---|
| Cahuilla Band of Mission Indians, Anza, California | Luther Salgado, Sr. | Chairman |
| Chemuevi Tribe, Havasu Lake, California | Ronald Escobar | Secretary/Treasurer |
| Colorado River Indian Tribes, Parker, Arizona | Wilene Fisher-Holt | Museum Director |
| Eastern Shoshone Tribe, Fort Washakie, Wyoming | Wilfred J. Ferris III | Tribal Historic Preservation Officer |
| Fort Mojave Indian Tribe, Mohave Valley, Arizona | Linda Otero | Cultural Society Director |
| Los Coyotes Reservation, Warner Springs, California | Shane Chapparosa | Chairman |
| Morongo Band of Mission Indians, Banning, California | Franklin A. Dancy | Director of Planning |
| Pauma/Yuima Band of Mission Indians, Pauma Valley, California | Randall Majel | Chairman |
| Ramona Band of Cahuilla Indians, Anza, California | John Gomez | Cultural Resources Coordinator |
| San Manuel Band of Mission Indians, Highland, California | Ann Brierty | CRM Specialist |
| Santa Ynez Band of Chumash Indians, Santa Ynez, California | Freddie Romero | Cultural Preservation Consultant |
| Soboba Band of Luiseño Indians, San Jacinto, California | Joseph Ontiveros | Director of Cultural Resources |
| Twenty Nine Palms Band of Mission Indians, Coachella, California | Darrell Mike | Chairman |
| Timbisha Shoshone Tribe, Bishop, California | Chairman | George Gholson |
| * Sources: Federal Communications Commission's Tower Construction Notification System; Federal Register Vol. 80, No. 9 | | |

**Table 3.7-2: Federal Statutes and Executive Orders that form the Basis of FEMA's Policy on Native American Consultation**

| Title | Broad Summary* |
|---|---|
| The National Environmental Policy Act of 1969 (NEPA) | While the statutory language of NEPA does not mention Indian tribes, the CEQ regulations and guidance do require agencies to contact Indian tribes and provide them with opportunities to participate at various stages in the preparation of an EA or EIS. |
| The American Indian Religious Freedom Act of 1978 (AIRFA) | AIRFA establishes the policy of the Federal government "to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites." |
| The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) | Section 3(c) requires Federal land-managing agencies to consult with federally recognized Indian tribes prior to the intentional removal or excavation of Native American human remains and other cultural items as defined in NAGPRA from Federal lands.<br><br>In instances where a proposed project that is funded or licensed by a Federal agency may cross Federal or tribal lands, it is the Federal land managing agency that is responsible for compliance with NAGPRA. |
| Executive Order 13175 (2000), *Consultation and Coordination with Tribal Governments* | EO 13175 lists as one of its purposes "to strengthen the United States' government-to-government relationships with Indian tribes…" Thus, the government-to-government consultation process continues to embody the unique relationship between the United States and Indian tribes. |
| Executive Order 13007, "Indian Sacred Sites" (1996) | EO 13007 applies to all federally owned lands except "Indian trust lands." It encourages land-managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sites. |

## 3.8 Infrastructure

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure, by definition, includes a broad array of facilities (e.g., utility systems, streets, highways, railroads, airports, ports, bridges, buildings and structures, and other man-made facilities). Individuals, businesses, governmental entities, and virtually all relationships between these groups depend upon this infrastructure for their most basic needs, as well as for critical and advanced needs (e.g., emergency response and health care). Section 5195c(e) of Title 42 of the U.S. Code defines critical infrastructure as the assets, systems, and networks, whether physical or virtual, so vital to the

United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, public health or safety, or a combination of these. Section 101(10) of Title 6 of the U.S. Code defines key resources as publicly or privately controlled resources essential to the minimal operations of the economy and government (FEMA 2010).

Infrastructure is man-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as "developed." An essential component of economic growth to an area is the availability of infrastructure and its capacity to support growth. Infrastructure components relevant to the LMR project include transportation, solid waste, electrical power, and water and wastewater.

## 3.8.1 Regulatory Background

### *3.8.1.1 California Integrated Waste Management Act*

The California Integrated Waste Management Act (Assembly Bill 939) mandates waste reduction targets for local agencies through the use of recycling, recovery, and other waste reduction programs.

## 3.8.2 Resource Overview

### *3.8.2.1 Transportation*

LMR project sites have been proposed in the following types of area: urban, suburban, rural, and remote. The transportation facilities that serve these different types of locations can vary widely. Urban areas are generally characterized by a complex and extensive system of roads, including major interstate freeways and surface streets. Urban roads typically support high levels of traffic, typically with average daily traffic of 10,000 to 30,000 trips, depending on location and based on actual and estimated traffic counts. These volumes of traffic often result in roadway segment and intersection congestion. Rural environments can be characterized by fewer roads and roads that are frequently graveled instead of paved. Generally, traffic levels on rural roads are relatively low (i.e., little or no congestion and average daily traffic in the range of 2,000 to 4,000 vehicles). Remote locations may contain only unpaved roads that are used only intermittently.

The Project Area has an extensive network of interstate freeways, State highways, regional roadways and local surface streets. This highway and roadway network is the major means of transportation throughout the Project Area. Interstate highways serve as regional evacuation routes during emergencies. The highway network spans the County in all directions and links critical infrastructure facilities, such as the ports of Los Angeles and Long Beach, and major airports such as Los Angeles International Airport and Long Beach Airport.

All LMR project sites would be located at or adjacent to existing facilities; therefore, all LMR project sites, even in remote areas, would be accessible by roads currently used to access the existing facilities.

#### *3.8.2.2 Solid Waste*

Types of solid waste relevant to the LMR project would consist primarily of debris generated during LMR project site construction. The Los Angeles County Sanitation Districts operate a comprehensive solid waste management system serving the needs of a large portion of Los Angeles County. The County relies on a combination of publicly and privately owned and operated facilities for waste collection, recycling, and disposal.

Types of disposal facilities for non-hazardous waste within the Project Area include Class III landfills, which accept non-hazardous household waste, and unclassified landfills, which accept materials such as soil, concrete, asphalt, and other construction and demolition debris.

#### *3.8.2.3 Electrical Power*

The two largest electrical utilities serving the Project Area are Southern California Edison and Los Angeles Department of Water and Power, although some proposed LMR project sites may be served by local municipal utilities. Although data are not available specific to the Project Area, generation and transmission capacity data are available for the State of California. California generates about 70 percent of its power within the State, and in 2009 this in-state generation capacity totaled 69,709 megawatts (MW), or 205,695 gigawatt-hours (GWH) of electricity (CEC 2015). Peak demand on July 29, 2015, was forecasted to be 41,753 MW (CAISO 2015). The transmission capacity of regional and local providers has not been determined on a site-specific basis for this PEA.

#### *3.8.2.4 Water and Wastewater Treatment*

The Project Area is served by a complex water management system, which consists of numerous water providers, water quality control boards, and other agencies. Los Angeles County's combination of local and imported water supply is delivered through a system of aqueducts, reservoirs, and groundwater basins. Approximately 33 percent of the water supply comes from local sources, including surface water from mountain runoff, groundwater, and recycled water. The remainder is imported from three sources: the Colorado River, the Sacramento-San Joaquin Delta in northern California via the State Water Project, and the Owens Valley via the Los Angeles Aqueduct (LACDRP 2014).

The Sanitation Districts of Los Angeles County operate 10 water reclamation plants (WRPs) and one ocean discharge facility (Joint Water Pollution Control Plant), which treat approximately 510 million gallons per day (mgd), 165 mgd of which are available for reuse (Sanitation Districts of Los Angeles County 2014).

## 3.9 Air Quality and Greenhouse Gas Emissions

This section presents information on the regulatory setting for air quality and greenhouse gases, and existing air quality in the Project Area.

### 3.9.1 Regulatory Background

#### *3.9.1.1 Clean Air Act of 1970*

The Federal Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.) establishes Federal policies and programs that regulate air pollution in the United States. In California, management of air pollution has largely been delegated by USEPA to the California Air Resources Board (CARB), which in turn delegated this responsibility to the local air quality management agencies within California.

The USEPA established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the CAA. The CAA not only established the NAAQS but also sets emission limits for certain air pollutants from specific sources, sets new source performance standards based on best demonstrated technologies, and established national emissions standards for hazardous air pollutants. Federal NAAQS are currently established for seven pollutants (known as "criteria pollutants"): carbon monoxide (CO), nitrogen dioxide ($NO_2$), ozone ($O_3$), sulfur dioxide ($SO_2$), lead (Pb), particulate matter equal to or less than 10 micrometers in aerodynamic diameter ($PM_{10}$), and particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$), which includes diesel particulate matter (DPM). DPM is associated with elevated cancer risk. The NAAQS are shown in Table 3.9-1.

**Table 3.9-1: National Ambient Air Quality Standards**

| Pollutant | Averaging Time | Federal Standards[1] | |
|---|---|---|---|
| | | Primary[2,3] | Secondary[4] |
| Ozone | 1 Hour | — | Same as Primary Standard |
| | 8 Hour | 0.075 ppm (147 µg/m$^3$) | |
| Respirable Particulate Matter ($PM_{10}$)[5] | 24 Hour | 150 µg/m$^3$ | Same as Primary Standard |
| | Annual Arithmetic Mean | — | |
| Fine Particulate Matter ($PM_{2.5}$)[5] | 24 Hour | 35 µg/m$^3$ | Same as Primary Standard |
| | Annual Arithmetic Mean | 12.0 µg/m$^3$ | 15 µg/m$^3$ |
| Carbon Monoxide (CO) | 1 Hour | 35 ppm (40 mg/m$^3$) | — |
| | 8 Hour | 9 ppm (10 mg/m$^3$) | |
| | 8 Hour (Lake Tahoe) | — | |

**Table 3.9-1: National Ambient Air Quality Standards**

| Pollutant | Averaging Time | Federal Standards[1] | |
|---|---|---|---|
| | | Primary[2,3] | Secondary[4] |
| Nitrogen Dioxide ($NO_2$)[6] | 1 Hour | 0.1 ppm (188 µg/m3) | None |
| | Annual Arithmetic Mean | 0.053 ppm (100 µg/m$^3$) | Same as Primary Standard |
| Sulfur Dioxide ($SO_2$)[7] | 1 Hour | 0.075 ppm (196 µg/m3) | — |
| | 3 Hour | — | 0.5 ppm (1300 µg/m$^3$) |
| | 24 Hour | 0.14 ppm (for certain areas)[8] | — |
| | Annual Arithmetic Mean | 0.030 ppm (for certain areas) | — |
| Lead[8] | 30-Day Average | — | — |
| | Calendar Quarter | 1.5 µg/m$^3$ (for certain areas) | Same as Primary Standard |
| | Rolling 3-Month Average | 0.15 µg/m$^3$ | |

Notes:

1. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three 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 micrograms per cubic meter (µg/m$^3$) is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the USEPA for further clarification and current national policies.
2. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°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.
3. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
4. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
5. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. 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$^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over three years. 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$^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over three years.
6. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb).

**Table 3.9-1: National Ambient Air Quality Standards**

| Pollutant | Averaging Time | Federal Standards[1] | |
|---|---|---|---|
| | | Primary[2,3] | Secondary[4] |

7. 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 1-hour national 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 one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb).
8. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one 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.

Source: USEPA 'National Ambient Air Quality Standards.' Internet URL: http://www3.epa.gov/ttn/naaqs/criteria.html (accessed September 20, 2015).

States with air quality that does not achieve the NAAQS are required to develop and maintain State Implementation Plans (SIPs). In addition, the USEPA may develop a Federal Implementation Plan (FIP) and Tribes may develop their own Tribal Implementation Plans (TIP). These plans constitute a federally enforceable definition of the applicable approach (or plan) and schedule for the attainment of the NAAQS.

The General Conformity Rule (GCR), established under Section 176(c)(4) of the CAA (42 U.S.C. § 7506(c)) requires Federal agencies to work with State, Territory, Tribal, and local governments to ensure that Federal actions conform to the initiatives established in the applicable SIP, FIP, or TIP for established criteria pollutants in a nonattainment or maintenance area. Before a Federal action is taken, it must be evaluated for conformity with the applicable implementation plan.

Under the GCR, determinations are made based on *de minimis* levels. These *de minimis* levels can be found in 40 CFR 93.153(b) and vary according to the type of pollutant and severity of the nonattainment area. Table 3.9-2 summarizes *de minimis* levels. These levels were established to focus on those Federal actions likely to have the most substantial impacts on air quality. If a project's emissions for nonattainment or maintenance criteria pollutants are below the *de minimis* levels, then it is assumed that the project would not result in any significant air quality impacts, and would be in conformance with the applicable SIP, FIP, or TIP, and that no further analysis is required. Conversely, if the project's emissions exceed *de minimis* levels, then the project would require a conformity determination; however, the Federal agency is allowed to make changes to the project design before the action occurs to reduce emissions below *de minimis* levels.

**Table 3.9-2: *De Minimis* Levels by Pollutant Type**

| Criteria Pollutant | *De Minimis* Levels | |
|---|---|---|
| | Non-Attainment Area (tons per year) | Maintenance Area (tons per year) |
| Ozone (Volatile Organic Compounds [VOCs] or $NO_X$) | 25 (severe)<br>50 (serious) | 100 |
| Ozone (inside transport region – VOCs) | 50 | 50 |
| Ozone (outside transport region) | 100 | 100 |
| CO, $SO_2$, and $NO_2$ | 100 | 100 |
| $PM_{10}$ | 70 (serious)<br>100 (moderate) | 100 |
| $PM_{2.5}$ | 100 | 100 |
| Lead | 25 | 25 |
| Source: 40 CFR § 153 General Conformity *De Minimis* Levels. | | |

In addition to criteria pollutant standards, USEPA has promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP), Section 112 of the CAA (42 U.S.C. §7412), establishing emission standards for hazardous air pollutants. NESHAP standards address 187 air pollutants not covered by the NAAQS that are known or suspected to cause cancer and other adverse impacts on human health. Existing concrete features such as culverts, headwalls, and roadway features may contain asbestos-containing materials that, if airborne, are a potential source of NESHAPs. Additionally, building insulation often contains asbestos. Interior and exterior paints often contain lead, another potential NESHAP if airborne.

#### *3.9.1.2 Greenhouse Gas Regulations*

EO 13693 directs the head of each Federal agency to propose to the Chair of the CEQ reduction targets for greenhouse gas (GHG) emissions from (1) sources owned or controlled by the agency, (2) resulting from energy purchased by the agency, and (3) from sources related to agency activities (vendor supply chains, delivery/transportation services, employee travel, etc.). CEQ issued revised draft guidance on December 18, 2014, describing how Federal agencies should consider GHG emissions in NEPA documents. The CEQ's "presumptive effects threshold" for GHG emissions considers 25,000 annual metric tons of carbon dioxide-equivalent emissions an indication that Federal agencies should consider project effects on climate change.

### 3.9.2 Resource Overview

#### *3.9.2.1 Air Quality*

Air quality is affected by both stationary sources (e.g., urban and industrial developments) and mobile sources (e.g., automobiles and trains). In general, urban environments are characterized by elevated levels of criteria pollutants, which can potentially reach unhealthy levels. Rural environments, in

contrast, are typically characterized by good air quality for most criteria pollutants due to the lack of pollution-emitting sources. Due to the migratory nature of air pollutants, however, emissions from urban areas can have a negative impact on the air quality of a rural area. Land use practices in rural areas can affect air quality when wind erosion raises dust from tilled fields and when agricultural burning and fires caused by vegetation management practices adversely affect air quality with smoke and wind-blown ashes.

An air basin may be classified as attainment, nonattainment, or unclassified for each of the seven criteria pollutants under the CAA. Attainment describes a condition in which one or more of the seven NAAQS are being met in an area. An area is considered to be attainment only for those USEPA criteria pollutants for which the NAAQS are being met. Nonattainment of the Federal standards describes a condition in which one or more of the seven NAAQS are not being met in an area. Unclassified indicates that air quality in the area has not been classified and is therefore treated as attainment by USEPA. Areas that have been recently redesignated from nonattainment to attainment by USEPA are called maintenance areas (in reference to how the area will maintain attainment). An area may have all four classifications for different criteria pollutants. Federal air emission regulations are more stringent in nonattainment areas, and State standards are as stringent or more stringent then the Federal standards.

The Project Area encompasses two air basins: the South Coast Air Basin (SCAB), managed by the South Coast Air Quality Management District (SCAQMD), and the Mojave Desert Air Basin (MDAB), managed by the Antelope Valley Air Quality Management District (AVAQMD). The SCAB includes the non-desert portions of the Project Area. The MDAB includes the high desert area in the northern portion of the Project Area. Both air basins are “nonattainment” or “maintenance” areas for one or more of the NAAQS. Table 3.9-3 summarizes the NAAQS attainment status by air basin within the Project Area.

**Table 3.9-3: Attainment Status within the Project Area**

| Criteria Pollutant | County | Federal Status |
|---|---|---|
| **Mojave Desert Basin** | | |
| Carbon Monoxide | Los Angeles and San Bernardino | Attainment |
| Lead | Los Angeles and San Bernardino | Attainment |
| Nitrogen Dioxide | Los Angeles and San Bernardino | Attainment |
| Ozone | Los Angeles and San Bernardino | Nonattainment |
| $PM_{2.5}$ | Los Angeles and San Bernardino | Attainment |
| $PM_{10}$ | Los Angeles and San Bernardino | Nonattainment (San Bernardino only) |
| Sulfur Dioxide | Los Angeles and San Bernardino | Attainment |
| Particulate sulfate | Los Angeles and San Bernardino | n/a |
| Hydrogen sulfide | Los Angeles and San Bernardino | n/a |
| Visibility reducing particles | Los Angeles and San Bernardino | n/a |

**Table 3.9-3: Attainment Status within the Project Area**

| Criteria Pollutant | County | Federal Status |
|---|---|---|
| **South Coast Air Basin** | | |
| Carbon Monoxide | Los Angeles, Orange, and San Bernardino | Maintenance |
| Lead | Los Angeles, Orange, and San Bernardino | Nonattainment (Los Angeles only) |
| Nitrogen Dioxide | Los Angeles, Orange, and San Bernardino | Maintenance |
| Ozone | Los Angeles, Orange, and San Bernardino | Nonattainment |
| $PM_{2.5}$ | Los Angeles, Orange, and San Bernardino | Nonattainment |
| $PM_{10}$ | Los Angeles, Orange, and San Bernardino | Attainment |
| Sulfur Dioxide | Los Angeles, Orange, and San Bernardino | Attainment |

**Climate and Meteorology**

The SCAB is almost completely enclosed by mountains to the north and east, resulting in a fairly regular daily reversal of wind direction – offshore at night and onshore during the day. With the concentrated population and industry, pollution products tend to accumulate and remain within this circulation pattern. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet).

Summer is a dry period over most of California due to the semi-permanent Pacific high pressure system that deflects most storms far to the north. In winter, the Pacific high pressure system weakens and shifts southward, and storms in California become frequent.

A representative weather monitoring station within the SCAB is located in Los Angeles, California, and climatic data collected from this monitoring station were used for this analysis. Temperature and precipitation data recorded in Los Angeles from 1906 to 2013 is summarized below (Western Regional Climate Center 2015). Average maximum temperatures during the winter and summer months range from 66.4 to 83.1 degrees Fahrenheit (°F), respectively. Annual average precipitation is approximately 14 inches with over 95 percent of the seasonal rain fall between October and April.

A representative monitoring station within the MDAB is located in Lancaster, California. Climatic data collected from the Lancaster monitoring station were used for this analysis (Western Regional Climate Center 2015). Average maximum temperatures during the winter and summer months range from 57.4° to 96.5° F, respectively. Annual average precipitation is approximately 7 inches with over 90 percent of the seasonal rainfall occurring between October and April.

#### *3.9.2.2 Greenhouse Gases*

Greenhouse gases in the earth's atmosphere absorb and emit infrared radiation from the sun. As these gases increase in the atmosphere, heat is prevented from escaping into space, contributing to global warming. Combustion of carbon-based fuels, in particular, has increased GHG emissions.

## 3.10 Noise

Noise is defined as unwanted sound that interferes with normal human activities or may otherwise diminish environmental quality. Sound is a pressure wave transmitted through the air. The decibel (dB) scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. Because the human ear is not equally sensitive to all frequencies, a special frequency-dependent rating scale, the "A-weighted" decibel scale (dBA) provides this compensation by discriminating against upper and lower frequencies in a manner approximating the sensitivity of the human ear. $L_{eq}$, the equivalent noise level, is an average of sound level over a defined time period (such as 1 minute, 15 minutes, 1 hour, or 24 hours). Thus, the $L_{eq}$ of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure.

### 3.10.1 Regulatory Background

The Noise Control Act of 1972 (42 U.S.C. 4901–4918), along with its subsequent amendments (Quiet Communities Act of 1978, Public Law 95-609), delegates to the states the authority to regulate environmental noise and directs government agencies to comply with local community noise statutes and regulations.

The USEPA has a noise guideline that recommends an $L_{dn}$ of 55 dBA, which is sufficient to protect the public from the effect of broadband environmental noise in typical outdoor and residential areas (USEPA 1974). These levels are not regulatory goals but are "intentionally conservative to protect the most sensitive portion of the American population" with "an additional margin of safety." For protection against hearing loss in the general population from non-impulsive noise, the USEPA guideline recommends an $L_{eq}$ of 70 dBA or less over a 40-year period.

There are no Federal or State regulations governing short-term (e.g., construction) noise exposure. The California Department of Health Services has studied the correlation of long-term noise levels with their effects on various land uses. The most current guidelines were issued in 1987 and are contained in the "General Plan Guidelines" issued by the Governor's Office of Planning and Research in 2003 (OPR 2003).

### 3.10.2 Resource Overview

**Sound Levels**

The normal sound level range of conversation is between 34 and 66 dBA. Between 70 and 90 dBA, sound is distracting and presents an obstacle to conversation, thinking, or learning. Above 90 dBA, sound can cause permanent hearing loss. Table 3.10-1 describes typical A-weighted noise levels for various noise sources.

**Table 3.10-1: Typical A-Weighted Noise Levels**

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|---|---|---|
| | 110 | Rock band |
| Jet fly-over at 1,000 feet | | |
| | 100 | |
| Gas lawn mower at 3 feet | | |
| | 90 | |
| Diesel truck at 50 feet at 50 mph | | 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 |
| | 20 | |
| | | Broadcast/recording studio |
| | 10 | |
| Caltrans, 2013 | | |

Ambient noise levels vary depending on land use type. Land uses in the Project Area range from undeveloped forest to highly urbanized industrial areas. In remote areas sounds of infrequent aircraft, light highway traffic, and occasional wildlife contribute most of the ambient sound levels. Ambient sound levels in such remote areas typically range from about 30 to 50 dBA. In rural areas highway traffic and farm machinery are predominant; ambient noise levels in these areas are generally about 50 to 60 dBA. In urban areas the sound generated by automobiles and trucks, construction activities, machinery, rail and air traffic, and other human activities can result in ambient levels of 60 dBA to 70 dBA during the daytime.

In a typical day, most people are exposed to sound levels of 50 to 55 dB or higher. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can decrease or increase noise levels (HUD 2009). In addition, atmospheric conditions, such as wind speed, wind direction, and weather, can also affect the perception of the sound (HUD 2009).

**Noise Attenuation**

The noise level from a particular source generally declines as the distance to the receptor increases. Other factors such as the weather, atmospheric effects, or shielding of noise also intensify or reduce the noise level at any given location. Typically, a single row of buildings between the receiver and the noise source reduces the noise level by about 5 to 10 dBA. Exterior noise levels can normally be reduced by 15 dBA inside buildings constructed with no special noise insulation (HUD 2009).

A commonly used rule of thumb for noise from a line or moving source, such as traffic, is that for every doubling of distance from the source, atmospheric spreading over "hard" or "soft" ground surfaces reduces the noise level by about 3 or 4.5 dBA, respectively. For a stationary source, such as a piece of construction equipment that moves in a limited area, the noise is reduced by at least 6 dBA for each doubling of distance. Further, because of the logarithmic nature of the decibel scale, a doubling of the number of identical pieces of equipment would cause a noise increase of approximately 3 dBA.

**Sensitive Receptors**

"Noise-sensitive" land uses are those for which quiet is an essential element (e.g., recording studios, outdoor amphitheaters); places where people sleep (e.g., residences, hotels); or institutional land uses where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material (FTA 2006). The regulatory definition of sensitive receivers varies among jurisdictions. For the present analysis, sensitive receivers were defined to include:

- Residential areas (including hotels and motels)
- Schools
- Child care centers
- Libraries
- Parks
- Religious institutions
- Medical facilities

For this analysis, the threshold of concern for short-term noise exposure is 55 dBA $L_{eq}$ for all sensitive receptors.

## 3.11 Visual Quality

Visual quality within a landscape consists of natural and cultural features that can be seen and that contribute to the public's appreciation and enjoyment of them. These include physical features that define the visual resources of an area, including important natural features or scenic vistas, and can include man-made urban visual characteristics (e.g., architecture, skylines).

### 3.11.1 Regulatory Background

#### *3.11.1.1 Federal Agency Laws and Regulations*

Several Federal regulations address visual quality: NEPA, the Federal Lands Policy Management Act of 1976, National Forest Management Act, Transportation Equity Act for the 21st Century, National Highway System Act of 1995, Highway Beautification Act of 1965, Wild and Scenic Rivers Act, National Trails Act, Antiquities Act, and the Wilderness Act of 1964. Visual quality analysis methodologies have been developed by a few Federal agencies. These include the Visual Management System developed by the USFS (1974), the Visual Impact Assessment Methodology for Highway Projects developed by the Federal Highway Administration (1986), the Visual Resource Management System developed by the Bureau of Land Management (BLM) (1986), and the Visual Resource Assessment Procedures developed by the USACE (Smardon et al. 1988). The applicability of these Federal regulations would depend on proposed LMR site location and the agency with land management jurisdiction, if any.

#### *3.11.1.2 Coastal Zone Management Act*

The CZMA of 1972, discussed in Section 3.1.1.1, is the primary Federal law enacted to preserve and protect coastal resources, including visual quality.

Under the CZMA, California has developed a coastal zone management plan and has enacted the CCA to protect the coastline. The CCA includes specific policies that address protection of scenic beauty in the California coastal zone.

Pursuant to the requirements of the CZMA, construction activities proposed in the coastal zone management area must comply with applicable State or local coastal planning regulations. All applicable local coastal plans and development codes contain regulations and policies (such as height restrictions; setbacks; and use of careful design, screening, and mitigation measures) developed to protect coastal resources and conserve scenic views.

### 3.11.2 Resource Overview

The visual resources of an area depend on whether it is a remote, rural, or urban setting. In a remote or rural setting, the visual setting tends to be dominated by naturally occurring landforms and vegetation. Examples include natural landscapes, mountains, undulating land, valleys, cliffs, lakes, streams, beaches, and natural vegetation. Although naturally occurring visual resources dominate rural areas, some signs of human activity are likely to be present and may also contribute to the visual setting. Examples include

farm houses, agricultural fields, fences, barns, silos, scenic highways, and lighthouses. Vegetation in rural areas consists primarily of crops grown in tilled fields, grassland, trees in mountainous areas, and lawns around rural houses. Remote areas may have no visible man-made structures.

The natural features present in rural/remote settings may also be present in an urban environment; however, unlike the remote or rural settings, man-made features are normally the dominant visual element in an urban setting. Examples of these features include houses, office buildings, warehouses, rail yards, utility plants, historic buildings, landmarks, parking areas, storage yards, billboards, and signage. Vegetation in an urban setting consists primarily of lawns, shrubs, and ornamental trees.

The general visual quality of the Project Area can be categorized based on urban, rural, or remote areas. Urban areas include the Los Angeles Basin and San Fernando and Santa Clarita valleys, along with urban portions of the Mojave Desert and Santa Monica Mountains. Views include low-rise residential, commercial, and industrial building façades of varying architectural styles and urban streetscapes where paved streets with curbs and gutters are lined with utility poles, overhead distribution cables, and street lights. Rural sites are characterized by low concentrations of people and activity but are served by infrastructure including roads and power lines. Rural settings include areas in the Mojave Desert, the Santa Monica Mountains, portions of the Los Angeles Basin, and the Angeles National Forest. Mountains and forested areas are characterized by steep topography and dense vegetation that obstruct building façades and distant views. The high desert region is characterized by distant views of the wide-open landscape, with the San Gabriel Mountains serving as the backdrop in some areas.

Certain activities tend to heighten viewer sensitivity of scenic resources (e.g., recreational pursuits), while others tend to focus attention on other aspects of the environment (e.g., commuting to work). Viewer sensitivity may also be heightened where visual resources are formally designated as being of special interest, such as state parks (Headly 2008). For purposes of this analysis, a visual resource with high visual sensitivity is defined as an important scenic vista or resource of particularly distinctive character or high quality, sensitive to relatively small changes. A visual resource with medium sensitivity is defined as a scenic vista or resource of moderately valued character or quality and reasonably tolerant of change. Within the Project Area, high or medium visual sensitivity is expected to exist within the following areas:

- areas within or adjacent to the California coastal zone
- areas adjacent to designated scenic highways and regional trails
- areas within or adjacent to Federal lands; State, regional, and municipal parks; open space; and recreation areas where natural resource protection and land management goals include protection of scenic resources
- areas within historic districts or at historic landmarks
- areas adjacent to wild and scenic rivers

Examples of areas within the Project Area that are considered to have high to medium visual sensitivity include:

- Angeles National Forest and San Gabriel Mountains National Monument
- Santa Monica Mountains National Recreation Area
- BLM lands in the Mojave Desert
- Coastal Zone (See Figure 3.1-1)
- California State Parks
- Los Angeles County Regional Parks
- State Route 2/Angeles Crest Scenic Byway
- Pacific Coast Highway
- Piru Creek Wild and Scenic River
- Pacific Crest Trail

The urban setting outside the coastal zone does not typically contain sensitive public views; however, certain places such as parks, historic districts, and historic landmarks within urban areas are considered to have high or medium sensitivity views. The portions of the Project Area that are not within the areas defined as having a high to medium visual sensitivity are considered to have a low visual sensitivity.

## 3.12 Recreation

Recreational resources typically include land set aside and preserved for recreational use, such as parks and trails. Recreational facilities also may be developed or largely undeveloped and may be either indoors or outdoors. Most multiple-use Federal lands include recreation as a purpose for the land.

### 3.12.1 Regulatory Background

Laws and regulations are established at all many levels of government to provide for and protect the public's ability to enjoy natural and developed land for recreational pursuits. At the Federal level, the Coastal Zone Management Act (discussed in Section 3.11.1.2, was designed to preserve and protect coastal resources but also results in preservation of land that may contribute to recreational opportunities.

#### *3.12.1.1 Wilderness Act of 1964*

The National Wilderness Preservation System was established to ensure that expanding settlement and growing mechanization would not result in a lack of lands designated for preservation and protection in their natural condition. In the Wilderness Act (P.L. 88-577; 16 U.S.C. 1131-1136), wilderness is defined as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

#### *3.12.1.2 Land and Water Conservation Fund Act*

The Land and Water Conservation Fund Act (LWCF) of 1965 (16 U.S.C. 4601-4 to 4601-11) establishes a funding source to assist the states and Federal agencies in meeting present and future outdoor recreation demands and needs. Federal assistance (funds) from the Act are authorized to the states for the planning, acquisition, and/or development of needed land and water or utilized, directly, by Federal agencies for the acquisition and development of certain lands and other areas. Administration of the LWCF Act is by the National Park Service which, in turn, delegates many of the roles and responsibilities to a State Liaison Officer (SLO) within the state. In California, statewide administration has been delegated to the California Department of Parks and Recreation, Office of Grants and Local Services.

Section 6(f) of the Act requires that all properties acquired or developed, either partially or wholly, with LWCF funds must be maintained as such in perpetuity. Section 6(f)(3) states that those properties acquired or developed with LWCF funds shall not be converted to a use other than public outdoor recreation without the approval of the Secretary of the Department of the Interior, acting through the National Park Service and at the request of the SLO. For projects that may change the usage of a property acquired or developed with LWCF funds, coordination with the California SLO is required to determine if a conversion would result and to develop appropriate documentation and mitigation measures.

### 3.12.2 Resource Overview

Federal land, while not necessarily devoted to recreational values, often provides for recreational use as an element of the principals for which the land is managed. This includes land administered by the USFS, BLM, and NPS and may include land specifically designated for recreational use.

The Santa Monica Mountains National Recreation Area, Angeles National Forest, and San Gabriel Mountains National Monument are some of the largest tracts of land in the Project Area that contribute importantly to recreational opportunities in the local and regional community. Available opportunities include camping, rock climbing, biking, horseback riding, swimming, hiking, and enjoying nature. Designated recreational trails, ranging from the interstate Pacific Crest Trail to local community bicycle paths, are located within or pass through the Project Area. California state parks, regional parks, community and neighborhood parks, and open spaces are the most prevalent recreational features in the Project Area.

# 4.0 Environmental Consequences

This section provides a programmatic-level analysis of the impacts of the No Action Alternative and the Proposed Action. The analysis is organized by assessing the effects of geotechnical investigations followed by a discussion of the general consequences of Project sites. Because of the potential for all site types to have some level of ground disturbance, a general discussion of consequences is provided where processes or findings are similar. For specific site types (building mount, existing lattice towers or monopoles, new lattice towers, and new monopoles), additional consequences and mitigation are described, as applicable. For this analysis, impacts associated with construction activities are considered to be direct effects. Impacts associated with operations activities, including maintenance activities, are considered indirect effects. This section analyzes the likely effects of implementing the LMR project activities described in Section 2. The focus of the analysis is on Federal requirements evaluated by FEMA in its decision-making authority, although a condition of grant approval is compliance with State and local requirements. Programmatic mitigation measures (MMs) that would be used to reduce or avoid the impacts of particular activities are identified and listed in Appendix F.

## 4.1 Land Use

This section of this PEA provides an analysis of impacts to land use associated with implementation of the No Action Alternative and the Proposed Action.

### 4.1.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, under the No Action Alternative, the LMR project would not be implemented, and no construction or ground-disturbing activities would occur. Instead, the existing communication infrastructure would continue to be used, precluding other non-compatible land uses at the existing facilities.

Implementing the No Action Alternative would have no direct, physical impacts on land use.

### 4.1.2 Proposed Action

The activities identified under the Proposed Action could result in land use impacts. These include inconsistency with coastal zone or local coastal plan land use policies; the potential for conversion of prime or unique farmland; inconsistency with airport CLUPs; and inconsistency with existing land use plans, policies, and regulations. Effects associated with geotechnical investigations and proposed LMR site types such as, building-mounted antennas, collocations on existing lattice towers or monopoles, new lattice towers, and new monopoles are described in the subsections that follow.

#### *4.1.2.1 Geotechnical Investigations*

**Coastal Zones**

Geotechnical investigation activities at locations within the coastal zone would not trigger coastal consistency issues. While land use plans for local coastal programs within the Project Area vary in their specific goals and policies, the common pertinent themes include limiting structure heights; minimizing visual impacts, particularly near scenic routes, along ridgelines, and near public viewing areas; placing utilities underground; selecting building materials that blend with the natural landscape; avoiding Environmentally Sensitive Habitat areas; avoiding distinctive geologic features; and locating structures within areas of prior development. Geotechnical investigations are a short-term and temporary activity that would typically take less than a day to complete. The visual protection goals and policies are more applicable to permanent structures. Therefore, geotechnical investigations would not result in adverse impacts to the coastal zone.

**Prime or Unique Farmland**

Geotechnical investigation activities would be temporary and would not convert prime or unique farmland to a non-agricultural use.

**Airport Comprehensive Land Use Plans**

Geotechnical investigation would require the use of a drill rig for less than one day. For LMR project sites within the jurisdiction of an airport CLUP, the drill rig could be a temporary obstruction to flight activities. For sites within the jurisdiction of an airport CLUP, FEMA would require the Authority to coordinate with the applicable ALUC to determine and implement appropriate steps to preclude aircraft safety issues. By implementing this process, no adverse effects associated with geotechnical investigations would be anticipated, and geotechnical investigations would not result in an incompatibility with the airport CLUP.

**Land Use Plans, Policies, and Regulations**

The Authority would be responsible for obtaining required approvals and permits from appropriate authorities to be consistent with the land use plans of local jurisdictions with authority at proposed LMR sites. As geotechnical investigations would not occur without applicable approvals or equivalent requirements, no adverse impacts to land use would be expected.

#### *4.1.2.2 General Consequences of Site Types*

**Coastal Zones**

***Construction***

FEMA would require the Authority to analyze whether an LMR project site is located in a designated coastal zone and, if so, determine whether the activity would be consistent with the applicable coastal zone management plan. FEMA would require the Authority to document the determination, based on the project description and coastal zone effects, and coordinate with the CCC or LCP to obtain consistency certification. FEMA would require the Authority to notify the CCC or LCP of the determination of consistency. Prior to construction, FEMA would require the Authority to obtain the necessary coastal development permit to evidence compliance with the CZMA.

Any proposed LMR project site that occurs in the coastal zone and is built in accordance with applicable coastal zone requirements would be consistent with the applicable coastal plan and would not result in adverse effects to the coastal zone. Any LMR project site that would occur in the coastal zone and found by the CCC or the LCP, as applicable, not to be consistent with the coastal zone requirements, would require further analysis and documentation. The analysis would result in one of the following: 1) the Authority would eliminate the LMR project site from further consideration; 2) The Authority would alter the activities of the LMR project site to obtain the necessary coastal development permit to evidence compliance with the CZMA; or 3) FEMA would prepare an SEA, as described in Section 1.2 above.

***Operations***

Any proposed LMR project site that occurs in the coastal zone and is granted a construction permit would be consistent with the applicable coastal zone requirements for operations and maintenance.

Therefore, no coastal consistency issues would occur with operations associated with the building mount site type.

**Prime or Unique Farmland**

***Construction***

Trenching, grading, and other ground-disturbing activities would not convert prime or unique farmland to another use. Ground-disturbing activities that result in a permanent structure, such as concrete pad for a generator or a concrete masonry fence, could potentially result in the conversion of prime or unique farmland where it coincides with proposed LMR project sites. If activities at any proposed LMR project site have the potential to convert prime farmland, unique farmland, or farmland of statewide or local importance to non-agricultural purposes, FEMA would require the Authority to conduct an assessment (using Form AD-1006), document the findings in a letter report, and assist FEMA in consultation with NRCS to satisfy compliance with the FPPA. No further analysis would be required for sites that are not on lands with designated prime and unique farmland.

***Operations***

No impacts to prime and unique farmland from operations would occur because the conversion, if any, would occur during the construction phase and the Authority would have already complied with the required farmland conversion process as described for construction.

**Airport Comprehensive Land Use Plans**

***Construction***

If an LMR project site were proposed for siting within the jurisdiction of an airport CLUP, FEMA would require the Authority to review the site description against the requirements of the airport CLUP and submit the description to the appropriate ALUC for review and approval, if necessary. If an LMR project antenna, proposed to be added to an existing structure (building or antenna support structure), would extend the overall structure height of a structure located on land within the boundaries of an airport CLUP, FEMA would require the Authority to obtain the required approvals from the appropriate ALUCs prior to construction.

If a proposed LMR project site occurs in an area subject to an airport CLUP, FEMA would require the Authority to comply with airport CLUP and the required approvals from the appropriate ALUCs. Therefore, no adverse impacts to airport CLUPs would be expected to occur.

***Operations***

Potential conflicts with airport CLUPs would be identified in the construction phase, and FEMA would ensure compliance with appropriate ALUC. Because approval for construction would account for

operations and maintenance of a proposed LMR project site, no impacts to an airport CLUP from LMR project site operations would occur.

**Land Use Plans, Policies, and Regulations**

***Construction***

FEMA would require the Authority to review each LMR project site description against other applicable local land use plans and local zoning ordinances to analyze potential inconsistencies for purposes of identifying any physical environmental impacts. The Authority is not subject to certain local land-use plans and policies because under the California Government Code § 53090(a) and 53091(a), the Authority is exempt from the definition of "Local Agency"; and therefore the Authority is not required to comply with "all applicable building ordinances and zoning ordinances of the county or city in which the territory of the local agency is situated." However, the Authority would conform to the County General Plan, and would obtain the necessary construction permits, right-of-way access permits, or equivalent from authorities with jurisdiction over the proposed LMR project site prior to construction.

As construction would not occur without required approvals, construction permits, right-of-way access permits, or equivalent requirements, no adverse impacts to land use would be expected to occur. No further analysis is required by FEMA for determination of consistency with local land use plans, policies, or regulations.

***Operations***

Installation and operation of the LMR projects would comply with applicable local land use plans, policies, and regulations. Therefore, no operation impacts are anticipated.

#### *4.1.2.3 Building Mount*

**Coastal Zones**

***Construction and Operations***

No additional consequences to consistency with coastal zone land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Prime or Unique Farmland**

***Construction and Operations***

No additional consequences to prime and unique farmland would be expected beyond those discussed in Section 4.1.2.2.

**Airport Comprehensive Land Use Plans**

***Construction and Operations***

No additional consequences to compatibility with airport comprehensive land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Land Use Plans, Policies, and Regulations**

***Construction and Operations***

No additional consequences to consistency with land use plans, policies, and regulations would be expected beyond those discussed in Section 4.1.2.2.

#### *4.1.2.4 Existing Lattice Towers and Monopoles*

**Coastal Zones**

***Construction and Operations***

No additional consequences to consistency with coastal zone land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Prime or Unique Farmland**

***Construction and Operations***

No additional consequences to prime and unique farmland would be expected beyond those discussed in Section 4.1.2.2.

**Airport Comprehensive Land Use Plans**

***Construction and Operations***

No additional consequences to compatibility with airport comprehensive land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Land Use Plans, Policies, and Regulations**

***Construction and Operations***

No additional consequences to consistency with land use plans, policies, and regulations would be expected beyond those discussed in Section 4.1.2.2.

#### *4.1.2.5 New Lattice Towers*

**Coastal Zones**

***Construction and Operations***

No additional consequences to consistency with coastal zone land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Prime or Unique Farmland**

***Construction and Operations***

No additional consequences to prime and unique farmland would be expected beyond those discussed in Section 4.1.2.2.

**Airport Comprehensive Land Use Plans**

***Construction and Operations***

No additional consequences to compatibility with airport comprehensive land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Land Use Plans, Policies, and Regulations**

***Construction and Operations***

No additional consequences to consistency with land use plans, policies, and regulations would be expected beyond those discussed in Section 4.1.2.2.

#### *4.1.2.6 New Monopoles*

**Coastal Zones**

***Construction and Operations***

No additional consequences to consistency with coastal zone land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Prime or Unique Farmland**

***Construction and Operations***

No additional consequences to prime and unique farmland would be expected beyond those discussed in Section 4.1.2.2.

**Airport Comprehensive Land Use Plans**

***Construction and Operations***

No additional consequences to compatibility with airport comprehensive land use plans would be expected beyond those discussed in Section 4.1.2.2.

**Land Use Plans, Policies, and Regulations**

***Construction and Operations***

No additional consequences to consistency with land use plans, policies, and regulations would be expected beyond those discussed in Section 4.1.2.2.

## 4.2 Geology, Soils, and Seismicity

This section of this PEA provides a broad analysis of impacts to geology, soils, and seismicity associated with implementation of the No Action Alternative and the Proposed Action. Potential seismic impacts include fault rupture, seismic shaking, liquefaction, and tsunami inundation. The entire Project Area is seismically active and thus is subject to some degree of seismic activity.

### 4.2.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, under the No Action Alternative, the LMR project would not be implemented. No impacts on geology, soils, and seismicity would result. No new structures would be built, and no new ground-disturbing activities would occur that may cause erosion or destabilize soils.

### 4.2.2 Proposed Action

Federal funding and the construction activities that would result under the Proposed Action could result in impacts to geology, soils, and seismicity. Indirect effects could occur from operations and maintenance of the proposed LMR system. Potential impacts include geologically unstable slopes, soil erosion, and aspects of seismicity including fault rupture, seismic shaking, liquefaction, and tsunami inundation. Each of these potential impacts is discussed in this section.

#### *4.2.2.1 Geotechnical Investigations*

**Geology and Soils**

The minimal ground disturbance associated with this activity (i.e., drilling an up to 8-inch-diameter hole up to 100 feet deep) would disrupt a small core of intact soils and geological properties but would not be expected to result in erosion because of the small sample size and because the hole would be backfilled with bentonite after the sampling activity is complete. Where surface soils may be easily disturbed by equipment, water may be applied to control dust and/or to form a soil crust to minimize potential for erosion. No adverse impacts to geology and soils are expected from geotechnical investigations and no additional analysis for specific sites would be necessary.

**Seismicity**

Geotechnical investigation activity does not result in installation of any structures that could be adversely affected by seismic activity or change the risks of property damage or loss of life associated with a seismic event. The drill rig would be operated on a site for less than a day. No adverse impacts from seismicity are expected from geotechnical investigations, and no additional analysis for specific sites would be necessary.

#### *4.2.2.2 General Consequences of Site Types*

**Geology and Soils**

***Construction***

Geology and soils could be impacted from ground-disturbing activities. Some sites may have no soil disturbance, while soils could be disturbed at other sites for utility line trenches, excavation for an equipment shelter and/or antenna support structure foundation, heavy equipment use, demolition, site preparation, or similar activities. Soil loss could occur directly from ground disturbance or indirectly through wind or water erosion. To the extent practicable, construction access and equipment staging and stockpiling would occur on paved or otherwise stabilized surfaces to reduce the potential for erosion. As identified in the BMPs, water would be applied to disturbed soils where needed during construction to control dust and soil loss.

Appropriate BMPs would be included as part of any construction permits issued to prevent soils from eroding and dispersing off site. This may include BMPs such as developing and implementing an erosion and sedimentation control plan, using silt fences or hay bales, revegetating disturbed soils, and maintaining site soil stockpiles.

State and/or local planning departments require that potential unstable geologic and soil conditions be evaluated and mitigated as necessary and that all structures meet current CBC standards prior to issuance of a construction permit. Because structures, such as equipment sheds, would be built to meet codes and standards, no adverse impacts to geology and soils would be expected to occur.

***Operations***

Geologic hazards would be evaluated during design and accommodated for during construction of the facility. The LMR project would be built and operated in accordance with BMPs to control stormwater flow and usage/maintenance of appropriate erosion control practices and devices.

**Seismicity**

***Construction***

New structures would be designed to meet seismic requirements outlined in EO 12699 or the CBC, whichever is more stringent. The design of these structures and ancillary equipment would accommodate for fault rupture, seismic shaking, liquefaction, and tsunami inundation hazards. No adverse impacts to seismic safety hazards would be expected from construction.

***Operations***

Because LMR project site construction would be subject to appropriate safeguards developed during the applicable construction permitting process, no operational impacts are anticipated. Activities associated

with operations and maintenance would detect if damage to equipment has occurred from unforeseen seismic activity, and actions would be taken, such as building repairs, to reduce risks to life and property.

#### *4.2.2.3 Building Mount*

**Geology and Soils**

***Construction and Operations***

No additional consequences to geology and soils would be expected beyond those discussed in Section 4.2.2.2.

**Seismicity**

***Construction***

For the building mount project site type, the building would be subjected to structural inspection as part of the local construction permitting process. The design of any building mount structures would account for fault rupture, seismic shaking, liquefaction, and tsunami inundation hazards. New structures that may be associated with a building mount are addressed in Section 4.2.2.2. No adverse impacts to seismic safety hazards would be expected from construction of the building mount project site type.

***Operations***

No additional consequences to seismicity would be expected beyond those discussed in Section 4.2.2.2.

#### *4.2.2.4 Existing Lattice Towers and Monopoles*

**Geology and Soils**

***Construction and Operations***

No additional consequences to geology and soils would be expected beyond those discussed in Section 4.2.2.2 or under the building mount site type.

**Seismicity**

***Construction***

During the design phase of the project, all lattice towers and monopoles proposed for collocation of LMR whip and microwave antennas would be inspected by the Authority to determine their structural integrity. If necessary, lattice towers or monopoles would be remediated by the Authority to meet minimum seismic standards and strength to support new antennas on the structure. Therefore, mounting whip or microwave antennas on an existing lattice tower or monopole would meet minimum seismic safety standards and comply with the regulations established to reduce earthquake hazards and the risks of life and property. If new structures, such as equipment shelters are required, impacts would

be similar to those described Section 4.2.2.2. No adverse impacts to seismic safety hazards would be expected to occur.

***Operations***

No additional consequences to seismicity would be expected beyond those discussed in Section 4.2.2.2.

#### *4.2.2.5 New Lattice Towers*

**Geology and Soils**

***Construction and Operations***

No additional consequences to geology and soils would be expected beyond those discussed in Section 4.2.2.2.

**Seismicity**

***Construction and Operations***

No additional consequences to seismicity would be expected beyond those discussed in Section 4.2.2.2.

#### *4.2.2.6 New Monopoles*

**Geology and Soils**

***Construction and Operations***

No additional consequences to geology and soils would be expected beyond those discussed in Section 4.2.2.2.

**Seismicity**

***Construction and Operations***

No additional consequences to seismicity would be expected beyond those discussed in Section 4.2.2.2.

## 4.3 Water Resources

This section of this PEA provides a broad analysis of impacts to water resources associated with implementation of the No Action Alternative and the Proposed Action.

### 4.3.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding, and the LMR project would not be implemented; therefore, no ground-disturbing activities or use of water due to LMR project activities would occur. No installation of new structures in floodplains or wetlands would occur. Therefore, no impacts to water resources would occur.

### 4.3.2 Proposed Action

The activities identified under the Proposed Action could result in impacts to water resources including surface waters, groundwater aquifers, floodplains, and wetlands.

#### *4.3.2.1 Geotechnical Investigations*

**Surface Water and Groundwater**

Geotechnical investigation may encounter groundwater as part of the subsurface investigation. Groundwater would not be removed from the boring, as one of the objectives of a geotechnical investigation is to determine the depth to groundwater and subsurface soil conditions. No adverse impacts to surface water and groundwater are expected to occur from geotechnical investigations, and further analysis is not warranted.

**Floodplains**

Geotechnical investigations at proposed LMR project sites that are located outside of the floodplain would not result in occupancy or modification of floodplains or the direct or indirect support of floodplain development. Under this circumstance, floodplains would not be affected, and further analysis is not warranted.

Geotechnical investigations at proposed LMR project sites that are located within the floodplain could result in indirect support of floodplain development if LMR facilities are constructed at the site. If geotechnical investigations are proposed at sites within the floodplain, FEMA would comply with EO 11988 and 44 CFR Part 9 prior to approval of the specific geotechnical investigation, as described in Section 3.3.1.3. Compliance with EO 11988 would ensure that adverse impacts to the floodplain would be minimized.

**Wetlands**

None of the LMR project site locations defined at the time of the release of this PEA would be located in wetlands; therefore, no impacts to wetlands are anticipated, and further analysis would not be warranted. If it is later determined that a proposed LMR project site would be sited in wetlands and

geotechnical investigations need to occur in wetlands or could result in LMR site development in wetlands, FEMA would need to comply with EO 11990 and 44 CFR Part 9 prior to approval of the specific geotechnical investigation, as described in Section 3.3.1.4.

If a CWA Section 404 permit would be needed from the USACE for geotechnical investigation activities in wetlands, FEMA would need to comply with its MOU with the USACE, NMFS, and the USFWS, and FEMA would require the Authority to comply with Section 404 of the CWA. The Authority would assist FEMA in the MOU compliance process at FEMA's request. For compliance with Section 404 of the CWA, geotechnical investigations would typically be covered by NWP 6, Survey Activities. Under NWP 6, preconstruction notification to USACE is not required; and impacts cannot exceed 0.10 acre. General conditions may apply that affect use of an NWP, such as required use of vehicle mats for heavy equipment or exclusion of sites where activities are likely to directly or indirectly jeopardize an ESA-listed species.

#### *4.3.2.2 General Consequences of Site Types*

**Surface Water and Groundwater**

***Construction***

Potential impacts to water resources could occur from ground disturbance during LMR project site construction activities. Surface and/or groundwater quality could be reduced from several causes associated with project activities. Surface water quality may be reduced from ground disturbance associated with site construction. This would be especially likely during precipitation events when entrainment of construction-related sediment in stormwater runoff could occur. Groundwater and surface water quality may be reduced if damage to existing underground pipelines and storage tanks occurs during excavation. Underground pipelines and storages tanks may contain potentially hazardous substances such as petroleum, oils, and lubricants (POLs) or sewage. If a tank or pipeline is damaged during construction, it could potentially leak hazardous fluids into the groundwater or discharge to surface water. Surface water quality could be reduced by contamination of stormwater runoff from leaks or spills of commonly used lubricants, coolant, and similar fluids found in construction equipment and around construction sites. Alteration of stream beds (channels at the bottom of streams) or stream banks (the terrain alongside the bed of a stream) could also potentially occur.

There is a potential for water quality impacts (direct or indirect) from stormwater (runoff during a rain event) and non-stormwater (runoff from use of water during construction not related to a rain event) discharges from LMR project sites during construction. Most proposed LMR project site construction would occur on previously disturbed ground, and the amount of surface runoff would be largely unchanged. Runoff impacts are anticipated to be minimized because:

- Waste materials including soil, asphalt, and concrete would be disposed at a facility licensed to accept such waste; and runoff from these waste products at the licensed sites would be properly handled and eliminated.
- Surveys to locate underground utilities would be completed to identify and avoid underground pipelines and tanks prior to ground disturbance during construction. Locating utilities would allow for construction activities to accommodate and minimize effects to these utilities, thus reducing the possibility of accidently encountering and damaging an underground utility or storage tank. Locating underground utilities would reduce or eliminate the risk of hazardous fluids transported in a pipeline or contained in a tank from leaking into the environment and potentially impacting water quality.

All proposed LMR project sites would be less than 1 acre in size. In accordance with the General Construction Storm Water Permit, a written Stormwater Pollution Prevention Plan (SWPPP) would not be required because each site would have less than 1 acre of soil disturbance. Section 402 of the CWA requires dischargers of potential pollutants, including soil from construction areas, to implement BMPs to eliminate or reduce pollutants in their discharges. In cases where groundwater discharge is needed, a permit would be required from the local RWQCB that would specify conditions to minimize soil erosion and the discharge of potential pollutants. Should dewatering of a foundation for an equipment shelter be required, a groundwater discharge permit would be required in accordance with the applicable RWQCB requirements.

FEMA would require the Authority, as a condition of its grant, to obtain the appropriate permits for project construction, which could include an NPDES permit from jurisdictional RWQCBs for surface discharge of groundwater. Compliance with the conditions of these permits would reduce potential effects to surface water from discharge of groundwater.

The relatively small size of the excavation (less than 600 cubic yards) would limit the amount of groundwater to be withdrawn and would not result in any short- or long-term drawdown of local aquifers. Groundwater may need to be pumped from the excavation but only in amounts sufficient to lower the water table to below the bottom of the excavation. This would not result in an adverse impact to the quality and availability of groundwater resources.

All LMR project sites would be constructed using the appropriate BMPs identified in the construction permit issued by the planning agency with jurisdiction of the site. These BMPs would include measures to minimize construction-related effects to water quality. FEMA would require the Authority, as a condition of its grant approval, to obtain and comply with all applicable construction permits. As a result, no adverse impacts to surface or groundwater quality are expected.

No dredge and fill activities in or adjacent to waters subject to Section 10 of the Rivers and Harbors Act would be expected to occur at any known LMR project site; therefore, compliance with the Rivers and Harbors Act would not be applicable based on the proposed known LMR sites. If dredge and fill activities

were to occur within or near navigable waters of the United States, then FEMA would require the Authority to seek authorization and a permit from the USACE. Additionally, FEMA would need to comply with its MOU with the USACE, NMFS, and USFWS, as described in Section 4.3.2.1.

There is a remote potential to impact resources protected under the Wild and Scenic Rivers Act, identified in the NRI in the Project Area. Impacts would occur if LMR project activities were placed in proximity to those portions of Piru Creek designated as Wild. Piru Creek does not have a Comprehensive Resource Management Plan for the designated segments of the river identified under the WSRA. The WSRA has general guidelines that state activities within 0.25 mile of the river should be reviewed by the management agency prior to implementation of any construction activities. Prior to implementation of LMR project activities at any site within the NRI-identified segment of Piru Creek, FEMA would require the Authority to:

- Determine whether the proposed activities could affect an NRI resource, including whether the Proposed Action could have an adverse effect on the natural, cultural, and recreational values of any NRI segment
- Determine whether the proposed activities could foreclose options to classify any portion of an NRI resource as wild, scenic, or recreational
- Prepare a memo to the managing agency (Angeles National Forest and/or Los Padres National Forest) that identifies the location and description of the proposed LMR project site. The USFS would have 30 days to respond to the memo and make a determination if the action would affect a protected segment of Piru Creek. If the USFS determines that the action may adversely affect the protected segment, FEMA would require further analysis and documentation. The analysis would result in one of the following: 1) the Authority would eliminate the LMR project site from further consideration; 2) The Authority would alter the activities of the LMR project site to not adversely affect the protected segment; or 3) FEMA would coordinate with the USFS to determine the appropriate NEPA analysis, as described in Section 1.2 above.
- Incorporate mitigation/avoidance measures in the Proposed Action to the maximum extent feasible within FEMA's authority

***Operations***

All Authority proposed building mount project site designs would be reviewed and approved by the appropriate Federal, State, or local planning agency during the construction permitting process. Design review by the permitting agency includes review and evaluation of grading plans to ensure surface water drainage, once the facility has been constructed, does not adversely affect surface water resources. All drainage for the sites would be directed either to existing storm drains or to natural drainage features. Surface drainage would be evaluated during the plan approval process to ensure local storm drains within urban sites could accommodate any additional runoff. At rural sites, surface runoff would be evaluated; grading plans may be required to include the addition of hardened downdrains, small catch

basin, or other features that would eliminate or reduce the potential for erosion of natural drainages. LMR facilities would not generate any discharge of water from operations of the facility. Therefore, no adverse impacts to water resources would be expected during the operation of LMR facilities.

**Floodplains**

***Construction***

If an LMR project site is proposed for installation in a floodplain, FEMA would comply with EO 11988 and 44 CFR Part 9 prior to approval of the activities proposed at the project site, as described in Section 3.3.1.3. Compliance with EO 11988 would ensure that adverse impacts to the floodplain would be minimized.

FEMA regulations at 44 CFR 9.11(d) prohibit the agency from funding new construction (any new buildings or facilities), including replacement, in coastal high hazard areas or in floodways unless the projects are functionally dependent uses or facilitate open space use. Boat houses, docks, and piers are examples of functionally dependent uses. FEMA regulations also prohibit substantial improvements in the floodway. The LMR project is not defined as a functionally dependent use, as communication facilities can be located away from the water, and therefore, new LMR project sites would not be built in a floodway.

***Operations***

Any potential impacts to floodplains would have been evaluated and mitigated, as necessary, during the design, permitting, and construction of the LMR facility. Operation of the facility does not include any activities that would impact floodplains, such as grading, that may change drainage patterns or discharge large amounts of water that may contribute to flooding. Therefore no impacts to floodplains due to operations activities would occur for any site type facilities located in a floodplain. If a site type would occur within a floodplain, the operations of that facility would not result in new occupancy or modification of floodplains, or the direct or indirect support of floodplain development. Further analysis is not warranted.

**Wetlands**

***Construction***

No direct adverse impacts to wetlands are anticipated under the Proposed Action. It is expected that most sites would contain no wetlands; and, where these do occur on LMR project sites, sufficient non-wetland areas would be available for project development to avoid or minimize effects to wetlands. Adherence to project-wide conservation measures and BMPs would preclude most potential impacts to wetlands adjacent to proposed LMR project site activities. Some wetlands could be affected from runoff from LMR project sites, depending on topography and distance.

In the unlikely event that LMR project sites were sited in a manner that would potentially affect wetlands, FEMA would comply with EO 11990 and 44 CFR Part 9 prior to approval of the activities proposed at the project site, as described in Section 3.3.1.4. Compliance with EO 11990 would ensure that adverse impacts to the floodplain would be minimized.

If a CWA Section 404 permit would be needed from the USACE for work in wetlands, FEMA would comply with its MOU with the USACE, NMFS, and the USFWS, and FEMA would require the Authority to comply with Section 404 of the CWA. The Authority would assist FEMA in the MOU compliance process at FEMA's request.

***Operations***

No dredge and fill activities to wetlands would occur during operations. Indirect impacts to surface waters are discussed in the surface waters impact analysis in Section 4.3.2.2.

#### *4.3.2.3 Building Mount*

**Surface Water and Groundwater**

***Construction and Operations***

No additional consequences to surface water and groundwater would be expected beyond those discussed in Section 4.3.2.2.

**Floodplains**

***Construction and Operations***

No additional consequences to floodplains would be expected beyond those discussed in Section 4.3.2.2.

**Wetlands**

***Construction and Operations***

No additional consequences to wetlands would be expected beyond those discussed in Section 4.3.2.2.

#### *4.3.2.4 Existing Lattice Towers and Monopoles*

**Surface Water and Groundwater**

***Construction and Operations***

No additional consequences to surface water and groundwater would be expected beyond those discussed in Section 4.3.2.2.

**Floodplains**

***Construction and Operations***

No additional consequences to floodplains would be expected beyond those discussed in Section 4.3.2.2.

**Wetlands**

***Construction and Operations***

No additional consequences to wetlands would be expected beyond those discussed in Section 4.3.2.2.

#### *4.3.2.5 New Lattice Towers*

**Surface Water and Groundwater**

***Construction and Operations***

No additional consequences to surface water and groundwater would be expected beyond those discussed in Section 4.3.2.2.

**Floodplains**

***Construction and Operations***

No additional consequences to floodplains would be expected beyond those discussed in Section 4.3.2.2.

**Wetlands**

***Construction and Operations***

No additional consequences to wetlands would be expected beyond those discussed in Section 4.3.2.2.

#### *4.3.2.6 New Monopole*

**Surface Water and Groundwater**

***Construction and Operations***

No additional consequences to surface water and groundwater would be expected beyond those discussed in Section 4.3.2.2.

**Floodplains**

***Construction and Operations***

No additional consequences to floodplains would be expected beyond those discussed in Section 4.3.2.2.

**Wetlands**

***Construction and Operations***

No additional consequences to wetlands would be expected beyond those discussed in Section 4.3.2.2.

## 4.4 Biological Resources

This section of this PEA provides a broad analysis of impacts to biological resources associated with implementation of the No Action Alternative and the Proposed Action.

### 4.4.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding for the LMR project and the LMR project would not be implemented; therefore, no ground-disturbing activities would occur. No activities have been identified under the No Action Alternative that would result in impacts to vegetation, wildlife, special status species, or sensitive habitats. As a result, no impacts to biological resources are anticipated under the No Action Alternative.

### 4.4.2 Proposed Action

The activities identified under the Proposed Action could result in impacts to vegetation, wildlife, special status species, and sensitive habitat. Each of these is discussed in this section. Additionally, FEMA has initiated its process of compliance with Section 7 of the ESA, which is described in detail below.

**Compliance with Section 7 of the ESA**

FEMA has initiated the process of compliance with Section 7 of the ESA. On February 3, 2015, FEMA submitted correspondence to USFWS (received by USFWS on February 9, 2015) requesting a list of federally listed endangered, threatened, proposed, and candidate species and their critical habitats which may occur in the greater Los Angeles County area (Appendix A). On February 9, 2015, FEMA submitted a second letter to USFWS (received February 17, 2015) identifying itself as the lead Federal agency for the proposed LMR project and designating the Authority as the non-Federal representative for FEMA for purposes of informal Section 7 consultation under the ESA. In response to the two letters, USFWS sent correspondence to the Authority on April 20, 2015, that included an acknowledgment of the Authority's non-Federal representative status; a list of species, including endangered and threatened species and their designated or proposed critical habitat, and candidate species; and information regarding migratory birds protected under the Migratory Bird Treaty Act (MBTA). The April 20, 2015, correspondence also noted the Project Area included areas within three USFWS jurisdictions: the Ventura, Carlsbad, and Palm Springs Fish and Wildlife offices. The April 20, 2015, correspondence noted that the Ventura Fish and Wildlife Office would serve as single point of contact for purposes of Section 7 consultation (Appendix A).

A biological resources report (BRR) has been developed and submitted to USFWS to support informal consultation. FEMA has made a determination of no effect or may affect, but is not likely to adversely affect individual listed species for all known sites included in the BRR. The BRR includes conservation measures to ensure avoidance or minimization of potential effects to listed species and their critical habitat, and FEMA would require that the Authority implement these measures. The BRR provides a base for additional coordination between FEMA and the USFWS under Section 7 of the ESA if and when

a new LMR project site is proposed. If USFWS concurs with FEMA's determination, FEMA has completed its compliance with Section 7 of the ESA for those sites.

FEMA has determined that no listed species or critical habitat under the jurisdiction of NMFS would be affected by the Proposed Action and therefore coordination and consultation with NMFS under Section 7 of the ESA is not necessary.

If a new site would be added to the LMR Program or changes made to a given Project site, FEMA would require the Authority to perform additional analysis. If a determination is made that these actions may affect but are not likely to adversely affect an ESA species, re-initiation of informal consultation would occur between FEMA and USFWS, and FEMA would seek concurrence of its determination from USFWS. If a supplemental analysis were required for a given LMR project site that is likely to result in take or otherwise adversely affect a listed species or critical habitat, FEMA must prepare a biological assessment (BA) and initiate formal consultation with USFWS. After reviewing the BA, USFWS would prepare a Biological Opinion stating whether the Proposed Action is likely to jeopardize the continued existence of a listed species or cause the destruction or adverse modification of critical habitat. If there is a determination of jeopardy or adverse modification of critical habitat, the Biological Opinion will provide the Federal agency with Reasonable Prudent Alternatives that, if adopted, would avoid a jeopardy or adverse modification determination and allow the Proposed Action to move forward.

**Conservation Measures and Best Management Practices**

Application of standard conservation measures (CMs) for the protection of wildlife and plants would avoid or minimize the potential for injury and mortality during implementation of the Proposed Action. These measures, which were identified for inclusion in the BRR, would be applicable on a site-specific basis. Additional, species-specific measures apply at some sites to protect special status wildlife and plant species. Reference to these measures and a description of how they will reduce impacts to vegetation, wildlife, special status species, or sensitive habitats is provided below for each project site type. A full description of the project-wide and species-specific conservation measures is provided in Appendix F. Not all conservation measures and BMPs would apply at all LMR project sites. As stated above, FEMA would require that the Authority implement these measures.

***Project-wide Conservation Measures***

BIO CM - Conservation Monitoring and Reporting Plan

BIO CM - Worker Environmental Awareness Program

BIO CM - Biological Monitoring

BIO CM - Biological Compliance Reporting

BIO CM - Protect Native Vegetation and Common Wildlife

BIO CM - Prevent the Spread of Nonnative Vegetation

BIO CM - Site Sanitation

BIO CM - Hazardous Materials Management

BIO CM - Trenches and Holes Management

BIO CM - No Pets

BIO CM - Site Access

BIO CM - Anti-perch Devices

BIO CM – Raptor Protection

BIO CM – Nesting Bird Protection

***Species-Specific Conservation Measures***

BIO CM - California Condor Protection

BIO CM - Coastal California Gnatcatcher Protection

BIO CM – Coastal California Gnatcatcher Breeding Season Restriction

BIO CM – Coastal California Gnatcatcher Protocol Surveys

BIO CM - Snowy Plover Protection

BIO CM - Southwestern Willow Flycatcher Protection

BIO CM - Santa Catalina Island Fox Protection

BIO CM - Protected Amphibian Protection

BIO CM - Protected Resident Butterflies Protection

BIO CM - Special Status Plants Surveys and Protection

***Best Management Practices***

Several BMPs have been identified for application on a site-specific basis as general measures to minimize the proposed LMR project's impacts. FEMA would require the Authority to implement site-appropriate BMPs identified in Appendix D. These BMPs would be applied in addition to the conservation measures identified above and may be superseded by higher or more stringent standards

required by the particular Federal, State, or local government agency issuing a permit, license, or approval for the project.

#### *4.4.2.1 Geotechnical Investigations*

**Vegetation**

Some minor clearance of or disturbance to native vegetation would be required for geotechnical investigations at some LMR project sites. Project-wide conservation measures applied at these sites would include protecting native vegetation and preventing the spread of nonnative vegetation. Prior to geotechnical investigations, a qualified biologist retained by the Authority would resurvey sites containing native vegetation and flag native vegetation for avoidance. Therefore, only minor impacts to native vegetation would be expected, and no further analysis is warranted.

**Wildlife**

Geotechnical investigations at LMR project sites could result in short-term impacts to common wildlife due to the presence of drilling equipment, the transportation and placement of that equipment to access drilling sites, and the noise associated with these actions. During specific periods of the year, particularly at times of breeding and nesting activity, these effects have the potential to become more amplified. For example, noise could potentially drive off adult nesting birds prior to the young fledging from the nest. Wildlife has the potential to be impacted via direct mortality or injury at specific sites. Impacts could occur from crushing animals that might hide in undetected burrows or are present along access roads when workers or crews are driving to and from the site. The project-wide conservation measures and BMPs listed above would avoid or minimize impacts to common wildlife such that only minor impacts to common wildlife would be expected from geotechnical investigations, and further analysis is not warranted.

**Special Status Species**

Geotechnical investigations at LMR project sites could result in short-term impacts to ESA-listed wildlife and plant species due to the presence of drilling equipment, the transportation and placement of that equipment to access drilling sites, and the noise associated with these actions. The potential for impacts to special status species would be similar to those described above for wildlife.

Project-wide conservation measures and BMPs and species-specific conservation measures identified in the BRR applicable to an LMR project site would be implemented. Typical measures to avoid and minimize effects to listed plants and animals include, but are not limited to: seasonal restrictions, not conducting drilling activities during rain events, restricting activities to previously disturbed areas, protecting native perennial vegetation, and immediately backfilling drill holes. A detailed site- and species-specific analysis of proposed LMR project activities that could potentially impact federally listed species was included in the BRR submitted to the USFWS during the informal consultation process detailed above. No geotechnical investigations would be implemented prior to completing consultation

with USFWS. FEMA would require full implementation of any additional conservation measures identified by USFWS.

FEMA would require that the Authority comply with the BGEPA. Bald and golden eagles, protected under the BGEPA, are sensitive to activities associated with human disturbance. During geotechnical investigations, temporary human activity may result in minor temporary increases in noise, dust, or movement; all of these could potentially disrupt eagle behavior, including disrupting nesting activity or causing nest abandonment if an active nest is close to a proposed LMR project site. Eagles have very large home ranges in which they forage; and, if there is minor disturbance within these areas, alternative habitat is available for foraging without altering the normal behavior patterns of the birds. At sites with a potential for bald or golden eagles to occur, BIO CM – Raptor Protection would be implemented along with other site-applicable measures intended to preclude impacts to biological resources. This measure specifically calls for preconstruction surveys, monitoring, and establishment of buffers during the nesting season (January 1 through July 31), all of which would apply to geotechnical investigations. No adverse impact to foraging activities of eagles is anticipated from implementation of the Proposed Action. Consultation with USFWS under the BGEPA is not expected to be required because project activities would not result in take of eagles.

FEMA would require that the Authority comply with the MBTA. Geotechnical investigations at proposed LMR project sites have the potential to impact migratory birds protected under the MBTA. Potential impacts to nesting birds include loss of habitat (i.e., through removal of trees or large tree limbs or other vegetation suitable for nesting); disturbance from noise, dust, light, and activity associated with human movement on the site that could force abandonment of active nests by breeding birds; and physical contact resulting in bird injury or mortality. At all sites, BIO CM – Nesting Bird Protection would be implemented to verify that nesting birds do not occur in proximity to geotechnical investigation activities. This measure includes provisions for directing work outside of nesting season (January 1 through September 15) where nesting birds are present, preconstruction monitoring, establishment of avoidance buffers, and prohibition of destruction of active nests. With implementation of this measure, violations of the MBTA would be avoided, and only minor impacts to nesting birds are anticipated.

**Sensitive Habitats**

A potential exists for ground disturbance from geotechnical investigations to occur at LMR project sites within the geographic boundary of critical habitat. The potential for impacts to critical habitat would be similar to those described under Vegetation. Proposed LMR project sites that occur in or include critical habitat with PCE elements on site that may be destroyed or adversely modified by project activities were included in the BRR submitted to the USFWS during informal consultation process detailed above. Where project boundaries and critical habitat coincide, project-wide conservation measures would be implemented to ensure no loss of vegetation or impacts to other site features that constitute PCEs. No ground-disturbing geotechnical investigations would be implemented prior to completing consultation with USFWS; any additional conservation measures identified by USFWS would be fully implemented.

No impact to PCEs associated with critical habitat is anticipated. Impacts to suitable habitat for special status species where the habitat is not classified as sensitive are addressed in the above special status species section.

With implementation of BMPs and FEMA's compliance with the Magnuson-Stevens Fishery Conservation and Management Act, potential impacts to EFH and/or HAPCs would not be anticipated. This would include all sites that would not adversely affect EFH and/or HAPCs.

FEMA would consult with NMFS for sites that would adversely affect EFH and/or HAPCs.

#### *4.4.2.2 General Consequences of Site Types*

**Vegetation**

***Construction***

Site types could involve construction of up to 5,000 square feet of temporary disturbance area, including up to 4,000 square feet of permanent disturbance.

Impacts to vegetation from construction would be similar to those described in Section 4.4.2.1 for geotechnical investigations; however, construction activities would have the potential to impact larger areas of vegetation through ground disturbance than those described for geotechnical investigations. Project-wide BMPs (see Appendix D, Measures 4, 7, and 26) applied at these sites would include protecting native vegetation, limiting ground disturbance, and preventing the spread of nonnative vegetation, in compliance with EO 13112. Prior to construction, a qualified biologist retained by the Authority would resurvey the sites containing native vegetation and flag native vegetation on these sites for avoidance. Therefore, only minor impacts to vegetation would be expected, and no further analysis is warranted.

***Operations***

Impacts to vegetation from operations would not be expected to result in any changes to existing grounds maintenance practices at proposed LMR project sites. No adverse impacts to vegetation are anticipated, and further analysis is not warranted.

**Wildlife**

***Construction***

Ground disturbance would be expected to occur at most sites in support of the LMR project. Impacts to common wildlife could occur from temporary construction activities associated with the Proposed Action adjacent to habitat areas, resulting in disturbance due to temporary minor increases in dust and noise. During specific periods of the year, particularly at times of breeding and nesting activity, these effects have the potential to become more amplified. For example, noise could potentially drive off adult nesting birds prior to the young fledging from the nest. Wildlife has the potential to be impacted

via direct mortality or injury at specific sites. Impacts could occur during site construction from crushing animals that might hide in undetected burrows, hitting animals present along access roads when workers or crews are driving to and from the site, or by trapping animals in open trenches. Occurrences of these types of impact would be minimal, as most native species would tend to avoid these developed settings and the extent of new ground disturbance would be limited. Losses of native vegetation that provide habitat for wildlife would not be expected to be substantial due to the project-wide conservation measures; therefore, adverse impacts from habitat loss would not be expected. The measures identified to protect native vegetation also minimize the loss of wildlife habitat.

***Operations***

Operational activities are limited to occasional visits to Project sites by maintenance workers to check equipment (about once a month). There is limited potential to impact wildlife via direct mortality or injury as no new ground disturbance would occur. LMR project site maintenance activities could crush animals that might hide in undetected burrows or are present along access roads when workers or crews are driving to and from the site. Motion-sensor security lighting used at rural site locations would minimize potential adverse effects of artificial lights that could attract or disorientate migratory birds. Only minor impacts on common wildlife would be expected. No further analysis is warranted.

**Special Status Species**

***Construction***

Special status species, including ESA-listed species, could potentially be affected during construction. Construction impacts include the activity of workers and equipment (i.e., noise generation, equipment ingress and egress, and activity at the site) and potential temporary or permanent loss of habitat from:

- trenching for power or fiber
- grading and foundation/footing development for generators, equipment shelters, and fences

Project-wide conservation measures and BMPs and species-specific conservation measures identified in the BRR applicable to an LMR project site would be implemented. Typical measures to avoid and minimize effects to listed plants and animals include, but are not limited to: seasonal restrictions, not accessing LMR project sites or constructing during rain events, restricting activities to previously disturbed areas, protecting native perennial vegetation, and immediately backfilling any excavated areas. Proposed LMR project activities that could potentially impact federally listed species were included in the BRR submitted to the USFWS during the informal consultation process detailed above for FEMA's compliance with Section 7 of the ESA. No construction activities would be implemented prior to FEMA completing its compliance with Section 7 of the ESA. FEMA would require the Authority to fully implement any additional conservation measures identified by USFWS.

FEMA would require that the Authority comply with the MBTA. Operations at proposed LMR project sites have the potential to impact migratory birds protected under the MBTA. Potential impacts to

nesting birds include loss of habitat (i.e., through removal of trees or large tree limbs or other vegetation suitable for nesting); disturbance from noise, dust, light, and activity associated with human movement on the site that could force abandonment of active nests by breeding birds; and physical contact resulting in bird injury or mortality. At all sites, BIO CM – Nesting Bird Protection would be implemented to verify that nesting birds do not occur in proximity to vegetation removal. This measure includes provisions for directing vegetation removal activities outside of nesting season (January 1 through September 15); where nesting birds are present, establishment of avoidance buffers; and prohibition of destruction of active nests. With implementation of this measure, violations of the MBTA would be avoided, and only minor impacts to nesting birds are anticipated.

FEMA would require that the Authority comply with the BGEPA. Potential impacts to bald and golden eagles and nesting birds would be as described in Section 4.4.2.1, Geotechnical Investigations, although the duration of human activity would be longer as construction duration would be up to 6 weeks and the number of workers and equipment on site, detectable by birds, would be greater.

***Operations***

Operational activities have the potential to impact special status animal species via direct mortality or injury. LMR project site maintenance activities could crush animals that might hide in undetected burrows or are present along access roads when workers or crews are driving to and from the site.

Project-wide conservation measures and BMPs and species-specific conservation measures identified in the BRR applicable to an LMR project site would be implemented. Typical measures to avoid and minimize effects to listed plants and animals include, but are not limited to: site access instructions that limit site access speed limits, caution regarding watching for wildlife, and avoiding driving or parking on native perennial vegetation. Motion-sensor security lighting used at rural site locations would minimize potential adverse effects of artificial lights that could attract or disorientate migratory birds. Proposed LMR project operational activities that could potentially impact federally listed species were included in the BRR submitted to the USFWS during the informal consultation process detailed above for FEMA's compliance with Section 7 of the ESA. No activities would occur prior to FEMA completing its compliance with Section 7 of the ESA. FEMA would require the Authority to fully implement any additional conservation measures identified by USFWS.

No impacts to bald and golden eagles are expected as a result of operations because anti-perch devices would be used on elevated, horizontal surfaces suitable for perching or nesting, as appropriate, and as discussed in BIO CM – Anti-Perching Devices (see Appendix F).

**Sensitive Habitats**

***Construction***

Some potential exists for minor impacts to sensitive habitats. The greatest impacts of this activity would be the potential temporary or permanent loss of habitat from construction-related activities such as trenching, grading, and foundation development for equipment and/or structures.

A potential exists for ground disturbance from construction activities to occur at LMR project sites within the geographic boundary of critical habitat. The potential for impacts to critical habitat would be similar to those described under the vegetation discussion. Proposed LMR project sites that occur in or include critical habitat with PCE elements on site that may be destroyed or adversely modified by project activities were included in the BRR submitted to the USFWS during informal consultation process detailed above. Where project boundaries and critical habitat coincide, project-wide conservation measures ensuring that loss of vegetation or impacts to other site features that constitute PCEs would be minimized. No construction activities would be implemented prior to completing consultation with USFWS; any additional conservation measures identified by USFWS would be fully implemented.

With implementation of BMPs and FEMA's compliance with the Magnuson-Stevens Fishery Conservation and Management Act, potential impacts to EFH and/or HAPCs would not be anticipated. This would include all sites that would not adversely affect EFH and/or HAPCs.

FEMA would consult with NMFS for sites that would adversely affect EFH and/or HAPCs.

***Operations***

No impacts to critical habitat or EFH would be anticipated as a result of operational activities, as no destruction or modification of these habitats would occur. No additional impacts other than those previously described for construction would be expected.

#### *4.4.2.3 Building Mount*

**Vegetation**

***Construction and Operations***

No additional consequences to vegetation would be expected beyond those discussed in Section 4.4.2.2.

**Wildlife**

***Construction and Operations***

No additional consequences to wildlife would be expected beyond those discussed in Section 4.4.2.2.

**Special Status Species**

***Construction***

FEMA would require that the Authority comply with the BGEPA and the MBTA. Potential impacts to bald and golden eagles and nesting birds would be as described in Section 4.4.2.1, Geotechnical Investigations. Because construction would be up to six weeks, the number of workers and equipment on site that would be detectable by birds would be greater than with the one-day geotechnical investigations.

No additional consequences to other special status species would be expected for construction beyond those discussed in Section 4.4.2.2.

***Operations***

No additional consequences to special status species would be expected for operations beyond those discussed in Section 4.4.2.2.

**Sensitive Habitats**

***Construction and Operations***

No additional consequences to sensitive habitats would be expected beyond those discussed in Section 4.4.2.2.

#### *4.4.2.4 Existing Lattice Towers and Monopoles*

**Vegetation**

***Construction and Operations***

No additional consequences to vegetation would be expected beyond those discussed in Section 4.4.2.2.

**Wildlife**

***Construction and Operations***

No additional consequences to wildlife would be expected beyond those discussed in Section 4.4.2.2.

**Special Status Species**

***Construction***

FEMA would require that the Authority comply with the BGEPA and the MBTA. Potential impacts to bald and golden eagles and nesting birds would be as described in Section 4.4.2.1, Geotechnical Investigations. Because construction would be up to six weeks, the number of workers and equipment on site that would be detectable by birds would be greater than with the one-day geotechnical investigations.

No additional consequences to other special status species would be expected for construction beyond those discussed in Section 4.4.2.2.

***Operations***

No additional consequences to special status species would be expected for operations beyond those discussed in Section 4.4.2.2.

**Sensitive Habitats**

***Construction and Operations***

No additional consequences to sensitive habitats would be expected beyond those discussed in Section 4.4.2.2.

#### *4.4.2.5 New Lattice Towers*

**Vegetation**

***Construction and Operations***

Rural sites may include more native vegetation in the vicinity of the site compared to more urbanized sites. This may result in a greater degree of disturbance to native vegetation compared to those in an urban setting, although consequences to vegetation would be no greater than those discussed in Section 4.4.2.2.

**Wildlife**

***Construction***

New towers in rural sites may include native vegetation that provide habitat that supports wildlife in close proximity to project activities. This may result in a greater degree of disturbance to wildlife compared to those in an urban setting, although consequences to wildlife would be no greater than those discussed in Section 4.4.2.2.

***Operations***

In addition to effects discussed in Section 4.4.2.2, operational impacts to wildlife could occur. These impacts include maintenance workers accessing the site through habitats that support wildlife and the potential for creation of new perching sites. Development of new lattice towers could result in creation of new roosting, nesting, or perching sites for raptors, condors, and other large birds (e.g., common raven, vultures). Impacts resulting from new perch sites could include birds becoming entangled in LMR equipment. In addition, these sites would afford predatory birds a new platform from which they could prey on juveniles or adults of other wildlife. To preclude the potential for this to occur, the Authority would implement project-wide and species-specific conservation measures and BMPs at applicable sites. The implementation of anti-perching devices would deter large birds from perching or nesting on

project structures, though smaller birds could make use of these structures. If birds nest in front of the antennas, they could be exposed to RF radiation that could result in abandonment of nests and death in adults. In addition, motion-sensor security lighting used at rural site locations would minimize potential adverse effects of artificial lights that could attract or disorientate migratory birds. Implementation of these measures would serve to avoid or minimize impacts to wildlife from operations and no further analysis is warranted.

**Special Status Species**

***Construction***

FEMA would require that the Authority comply with the BGEPA and the MBTA. Potential impacts to bald and golden eagles and nesting birds would be as described in Section 4.4.2.1, Geotechnical Investigations, although the duration of human activity would be longer as construction duration would be up to six weeks and the number of workers and equipment on site that would be detectable by birds would be greater.

No additional consequences to other special status species would be expected as a result of construction beyond those discussed in Section 4.4.2.2.

***Operations***

Operational impacts to ESA-listed species could occur. These impacts include maintenance workers accessing the site through habitats that support sensitive species and the potential for creation of new perching sites. Development of new lattice towers could result in creation of new roosting, nesting, or perching sites for raptors, condors, and other large birds (e.g., common raven, vultures). Impacts resulting from new perch sites could include birds becoming entangled in LMR equipment. In addition, these sites would afford predatory birds a new platform from which they could prey on juveniles or adults of other wildlife, including special status species. To preclude the potential for this to occur, the Authority would implement project-wide conservation measures, BMPs, and species-specific conservation measures identified in the BRR at applicable sites. The implementation of anti-perching devices would deter large birds from perching or nesting on project structures, though smaller birds could make use of these structures. If birds nest in front of the antennas, they could be exposed to RF radiation that could result in abandonment of nests and death in adults. New towers, particularly lighted towers, could present a strike hazard to migrating birds. To minimize impacts to migratory birds, the USFWS Office of Migratory Birds has developed voluntary guidelines for the construction of new communication towers. The conceptual design, as described in Chapter 2, complies with these voluntary guidelines. Implementation of these measures would serve to avoid or minimize impacts from operations to sensitive species. No activities would occur prior to completing consultation with USFWS; any additional conservation measures identified by USFWS would be fully implemented.

No other consequences to special status species would be expected as a result of operations beyond those discussed in Section 4.4.2.2.

**Sensitive Habitats**

***Construction and Operations***

No additional consequences to sensitive habitats would be expected beyond those discussed in Section 4.4.2.2.

#### *4.4.2.6 New Monopoles*

**Vegetation**

***Construction and Operations***

No additional consequences to vegetation would be expected beyond those discussed in Section 4.4.2.2.

**Wildlife**

***Construction and Operations***

Effects on wildlife would be the same as discussed in Section 4.4.2.5 for new lattice towers.

**Special Status Species**

***Construction***

No additional consequences to other special status species would be expected for construction beyond those discussed in Section 4.4.2.5, although effects to migratory birds would be reduced because the monopole structures would be smaller than the lattice towers.

***Operations***

No additional consequences to special status species would be expected beyond those discussed in Section 4.4.2.2 and Section 4.4.2.5.

**Sensitive Habitats**

***Construction and Operations***

No additional consequences to sensitive habitats would be expected beyond those discussed in Section 4.4.2.2.

## 4.5 Human Health and Safety

This section provides an analysis of impacts to human health and safety associated with implementation of the No Action Alternative and the Proposed Action.

### 4.5.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, under the No Action Alternative, the LMR project would not be implemented. The potential for interaction with hazardous materials as a result of the No Action Alternative would not occur, nor would facilities be placed in operation that may put workers and/or the public at risk. No impacts to human health and safety associated with the communication equipment are anticipated under the No Action Alternative. If the LMR project is not implemented, however, emergency responders in the Los Angeles County area would not benefit from having improved communication that would assist them in responding to natural and man-made emergencies.

### 4.5.2 Proposed Action

Construction and operational activities identified under the Proposed Action could result in human health and safety impacts. These impacts include potential human exposure from, or interaction with, hazardous substances, creation of aeronautical obstructions, and potential for RF exposures. Each of these potential hazards is discussed in this section.

#### *4.5.2.1 Geotechnical Investigations*

**Hazardous Substances**

Geotechnical investigations would not result in impacts associated with human health and safety. Minimal ground disturbance is associated with this activity, and would not result in a release of hazardous substances. No adverse impacts are anticipated, and no further analysis is warranted.

**Airspace Hazards**

If geotechnical investigations occur within the planning area of an airport Land Use Plan, FEMA would require the Authority to coordinate with the airport authority to determine the requirements for setting up the drill rig, such as issuing a Notice to Airmen. For sites that are not within the planning area of an airport Land Use Plan, no adverse impacts are anticipated, and no further analysis is warranted.

**Radiofrequency Exposures**

Geotechnical investigations would not result in the creation of RF exposure hazards. No adverse impacts are anticipated, and no further analysis is warranted.

#### *4.5.2.2 General Consequences of Site Types*

**Hazardous Substances**

***Construction***

Construction of LMR project sites involves a potential for hazardous substances to be released in the environment, mainly associated with operation of heavy equipment during construction (diesel fuel and lubricants). During excavation, potentially hazardous soil or groundwater may be encountered at proposed LMR project sites. The use of hazardous materials and management of wastes is required to occur in accordance with Federal, State, and local regulations identified in Section 3.5.1. Diesel fuel is the primary hazardous material expected to be used at any site, with other materials likely at the household quantity level. Transport and storage of diesel fuel and any other incidental hazardous materials would be accomplished in accordance with applicable regulations, identified in Section 3.5.1.

Contaminated soils and/or groundwater may potentially be encountered during excavation activities associated with trenching, foundation drilling, and grading at LMR project sites. To prevent this, FEMA would require the Authority to conduct a review of the SWRCB's GeoTracker and DTSC's online database tools for each proposed LMR project site. If an LMR project site is located within 0.25 mile of an active leaking underground storage tank or within 1.0 mile of the boundary of an NPL site, or occurs on any other active Cortese List site, then the Authority would prepare a Phase I Environmental Site Assessment to investigate and characterize a site before construction proceeds. If additional study is deemed warranted, then the Authority would conduct a Phase II investigation to determine levels of contamination. If the Phase II investigation determines that human contact with contaminated soils would occur, then the Authority would prepare a health and safety plan that addresses any potential safety risks, including hazardous contaminated impacted soil or groundwater prior to undertaking construction activity. Because the Authority would follow this procedure and comply with applicable regulation, no adverse direct or indirect impacts from exposure to contaminated soil or groundwater would occur.

Where dewatering is required during soil excavation, the Authority would file a Notice of Intent for the discharge to surface waters of treated or untreated groundwater from dewatering operations and other wastewaters in accordance with the requirements of the General NPDES permit issued by the RWQCB. If the discharge is eligible under the terms of the general permit, the Authority would be notified by the RWQCB, and would complete the appropriate monitoring and reporting program required by the NPDES permit. To be covered under this general order, the Authority must demonstrate that pollutant concentrations in the discharge would not cause violation of any applicable water quality objective for the receiving waters, including discharge prohibitions, and that discharge would not exceed the water quality criteria for toxic pollutants. The Authority would demonstrate compliance through laboratory analysis using a representative sample of groundwater or wastewater to be discharged. The sample would be analyzed and the data compared to the water quality screening criteria for the constituents listed in the appropriate basin plan to determine compliance. If the analytical test results exceed the

water quality screening criteria, then a reasonable potential for discharge of toxics is considered to exist; and treatment would be required before discharge would be allowed.

As dewatering activities would occur in compliance with existing regulations governing dewatering, no adverse impacts associated with hazardous materials would be expected to occur during construction.

***Operations***

During operations, the only hazardous substance that would be used in significant quantity at a LMR project site is diesel fuel. Diesel fuel tanks for the emergency generators would be installed in accordance with applicable regulations contained in the California Fire Code. For sites where separate diesel fuel tanks exceed 660 gallons, or integrated fuel tanks exceed 1,320-gallon capacity, an SPCC plan must be generated in accordance with 40 CFR 112. All tanks installed would meet applicable construction standards, including secondary containment. Compliance with applicable regulations would preclude any potential for adverse impacts.

**Airspace Hazards**

***Construction***

An increase in height to an existing building or structure would require FCC TOWAIR analysis to be completed. The FCC landing slope facility calculator and screening tool, known as the TOWAIR, assists in forecasting whether a proposed construction or modification of an antenna support structure requires notification to the FAA and registration with the FCC. TOWAIR findings are not definitive or binding but are a good indication of interference with navigation that could affect air traffic patterns or pose a safety risk. If the proposed antennas would add to the height of an existing building or structure, FEMA would require the Authority to enter required building modification data into the FCC TOWAIR online system. If the FCC TOWAIR tool provides a “fail slope” determination, the tower would be registered with the FCC. This tool determines if a proposed antenna structure is close enough to an airport or heliport to require an aeronautical study by the FAA and registration with the FCC. If the TOWAIR tool indicates a potential conflict with air traffic patterns, the Authority would register the tower with the FCC. If the TOWAIR tool indicates there would be no interference with air traffic patterns, no further action would be required.

Any antenna support structure that is identified as a potential conflict with air traffic patterns from the TOWAIR tool would also be subjected to the FAA notification process. FEMA would require the Authority to file aeronautical hazard Form 7460 with the FAA. The FAA would review the information provided in Form 7460-1 to determine if the antenna structure would cause an aeronautical hazard in accordance with 14 CFR Part 77. If the FAA issues a letter that states a “Determination of No Hazard to Air Navigation” has been made, no further preconstruction filing with the FAA is required. The FAA may issue a letter with conditions detailing what modification to the structure would be required from the aeronautical study to achieve a no hazard determination. FAA may require modifications to painting and lighting requirements in accordance with FAA Advisory Circular AC 70/7460-1 *Obstruction Marking and*

*Lighting*, require restrictions to the height, or determine the structure cannot be built in the proposed location. FEMA would require the Authority to complete a final post-construction filing with FAA following construction of the antenna support structure.

Any proposed antenna structures would be built in compliance with FAA's hazard determination and associated conditions from the aeronautical study (e.g., obstruction lighting). Therefore, this activity would not result in an adverse impact on human health and safety.

For sites where there would be no increase in height associated with antennas added to an existing structure, FCC TOWAIR analysis would not be required; and no further analysis would be warranted.

***Operations***

Only sites that satisfy FCC and FAA requirements would be constructed. Therefore, operations would have no effect on flight safety or result in airspace hazards, and no further analysis would be warranted.

**Radiofrequency Exposures**

***Construction***

There would be no impacts from RF exposures during construction, as the LMR system would not be operational during that time.

***Operations***

Operation of antenna equipment at LMR project sites would produce RF emissions. RF emissions from operation of each LMR project site may not exceed the MPE standards established by the FCC as set forth in 47 CFR §§ 1.1307 and 1.1310. FEMA would require the Authority to perform an RF emission safety study prior to construction that would model the RF emission level from all equipment on site and demonstrate that it complies with the FCC guidelines and regulations on MPE for the General Public / Uncontrolled and for the Occupational / Controlled groups per the FCC's OET Bulletin 65. After installation of the LMR project site equipment, the Authority would conduct field measurements to confirm RF emission levels are in compliance and would identify, resolve, and correct any noncompliance findings until compliance can be demonstrated.

In the event of noncompliance, the Authority would implement measures identified in FCC OET Bulletin 65, such as access restrictions including locked doors and gates as well as signage, based on modeled and measured RF-EME. To prevent exceeding MPE limits to workers and the public, the implemented measures would reduce RF exposure level to be in compliance with FCC MPE guidelines.

The Authority would manage radiofrequency exposures at proposed LMR project sites in accordance with applicable regulations contained in OET Bulletin 65. Therefore, operation of antenna equipment would not result in an adverse impact.

#### *4.5.2.3 Building Mount*

**Hazardous Substances**

***Construction and Operations***

No additional consequences from hazardous substances would be expected beyond those discussed in Section 4.5.2.2.

**Airspace Hazards**

***Construction and Operations***

No additional consequences from airspace hazards would be expected beyond those discussed in Section 4.5.2.2.

**Radiofrequency Exposures**

***Construction and Operations***

No additional consequences associated with radiofrequency exposures would be expected beyond those discussed in Section 4.5.2.2.

#### *4.5.2.4 Existing Lattice Towers and Monopole*

**Hazardous Substances**

***Construction and Operations***

No additional consequences from hazardous substances would be expected beyond those discussed in Section 4.5.2.2.

**Airspace Hazards**

***Construction and Operations***

No additional consequences from airspace hazards would be expected beyond those discussed in Section 4.5.2.2.

**Radiofrequency Exposures**

***Construction and Operations***

No additional consequences associated with radiofrequency exposures would be expected beyond those discussed in Section 4.5.2.2.

#### *4.5.2.5 New Lattice Towers*

**Hazardous Substances**

***Construction and Operations***

No additional consequences from hazardous substances would be expected beyond those discussed in Section 4.5.2.2.

**Airspace Hazards**

***Construction and Operations***

No additional consequences from airspace hazards would be expected beyond those discussed in Section 4.5.2.2.

**Radiofrequency Exposures**

***Construction and Operations***

No additional consequences associated with RF exposures would be expected beyond those discussed in Section 4.5.2.2.

#### *4.5.2.6 New Monopoles*

**Hazardous Substances**

***Construction and Operations***

No additional consequences from hazardous substances would be expected beyond those discussed in Section 4.5.2.2.

**Airspace Hazards**

***Construction and Operations***

No additional consequences from airspace hazards would be expected beyond those discussed in Section 4.5.2.2.

**Radiofrequency Exposures**

***Construction and Operations***

No additional consequences associated with RF exposures would be expected beyond those discussed in Section 4.5.2.2.

## 4.6 Socioeconomics

This section of this PEA provides a broad analysis of impacts to socioeconomic resources and environmental justice populations associated with implementation of the No Action Alternative and the Proposed Action.

### 4.6.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, the LMR project would not be implemented and no construction would occur. The No Action Alternative would have no effects on demographics or the regional economy. No jobs would be created, no new tax revenues would be generated, and no effect on the housing market or availability would occur.

Also under the No Action Alternative, no Federal grant funding would be available and the LMR project would not be implemented; therefore, no impacts would occur to human health and the environment from construction and operation of LMR project sites. No disproportionately high and adverse human health and environmental impacts to minority or low-income populations would occur. If the LMR project is not implemented, however, emergency responders in the Los Angeles County area would not benefit from having improved communication that would assist them in responding to natural and man-made emergencies. Although not having an LMR system could continue to have an impact to minority and low-income populations, this impact would occur to all populations in the Los Angeles County area and would not disproportionately affect minority and low-income populations.

### 4.6.2 Proposed Action

With Federal grant funding of the LMR project, the activities identified under the Proposed Action would be implemented. The Proposed Action includes several types of activities that may have an effect on socioeconomics and environmental justice populations. Each of these types of activities and the associated potential impacts are described in the following sections.

#### *4.6.2.1 Geotechnical Investigations*

**Socioeconomics**

Geotechnical investigations would be a one-day activity at each LMR project site and would not result in adverse impacts to demographics, housing, or the regional economy. Therefore, no further analysis or coordination is warranted to address socioeconomics impacts from geotechnical investigations.

**Environmental Justice**

Environmental justice impacts are triggered by impacts to other resources that may affect the human health or environmental condition of minority or low-income populations. No disproportionately high and adverse impacts would result from geotechnical investigations, and no further analysis is warranted.

#### *4.6.2.2 General Consequences of Site Types*

**Socioeconomics**

***Construction***

The Proposed Action would create new jobs associated with the construction of proposed LMR project sites. Nearby local service providers (e.g., restaurants, equipment repair shops, gas stations) may see small, short-term increases in activity during the construction phase, but the change would be expected to be negligible to minor. Work crews may be staffed by the existing work force, although it is possible that some workers could temporarily move into the area for the job opportunities; however, the number of jobs created would not be substantial enough nor would they be of a long enough duration to influence population demographics, housing, or the regional economy beyond a negligible change; and no further analysis would be warranted.

***Operations***

New long-term jobs would be created for operations, maintenance, and repair of the LMR system; however, the number of jobs created would not be substantial enough to influence population demographics, housing, or the regional economy beyond a negligible change; and no further analysis would be warranted.

**Environmental Justice**

***Construction***

Construction activities identified under the Proposed Action could result in potential impacts to human health and the environment. These, in turn, have the potential to impact minority and low-income populations.

The Project Area consists of a wide range of economic and demographic conditions. Potential human health and environmental impacts that may occur at the LMR project sites, as described in other sections of this PEA, would affect populations throughout the Project Area. These include, but are not limited to, minority and low-income populations.

Environmental justice impacts are triggered by impacts to other resources. If an LMR project site would require an SEA or a stand-alone EA due to a resource impact as identified elsewhere in Section 4 of this PEA, an environmental justice analysis would be required by FEMA as part of that analysis. The analysis conducted for an individual LMR project site would include an evaluation of the potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations in accordance with EO 12898. Any impacts affecting low-income or minority populations would be identified and documented in the SEA or stand-alone EA.

***Operations***

The Project Area consists of a wide range of economic and demographic conditions. Potential human health and environmental impacts that may occur due to operational activities at the LMR project sites, as described in other sections of this PEA, would affect populations throughout the Project Area. These include, but are not limited to, minority and low-income populations.

Environmental justice impacts are triggered by impacts to other resources. If an LMR project site would be subject to additional analysis due to a resource impact from operational activities as identified elsewhere in Section 4 of this PEA, an environmental justice analysis would be prepared as part of that additional analysis, as described under the Construction impact analysis above.

#### *4.6.2.3 Building Mount*

**Socioeconomics**

***Construction and Operations***

No additional consequences to population, demographics, housing, or the regional economy would be expected beyond those discussed in Section 4.6.2.2.

**Environmental Justice**

***Construction and Operations***

No additional consequences to minority and low-income populations would be expected beyond those discussed in Section 4.6.2.2.

#### *4.6.2.4 Existing Lattice Towers and Monopoles*

**Socioeconomics**

***Construction and Operations***

No additional consequences to population, demographics, housing, or the regional economy would be expected beyond those discussed in Section 4.6.2.2.

**Environmental Justice**

***Construction and Operations***

No additional consequences to minority and low-income populations would be expected beyond those discussed in Section 4.6.2.2.

#### *4.6.2.5 New Lattice Towers*

**Socioeconomics**

***Construction and Operations***

No additional consequences to population, demographics, housing, or the regional economy would be expected beyond those discussed in Section 4.6.2.2.

**Environmental Justice**

***Construction and Operations***

No additional consequences to minority and low-income populations would be expected beyond those discussed in Section 4.6.2.2.

#### *4.6.2.6 New Monopoles*

**Socioeconomics**

***Construction and Operations***

No additional consequences to population, demographics, housing, or the regional economy would be expected beyond those discussed in Section 4.6.2.2.

**Environmental Justice**

***Construction and Operations***

No additional consequences to minority and low-income populations would be expected beyond those discussed in Section 4.6.2.2.

## 4.7 Historic Properties

This section of the PEA analyzes impacts on historic properties associated with implementation of the No Action Alternative and the Proposed Action.

### 4.7.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, the LMR project would not be implemented and no construction would occur. No ground disturbance would occur that might affect archaeological or Native American resources; collocated tower and roof-mounted equipment would not be installed that might affect historic buildings or structures (architectural resources); and no new facilities would be built that would visually affect architectural resources within the viewshed. As a result, implementation of the No Action Alternative would have no impacts on historic properties.

### 4.7.2 Proposed Action

Under the Proposed Action, FEMA would provide Federal grant funding for the LMR project. The Proposed Action would include several types of project activities that could potentially affect historic properties. The types of activities and any associated impacts are described in Sections 4.7.2.1 through 4.7.2.5. As described in Section 3.7.1.3, FEMA would apply the ACHP Program Comment and defer to FCC and the existing FCC Collocation Agreement and Nationwide Agreement except for project sites proposed on lands administered by Federal agencies or on Tribal land. Under the Collocation Agreement, the Authority would screen project sites for new or additional antennas added to existing towers, buildings, or structures to determine if they are eligible for exemption. The details of any exemptions would be forwarded through FEMA to the SHPO for review, comment, and approval.

LMR project site-specific conditions that would determine use of the Nationwide Agreement are described in Section 3.7.1.3. The Nationwide Agreement would be applicable when FCC is the lead agency for the NHPA process. The California PA through the ACHP Program Comment allows FEMA to utilize FCC's Collocation Agreement and Nationwide Agreement.

In 2001, the ACHP issued a letter allowing the FCC to delegate authority for many Section 106 steps to their licensees; and those roles are formally established in the 2004 Nationwide Agreement. As a result, "Applicants would complete the Section 106 consultation with the SHPO on behalf of the FCC."

As noted in Section 1.4, some LMR project activities may be proposed for locations on land administered by Federal agencies. While the activities proposed for these LMR project sites would be similar to those proposed on the non-Federal lands, each Federal agency has its own preferences and/or agreement documents (e.g., PAs or MOAs) for Section 106 project review and Tribal consultation. The FCC PAs also do not apply to Federal agencies or Tribal land, except those identified in the Program Comment. As a result, the appropriate procedures used for compliance with Section 106 and Tribal consultation would be determined through agreement between FEMA and the affected Federal landowner and are not

addressed in this document; however, compliance with Section 106 and appropriate Tribal consultation would occur prior to implementation of the Proposed Action.

#### *4.7.2.1 Geotechnical Investigations*

**Historic Properties – Archaeological**

Inasmuch as geotechnical studies are ground-disturbing activities, the Section 106 process must be completed prior to conducting geotechnical investigations at any LMR project site. FCC would complete the Section 106 consultation with the SHPO on all non-Federal land to determine whether archaeological resources (including Native American resources) are present and whether they would be adversely affected by the activity. A description of the Section 106 compliance procedures that may be used is included in Section 3.7.1.

To protect any archaeological or Native American resources that are unexpectedly encountered during geotechnical investigations, the Authority would notify FEMA and the FCC to reinitiate consultation and implement BMPs that address the appropriate evaluation and treatment of such resource discoveries.

**Historic Properties – Architectural**

Geotechnical investigations would not result in any modifications to existing buildings or structures and would be a one-day activity that would not affect the visual setting of any historic properties. The activity does not have the potential to directly or indirectly affect architectural resources; therefore, no adverse impacts would occur, and no further analysis of impacts to architectural resources would be warranted.

**Consultation with Native American Tribes**

The FCC's TCNS would be utilized to contact Tribes that have expressed an interest in a particular geographic location. Tower information would be uploaded to the TCNS website; and, through a series of TCNS notifications, additional information would be provided to interested Tribes or consultation would be initiated if requested by a Tribe (see Section 3.7.2.3 and Table 3.7-1). In addition to the TCNS process, the NAHC would be contacted through direct mailing to request a search of their Sacred Lands Files and to obtain a list of Native American Tribes deemed appropriate to contact outside the TCNS system.

#### *4.7.2.2 General Consequences of Site Types*

**Historic Properties**

***Construction***

For all project site types on non-Federal lands for which a Section 106 exclusion has not been provided under the Collocation Agreement, the Nationwide Agreement would be followed to determine additional efforts that may be required for compliance with Section 106 of the NHPA. Application of the

Collocation Agreement would occur for building mount and existing lattice tower and monopole project site types, when applicable. The Collocation Agreement outlines criteria of when there would be no effect to historic properties, which are described in Section 3.7.1.3. If these criteria are met, there would be no effects to historic properties and no further analysis of impacts to historic properties would be warranted.

For all project site types on non-Federal lands outside the purview of the Collocation Agreement, the Nationwide Agreement would be utilized to ensure compliance with Section 106. The Nationwide Agreement describes the process and criteria for the Authority and FCC to identify and evaluate historic properties (including National Historic Landmarks), assess the effects of the activity to historic properties, and consult with the SHPO and other stakeholders. Criteria include the methods for identifying the APE, identifying and evaluating historic properties in the APE, and assessing the effects of the Proposed Action on historic properties. Additionally, the Nationwide Agreement describes the process that the Authority and FCC would follow to avoid, minimize, or mitigate any identified adverse effects to historic properties and thus resolve the adverse effects.

***Operations***

Operational activities would consist solely of routine inspections, maintenance, and repair of the LMR equipment. Maintenance crews would visit the site, typically on a monthly basis, using a utility van or pickup truck. Once the facility is constructed and operational, ground-disturbing activities are not anticipated, with the possible exception of periodic vegetation removal. Direct or visual impacts on historic properties are not expected as a result of these types of routine maintenance and repair operations at LMR project sites. As a result, adverse effects on historic properties or Native American resources are not expected as a result of operations at LMR project sites; and no further analysis of operational impacts to archaeological resources would be warranted.

**Consultation with Native American Tribes**

***Construction***

For all project site types on non-Federal lands, TCNS would be utilized to contact Tribes that have expressed an interest in a particular geographic location. Tower information would be uploaded to the TCNS website; and, through a series of TCNS notifications, additional information would be provided to interested Tribes or consultation would be initiated if requested by a Tribe (see Section 3.7.2.3 and Table 3.7-1). In addition to the TCNS process, the NAHC would be contacted through direct mailing to request a search of their Sacred Lands Files and to obtain a list of Native American Tribes deemed appropriate to contact outside the TCNS system. Consultation with Tribes would follow the general requirements identified in the Nationwide Agreement.

***Operations***

Operational activities would consist solely of routine inspections, maintenance, and repair of the LMR equipment and occasional replacement of antennas or ancillary LMR parts or equipment. Direct or visual impacts on Native American resources are not expected as a result of these types of routine maintenance and repair operations at LMR project sites. Therefore, no Native American Tribal consultation would be warranted for operational activities.

#### *4.7.2.3 Building Mount*

**Historic Properties**

***Construction and Operations***

No additional consequences to historic properties would be expected beyond those discussed in Section 4.7.2.2.

**Consultation with Native American Tribes**

***Construction and Operations***

No additional Native American Tribal consultation consequences would be required beyond those discussed in Section 4.7.2.2.

#### *4.7.2.4 Existing Lattice Towers and Monopoles*

**Historic Properties**

***Construction and Operations***

No additional consequences to historic properties would be expected beyond those discussed in Section 4.7.2.2.

**Consultation with Native American Tribes**

***Construction and Operations***

No additional Native American Tribal consultation consequences would be required beyond those discussed in Section 4.7.2.2.

#### *4.7.2.5 New Lattice Towers*

**Historic Properties**

***Construction and Operations***

No additional consequences to historic properties would be expected beyond those discussed in Section 4.7.2.2.

**Consultation with Native American Tribes**

***Construction and Operations***

No additional Native American Tribal consultation consequences would be required beyond those discussed in Section 4.7.2.2.

#### *4.7.2.6 New Monopoles*

**Historic Properties**

***Construction and Operations***

No additional consequences to historic properties would be expected beyond those discussed in Section 4.7.2.2.

**Consultation with Native American Tribes**

***Construction and Operations***

No additional Native American Tribal consultation consequences would be required beyond those discussed in Section 4.7.2.2.

## 4.8 Infrastructure

This section of this PEA provides an analysis of impacts to transportation, solid waste, electrical power, and water and wastewater infrastructure associated with implementation of the No Action Alternative and the Proposed Action.

### 4.8.1 No Action Alternative

Under the No Action Alternative, Federal grant funding to support construction of the LMR program would not be available. Consequently, no activities that would generate traffic or solid waste associated with design, construction, and operation of the LMR project sites would occur. No electrical power or water consumption would occur. Therefore, no impacts to transportation, solid waste, electrical power, or water and wastewater treatment would occur.

### 4.8.2 Proposed Action

With Federal grant funding of the LMR program, the activities identified under the Proposed Action could include potential impacts to transportation through additional use of the existing system and additional demands on solid waste disposal, electrical power, and potable water and wastewater systems. Construction-related effects are described along with the indirect effects of operations and maintenance if Federal funds are granted for project construction. Each of these is discussed in this section.

#### *4.8.2.1 Geotechnical Investigations*

**Transportation**

Geotechnical investigations would be a one-day activity at each affected LMR project site and would entail use of up to three vehicles. No adverse impacts to traffic or transportation are anticipated.

**Solid Waste**

Geotechnical investigations would not result in generation of solid wastes; therefore, no change in solid waste streams would occur with this activity.

**Electrical Power**

Geotechnical investigations would not require electrical power, and no adverse effects from this activity would occur.

**Water and Wastewater**

A one-day geotechnical investigation may require up to 50 gallons of water for dust control. Unless water is readily available at the site, a water truck would haul water to the site for this work. No adverse impacts to water supplies and no wastewater disposal requirements would be expected.

#### *4.8.2.2 General Consequences of Site Types*

**Transportation**

***Construction***

A slight increase in traffic generated by construction activities would be short-term. Construction of an LMR project site would generate fewer than 25 vehicle round trips per day for up to 6 weeks. Construction crews would use existing roads to access sites. Construction-related traffic would result in a negligible change in existing traffic conditions on these routes. The Authority would prepare a traffic plan, if needed by the jurisdiction with authority, and as noted in Section 4.1, obtain any applicable right-of-way permits prior to construction. Effects would be negligible as well as temporary and would not warrant further analysis for a specific LMR project site.

***Operations***

Operational activities would consist of a monthly maintenance visit by a technician or a small crew. This would generate up to four vehicle round trips per month per site. This would be a negligible change to existing traffic conditions. Therefore, no adverse impacts to the transportation system or to existing traffic conditions would occur from operation of LMR project sites.

**Solid Waste**

***Construction***

Solid waste, including concrete, asphalt, packing materials, plastics, cardboard, vegetation, and other debris, would be generated during construction of the LMR project sites in varying amounts, depending on site conditions and equipment installed. Construction debris would be reused or recycled, to the extent feasible. The majority of the waste not reused or recycled could be sent to unclassified landfills. The Authority would handle all waste in a manner that is consistent with Federal, State, and local statutes applicable to the type of solid waste generated. Based on landfill capacity in the Project Area, the construction of the project would not result in a substantial change in remaining landfill capacity or the life expectancy of landfills. No adverse impacts to solid waste facilities are anticipated, and no further analysis for waste streams associated with a specific LMR project site would be warranted.

***Operations***

During operations, LMR project sites would be unmanned. Site maintenance would not result in routine generation of solid waste, although faulty components could be replaced. No adverse impacts to solid waste facilities from operation of LMR project sites would be expected, and no further analysis for waste streams associated with a specific LMR project site would be warranted.

**Electrical Power**

***Construction***

Construction activities would require minor amounts of energy for power hand tools, lights, and construction equipment. This demand would be short-term and would occur only during construction activities. Adverse construction impacts to electrical power supply would not be expected during construction, and no further analysis associated with power capacity for a specific LMR project site would be warranted.

***Operations***

The need for electrical power would continue through the operational life of the LMR project. Typically, an LMR project site would require up to 52 kW of power. For the up to 90 LMR project sites, this equates to a demand of 4.7 MW of power, in comparison to the approximately 41,000 MW of peak power demand forecasted for the State of California for a selected day in July 2015. The increase in demand for energy generated by the Proposed Action would be about 1/100$^{th}$ of a percent of forecasted peak demand for the State. The demand from individual sites within the service areas of individual service providers is expected to be a small fraction of the capacity of those service providers. This would be confirmed through power studies conducted during the design process for each individual site. If power studies indicate that service providers are unable to fully serve an individual site based on the existing power at the site, alternatives including solar power, electrical distribution upgrades, or other methods may be used to bring adequate power to the LMR project site. No adverse direct or indirect impacts to electrical supply or to electrical utilities would be expected from operation of the LMR project.

**Water and Wastewater**

***Construction***

Minor quantities of water may be needed to support construction activities. No wastewater requiring disposal at a wastewater treatment facility is expected to be generated. No interruption of service would be anticipated. Water use over the construction period would typically be up to 500 gallons per site and accommodated by local water supplies. Existing local water supplies would be capable of supporting the water requirements without changes to water-related infrastructure. As a result, no adverse effect on water supplies or wastewater treatment facilities would occur, and no further analysis associated with water capacity or disposal of wastewater for a specific LMR project site would be warranted.

***Operations***

Operation of the LMR project sites would not require use of potable water or generate wastewater. No adverse impacts to water supply or wastewater treatment systems would occur during operations, and no further analysis associated with water capacity or disposal of wastewater for a specific LMR project site would be warranted.

#### *4.8.2.3 Building Mount*

**Transportation**

***Construction and Operations***

No additional consequences to transportation would be expected beyond those discussed in Section 4.8.2.2.

**Solid Waste**

***Construction and Operations***

No additional consequences to solid waste facilities would be expected beyond those discussed in Section 4.8.2.2.

**Electrical Power**

***Construction and Operations***

No additional consequences to the electric power supply or electrical utilities would be expected beyond those discussed in Section 4.8.2.2.

**Water and Wastewater**

***Construction and Operations***

No additional consequences associated with water capacity or disposal of wastewater would be expected beyond those discussed in Section 4.8.2.2.

#### *4.8.2.4 Existing Lattice Towers and Monopoles*

**Transportation**

No additional consequences to transportation would be expected beyond those discussed in Section 4.8.2.2.

***Construction and Operations***

No additional consequences to transportation would be expected beyond those discussed in Section 4.8.2.2.

**Solid Waste**

***Construction and Operations***

No additional consequences to solid waste facilities would be expected beyond those discussed in Section 4.8.2.2.

**Electrical Power**

***Construction and Operations***

No additional consequences to the electric power supply or electrical utilities would be expected beyond those discussed in Section 4.8.2.2.

**Water and Wastewater**

***Construction and Operations***

No additional consequences associated with water capacity or disposal of wastewater would be expected beyond those discussed in Section 4.8.2.2.

#### *4.8.2.5 New Lattice Towers*

**Transportation**

***Construction***

The construction impacts on transportation would be the same as described in Section 4.8.2.2, although some improvements to existing access roads may be required on the site, such as creation of vehicle turnaround and parking areas. Aggregate may be applied to access roads, turnarounds, and parking areas within the LMR project site boundary. These activities would not affect traffic off the site. No construction of new access roads would be required. No additional impacts other than those previously described would be expected.

***Operations***

No additional consequences to transportation would be expected beyond those discussed in Section 4.8.2.2.

**Solid Waste**

***Construction and Operations***

No additional consequences to solid waste facilities would be expected beyond those discussed in Section 4.8.2.2.

**Electrical Power**

***Construction and Operations***

No additional consequences to the electric power supply or electrical utilities would be expected beyond those discussed in Section 4.8.2.2.

**Water and Wastewater**

***Construction***

The construction impacts on water and wastewater would be the same as described in Section 4.8.2.2, No additional impacts other than those previously described would be expected.

***Operations***

No additional consequences associated with water capacity or disposal of wastewater would be expected beyond those discussed in Section 4.8.2.2.

#### *4.8.2.6 New Monopoles*

**Transportation**

***Construction***

The construction impacts on transportation would be the same as described in Section 4.8.2.2, although some improvements to existing access roads may be required on the site, such as creation of vehicle turnaround and parking areas. Aggregate may be applied to access roads, turnarounds, and parking areas within the LMR project site boundary. These activities would not affect traffic off the site. No construction of new access roads would be required. No additional impacts other than those previously described would be expected.

***Operations***

No additional consequences to transportation would be expected beyond those discussed in Section 4.8.2.2.

**Solid Waste**

***Construction and Operations***

No additional consequences to solid waste facilities would be expected beyond those discussed in Section 4.8.2.2.

**Electrical Power**

***Construction and Operations***

No additional consequences to the electric power supply or electrical utilities would be expected beyond those discussed in Section 4.8.2.2.

**Water and Wastewater**

***Construction***

The construction impacts on water and wastewater would be the same as described in Section 4.8.2.2. No additional impacts other than those previously described would be expected.

***Operations***

No additional consequences associated with water capacity or disposal of wastewater would be expected beyond those discussed in Section 4.8.2.2.

## 4.9 Air Quality and Greenhouse Gas Emissions

This section of this PEA provides a broad analysis of impacts to air quality and GHG emissions associated with implementation of the No Action Alternative and the Proposed Action.

### 4.9.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding, and the LMR project would not be implemented; therefore, no activities that would generate air emissions would occur. As a result, no impacts are anticipated to air quality or GHG emissions under the No Action Alternative.

### 4.9.2 Proposed Action

The Proposed Action to grant Federal funding would allow for construction and operation of the LMR system and could result in air quality and GHG emission impacts. These include air emissions generated during LMR project site construction and air emissions generated by LMR project operations. Each of these is discussed in this section. Air quality and impacts to air quality are associated with the dispersion of air pollutants within a geographic area, are by nature generally cumulative, and are therefore examined based on the air basin. The "worst case" scenario was calculated using the maximum air emissions (shown below in Table 4.9-1) for a proposed LMR site (proposed composite site), and applying this to up to 90 LMR sites being constructed in one calendar year to determine compliance with the General Conformity Rule discussed in Section 3.9.1.1. Therefore, the impact analysis for this section is applicable to all project site types identified in Section 2.2.3 and the proposed geotechnical investigations.

#### *4.9.2.1 Geotechnical Investigations*

**Air Quality**

Air emissions associated with geotechnical investigations at LMR project sites would be short-term, temporary, and minimal, as the investigation for each site would be completed in one day with a small team using two or three vehicles, and ground disturbance would be minimal. The air emissions are included in the analysis for construction activities for the entire LMR project as a whole, described in Section 4.9.2.2 below, and would not result in adverse impacts.

**Greenhouse Gas Emissions**

GHG emissions associated with geotechnical investigations at LMR project sites are included in the analysis for construction activities for the entire LMR project as a whole and would not result in adverse impacts.

#### *4.9.2.2 General Consequences of Site Types*

**Air Quality**

***Construction***

During construction, air pollutants enter the atmosphere in three ways: combustion of diesel fuel by construction equipment, combustion of gasoline and diesel fuel by construction worker commuting vehicles and material transport trucks, and entrainment of dust from demolition activities and from soil disturbance. Diesel engine exhaust contains nitrogen oxides from the high-temperature reaction of oxygen and nitrogen in the combustion air. The exhaust also contains many gaseous products of incomplete combustion of the fuel, including unburned hydrocarbons, carbon monoxide, and a variety of organic compounds such as formaldehyde and benzene. Perhaps most important from a human health perspective, DPM in diesel exhaust is associated with elevated cancer risk. Finally, complete combustion of diesel fuel results in formation of carbon dioxide, a greenhouse gas. Small amounts of the GHGs methane and nitrous oxide are also generated. Emissions from construction worker commuting vehicles (mainly automobiles and light-duty trucks) contain mainly the same types of pollutants as those from diesel vehicles, without the DPM.

During demolition, small pieces of broken material become dust particles in the air, which can include potentially hazardous materials. FEMA would require the Authority to comply with NESHAP standards regarding handling of hazardous materials including lead-based paint, asbestos-containing materials, and soil contaminated with aerially deposited lead.

Activities such as excavation or passage of motor vehicles over unpaved areas also release dust particles to the air. The larger dust particles rapidly settle out and do not contribute to air pollution. The lighter particles remain suspended in the air and are available to be inhaled. Finally, dust particles that have fallen to the ground can become airborne anew when wind blows across disturbed soil surfaces or soil storage piles.

To estimate emissions from construction of the LMR project sites, a composite site based on a construction scenario that emulated maximum activity levels was modeled. This composite site aggregated the worst of the impacts identified for four sites types. This scenario consisted of the following construction activities, each with the potential to generate air emissions:

- personnel and tool delivery
- demolition of existing pavement and structures
- preparation (through cuts and fills) of the area where the lattice tower or monopole, equipment shelters, and emergency generator would be installed
- excavation for the tower or monopole's foundation
- concrete pad construction

- tower or monopole erection and antenna equipment installation
- installation of cabinets, emergency generator, and other ground-based equipment

The types of equipment used and their deployment schedules were based on the four site types, assuming that the maximum number and usage duration for each piece of equipment at any of the site types would be used at the composite site. Emissions for this maximum usage scenario were estimated with the California Emissions Estimator Model (CalEEMod®), a widely used emissions estimation model that was developed for the California Air Pollution Control Officers Association, and applicable statewide (EIC 2013). Table 4.9-1 provides a summary of the estimated usage for each type of equipment input into CalEEMod®.

**Table 4.9-1: Composite LMR Project Site with Maximum Construction Activities**

| Equipment | Activity | Horsepower[1] | Daily Usage | Trips to Site | Days on Site |
|---|---|---|---|---|---|
| Antenna Line Truck | Personnel/Tool Delivery | 306 | 0.067 | 30 | 30 |
| Civil Truck | Personnel/Tool Delivery | 306 | 0.067 | 30 | 30 |
| Concrete Saw | Demolition | 27 | 7 | 1 | 1 |
| Mini Excavator | Demolition, Site Preparation | 22.9 | 4 | 1 | 2 |
| Excavator | Excavation | 153 | 5 | 1 | 10 |
| Cat Skid Steer | Excavation | 73 | 4 | 1 | 10 |
| Dump Truck | Demolition | 450 | 8 | 1 | 1 |
| Water Truck | Demolition, Excavation | 210 | 1 | 1 | 11 |
| Auger Drill Rig | Excavation | 206 | 3 | 1 | 2 |
| Concrete Truck | Pad Construction | 450 | 1 | 1 | 19 |
| Flatbed Truck | Excavation | 400 | 3 | 1 | 2 |
| Crane | Installation | 530 | 8 | 2 | 4 |
| Reach Fork | Installation | 60 | 4 | 2 | 5 |
| Portable Generator | Installation | 7 | 6 | 1 | 10 |

Note: Maximum six-week total construction duration.

[1] Brake Horsepower (horsepower) and usage data referenced from *Broadband Technology Opportunities Program Final Environmental Assessment, Los Angeles Regional Interoperable Communications System LTE System* (NTIA 2014).

CalEEMod® runs were completed for sites located in the SCAB and MDAB based on the emissions calculated for the composite site with maximum activity levels described in Table 4.9-1. As shown in Table 4.9-2, annual emissions from construction activities would be below the thresholds for a Federal general conformity determination, established under Section 176(c)(4) of the CAA (42 U.S.C. § 7506(c)),

in both air basins. Determinations are made based on *de minimis* levels found in 40 CFR 93.153(b), as shown in Table 3.9-2 and in Table 4.9-2 below. For Federal actions, if emissions are below the *de minimis* levels, then the action would not cause or contribute to a new violation of the NAAQS, cause or worsen existing violations of or contribute to new violations of the NAAQS, or delay attainment of the NAAQS per the SIP. Based on an analysis of construction of up to 90 composite sites in the SCAB and MDAB, annual construction emissions for this project would be below *de minimis levels*; therefore, the project conforms to the SIP, and a general conformity determination is not required. FEMA compliance with the Federal CAA for the construction of the Proposed Action would be achieved.

**Table 4.9-2: Construction Emissions per Composite Site versus *De Minimis* Standards in SCAB and MDAB**

| Emission Type | Maximum Annual Emissions (tons per year) | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| **Sites Located in SCAB** | | | | | |
| Single Site Emissions | 0.01 | 0.11 | 0.08 | 0.02 | <0.01 |
| Emissions for up to 90 Sites | 0.90 | 9.90 | 7.20 | 1.80 | <1 |
| **Site Located in MDAB** | | | | | |
| Single Site Emissions | 0.01 | 0.11 | 0.08 | 0.02 | <0.01 |
| Emissions for up to 18 Sites | 0.18 | 1.98 | 1.44 | 0.36 | <0.20 |
| *De Minimis* Threshold[1] | 100 | 100 | 100 | 100 | 100 |

Source: CalEEMod® Version 2013.2.2.
ROG = reactive organic gases
[1] *De minimis* thresholds shown are a subset of the complete list in 40 CFR 93.153(b) list shown in Table 3.9-1 as determined by the attainment status of the SCAB and MDAB.

Diesel construction equipment would emit DPM, a carcinogen; however, exposure of sensitive receptors would be short-term, so that the average annual exposure over the 70-year lifetime normally used in USEPA air toxics health risk assessments would be minor, and no adverse impact would be expected.

Construction of the LMR project sites also would not induce population and/or housing growth or increase traffic other than traffic related to construction, which was considered in the analysis above.

***Operations***

Operational emissions associated with each LMR project site would include emissions from vehicles transporting routine maintenance personnel to service LMR equipment. The EMFAC2011-LDV (Light Duty Vehicles) model, developed by CARB, was used to estimate emissions from maintenance vehicles based on a monthly generator test and biannual maintenance occurring on the same day as a generator test for each composite site. It was also assumed that test days would be distributed evenly during the month. Based on this schedule, approximately 4 to 5 round trips would occur during 22 weekdays each month of the calendar year for up to 90 LMR project sites located within the SCAB.

The monthly generator test was conservatively assumed to last one hour at each site. Generator emissions were estimated for a 120-brake horsepower generator based on annual emission factors published by SCAQMD for off-road mobile sources in the SCAB, including generator engines, by horsepower rating. Table 4.9-3 shows the total annual emissions from maintenance vehicles and emergency generator testing.

**Table 4.9-3: Total Project Operational Emissions for All LMR Project Sites versus *De Minimis* Standards in SCAB**

| Emission Category | Maximum Emissions | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| Daily Maintenance (pounds) | 0.33 | 0.52 | 2.27 | 0.09 | 0.05 |
| Daily Generator Testing (pounds) | 0.27 | 1.42 | 1.96 | 0.15 | 0.15 |
| Total Daily Emissions (pounds) | 0.60 | 1.94 | 4.23 | 0.23 | 0.20 |
| Annual Emissions for up to 90 Sites (tons) | 0.81 | 2.62 | 5.71 | 0.31 | 0.27 |
| *De Minimis* Threshold (tons)[1] | 100 | 100 | 100 | 100 | 100 |
| Exceedance | No | No | No | No | No |

[1] *De minimis* thresholds shown are a subset of the complete list in 40 CFR 93.153(b) list shown in Table 3.9-1 as determined by the attainment status of the SCAB.

Table 4.9-4 shows the total operational emissions from maintenance vehicles and emergency generator testing in up to 18 sites within the MDAB.

**Table 4.9-4: Total Project Operational Emissions for All LMR Project Sites versus *De Minimis* Standards in MDAB**

| Emission Category | Maximum Emissions | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| Daily Maintenance (pounds) | 0.07 | 0.22 | 0.86 | 0.04 | 0.04 |
| Daily Generator Testing (pounds) | 0.07 | 0.29 | 0.40 | 0.04 | 0.04 |
| Total Daily Emissions (pounds) | 0.14 | 0.50 | 1.26 | 0.07 | 0.07 |
| Annual Emissions for up to 18 Sites (tons) | 0.04 | 0.14 | 0.34 | 0.02 | 0.02 |
| *De Minimis* Threshold (tons)[1] | 100 | 100 | 100 | 100 | 100 |
| Exceedance | No | No | No | No | No |

[1] *De minimis* thresholds shown are a subset of the complete list in 40 CFR 93.153(b) list shown in Table 3.9-1 as determined by the attainment status of the MDAB.

For both air basins, annual emissions would be below the thresholds for operations for a Federal general conformity determination, established under Section 176(c) (4) of the CAA (42 U.S.C. § 7506(c)). Determinations are made based on *de minimis* levels found in 40 CFR 93.153(b) and shown in Table 3.9-2. If the project's emissions are below the *de minimis* levels, then it is assumed the project conforms to the SIP and no further analysis is required. FEMA has complied with the CAA for the operations phase of the Proposed Action.

Annual average DPM exposure over the 70-year lifetime assumed by USEPA for air toxics health risk assessments would be negligible.

**Greenhouse Gas Emissions**

***Construction***

CalEEMod® was used to calculate carbon dioxide-equivalent emissions from off-road construction equipment usage and on-road vehicle trips for construction workers to each LMR project site amortized over a 30-year project life-cycle. Start-up and running $CO_2$ emissions from construction worker vehicles were determined using EMFAC2011-LDV. Calculated GHG emissions are shown in Table 4.9-5. GHG impacts are anticipated to be minimal for the construction of the Proposed Action.

***Operations***

Generator emissions of GHGs were determined based on the anticipated generator testing schedule and SCAQMD/AVAQMD emission factors. GHG emissions from electricity consumption by equipment (monopole/antennas) at each LMR project site were determined with an assumed power rating and supply source (e.g., Los Angeles Department of Water and Power) as described in Section 4.8.2.2. Total annual GHG emissions for up to 90 LMR project sites located in the SCAB and up to 18 project sites located in the MDAB are shown in Table 4.9-5. Table 4.9-5 shows the estimated annual project-related emissions of GHG are well below the 25,000 annual metric tons "presumptive effects threshold" for carbon dioxide-equivalent emissions as identified by the CEQ under EO 13693; therefore, GHG impacts are anticipated to be minimal for the operations phase of the Proposed Action this project.

**Table 4.9-5: Greenhouse Gas Emissions for All LMR Project Sites within the Project Area**

| GHG Emission Source | Annual Emissions (metric tons) |
|---|---|
| Construction (amortized over 30-year facility life) | 436.66 |
| Routine maintenance | 72.88 |
| Generator testing | 32.85 |
| Indirect (electricity generation) | 4,149.57 |
| Total | 4,691.96 |

## 4.10 Noise

This section of this PEA provides an analysis of noise impacts associated with implementation of the No Action Alternative and the Proposed Action.

### 4.10.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, no activities that generate noise associated with construction and operation of the LMR project sites would occur. There would be no change to ongoing operational activities at existing sites and, therefore, no change in noise conditions at these locations. No impacts from noise would occur.

### 4.10.2 Proposed Action

The activities identified under the Proposed Action could result in noise impacts generated by construction and operational activities.

#### *4.10.2.1 Geotechnical Investigations*

Geotechnical investigations would be a one-day activity at each LMR project site. Noise generated from geotechnical investigation drilling activity would be well within the one-hour average noise exposure levels discussed in Section 4.10.2.2 and would not result in adverse noise impacts. Therefore, no further analysis or coordination is warranted.

#### *4.10.2.2 General Consequences of Site Types*

***Construction***

The main noise sources during the construction phase would be the operation of construction equipment. Noise is produced by engines, by exhaust fumes exiting from tailpipes, by friction with the ground as the equipment moves, and by beeping backup signals. At many sites, impulsive noise sources, such as jackhammers and pile drivers, contribute to noise. Noise from construction workers' commuting vehicles, material delivery trucks, and waste disposal trucks makes a relatively small contribution.

To estimate noise impacts from construction of the LMR project sites, a composite site based on a construction scenario that emulated maximum activity levels was modeled. This composite site aggregated the worst of the impacts identified for the four site types and included geotechnical investigation, demolition, site preparation, excavation, concrete pouring, tower installation, and shelter/generator installation.

The one-hour average noise exposure at 50 feet from the assumed location of the activity would be approximately 82 dBA $L_{eq}$. This value was used as a reference for calculating noise exposures at increasing distances from the construction activity.

Noise exposure contours (lines of equal noise exposure) were generated by modeling for a generic site in a rural or remote area, where "soft" ground surfaces absorb a substantial amount of noise energy. Sensitive receivers located within approximately 725 feet of rural and remote LMR project sites would be exposed to at least 55 dBA $L_{eq}$ during excavation and drilling. Noise exposure contours were also generated by modeling for a generic site in an urban area, where the "hard" ground surface allows the noise to carry further. Sensitive receivers located within approximately 1,425 feet of urban LMR project sites would be exposed to at least 55 dBA $L_{eq}$ during excavation and drilling.

Within the 55-dBA contour for rural and remote sites (725 feet) and urban sites (1,425 feet), sensitive receivers would likely be impacted by short-term noise exposures exceeding the 55-dBA $L_{eq}$ criterion. These exposure levels may be reduced at some sites by factors including equipment being operating for shorter durations than those modeled, and attenuation of noise by existing site noise barriers (e.g., buildings and walls).

For any LMR project site where no sensitive receptors are present within the appropriate (i.e., rural/remote or urban) 55-dBA contour, no adverse noise impacts from construction are anticipated, and no further analysis would be warranted. Where sensitive receptors are present within the 55-dBA contour of the LMR project sites, the temporary adverse impacts would be reduced through the Authority's use of noise minimization opportunities, such as time of day restrictions based on local ordinances, public notification, and using equipment with the manufacturer's standard noise control devices (e.g., mufflers, baffling, and/or engine enclosures).

***Operations***

The main potential noise sources associated with operations at each site would be the hum from some pieces of communications equipment, the occasional use of emergency generators, routine facilities maintenance, and HVAC systems for the equipment shelters. The equipment shelter walls that would encase the communications equipment would provide sufficient attenuation so that communications equipment would not be audible to sensitive receivers near the sites.

The noise from maintenance activities, which could include landscaping, routine site inspections, and occasional equipment repairs, would be intermittent and not substantially different from current levels. Therefore, this noise source would not result in adverse impacts.

Diesel generators that would be used at the proposed LMR project sites would have a noise rating of 68 dBA at 23 feet from the source. This is equivalent to approximately 62 dBA at 50 feet. The emergency generators at the LMR project sites would also be in solid wall enclosures, which would attenuate at least 10 dBA. The resulting noise emissions would be approximately 52 dBA at 50 feet. This is comparable to the ambient noise at most locations. In addition, testing of generators is expected to occur for one hour once per month, and maintenance workers accessing generators would not generate substantive noise. Therefore, noise emissions from testing generators would not result in an adverse impact.

The analysis conservatively assumes that the noise emissions from the equipment shelter would be 67 dBA at 6 feet. The resulting noise emissions would be approximately 49 dBA at 50 feet. Noise emissions from equipment shelters would not result in an adverse impact, and no further analysis would be warranted.

#### *4.10.2.3 Building Mount*

***Construction and Operations***

No additional consequences to noise-sensitive receptors would be expected beyond those discussed in Section 4.10.2.2.

#### *4.10.2.4 Existing Lattice Towers and Monopoles*

***Construction and Operations***

No additional consequences to noise-sensitive receptors would be expected beyond those discussed in Section 4.10.2.2.

#### *4.10.2.5 New Lattice Towers*

***Construction and Operations***

No additional consequences to noise-sensitive receptors would be expected beyond those discussed in Section 4.10.2.2.

#### *4.10.2.6 New Monopoles*

***Construction and Operations***

No additional consequences to noise-sensitive receptors would be expected beyond those discussed in Section 4.10.2.2.

## 4.11 Visual Quality

This section of this PEA provides a broad analysis of impacts to visual quality associated with implementation of the No Action Alternative and the Proposed Action.

### 4.11.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, the LMR project would not be implemented and no construction of new structures or modification of existing structures that could change the visual setting would occur. As a result, no impacts are anticipated to visual quality under the No Action Alternative.

### 4.11.2 Proposed Action

The activities identified under the Proposed Action could result in impacts to visual resources. The presence of modified or new structures could affect visual resources.

#### *4.11.2.1 Geotechnical Investigations*

Geotechnical investigation activities would introduce a drill rig to the visual setting of an LMR project site for less than one day. This would be a short-term minor change to the visual setting. No adverse impacts to visual quality would be expected from temporary geotechnical investigation activities. Therefore, no further analysis is warranted.

#### *4.11.2.2 General Consequences of Site Types*

**Construction**

Construction activities would temporarily affect the visual setting of an LMR project site by introducing views of construction equipment, staged building materials, and disturbed ground in a small localized area.

**Operations**

In areas of low visual sensitivity, no adverse impacts to visual quality would be expected from any of the project site types. The analysis of sites by the Authority within areas with high or moderate visual sensitivity is addressed by site type because of their differences in effects.

#### *4.11.2.3 Building Mount*

**Construction**

No additional consequences to visual quality would be expected beyond those discussed in Section 4.11.2.2.

**Operations**

The visual setting at building mount sites includes the presence of the existing buildings on which the antennas would be installed. Installation of antennas on existing buildings would not result in a substantial change in the visual setting of these buildings because of the relatively short height of the antennas compared to the building height and mass. Modification of existing structures and facilities or construction of support structures such as an equipment shelter and generator would also not result in a substantial change in the visual setting because views of similar buildings are part of the existing setting. Operational activities would also include routine inspections, maintenance, and repair of the LMR equipment. Maintenance crews would visit the site, typically on a monthly basis, using a utility van or pickup truck. No adverse impacts to visual quality would be expected.

#### *4.11.2.4 Existing Lattice Towers and Monopoles*

**Construction**

No additional consequences to visual quality would be expected beyond those discussed in Section 4.11.2.2.

**Operations**

The visual setting at existing lattice tower and monopole sites includes the presence of the lattice tower or monopole and other existing support facilities (e.g., equipment shelters). Installation of antennas on existing structures would not result in a substantial change in the visual setting because views of similar antennas on similar support structures are part of the existing setting. Impacts would be similar to those described in Section 4.11.2.3 for antennas mounted to buildings, and no additional impacts other than those previously described would be expected. No substantial impacts to visual quality would be expected.

#### *4.11.2.5 New Lattice Towers*

**Construction**

No additional consequences to visual quality would be expected beyond those discussed in Section 4.11.2.2.

**Operations**

The presence of new lattice towers may change the visual setting of an LMR project site. New lattice towers may be installed at locations with existing antenna support structures (antenna farm) and at locations where antenna support structures are not present.

New lattice towers that would be installed at locations considered to have a high or moderate visual sensitivity could affect visual quality. Where new LMR project lattice towers would be located at an existing antenna farm, the existing antenna support structures and associated support buildings are part

of the visual setting. At these locations, the installation of a new LMR project lattice tower and support structures such as an equipment shelter would change the visual setting by increasing the intensity of development, but the change would not be expected to be an adverse change since similar structures are already present. No adverse impact to visual quality would be expected.

Where antenna support structures are not already present within areas of high or moderate visual sensitivity, installation of a new lattice tower could affect visual resources. The view of a new lattice tower in a visually sensitive location that does not already contain views of similar structures would introduce a vertical, new, man-made structure that may contrast with and be incompatible with the existing visual features and, therefore, may result in an adverse impact to visual quality and the visual setting. If the Authority proposes a new lattice tower that is not at an existing antenna farm, the Authority would determine and document if the site is in an area of high or medium visual sensitivity utilizing the Visual Impact Assessment for Highway Projects by the Federal Highway Administration or other appropriate method. If a new lattice tower would be located in an area with high or medium visual sensitivity, 1) the Authority would eliminate the LMR project site from further consideration; or 2) FEMA would prepare an SEA, as described in Section 1.2 above.

#### *4.11.2.6 New Monopoles*

**Construction**

No additional consequences to visual quality would be expected beyond those discussed in Section 4.11.2.2.

**Operations**

Impacts to visual quality from operations would be similar to those described in Section 4.11.2.5 for the new lattice tower site type, although the change to the visual setting would be reduced because monopoles would typically be shorter and have less mass than a new lattice tower. No additional impacts or changes in the assessment process other than those previously described would be expected.

## 4.12 Recreation

This section of this PEA provides an analysis of impacts to recreation associated with implementation of the No Action Alternative and the Proposed Action.

### 4.12.1 No Action Alternative

Under the No Action Alternative, FEMA would not provide Federal grant funding; therefore, the LMR project would not be implemented, and no direct physical impacts to recreational features such as parks and trails would occur. In addition, recreation areas in the Project Area would not be exposed to noise or introduced to new visual intrusions that might be near enough to change the recreational experience. Implementing the No Action Alternative would have no impacts on recreation.

### 4.12.2 Proposed Action

With Federal grant funding through FEMA, recreation areas may be directly affected by construction if an LMR project site is located within the boundaries of a designated recreation area (such as a park or trail). Effects from operations and maintenance, an indirect effect of expending Federal funds for construction of the LMR system, also are addressed. While proposed LMR project sites may be located within Angeles National Forest or other multiple-use lands that allow for recreation, siting facilities within a designated park or recreation facility actively used for recreational purposes would be avoided. No sites would be located within designated Wilderness, so no direct impacts on wilderness areas would occur.

A recreation area also may be indirectly affected by audio or visual intrusions associated with construction noise or the sight of towers, monopoles, or other equipment.

#### *4.12.2.1 Geotechnical Investigations*

No impacts to recreation from geotechnical investigations have been identified. Facility siting would avoid direct physical impacts on land actively used for recreational purposes. Geotechnical investigations would typically be completed within a day, would generate little noise, and would leave no visible structure; therefore, no indirect effects on nearby recreational facilities would occur.

#### *4.12.2.2 General Consequences of Site Types*

***Construction***

If an LMR project site would be near recreational facilities, access to and use of the recreational facilities would be maintained throughout the six-week construction period.

Noise generated during the construction phase may be heard if recreational facilities are nearby, although the intrusions would be temporary, short-term, and intermittent. As discussed in the noise assessment at Section 4.10.2.2, construction-related noise would be expected to attenuate as distance to a sensitive receiver increases. Sensitive receivers at a recreational facility would need to be located

within approximately 725 feet of a rural and remote LMR project site and within approximately 1,425 feet of an urban LMR project site to be exposed to at least 55 dBA $L_{eq}$ during the construction phase. At greater distances, construction noise would have no indirect effect on recreational facilities.

***Operations***

Operating equipment that generates additional noise may influence the recreational experience if the noise intrusions are near enough to recreational facilities to be noticed; however, recreational users may be acclimated to the existing facilities and not notice the added noise. As discussed in the noise assessment at Section 4.10.2.2, noise emissions from the diesel generators would be approximately 52 dBA at 50 feet. This is comparable to the ambient noise at most locations and would have no indirect effect on recreational facilities.

In areas of low visual sensitivity, no adverse impacts to visual quality would be expected from any of the project site types, and recreational facilities would not be affected. The analysis of sites within areas with high or moderate visual sensitivity is addressed by site type because of their differences in effects.

#### *4.12.2.3 Building Mount*

***Construction***

No additional consequences to recreational facilities would be expected beyond those discussed in Section 4.12.2.2.

***Operations***

Mounting antennas on existing buildings would have no direct physical impact on recreation. Antennas on the rooftop may be visible from nearby recreation areas, but they would typically blend into the urban setting and remain unnoticed because of their short height in relationship to the building height and mass, as discussed in Section 4.11.2.3 regarding visual quality. No visual effects on recreational facilities would be expected with a building mount site type that would warrant additional analysis.

#### *4.12.2.4 Existing Lattice Towers and Monopoles*

***Construction***

No additional consequences to recreational facilities would be expected beyond those discussed in Section 4.12.2.2.

***Operations***

No additional noise effects to recreational facilities would be expected beyond those discussed in Section 4.12.2.2.

Installation of antennas on existing structures would not result in a substantial change in the visual setting that could affect recreational facilities, because views of similar antennas on similar support

structures are part of the existing setting, as discussed in Section 4.12.2.4 regarding visual quality. Operational impacts to recreation would be similar to those described for the building mount site type. No additional impacts other than those previously described would be expected.

#### *4.12.2.5 New Lattice Towers*

***Construction***

No additional consequences to recreational facilities associated with recreation use, access, and noise would be expected beyond those discussed in Section 4.12.2.2.

If construction of a new lattice tower could physically impact a recreational facility, such as a site located within a park or on a designated trail, then the Authority would coordinate with the appropriate land-administrating agency to minimize temporary construction-related effects through the appropriate measures required by that agency, such as public notification, scheduling, or temporary exclusion.

***Operations***

The presence of new lattice towers may change the visual setting of an LMR project site. While developed parks and trails would typically be avoided, lattice towers could be located on public land or within open space that may be used for recreational purposes, precluding the use of the fenced land surrounding the LMR project site from being used for recreation. Where developed recreational features, (including scenic viewpoints) are nearby, the introduction of visual impacts or noise could diminish the recreational experience for some individuals, particularly for those seeking a natural landscape or solitude. Effects to visual quality and noise are addressed above in Sections 4.11 and 4.10, respectively. If a site location physically encroaches on or is in close proximity to a designated recreational feature, such as a trail or an established campground, adverse effects to recreation would be minor. If a site location would result in the physical closure of a recreation feature, an SEA would be prepared by FEMA.

#### *4.12.2.6 New Monopoles*

***Construction***

No additional consequences to recreational facilities associated with recreation use, access, and noise would be expected beyond those discussed for new lattice towers in Section 4.12.2.5.

***Operations***

No additional consequences to recreational facilities would be expected beyond those discussed for new lattice towers in Section 4.12.2.5.

# 5.0 Cumulative Impacts

The CEQ regulations implementing NEPA define cumulative impacts as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

A list of example projects that could be considered in a cumulative impact analysis for an LMR project site is provided in Table 5.0-1. Sources used to identify these example projects included:

- FCC's Antenna Support Registration website for communication towers that are proposed, and/or approved-for-construction, or in construction
- California Public Utilities Commission website for electrical transmission towers that are proposed, and/or approved-for-construction, or in construction
- California Energy Commission (CEC) website for power plants and renewable resource projects that are proposed, and/or approved-for-construction, or in construction
- Los Angeles County Metropolitan Transportation Agency website for transportation projects that are proposed, approved-for-construction, or in construction
- The High Speed Rail Authority website for segments in the Project Area

FEMA would determine if additional site-specific cumulative impact analysis is needed once individual LMR project sites are under analysis.

To determine a geographic boundary for cumulative impact analysis, a project impact zone (PIZ) based on the potential geographic extent of impact to individual resources would be developed for individual LMR project sites. The PIZ would look at potential for impact for individual resources and form a geographic boundary around the area of largest impact at a given LMR project site.

An explanation of how a PIZ would be developed for two hypothetical individual LMR project sites follows.

- In the first example, if impacts to visual resources from design, construction, and/or operation of a proposed LMR project site would affect an area up to 0.5 mile from the site, and no other resources were identified as having potential impact at a greater distance, the PIZ for that site would be 0.5 mile.
- In the second example LMR project site, the PIZ may be extended to accommodate a wider impact area for a specific resource or resources. If design, construction activities, or operation of a proposed project site would have the potential for impacts to large bird species (e.g., eagles, condors), the potential to impact might be extended to 2.0 miles, although cumulative impacts

of the resources analyzed within that PIZ would be expected only within the impact range for that resource. In this example, the PIZ would be 2.0 miles, but visual impacts would be considered only at a 0.5-mile distance within that PIZ.

**Table 5.0-1. Example Potential Projects to Be Considered in a Cumulative Impacts Analysis**

| Project Name | Status | City/Region |
|---|---|---|
| Airport Metro Connector | Planning | City of Los Angeles, South Bay cities |
| Alameda Corridor East Grade Separations Phase II | Planning | San Gabriel Valley |
| East San Fernando Valley Transit Corridor Project | Planning | Los Angeles |
| Eastside Transit Corridor Phase 2 | Planning | Gateway Cities, San Gabriel Valley |
| High Desert Corridor Project | Planning | North Los Angeles County |
| I-5 North Capacity Enhancements: SR-14 to Kern County Line (Truck Lanes) | Planning | North Los Angeles County |
| I-605 Corridor (Hot Spot) Interchanges | Planning | Gateway Cities |
| I-710 Corridor Project EIS/EIR | Planning | Gateway Cities |
| Sepulveda Pass Transit Corridor | Planning | City of Los Angeles, San Fernando Valley |
| South Bay Green Line Extension | Planning | South Bay cities |
| SR-138 Capacity Enhancements | Planning | North Los Angeles County |
| SR-710 North Study | Planning | San Gabriel Valley |
| West Santa Ana Transit Corridor | Planning | City of Los Angeles, Gateway Cities |
| Crenshaw/LAX Transit Project (project acceleration) | Under Construction | City of Los Angeles, South Bay cities |
| Exposition Transit Corridor, Phase II | Under Construction | City of Los Angeles, Westside cities |
| Gold Line Foothill Extension | Under Construction | San Gabriel Valley |
| I-405 Sepulveda Pass Improvements Project | Under Construction | City of Los Angeles |
| Purple Line Extension (to be opened in segments) | Under Construction | City of Los Angeles, Westside cities |
| Regional Connector: Transit Project | Under Construction | City of Los Angeles, Gateway Cities, San Gabriel Valley, South Bay cities, Westside cities |
| I-5 North Capacity Enhancements: SR-14 to Kern County Line (Truck Lanes) | Segment 1 – Under Construction, Segments 2 & 3 Preconstruction | North Los Angeles County |
| I-5 Widening and HOV: I-605 to Orange County Line | Under Construction | Gateway Cities |
| I-5/Carmenita Road Interchange | Under Construction | Gateway Cities |

**Table 5.0-1. Example Potential Projects to Be Considered in a Cumulative Impacts Analysis**

| Project Name | Status | City/Region |
|---|---|---|
| I-405, I-110, I-105, SR-91 Ramp/Interchange Improvements: South Bay | Under Construction | City of Los Angeles |
| I-5/SR-14 HOV Direct Connector | Under Construction | North Los Angeles County |
| High Speed Rail: Palmdale to Burbank | Planning | Los Angeles County |
| High Speed Rail: Burbank to Los Angeles | Planning | Los Angeles County |
| Communication Tower | Approved/Construction | North Hills, CA |
| Communication Tower | Approved/Construction | Palmdale, CA |
| Communication Tower | Approved/Construction | Pomona, CA |
| Communication Tower | Approved/Construction | La Verne, CA |
| Communication Tower | Approved/Construction | Rosemead, CA |
| Communication Tower | Approved/Construction | El Monte, CA |
| Communication Tower | Approved/Construction | La Habra Heights, CA |
| Communication Tower | Approved/Construction | La Habra Heights, CA |
| Communication Tower | Approved/Construction | La Habra Heights, CA |
| Communication Tower | Approved/Construction | La Habra Heights, CA |
| Communication Tower | Approved/Construction | Whittier, CA |
| Communication Tower | Approved/Construction | Gardena, CA |
| Communication Tower | Approved/Construction | Torrance, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Claremont, CA |
| Communication Tower | Approved/Construction | Agua Dulce, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Santa Clarita, CA |
| Communication Tower | Approved/Construction | Carson, CA |
| Communication Tower | Approved/Construction | Sun Valley, CA |
| Communication Tower | Approved/Construction | La Verne, CA |
| Communication Tower | Approved/Construction | North Hills, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |

**Table 5.0-1. Example Potential Projects to Be Considered in a Cumulative Impacts Analysis**

| Project Name | Status | City/Region |
|---|---|---|
| Communication Tower | Approved/Construction | Granada Hills, CA |
| Communication Tower | Approved/Construction | Inglewood, CA |
| Communication Tower | Approved/Construction | Van Nuys, CA |
| Communication Tower | Approved/Construction | San Fernando, CA |
| Communication Tower | Approved/Construction | North Hollywood, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Palmdale, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Sun Valley, CA |
| Communication Tower | Approved/Construction | Palmdale, CA |
| Communication Tower | Approved/Construction | El Segundo, CA |
| Communication Tower | Approved/Construction | Palmdale, CA |
| Communication Tower | Approved/Construction | Sun Valley, CA |
| Communication Tower | Approved/Construction | Agua Dulce, CA |
| Communication Tower | Approved/Construction | Rolling Hills, CA |
| Communication Tower | Approved/Construction | Gardena, CA |
| Communication Tower | Approved/Construction | Lancaster, CA |
| Communication Tower | Approved/Construction | Rancho Palos Verdes, CA |
| Communication Tower | Approved/Construction | Claremont, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | El Monte, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Hacienda Heights, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| Communication Tower | Approved/Construction | Pacoima, CA |
| Communication Tower | Approved/Construction | El Monte, CA |
| Communication Tower | Approved/Construction | Hawthorne, CA |
| Communication Tower | Approved/Construction | Hawthorne, CA |
| Communication Tower | Approved/Construction | Los Angeles, CA |
| City of Redondo Beach Energy Project | Planning | Redondo Beach |
| Alamitos Energy Center | Planning | City of Long Beach |
| Mesa 500-kV Substation Project | Planning | Monterey Park/Los Angeles County |

**Table 5.0-1. Example Potential Projects to Be Considered in a Cumulative Impacts Analysis**

| Project Name | Status | City/Region |
|---|---|---|
| Sunshine Canyon Landfill 66-kV Subtransmission Line Segment Relocation | Planning | Los Angeles County |
| Tehachapi Renewable Transmission Project | Under Construction | San Bernardino and Los Angeles counties |
| Aliso Canyon Turbine Replacement Project | Under Construction | City and County of Los Angeles |

## 5.1 No Action Alternative

The analysis contained in Section 4 of this PEA reveals that the No Action Alternative would not generate impacts to any resource. As a result, the No Action Alternative would not contribute to potential cumulative impacts for any resource.

## 5.2 Proposed Action

Section 2 discusses the impacts during geotechnical investigations, construction, and operations for the four project site types evaluated within this PEA.

FEMA's experience with LMR projects that do not involve new lattice tower, monopole construction, or modification (i.e., by increasing the height of existing towers or monopoles) is that such projects would have minimal adverse cumulative impacts, given the relatively small amount of land that would be physically affected (FEMA 2010). This observation is supported by the analysis in this PEA, which does not identify any evidence of any impact leading to potential cumulative impact from these activities.

The remainder of this analysis considers cumulative impacts associated with construction of new lattice towers or monopoles, or modification (i.e., height extension) of existing lattice towers or monopoles.

It is likely that the resources analyzed in this PEA would be cumulatively affected by the Proposed Action and the reasonably foreseeable projects in Table 5.0-1. Because cumulative impacts are more associated with project location than project type (e.g., building mount to a historic building versus new tower in an existing tower farm), resource discussions below are independent of project type and focus primarily on resources affected by the Proposed Action and BMPs and mitigation measures that avoid/minimize project impacts and minimize/eliminate potential for the Proposed Action to result in significant, adverse, cumulatively considerable project effects. The analysis provided in Section 4 of this PEA has resulted in identification of specific resources potentially impacted by the Proposed Action. These resources and potential impacts are discussed below.

### 5.2.1 Land Use

Section 4.1 of this PEA provides analysis of impacts to land use associated with implementation of the Proposed Action. The activities identified under the Proposed Action that could result in land use

impacts include inconsistency with coastal management plans; conversion of Prime or Unique farmland; inconsistency with airport CLUPs; and inconsistency with existing land use plans, policies, and regulations.

Any development within the coastal zone would have to comply with the applicable coastal plan or obtain an amendment to the applicable coastal plan to address any inconsistencies (e.g., height restrictions, visual impacts). Any resulting cumulative impacts would be expected to be minor.

Generally, development of new LMR project sites would not be expected to impact Prime and Unique farmland; however, it is possible that site development could occur within Prime or Unique Farmland. In those instances, FEMA would require the Authority to coordinate with NRCS in accordance with the FPPA; and a cumulative impact analysis would be accomplished at a site-specific level at that stage.

Any project proposed within the jurisdiction of an airport CLUP would require coordination and approval by the appropriate ALUC. Projects within an airport CLUP could be constructed only after receiving the required approvals from the appropriate authorities, thus avoiding impacts to each airport CLUP; therefore, no cumulative impacts are anticipated.

All of the municipal entities within the Project Area have their own land use plans and policies for consideration as part of the site development process. The Authority may not be subject to certain local land use plans, policies, and regulations under the doctrine of intergovernmental immunity (California Government Code § 53090(a)). Where required, the Authority would obtain required approvals from appropriate authorities, which could include applying for conditional use permits or obtaining variances to be consistent with applicable land use plans. The Authority would obtain the necessary construction permits or equivalent from authorities with jurisdiction over the proposed LMR project site. Compliance with applicable sections of the California Government Code and adherence to conditions in local construction permits would preclude adverse cumulative impacts to existing land use plans, policies, and regulations.

### 5.2.2 Geology, Soils, and Seismicity

Section 4.2 of this PEA provides an analysis of impacts to geology, soils, and seismicity associated with implementation of the Proposed Action. The activities identified under the Proposed Action could result in geologically unstable slopes; soil erosion; and aspects of seismicity including fault rupture, seismic shaking, liquefaction, and tsunami inundation. BMPs would be employed at individual project sites to minimize or avoid potential impacts. Development at all proposed LMR project sites would comply with Federal, State, and local building requirements, including building codes and permit conditions applicable at each LMR project site. When considered with other projects identified in Table 5.0-1, cumulative impacts to geologic and soils resources or from seismic activity would be anticipated to be minor.

### 5.2.3 Water Resources

Section 4.3 of this PEA provides an analysis of impacts to water resources associated with the activities identified under the Proposed Action. The Proposed Action could result in impacts to water resources including surface waters, groundwater aquifers, and floodplains. All activities required by the Proposed Action would be completed in accordance with the CWA and would incorporate BMPs to minimize pollutants and discharges. Project compliance with the CWA and implementation of BMPs (see Appendix D) would avoid or minimize potential impacts to surface or groundwater associated with the Proposed Action. When considered with other projects identified in Table 5.0-1, only minor cumulative impacts to surface or groundwater quality are anticipated.

Floodplains may be present at LMR project sites, although no direct or indirect impacts to floodplains are anticipated. In the unlikely event an LMR project site were sited within a floodplain, including coastal high hazard areas or in floodways (channels built to allow floodwater to escape), FEMA would require the Authority to meet local planning requirements, which would require that the facility be raised above the floodplain and/or be protected from the base elevation flood. Project compliance with FEMA guidelines and local planning requirements would avoid impacts to the base flood elevation. When considered with other projects identified in Table 5.0-1, only minor cumulative impacts to floodplains are anticipated.

Wetlands may be present at LMR project sites, although no direct or indirect impacts to wetlands are anticipated. In the unlikely event an LMR project site were sited in a wetland, FEMA would require the Authority to comply with implementing regulations and to operate within the parameters of any permit requirements, precluding potential direct wetland impacts. Indirect impacts would be minimized or avoided through implementation of BMPs. When considered with other projects identified in Table 5.0-1, only minor cumulative impacts to wetlands are anticipated.

### 5.2.4 Biological Resources

Section 4.4 of this PEA provides an analysis of impacts to biological resources associated with the Proposed Action. The Proposed Action could result in impacts to biological resources including impacts to vegetation, wildlife, special status species, and sensitive habitat.

There is potential for impacts to native vegetation at LMR project sites during construction; no additional impacts to native vegetation would occur during operations. Factors limiting the degree of impact to native vegetation on sites where LMR construction activities are proposed include:

- Most sites do not contain native perennial vegetation.
- Most work at sites that do contain native vegetation would occur in already-disturbed areas within the site.
- All sites have existing adequate access roads available, and no vegetation loss is expected from road improvement activities.

Generally, the ground disturbance associated with construction activities would result in the creation of favorable conditions for establishment or expansion of populations of invasive plant species. BMPs (see Appendix D) and mitigation measures (see Appendix F) would limit loss of native vegetation and minimize potential for spread/establishment of invasive species. These measures would be applied at sites, as applicable. Because the potential exists for many projects sites to be located within/adjacent to native vegetation, there is a moderate potential for cumulative impacts to native vegetation associated with implementation of the Proposed Action and associated conditions conducive to the spread/establishment of invasive species. While cumulative impacts to vegetation at individual LMR project sites could occur due to implementation of the Proposed Action, these are expected to be minor when considered with similar activities such as those described in Table 5.0-1.

Impacts to common wildlife could occur from temporary human activity adjacent to habitat areas, resulting in disturbance due to temporary minor increases in dust and noise. During specific periods of the year, particularly at times of breeding and nesting activity, these effects have the potential to become more amplified. Common wildlife has the potential for impact via direct mortality or injury associated with site activities such as trenching, improper trash disposal, presence of pets, or vehicle or equipment collisions. Mitigation measures would avoid/minimize potential disturbance of nesting birds and common wildlife mortality associated with the Proposed Action, resulting in a low potential for cumulative impacts to common wildlife. While cumulative impacts to vegetation serving as wildlife habitat at individual LMR project sites could occur due to implementation of the Proposed Action, these are expected to be minor when considered with similar activities such as those described in Table 5.0-1.

The potential for impacts to special status species from implementation of the Proposed Action has not been analyzed at an LMR project site-specific level. Mitigation measures were developed to address foreseeable impacts to sensitive species likely to be encountered adjacent to potential LMR project sites. Development of appropriate mitigation measures at each site with potential for special status species would be determined through either informal or formal consultation with the appropriate Federal agency (i.e., either USFWS and/or NMFS) to address sensitive species at specific LMR project sites. Additional mitigation measures for species protected under the ESA may be developed in a site-specific analysis to preclude or minimize impacts through the Section 7 consultation process with USFWS and/or NMFS. Implementation of mitigation measures listed in Appendix F, in addition to any additional measures that are identified through the consultation process, would avoid/minimize impacts of the Proposed Action on special status species. During LMR project site development, and potentially during the operations phase, cumulative adverse impacts to special status species at and adjacent to individual LMR project sites could occur when activities under the Proposed Action are considered with other similar activities such as those described in Table 5.0-1. Where special status species occur on or adjacent to LMR project sites, additional site-specific cumulative impact analysis may be warranted.

There is a potential for presence of sensitive habitats including critical habitat and EFH at proposed LMR project sites. Implementation of mitigation measures identified in Appendix F would help to minimize the likelihood of direct or indirect impacts to either critical habitat or EFH. Where critical habitats occur,

direct or indirect impacts to critical habitat would not be determined until completion of either informal or formal consultation, where additional mitigation may be identified. Implementation of the Proposed Action, when considered with other similar activities such as those described in Table 5.0-1, could result in cumulative impacts to critical habitat or EFH. Where these sensitive habitats occur on or adjacent to LMR project sites, additional site-specific cumulative impact analysis may be warranted.

### 5.2.5 Human Health and Safety

Section 4.5 of this PEA provides an analysis of impacts to human health and safety associated with implementation of activities identified under the Proposed Action. These activities could result in impacts to human health and safety. These impacts include potential release of, or interaction with, hazardous substances; creation of aeronautical obstructions; potential for radiofrequency exposures; and wildland fires. All activities identified with the Proposed Action would be conducted in accordance with applicable regulations, and mitigation measures identified in Appendix F. As a result, impacts from the Proposed Action are expected to be minimal; and, when considered with other projects identified in Table 5.0-1, cumulative impacts to human health and safety are not anticipated.

### 5.2.6 Socioeconomics

Section 4.6 of this PEA provides an analysis of impacts to socioeconomic resources and environmental justice populations associated with implementation of the Proposed Action. The Proposed Action would create new construction jobs and long-term jobs for operations maintenance and repair of the system. Nearby local service providers (e.g., restaurants, equipment repair shops, gas stations) may see minor short-term increases in business activity. Construction and operation crews are likely to be local. Any increased economic activity associated with the Proposed Action would be indistinguishable from background changes in population demographics or housing. When considered with other projects identified in Table 5.0-1, substantial adverse cumulative impacts to socioeconomics are not anticipated.

No disproportionate direct or indirect impacts were identified as related to low-income or minority populations in the analysis of implementation of the Proposed Action. Therefore, no cumulative environmental justice impacts are expected.

### 5.2.7 Historic Properties

Section 4.7 of this PEA analysis considers issues associated with archaeological, Native American, and architectural resources. Generally, the analysis concluded that where no historic properties exist, implementation of the Proposed Action would have no effect on historic properties. Where historic properties do exist, a potential remains for direct and indirect impacts to historic properties. Direct and indirect impacts to these resources would be analyzed through the processes identified in Section 3.7. During LMR project site development and during the operations phase (i.e., once developed), there could be cumulative adverse impacts to historic properties at and adjacent to individual LMR project sites when considered with other similar activities such as those described in Table 5.0-1. Where historic

properties occur in the direct or indirect APE of LMR project sites, additional site-specific cumulative impact analysis may be warranted.

### 5.2.8 Infrastructure

Section 4.8 of this PEA provides an analysis of impacts to transportation, solid waste, electrical power, and water and wastewater infrastructure associated with implementation of the Proposed Action. The activities identified under the Proposed Action could include potential impacts to transportation through additional use of the existing system and additional demands on solid waste disposal, electrical power, and potable water and wastewater systems. Adequate capacities of electrical power, solid waste disposal, and potable water have been identified to manage development at each of the sites considered under the Proposed Action. Any incremental increase in demand for electrical power, solid waste, and potable water created by operation of the Proposed Action is expected to be minor when compared to current system capacity and demand. When considered with other projects identified in Table 5.0-1, only minor cumulative impacts to utilities are anticipated.

Construction activity on an LMR project site would not involve changes to current or future traffic patterns. When considered with other projects identified in Table 5.0-1, only minor cumulative impacts to transportation are anticipated.

### 5.2.9 Air Quality and Greenhouse Gas Emissions

The Proposed Action is not growth-inducing and would not result in an economic activity that would exceed the assumptions used in forecasting district-wide emissions, which take into account all proposed activities identified in the jurisdiction of the SCAQMD. Consistent with the SCAQMD methodology for analysis of cumulative impacts, the project would have no substantial adverse cumulative impacts to air quality. The estimated annual emissions of GHG resulting from the construction and operation of all 90 LMR project sites are well below the 25,000 annual metric tons "presumptive effects threshold" for carbon dioxide-equivalent emissions; therefore, GHG impacts are anticipated to be minimal for this project and are expected to result in only minor cumulative impacts.

### 5.2.10 Noise

Section 4.10 of this PEA provides an analysis of noise impacts associated with implementation of the Proposed Action. The activities identified under the Proposed Action could result in noise impacts from noise generated during both construction and operation activities. The main noise sources during the construction activities would be the operation of construction equipment (e.g., concrete saws, backup signals, engines, jackhammers, and pile drivers) The one-hour average noise exposure at 50 feet from the assumed location of the activity would be approximately 82 dBA $L_{eq}$. Where sensitive receptors are present within the 55-dBA contour of the LMR project sites, additional site-specific analysis may be warranted to determine specific impacts and potential noise minimization opportunities. During construction, cumulative noise impacts at and adjacent to individual LMR project sites could occur due to implementation of the Proposed Action with other similar activities such as those described in

Table 5.0-1. Where sensitive receptors exist adjacent to LMR project sites, additional site-specific cumulative impact analysis may be warranted.

Noise emissions during operations are not expected to be substantial, with noise generated at approximately 52 dBA at 50 feet, which is generally expected to be similar to ambient noise conditions at most LMR project sites. When considered with other projects identified in Table 5.0-1, only minor cumulative noise impacts due to operations are anticipated.

### 5.2.11 Visual Quality

Section 4.11 of this PEA provides an analysis of impacts on visual quality associated with implementation of the Proposed Action. The presence of modified or new structures could affect visual resources within areas of moderate to high visual sensitivity. Development of project sites within areas of moderate to high visual sensitivity could result in cumulative impacts under the Proposed Action, and may warrant further analysis. Once built, a potential for cumulative visual impacts at and adjacent to individual LMR project sites would exist when implementation of the Proposed Action is considered with other similar activities such as those described in Table 5.0-1.

### 5.2.12 Recreation

Section 4.12 of this PEA provides an analysis of impacts to recreation associated with implementation of the Proposed Action. Recreation areas may be directly affected by construction and/or operation of the LMR project sites if a site or access road is located within the boundaries of a designated recreation area (such as a park or trail). A recreation area also may be indirectly affected by audio or visual intrusions associated with construction noise or the sight of towers, monopoles, or other equipment. When considered with other projects identified in Table 5.0-1, cumulative impacts to recreation are expected to be minor.

# 6.0 List of Preparers

**Federal Emergency Management Agency, Region IX**

Alessandro Amaglio, Regional Environmental Officer
Jill Dale, Senior Environmental Specialist
Morgan Griffin, Senior Environmental Specialist

**Los Angeles Regional Interoperable Communications System Joint Powers Authority**

**Consultant – Jacobs Engineering Group, Inc.**

Jeff Berna, Senior Project Manager
Dorothy Bungert, Graphics Specialist
Beth Defend, Subject Matter Expert – Land Use, Recreation, Transportation, Utilities
Joe D'Onofrio, Subject Matter Expert-Noise and Air Quality
Kevin C. Duncan, AICP, Environmental Planner
Jim Hoyt, Environmental Program Manager
Bruce Palmer, Senior Biologist
Paige Peyton, RPA, Subject Matter Expert-Cultural Resources
Andy Priest, GIS Specialist
Dana Ragusa, Noise and Air Quality Specialist
Carl Rykaczewski, Senior Environmental Project Manager
Linda St. John, Word Processor/Technical Writer/Editor
Jason Walsh, Senior CEQA/NEPA Planner
Brian Weith, R.G., Senior Environmental Project Manager
Vamshi K. Yellisetty, Project Manager/GIS Manager

**Los Angeles Mayor's Office of Public Safety**

**Consultant – AECOM**

Linda Peters, Principal in Charge
Rima Ghannam, Project Manager
Geoff Thornton, Senior Environmental Planner
Lorena Solorzano-Vincent, Senior Biologist

# 7.0 References

Antelope Valley Air Quality Management District (AVAQMD). 2011. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. August 2011.

Bilodeau, William, Sally Bilodeau, Eldon Gath, Mark Oborne, and Richard Proctor. 2007. "Geology of Los Angeles, United States of America." *Environmental & Engineering Geoscience* XIII (2): 99–160.

California Air Resources Board. 2015. "Ambient Air Quality Standards." Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed July 16, 2015.

California Coastal Commission 2015. Online at: http://www.coastal.ca.gov/lcps.html.

California Department of Conservation, California Geological Survey (CGS). 2015a. Online at http://www.consrv.ca.gov/cgs/information/geologic_mapping/Pages/Index.aspx. Accessed July 9, 2015.

_____ 2015b. Online at http://www.conservation.ca.gov/cgs/earthquakes/Pages/Index.aspx. Accessed July 9, 2015.

California Department of Forestry and Fire Protection (CALFIRE). 2015. Contract Counties, web page at http://www.fire.ca.gov/fire_protection/fire_protection_coop_efforts_contractcounties.php. Accessed July 15, 2015.

California Department of Transportation (Caltrans). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol.

California Department of Water Resources. 2015. Available online at: http://www.water.ca.gov/waterdatalibrary/groundwater. Accessed July 2015.

California Energy Commission (CEC). 2007. *California Energy Almanac, Energy Peak Loads in 2006*. September 2007. Available at: http://energyalmanac.ca.gov/electricity/annual_peak_loads.html. Accessed August 1, 2014.

_____. CEC. 2009. *Staff Report, An Assessment of Resource Adequacy and Resource Plans of Publicly Owned Utilities In California, CEC-200-2009-019*. November 2009. Available at: http://www.energy.ca.gov/2009publications/CEC-200-2009-019/CEC-200-2009-019.PDF. Accessed July 30, 2014.

_____2015. Electricity usage. Available at: http://www.energyalmanac.ca.gov/powerplants/index.html.

California Environmental Protection Agency (EPA). 2015. Stormwater Program, RUSLE K Factor Watershed Map Methodology. Available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/guidance/k_factor_map.pdf. Accessed July 9, 2015.

California Independent System Operator (CAISO). 2015. Available online at: http://www.caiso.com/outlook/SystemStatus.html. Accessed July 2015.

Columbia Electronic Encyclopedia (CEE). 2015. Available online at: http://encyclopedia2.thefreedictionary.com/Definition+of+tsunami. Accessed on July 13, 2015.

Council on Environmental Quality (CEQ). 1997. Environmental Justice: Guidance Under the National Environmental Policy Act. December 1997.

Digital Desert. 2015a. Website hosted by Walter Feller. Geomorphic Provinces: Mojave Desert Geomorphic Province. Online at: http://digital-desert.com/geomorphic-provinces/mojave-desert.html. Accessed July 9, 2015.

_____. 2015b. Geomorphic Provinces: Transverse Ranges Geomorphic Province. Online at: http://digital-desert.com/geomorphic-provinces/transverse-ranges.html. Accessed July 9, 2015.

ENVIRON International Corporation (EIC). 2013. California Emission Estimator Model v.2013.2.2. Copyright October 2, 2013 California Air Pollution Control Officers Association (CAPCOA).

Federal Communications Commission (FCC). 1997. Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, FCC Bulletin 65.

_____. FCC. 2001. Nationwide Programmatic Agreement for the Collocation of Wireless Antennas

_____. FCC. 2004. Nationwide Programmatic Agreement [PA] for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission

Federal Emergency Management Agency (FEMA). 2010. Final Programmatic Environmental Assessment, Grant Programs Directorate Program. July 2010.

_____. FEMA. 2015. “About the National Flood Insurance Program.” Available online at: http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp. Accessed July 9, 2015.

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. May 2006.

Geology.com. 2015. What is Liquefaction? Online at: http://geology.com/usgs/liquefaction/. Accessed July 9, 2015.

Geologypage. 2015. Landslide. Online at: http://www.geologypage.com/2015/04/landslide.html. Accessed July 9, 2015.

Interagency Wild and Scenic Rivers Coordinating Council. 2015. National Rivers Inventory. Available online at http://www.rivers.gov/rivers/piru.php. Accessed August, 2015.

International Code Council. 2015. California Green Building Standards Code. Available online at: http://www.ecodes.biz/ecodes_support/Free_Resources/2013California/13Green/13Green_main.html

King, Thomas F. 1998. Cultural Resource Laws & Practice: An Introductory Guide. Walnut Creek: AltaMira Press.

Los Angeles County Airport Land Use Commission. 2004. *Airport Land Use Commission Comprehensive Land Use Plan*. December 2004.

Los Angeles County Department of Public Works (LACDPW). 2006. Hydrology Manual. Available online at: http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf. Accessed July 2015.

_____ LACDPW. 2015a. County of Los Angeles Countywide Integrated Waste Management Plan, 2013 Annual Report. May. Available online at: http://dpw.lacounty.gov/epd/swims/ShowDoc.aspx?id=3473&hp=yes&type=PDF. Accessed July 24, 2015.

_____ LACDPW. 2015b. Enhanced Watershed Management Programs Draft Program Environmental Impact Report, Section 3.5, Geologic and Mineral Resources. Available online at: http://dpw.lacounty.gov/lacfcd/ewmppeir/docs/3.5%20Geo%20Mineral.pdf. Accessed July 9, 2015.

_____ LACDPW. 2015c. Flood Zone Determination Website. Available online at http://dpw.lacounty.gov/wmd/floodzone/. Accessed July 2015.

Los Angeles County Department of Regional Planning (LACDRP). 2014. *Los Angeles County General Plan Public Review Draft, January, 2014*. Available at: http://planning.lacounty.gov/assets/upl/project/gp_2035_Chapter13_2014.pdf. Accessed July 21, 2014

Los Angeles County GIS Data Portal. 2015. Available online at http://egis3.lacounty.gov/dataportal/2011/01/27/ground-water-basins/, July 2015

National Earthquake Hazards Reduction Program (NEHRP). 2009. Available online at: http://www.nehrp.gov/about/history.htm. Accessed July 9, 2015.

National Highway Traffic Safety Administration (NHTSA). 2014. *Who We Are and What We Do*. Available at: http://www.nhtsa.gov/About+NHTSA/Who+We+Are+and+What+We+Do. Accessed August 5, 2014.

National Marine Fisheries Service (NMFS). 2015. National Oceanic and Atmospheric Administration (NOAA) NMFS Essential Fish Habitat Mapper at http://www.habitat.noaa.gov/protection/efh/efhmapper/. Accessed July 12, 2015

National Oceanic and Atmospheric Administration (NOAA). Office for Coastal Management. 1972. Coastal Zone Management Act. Available online at http://coast.noaa.gov/czm/act/. Accessed July 13, 2015.

National Telecommunication and Information Administration (NTIA). 2014. Broadband Technology Opportunities Program (BTOP) Final Environmental Assessment, Los Angeles Regional Interoperable Communications System (LA-RICS) Long-Term Evolution (LTE) Project. October 14, 2014.

National Wild and Scenic Rivers System (NWSRS). 2015. Available online at http://www.rivers.gov/wsr-act.php. Accessed July 2015.

Polite, C., and G. Ahlborn. 1999. Life History Account for the California Ground Squirrel. California Department of Fish and Game, California's Wildlife. Sacramento, CA.

Sanitation Districts of Los Angeles County. 2014. Wastewater Facilities. Available at: http://www.lacsd.org/wastewater/wwfacilities/. Accessed July 29, 2014.

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society, Sacramento, CA.

Smardon, R.C., J.F. Palmer, A. Knopf, K. Grinde, and T.E. Henderson. 1988. Visual Resources Assessment Procedure for U.S. Army Corps of Engineers, Instruction Report EL-88. Prepared by State University of New York, Syracuse, for U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

South Coast Air Quality Management District (SCAQMD). 1993 - CEQA Air Quality Handbook.

_____. SCAQMD. 2015. Off-Road Diesel Engines. Available at: http://www.aqmd.gov/home/programs/business/business-detail?title=off-road-diesel-engines.

State of California. 1976. California Coastal Act. Available online at: http://www.coastal.ca.gov/coastact.pdf. Accessed July 13, 2015.

State of California. 2003. Governor’s Office of Planning and Research (OPR). General Plan Guidelines. Sacramento, California.

U.S. Census Bureau (USCB). 2013a. County Business Patterns, Los Angeles County, California. Available at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=BP_2013_00A1&prodType=table. Accessed September 19, 2015.

_____ USCB. 2013b.Comparative Economic Characteristic 2013 American Community Survey 1-Year Estimates, Los Angeles County, California. Available at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_1YR_CP03&prodType=table. Accessed September 19, 2015.

_____ USCB. 2013c. Selected Housing Characteristics, 2009-2013 American Community Survey 5-Year Estimates, Angeles County, California. Available at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_DP04&prodType=table. Accessed September 19, 2015.

_____ USCB. 2014. Selected Economic Characteristics, 2014 American Community Survey 1-Year estimates, Los Angeles County, California. Available at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_DP03&prodType=table. Accessed September 19, 2015.

_____ USCB. 2015. State and County Quick Facts. Available at: http://quickfacts.census.gov/qfd/states/06000.html. Last revised, August 31, 2015. Accessed September 19, 2015.

U.S. Department of Agriculture (USDA). 2015a. Introduced, Invasive, and Noxious Plants, at http://plants.usda.gov/java/noxious?rptType=Federal. Accessed July 13, 2015.

_____. USDA. 2015b. National Resources Conservation Service (NRSC). 2015. Online at http:// websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed July 2015.

U.S. Department of Housing and Urban Development (HUD). 2009. The Noise Guidebook. Available online at: http://www.hud.gov/offices/cpd/environment/training/guidebooks/noise/index.cfm.

U. S. Department of the Interior, National Park Service (NPS). 1991. National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation. Washington D.C.: National Park Service Interagency Resources Division.

_____. NPS. 2015. National Center for Recreation and Conservation, National Rivers Inventory at http://www.nps.gov/ncrc/programs/rtca/nri/consult.html. Accessed August 2015.

U.S. Department of Transportation, Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06. May 2006.

U.S. Environmental Protection Agency (USEPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA 550/9-74-004. Washington, DC. March.

_____. 2010 Clean Water Act Section 401, Water Quality Certification: A water Quality protection Tool for States and Tribes. April 2010 Interim.

_____. USEPA. 2014. Pacific Southwest, Region 9, Solid Waste Laws and Regulations. Available at: http://www.epa.gov/region9/waste/solid/laws.html. Accessed July 2015.

_____. USEPA. 2015a. Summary of the Clean Water Act. Available online at http://www2.epa.gov/laws-regulations/summary-clean-water-act. Accessed July 2015.

_____. USEPA. 2015b. Western Ecology Division, Level II and IV Ecoregions of the Continental United States. Available at: http://www.epa.gov/wed/pages/ecoregions/level_iii_iv.htm. Accessed March 2015.

U.S. Fish and Wildlife Service (USFWS). 2007. National Bald Eagle Management Guidelines, May.

Western Regional Climate Center. 2015. Providing Climate Services Since 1986. Available at http://www.wrcc.dri.edu/.