Final Programmatic Environmental Assessment

Recurring Actions in Arizona, California, and Nevada

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Acronyms

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos Containing Material
APE	Area of Potential Effect
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAA	Clean Air Act
CARB	California Air Resources Board
CCMP	California Coastal Management Program
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
CY	Calendar Year
dBA	A-weighted Decibels
DNL	Day-Night Averaged Sound Level
DOE	Department of Energy
EA	Environmental Assessment
EFH	Essential Fish Habitat
EHP	Environmental and Historic Preservation
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GCR	General Conformity Rule
GHG	Greenhouse Gas
GPD	Grant Programs Directorate
HUD	Housing and Urban Development
IRR	Indian Reservation Roads
L_{dn}	Day-Night Averaged Sound Level

LWCF Act	Land and Water Conservation Fund Act
MOU	Memorandum of Understanding
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFIA	National Flood Insurance Act
NFIP	National Flood Insurance Program
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	Ozone
OHV	off-highway vehicle
OMB	Office of Management and Budget
PA	Programmatic Agreement
PBA	Programmatic Biological Assessment
PBO	Programmatic Biological Opinion
PCB	Polychlorinated Biphenyls
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
$PM_{2.5}$	Particulate Matter Less Than 2.5 Microns in Diameter
PM_{10}	Particulate Matter Less Than 10 Microns in Diameter
PV	Photo-voltaic
RCRA	Resource Conservation and Recovery Act
RPS	Renewable Portfolio Standards
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SEA	Supplemental Environmental Assessment

SHPO	State Historic Preservation Officer/Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SRMA	Special Recreation Management Areas
THPO	Tribal Historic Preservation Officer
TIP	Tribal Implementation Plan
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
TTP	Tribal Transportation Program
URARPAPA	Uniform Relocation Assistance and Real Property Acquisition Policies Act
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
WOUS	Waters of the United States

1.1 INTRODUCTION

Disasters can result from natural events such as floods, earthquakes, wildfires, rains, and windstorms; and human-caused events such as fires and terrorist attacks. The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) administers Federal grant programs to assist with the preparedness, response, recovery, and mitigation for natural and human-caused disasters. FEMA must comply with the National Environmental Policy Act of 1969 (NEPA) before taking an action or allocating Federal funds for disaster planning, response and recovery, and hazard mitigation.

FEMA has determined through experience that the majority of the typical recurring actions either conducted directly by FEMA, proposed for funding, or conducted through a mission-assignment to another federal agency (e.g. to the U.S. Army Corps of Engineers [USACE] for debris removal), and for which an environmental assessment (EA) is the appropriate level of NEPA documentation, can be grouped by type of activity or location. These groups of activities can be evaluated in a Programmatic Environmental Assessment (PEA) in compliance with NEPA and its implementing regulations (40 Code of Federal Regulations [CFR] §§1500-1508).

1.2 DISASTER PROGRAMS

Programs that are covered under this PEA are administered by FEMA under the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (42 U.S. Code [U.S.C.] §§ 5121–5206) (Stafford Act) and the National Flood Insurance Act of 1968 (42 U.S.C. §§4001-4128) (NFIA). The Stafford Act and NFIA include the following FEMA response, recovery, and mitigation programs, which are addressed in this PEA: Public Assistance Program, Hazard Mitigation Assistance Program, Fire Management Assistance Program, and Assistance to Individuals and Households Program. The implementing regulations for these programs are in 44 CFR §§204 and 206.

The Post-Katrina Emergency Management Reform Act of 2006 is included in the 2009 amended Stafford Act and created the FEMA Grant Programs Directorate (GPD). Under the GPD, FEMA funds preparedness grants for State, local, and tribal governments related to homeland security efforts, emergency management programs, personal identification issuance, international border security, transportation security, and firefighter assistance. FEMA issued a Finding of No Significant Impact (FONSI) based on analysis in a PEA for most GPD programs in July 2010. Though subject to change, the GPD PEA and FONSI are available at: http://www.fema.gov/library/viewRecord.do?id=4143. The July 2010 PEA included analysis for activities under GPD programs nationwide; therefore, GPD program activities are not included in this PEA.

In response to Presidentially declared disasters, FEMA is authorized under the Stafford Act to provide State, local, and tribal governments with assistance that is essential to respond to immediate threats to life, public health and safety, and property. Response activities include emergency protective measures to save lives, protect public health and safety, and prevent damage to public and private properties. These activities may be undertaken directly by State, local, or tribal agencies with funds provided by FEMA.

Under the Stafford Act, FEMA may provide funds to repair, restore, or replace disaster-damaged public facilities as well as facilities owned by certain private, nonprofit organizations. Eligible facilities include:

- Roads and associated features, such as lighting, curbs, and sidewalks
- Bridges, culverts, and associated features, such as abutments, headwalls, and erosion protection
- Water control facilities, such as embankments, retention basins, and canals
- Buildings and equipment
- Utilities, such as water and sewer lines and electrical distribution facilities
- Mass transit facilities
- Parks and recreational facilities

Often, the entity applying for assistance (referred to in this document as the "subapplicant")[1] wishes to take advantage of the opportunity presented by the need to repair a disaster-damaged facility to make improvements to, or change the design of, the facility. In other cases, the subapplicant determines that the public welfare would not be best served by restoring a damaged facility or the function of the facility to its pre-disaster design. Funds can also be requested for the expansion or construction of other selected facilities, the purchase of capital equipment, or the funding of hazard mitigation measures.

The Stafford Act and NFIA authorize FEMA to provide hazard mitigation assistance by providing funding for activities that reduce or eliminate threats to public health and safety and the risk of damage to public and private property during future events or disasters. FEMA may provide funds for mitigation activities applied to a specific facility—such as elevating a flood-prone building above flood elevation—or reducing risks to a community through measures such as vegetation management to reduce the risk of loss or damage associated with wildfire events. FEMA may also provide funds for the relocation or acquisition of facilities located in areas of hazard, such as floodplains, where repetitive damage is likely to occur.

1.3 REGULATORY BACKGROUND

NEPA (42 U.S.C. §§4321–4327), and the Council on Environmental Quality (CEQ) regulations implementing NEPA, direct FEMA and other Federal agencies to fully understand and take into consideration during decision making the environmental consequences of proposed Federal

[1] When referring to the ultimate recipients of assistance, the Hazard Mitigation Assistance (HMA) programs and Public Assistance Program use different terms. Under HMA programs, FEMA awards grants through States, Tribes, and Territories referred to as "applicants"; these entities, in turn, provide subgrants to local governments and communities, referred to as "subapplicants." Similarly, under the Public Assistance Program, FEMA awards grants through States, Tribes, and Territories, referred to as "Grantees"; these entities provide subgrants to local governments and communities, referred to as "applicants." FEMA also uses the term "subgrantee" to refer to these entities after Public Assistance Program funding is approved. (The terms "applicant" and "subgrantee" are often used interchangeably.)

activities (also referred to as projects). FEMA's regulations for NEPA compliance are described in 44 CFR §10[2]. The regulations specify that FEMA must comply with NEPA before taking an action or allocating Federal funds for disaster planning, response and recovery, and hazard mitigation. 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 Stafford Act and FEMA's implementing regulations for NEPA provide for the exemption of certain activities from NEPA (see Section 1.5.1, Statutory Exclusions). Additionally, FEMA complies with NEPA for some categories of activities that do not individually or cumulatively have a significant impact on the human environment through the use of several categorical exclusions (see Section 1.5.2). For all other activities, FEMA ensures compliance with NEPA through the preparation of EAs or Environmental Impact Statements (EIS). The EA is a concise public document that serves to provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI. It includes a brief discussion of the purpose and need for the proposed action, a range of reasonable alternatives to the proposed action, environmental impacts analysis of the proposed action and its alternatives, and a listing of agencies and persons consulted. FEMA must prepare an EIS when significant environmental impacts are anticipated and cannot be mitigated.

FEMA has determined through experience that the majority of the typical recurring activities either conducted directly by FEMA, proposed for funding, or conducted through a mission-assignment to another federal agency (e.g. to the USACE for debris removal), and for which an EA is required, can be grouped by type of action or location. These groups of activities can be evaluated in a PEA in compliance with CEQ regulations without the need to develop and produce an EA for each action.

1.4 PURPOSE OF THIS DOCUMENT

This document provides a framework to address the environmental impacts of typical FEMA activities in Arizona, California, and Nevada to respond to natural disasters and human-caused threats and measures to reduce the effects of these types of disasters in the future.

This PEA also provides the public and decision-makers with information needed to understand and evaluate the potential environmental consequences of these activities. In addition to meeting the goals of environmental impact identification and disclosure, this PEA addresses the need to streamline the NEPA review process in the interest of disaster response, recovery, and mitigation.

This PEA applies to activities described in Section 2 of this document that FEMA proposes to take, or fund to prepare for, or respond to natural and human-caused disasters in Arizona, California, and Nevada.

[2] FEMA's NEPA implementing regulations (44 CFR §10) are currently being revised. This PEA was prepared in compliance with the current regulations, but would also still be applicable once the new regulations are implemented and agency guidance or policies are issued. The new regulations may include a revised list of categorical exclusions; however, the applicability of this PEA would not change.

The analysis in this PEA is based on FEMA's knowledge of the typology, descriptions, and consequences of typical recurring activities in Arizona, California, and Nevada, as described in previous environmental analyses such as FEMA's 2003 *Final Programmatic Environmental Assessment for Typical Recurring Actions in California*. The analysis is also based on a review of scientific literature, consultation with regulatory agencies for previous FEMA activities, and expert opinion.

1.5 ACTIVITIES NOT COVERED BY THIS PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

This PEA does not cover any action that meets the criteria for a statutory exclusion, described in 44 CFR §10.8(c), or a categorical exclusion, described in 44 CFR §10.8(d). Also, the PEA does not cover any action that requires a stand-alone EA or an EIS.

1.5.1 Statutory Exclusions

Section 316 of the Stafford Act (42 U.S.C. §5159) exempts certain actions from review under NEPA. As listed in 44 CFR §10.8(c), these statutory exclusions include:

- Debris removal
- Emergency protective measures or other assistance essential to saving lives, protecting public health and safety, and protecting property
- Repair, restoration, or replacement actions that do not substantially alter the location, footprint, function, or size of the original facility

Even though an action may be statutorily excluded from NEPA, FEMA must still ensure that it complies with other applicable laws and regulations, such as the Endangered Species Act of 1973 (ESA) (16 U.S.C. §§1531–1544).

1.5.2 Categorical Exclusions

CEQ regulations (40 CFR §1508.4) provide for the categorical exclusion of actions that do not individually or cumulatively have a significant impact on the human environment. Neither an EA nor an EIS is required for these actions. FEMA has identified 19 categorical exclusions, which are described in 44 CFR §10.8(d)(2).

Certain actions that would otherwise be categorically excluded may be affected by extraordinary circumstances, as described in 44 CFR §10.8(d)(3). In such cases, the categorical exclusion may not apply, resulting in the need to prepare an EA. This PEA may be applicable to such actions. Extraordinary Circumstances may include:

- Greater scope or size than normal for a particular category of action
- High level of public controversy
- Potential for degradation of already existing poor environmental conditions
- Use of unproven technology with unique or unknown environmental risks
- Endangered or threatened species or their critical habitat, or archaeological, cultural, historical or other protected resources

- Hazardous or toxic substances at levels exceeding Federal, state or local regulations
- Adverse effect on wetlands, coastal zones, wildlife refuge and wilderness areas, wild and scenic rivers, sole or principal drinking water aquifers
- Adverse effects on health or safety
- Potential to violate Federal, state, local or tribal law
- Significant cumulative impacts

1.5.3 Activities Requiring a Stand-Alone Environmental Assessment Instead of a Programmatic Environmental Assessment

This PEA does not apply to activities:

- That do not fall within the types of activities described in Section 2
- For which the analysis of impacts due to alternatives presented in Section 4 is not applicable or comprehensive

In such cases, a separate, stand-alone EA or EIS must be prepared.

1.5.4 Activities Requiring an Environmental Impact Statement

If FEMA determines that the appropriate level of NEPA analysis for an action is an EIS, the action would not be covered by this—or any— PEA. If, in preparing a Supplemental Environmental Assessment (SEA) or a stand-alone EA, FEMA concludes that the action has the potential to result in a significant environmental impact and determines that a FONSI cannot be issued, and FEMA determines to potentially proceed with its action, it must issue a Notice of Intent to Prepare an EIS.

1.6 ACTIVITIES COVERED BY THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

This PEA covers all of the activities described in Section 2, and summarized here:

- Constructing, modifying, or relocating structures, buildings, and infrastructure, including construction of temporary facilities, restoration of disaster-damaged facilities, and mitigation activities such as to be resistant to damages from fire, seismic events, high winds, or floods;
- Modifying waterways, waterway crossings, and coastal features, including temporary facilities, restored facilities, and hazard mitigation measures
- Managing vegetation to reduce the risk of damage from flooding and wildfires
- Installing warning and surveillance equipment and systems, emergency generators, and communications infrastructure (i.e. collocating antennae on existing towers or constructing new towers at tower farms).

1.7 PURPOSE OF AND NEED FOR ACTION

The purpose of FEMA's activities, described in this PEA, is to:

- Reduce or eliminate immediate threats to life, public health and safety, and improved property resulting from disasters or emergencies
- Repair, restore, or replace public or privately owned facilities damaged in such events, and provide temporary facilities during such repairs, restorations, or replacements
- Provide funding for needs and expenses caused by a disaster
- Prepare for, reduce, or eliminate the risk of future damage or loss associated with such events

The need for the Proposed Action is derived primarily from the fact that natural and man-made disasters occur throughout the country, including in Arizona, California, and Nevada. Since 2010 a total of 37 disasters have been declared in these three states. FEMA's mission is to "provide support to citizens and first responders to prepare for, protect against, respond to, recover from and mitigate all hazards".

In addition, the Sandy Recovery Improvement Act of 2013 added Section 429 to the Stafford Act. This section directs the President to establish an expedited and unified interagency process for environmental and historic preservation (EHP) review of disaster recovery projects by July 29, 2014. This PEA and the complementary programmatic processes and agreements that are being established will help accomplish that goal.

1.8 USING THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

1.8.1 Organization of the Programmatic Environmental Assessment

This PEA is organized into the following sections:

- Section 2 describes the activities that are covered by the 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 describes the process of public participation and agency coordination done in the preparation of this PEA, and required for its future implementation
- Section 7 is a List of Preparers who contributed to this PEA
- Section 8 provides the list of references

In addition to the main text, the PEA includes appendices that provide an existing programmatic agreements (PA) associated with FEMA's EHP compliance in Nevada.

1.8.2 Use of the Programmatic Environmental Assessment

Under NEPA, Federal agencies are authorized to establish implementing procedures to identify activities which experience has indicated would not have a significant impact to the environment. Through study and experience, Federal agencies may identify activities that do not require

detailed environmental analysis through the preparation of an EA or an EIS, because the activities are determined over time to not have a significant effect on the environment; these activities are classified as categorical exclusions. Similar to this process, FEMA has determined based on its experience and successful use of the previous PEA that certain activities covered in this PEA may not require a separate SEA, findings statement, or public and agency outreach beyond that completed for this PEA.

If FEMA determines that an EA is the appropriate level of NEPA documentation required for a specific action (as described in Chapter 2), FEMA would use this PEA to determine whether additional site-specific information is needed and if additional environmental analysis and documentation is required for FEMA's compliance with NEPA. If the alternatives, level of analysis, findings, and site-specific information of a proposed action are fully and accurately described in this PEA, FEMA would document this determination in its administrative record (e.g., Record of Environmental Considerations), and no additional public or agency noticing would be completed.

If an action is expected to (1) result in impacts not described in the PEA, (2) result in impacts greater in magnitude, extent, or duration than those described in the PEA, or (3) require additional environmental mitigation measures than those described in this PEA, an SEA would be prepared. The SEA would be tiered from this PEA, in accordance with 40 CFR §1508.28.[3] An SEA could typically result in one of two processes for completing FEMA's NEPA compliance:

1. An SEA could result in the analysis of an action that would result in no new substantial impacts to the environment beyond those described in this PEA, not require mitigation beyond that described in this PEA, not have the potential for public controversy, and therefore, result in no significant impacts. For these types of activities, the finding prepared for this PEA could apply. FEMA would document its determination in its administrative record (e.g., Record of Environmental Considerations), and no additional findings, or public or agency noticing would be completed.
2. An SEA could result in the analysis of an action that would result in substantial impacts to the environment beyond those described in this PEA and require mitigation in addition to that included in this document, or has the potential for public controversy. For these types of activities, FEMA could prepare a separate findings document (i.e., a FONSI or a Notice of Intent to prepare an EIS), or make the SEA available to the interested public/agency(ies).

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

[3] Tiering refers to incorporating, by reference, the general assessments and discussions from a PEA into a focused SEA. The SEA would focus on the particular effects of the specific action.

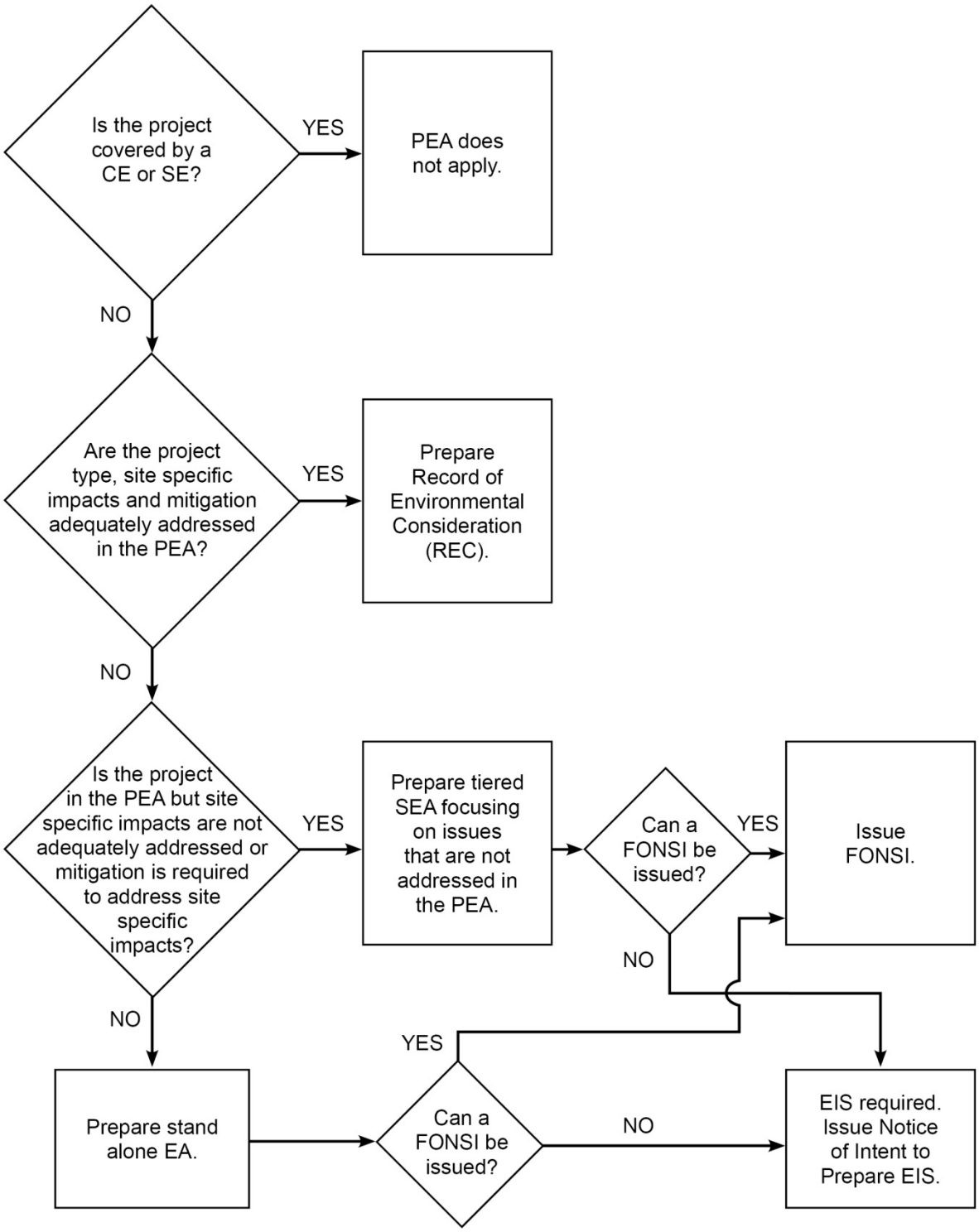


Figure 1.1 FEMA's Process in Applying the PEA

1.8.3 Complementary Programmatic Documents

FEMA is committed to expediting and unifying interagency EHP review processes to facilitate its mission and ensure compliance with applicable laws in accordance with Section 429 of the Stafford Act, as amended by the Sandy Recovery Improvement Act of 2013. FEMA has executed and is preparing programmatic documents that support this PEA in coordination with other agencies. The following is a summary of the documents and their implementation process.

- Programmatic ESA consultation with the U.S. Fish and Wildlife Service (USFWS): FEMA is in the process of conducting a programmatic ESA consultation with the USFWS for typical activities taken or funded by FEMA in Arizona, California, and Nevada. The intent of this Programmatic ESA Consultation is to streamline compliance with Section 7 of the Federal ESA (16 U.S.C. §1536), and to provide guidance to subapplicants during project design. Once effective, the Programmatic ESA Consultation would simplify and expedite the Section 7 consultation for FEMA activities, including those addressed in this PEA; until that time, FEMA will continue its current ESA Section 7 consultation process.
- National Marine Fisheries Service (NMFS) guidance regarding fish passages and Programmatic ESA Consultation: NMFS has provided FEMA with information and guidelines regarding fish passages. This guidance, when adhered to, can assist FEMA in making a “no effect” determination for threatened and endangered species within NMFS jurisdiction under Section 7 of the ESA (16 U.S.C. §1536). Copies of the guidance documents provided by NMFS are included in Appendix A. FEMA is in the process of preparing a Programmatic ESA Consultation with NMFS for typical activities taken or funded by FEMA in California. This Programmatic ESA Consultation would serve the same purpose as described above for USFWS.
- Memorandum of Understanding (MOU) regarding NEPA, ESA, National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. §§ 470 et seq), Rivers and Harbors Act Section 10 Permits (33 U.S.C. §403), and Clean Water Act of 1977 (CWA) Section 404 Permits (33 U.S.C. §1344): FEMA, the USACE, the USFWS, and the NMFS are in the process of preparing a MOU to streamline the EHP review of applicable projects by providing a framework for effective communication and outlining roles and responsibilities of the agencies, for the environmental review of applicable projects dependent on CWA Section 404 and Rivers and Harbors Act Section 10 permitting requirements, as administered by USACE. The agreement outlines the framework for determining the Lead Federal Agency for EHP review and procedures and requirements for NEPA, ESA, and NHPA compliance for activities that involve USACE permits.
- PAs with the State Historic Preservation Office(s) (SHPO(s)): FEMA is required to comply with Section 106 of the NHPA before the expenditure of any Federal funds on an undertaking that may affect properties included in or eligible for inclusion in the National Register of Historic Places (NRHP). To streamline the Section 106 review process, FEMA has executed PAs in Arizona, California, and Nevada with each SHPO. FEMA has developed a prototype PA, which will be adopted once approved by signatories (including the SHPOs in each of these respective states). The currently executed PAs with the Nevada and California SHPO are included as Appendix B.

This section describes typical activities FEMA takes, provides financial assistance for, or mission assigns to another federal agency in preparation for or response to flood, earthquakes, wildfire, rain, wind storms, and other natural and human-caused disasters. In addition, this section includes a description of the No Action Alternative. Any action, including the No Action Alternative, has the potential to be the preferred alternative (that is, the proposed action) or an alternative to the proposed action for a specific project FEMA is undertaking or funding.

Several of the activities described in the following sections could be eligible for NEPA review as a categorical exclusion. As discussed in Section 1.5.2 of this PEA, activities that would normally be categorically excluded from NEPA review but have extraordinary circumstances could require the preparation of an EA, and may be appropriate for review under this PEA. Further, activities that may appear to be eligible for one or more categorical exclusions may involve improvements or other additional activities that would also require an EA as the appropriate level of NEPA review. These activities may also be appropriate for review under this PEA. However, activities that are eligible as a categorical exclusion (as described in 44 CFR §10.8(d)(2) or in FEMA's revised NEPA implementing regulations) would not require an EA or EIS and the inclusion of such activities in the following sections of this PEA does not necessarily mean that this PEA is the appropriate level of NEPA review for these activities.

Most activities require some level of Federal, State, or local permits or coordination. It is typically necessary for FEMA or FEMA's subapplicant to coordinate with the following Federal and State agencies when conducting EHP review, including, but not limited to:

- USACE
- USFWS
- NMFS
- SHPO/Tribal Historic Preservation Officer (THPO)
- Native American tribes
- State agency responsible for management of State lands
- State and regional air quality jurisdictions
- State biological resources agency
- State water quality agency

The agencies that FEMA or the subapplicant are required to coordinate with vary depending on the particular action and the affected resources at the site where the action would occur. Some of the activities covered by this PEA and described below typically require coordination with certain agencies. In the description of impacts associated with the proposed activities and alternatives presented in Section 4, the typical coordination activity, when applicable, is also discussed.

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. For the purposes of this document, the No Action Alternative is defined as maintaining the status quo, with no FEMA action, or funding for a proposed action. This alternative evaluates the effects of not providing eligible assistance for a specific action and provides a benchmark against which the alternative activities may be evaluated.

Although FEMA would not take or fund any action under this alternative, it is assumed for the purposes of this PEA that disaster-damaged facilities would be repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. It is also assumed that work would be limited to restoration to pre-disaster conditions. Damaged facilities would not be improved, and there would be no mitigation to reduce the effects of future damages from disaster events.

No FEMA assistance would be given that would result in activities to proactively reduce, mitigate, or prevent disaster damage from occurring in the future. No FEMA assistance would be provided for security and response measures to improve preparedness. It is assumed that other agencies would not implement the proposed disaster response or mitigation program or project due to lack of Federal funding.

2.2 NON-EMERGENCY DEBRIS REMOVAL

Debris removal that is necessary to reduce or eliminate an immediate threat to life, public health and safety, or property is statutorily excluded from the NEPA process by the Stafford Act. The statutory exclusion does not apply, however, in non-emergency situations, such as in the restoration of facilities for which debris removal is necessary. For purposes of this document, debris removal performed in non-emergency situations is referred to as "non-emergency debris removal."

Non-emergency debris removal includes:

- Removing rock, silt, sediment, or woody debris that floodwaters have deposited in harbors and ports, stream channels, bridge and culvert openings, canals, sedimentation basins, sewage treatment ponds, ditches, and other facilities in such a manner as to disrupt normal flows, navigation, recreation, or municipal services
- Removing woody debris and other vegetation from events that damage or destroy trees
- Removing rock and earth from landslides caused by events such as earthquakes or heavy rains
- Removing rubble after earthquakes

Removal of material from stream channels usually requires coordination with the USACE for compliance and permitting under the CWA and Rivers and Harbors Act. All removed debris would be disposed of at approved and licensed disposal sites, in compliance with existing laws and regulations. Any hazardous materials or other contaminants would be removed and disposed of in an appropriate manner. Woody debris and construction materials can be recycled if recycling facilities exist.

2.3 CONSTRUCTING, MODIFYING, OR RELOCATING FACILITIES

FEMA is authorized to provide funds for constructing, modifying, or relocating facilities. Relevant action categories are as follows:

- Upgrading or otherwise modifying structures
- Providing temporary facilities
- Acquiring and demolishing existing facilities
- Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines
- Constructing new facilities or relocating existing facilities
- Relocating the function of an existing facility
- Developing demonstration projects

During construction, environmental mitigation measures or Best Management Practices are typically used and incorporated as part of the action. These typical measures are described throughout the following sections, and are listed in Appendix C. Activities involving facilities associated with watercourses or coastal features are described in Section 2.4.

2.3.1 Upgrading or Otherwise Modifying Structures

FEMA may provide funds to implement changes required by current building codes and standards, or otherwise modify existing structures. Often, these changes make the structure more resistant to damage in future events. Typical activities would include:

- Making structures more fire resistant (e.g., by replacing roofs and doors with fire-resistant materials)
- Installing bracing, shear panels, shear walls, anchors, or other features so that structures are better able to withstand seismic events or high wind or snow loads
- Modifying structures to reduce the risk of damage during floods by elevating structures above the expected flood level or by floodproofing
- Modifying structures to meet another need of a subapplicant, such as through an improved project or an alternate project

If a structure located in an identified floodplain is substantially damaged, the National Flood Insurance Program (NFIP) requires that the structure be elevated so that the lowest floor is at or above the base (e.g., 100-year) flood elevation. Newly constructed structures, such as those built to replace destroyed facilities, must also meet this requirement if located in a floodplain. Structures can be elevated on extended foundation walls, piers, posts, columns, or compacted fill. All materials used below the base flood elevation must be flood resistant. Utilities, such as exterior compressors or emergency generators, must also be elevated above the base flood elevation.

A building can also be floodproofed so that floodwaters can encounter it without causing damage to the structure or its contents. “Dry floodproofing” methods involve the installation of flood shields, water-tight doors and windows, earthen barriers, and pumping systems to prevent water

from entering the structure. “Wet floodproofing” involves the installation of vents and flood-resistant materials so that water may enter and leave areas of the structure without causing damage. With both dry and wet floodproofing, utilities are modified, elevated, or relocated to prevent floodwaters from accumulating within them.

Buildings may also be upgraded to meet current codes unrelated to damage from natural hazards, such as upgrades required by changes in capacity or function and upgrades necessary to meet the requirements of the Americans with Disabilities Act.

2.3.2 Providing Temporary Facilities

FEMA may provide temporary housing facilities when a disaster renders homes uninhabitable for long periods. Such facilities typically consist of installing manufactured housing. Typical activities may involve:

- Developing the pads for dwellings
- Constructing ancillary facilities, such as roads, streets, and parking lots
- Installing utilities, such as potable water lines, sewer hookups, electricity (including street lighting), and telephones lines
- Installing manufactured homes

FEMA may provide temporary facilities if other housing options, such as vacant hotel rooms or available rental units, are not feasible. Appropriate sites are not to be located in a floodplain; contain wetlands or critical habitat; affect historic properties or archaeological sites; or contain hazardous materials. Installation of housing units and utilities is to be accomplished in accordance with current codes and standards. After temporary housing is no longer needed at the disaster site, FEMA removes the temporary housing units and associated ancillary facilities and the land is restored to its original use. All removed materials are stored for future use or disposed of in accordance with applicable laws and regulations.

Another method that FEMA uses to provide temporary housing involves modifying existing facilities to serve as temporary housing. These facilities could consist of existing residential property or the adaptive reuse of non-residential facilities. Specific activities range from conducting repairs and minor upgrades to complete reconstruction of a building’s interior. This action may involve acquisition or leasing of facilities. Modifying existing facilities for temporary housing may be conducted by FEMA directly or by providing funding to a subapplicant.

FEMA may also provide funding for temporary relocation of essential public services, in the event that the structures that house these services are damaged, destroyed, or otherwise rendered inaccessible by a disaster. Funds may also be provided for upgrades necessary to meet current codes and standards, and for the installation or modification of appurtenances, such as utilities that are necessary to operate facilities.

2.3.3 Acquiring and Demolishing Existing Facilities

FEMA may provide funds for the acquisition and demolition of existing facilities, particularly if they are located in high-hazard areas and are subject to repetitive loss. Typically, these facilities are at a high risk because of (1) damage from flooding, (2) erosion of stream banks, beaches, slopes, or bluffs, (3) landslides, or (4) wildfire. These facilities may consist of private properties,

such as houses and commercial buildings, or publicly owned facilities, such as utilities, roads, and bridges. A local government entity would purchase private properties on a willing-seller basis, and after the property is purchased, the property would be dedicated and maintained in perpetuity for uses compatible with open space, recreation, or wetlands management practices, pursuant to 44 CFR §206.434(d).

Existing facilities would be either removed or demolished. All demolition materials would be disposed of at approved and licensed disposal sites, in compliance with applicable laws and regulations. Any hazardous materials or other contaminants would be removed and disposed of in an appropriate manner. Construction debris and household materials may be recycled if recycling facilities exist. Once structures are removed, lots would be graded to conform to the local topography, and disturbed areas would be revegetated with species approved for the local area. Frequently, the local government would develop the acquired land for recreational or open space uses, such as parks, athletic fields, or walking and biking trails.

2.3.4 Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

Roads, trails, utilities[1], and rail lines are typically damaged when floods or heavy rains cause erosion, subsidence, or landslides. Earthquakes may cause similar damage. Repairs are accomplished by replacing earthen material lost during the disaster and replacing the damaged surface, utility line, or, in the case of rail lines, ballast, and track. It may be necessary to stabilize the replacement fill using rock, grout, timber walls, or steel sheet piling. Hazard mitigation measures may be performed to prevent or limit future damage. For example, a pipe may be installed to convey drainage beneath a road, thus preventing future washouts, or a utility line may be encased in concrete in an area vulnerable to erosion.

If the area of damage is unstable, does not allow for repair, or is subject to repetitive loss, a facility may be realigned so that the area of damage is avoided. Property acquisition or a change in easement may be necessary.

Facilities may also be modified as part of improved projects or alternate projects under the Public Assistance Program to meet additional needs of the subapplicant.

Refer to the Section 2.3.1 above for a description of NFIP-required design elements (e.g. compressor) that would need to be met for some of these types of facilities.

2.3.5 Constructing New Facilities or Relocating Existing Facilities

If a facility is located in a floodplain or other hazardous area[2], is subject to repetitive damage, or has been damaged in such a way that restoration in the current location is not practical or cost-effective, FEMA may fund the construction of a new facility or the physical relocation of the existing facility. Examples of this action are construction of roads, trails, utilities and utility

[1] Utilities refers to water, sewer, electrical, and similar types of infrastructure.

[2] Hazard areas are susceptible to some type of natural hazard such as flooding, seismic activity, coastal inundation, mudslide, etc.

lines, and rail lines in a different area from the existing facility; construction and relocation of buildings; construction of safe rooms; and construction of drainage improvements.

In both new facility construction and physical relocation, FEMA may fund the cost of land acquisition and the construction of appurtenant features, such as access roads and utilities. For properties in the hazard area, FEMA acquires damaged properties, demolishes existing structures (except in cases of physical relocation), and places deed restrictions that would limit future uses to open space in perpetuity. FEMA does not, however, acquire land directly nor does it become a land owning agency as a result of this process.

Refer to Section 2.3.1 above for a description of NFIP-required design elements that would need to be met for facilities in the floodplain.

2.3.6 Relocating the Function of an Existing Facility

FEMA may fund the relocation of a function of a facility to an existing facility that has adequate capacity to handle the additional load with minor modifications, if necessary. For structures, the occupants and materials would be relocated to alternative structures, traffic would use alternate routes, and utility services would be provided by alternative methods. This action would not entail any major physical construction or addition to the existing facility and, if any work is required, it would consist of only minor modifications. A typical example is transferring students from a damaged or flood-prone school to a suitable existing school nearby, if feasible in terms of capacity and convenience for students, families, and teachers. For properties in the hazard area, FEMA would acquire damaged properties, demolish existing structures, and place deed restrictions that would limit future uses to open space in perpetuity

2.3.7 Developing Demonstration Projects

Demonstration projects focus on public education and are designed to highlight procedures that the public can use to reduce property damage during flood, earthquake, wildfire, wind, and rainstorm disasters. Demonstration projects may involve the development of a model facility to demonstrate how hazard mitigation technologies can be used to reduce potential damage during a disaster. Flood demonstration projects may involve items such as elevating a structure or waterproofing windows and doors that are below the elevation of the 100-year flood event. A fire demonstration project may include vegetation management around a facility and replacing roofs, doors, and windows with fire-resistant materials. Wind and earthquake demonstration projects may include changes to the structural design of buildings to allow them to withstand higher wind velocity or more movement during an earthquake.

2.4 ACTIVITIES INVOLVING WATERCOURSES AND COASTAL FEATURES

Many FEMA activities pertain to inland water sources (e.g., streams, rivers, canyons, lakes) and coastal features, such as harbors and beaches. Inland water sources may be perennial or dry during the summer months. During construction, environmental mitigation measures are typically used and incorporated as part of the action. These typical measures are listed in Appendix C. Work in a stream channel often includes temporary diversion of the channel using sandbags or a cofferdam constructed of fill. Heavy equipment is typically operated from an adjacent road, bank, or other feature; however, in some cases, it may be necessary to operate

equipment in a channel area once flow has been diverted. A pipe or a temporary secondary channel may be used to convey the diverted water.

If the action involves channel modifications, changes to the capacity of bridges and culverts, or the installation of attenuation structures, it may be necessary to conduct hydraulic/hydrologic analyses to evaluate the changes of upstream and downstream flow rates and determine whether additional action components need to be added to address any changes in hydraulics and hydrology outside the project area.

Relevant categories of activities include the following:

- Repairing, stabilizing, or armoring embankments
- Creating, widening, clearing, or dredging a waterway
- Constructing or modifying a water crossing
- Constructing or modifying a water detention, retention, storage or conveyance facility
- Constructing or modifying other flood control structures
- Constructing or modifying a coastal feature

2.4.1 Repairing, Stabilizing, or Armoring Embankments

Repairing, stabilizing, or armoring embankments would involve the repair of earthen or rock embankments damaged by floodwaters. Examples are natural stream banks (such as those in parks); road, trail, and rail line embankments; embankments for irrigation and navigation canals; and levees used for flood control and reclamation. In addition to repair of damaged features, FEMA may fund measures designed to prevent damage in future flood events.

In addition to replacing fill material, embankments may be stabilized or armored through:

- Placing of rock riprap
- Hardening with concrete or soil cement
- Installing retaining walls, gabions, or geotextile fabrics
- Using bioengineering techniques, such as planting vegetation, placing root wads, or placing willow bundles

A combination of these techniques may be employed. For example, rock and geotextiles, when used with root wads and willow bundles, may provide mitigation from erosion while enhancing the natural values of a stream corridor.

2.4.2 Creating, Widening, Clearing, or Dredging a Waterway

Creating, widening, clearing, or dredging a waterway may be used to reduce the flood hazard to adjacent lands, facilities, or populated areas. New channels may be constructed to convey excess flows around flood-prone areas during flood events. Drainage swales, earthen channels, concrete channels, or subsurface concrete pipes can also be used as a means of conveyance. A new channel may be constructed in a dry environment and connected to a stream after completion. This channel may have an inlet weir higher than the elevation of the normal flow so that the

normal flows remain in the natural channel. The outlet may be armored with concrete or rock riprap to prevent excessive erosion of the existing channel.

Existing channels may be widened to allow a channel to convey a larger volume of water. Conveyance may also be increased by replacing earthen banks or channel bottoms with concrete. To the extent possible, construction would be conducted from the top of the bank, but many activities may require construction equipment to work in the stream channel. In perennially flowing streams, work in a stream channel would generally be restricted to the low-flow period, and the flow would be diverted around the construction area. A pipe or a temporary secondary channel would be used to convey the diverted water.

As an alternative to constructing a bypass or modifying an existing channel, the existing channel may be cleared of vegetation or sediment to increase conveyance. This action would often be used in developed areas where modifications are not feasible, as well as in areas where years of inadequate maintenance have allowed trees and brush to grow within the channel or sediment and debris to accumulate in the channel or around culverts and bridges. Vegetation may be removed through mechanical means, by hand, or by application of herbicides (see Section 2.5). Vegetation may be removed not only from the channel but also from the banks and high-water areas, thus reducing the risk that floating debris would be trapped by trees or heavy brush. Sediment and debris may be removed by dredging, through use of heavy equipment, or by hand, as described in Section 2.2. All removed debris would be disposed of at approved and licensed disposal sites, in compliance with applicable laws and regulations. Woody debris and vegetation can be recycled if recycling facilities exist.

2.4.3 Constructing a Water Crossing

FEMA may fund the repair or replacement of damaged water crossings, the enlargement of openings to allow greater conveyance and reduce the risk that debris would get trapped during floods, or the installation of bank protection or other means to reduce the risk of erosion. Crossings may also be relocated or improved to avoid high-hazard areas, repetitive damage, or areas where reconstruction is not cost-effective or feasible.

Culverts may consist of corrugated metal pipes, reinforced concrete pipes, or reinforced concrete box culverts. The capacity of a culvert crossing may be increased to reduce the risk of flooding to the surrounding area, or the culvert may be modified to prevent overtopping or erosion of the crossing. Typical measures would include:

- Increasing the size of a culvert or adding culvert barrels
- Changing the type of culvert
- Changing the location or alignment of a culvert
- Adding features, such as a headwall, discharge apron, or riprap to reduce the risk of erosion or damage to a culvert or the crossing

Similarly, bridges may be modified to increase capacity to reduce the risk of flooding or to reduce the risk of damage to the crossing. Typical activities would include:

- Widening existing openings or constructing new openings
- Reconfiguring bracing to reduce the risk that debris would be trapped

- Installing protective features, such as concrete abutments or riprap, to reduce the risk of damage due to erosion and scour
- Replacing a multi-span structure with a clear-span structure

A bridge may be installed to replace a culvert to increase the flow capacity of a crossing.

Low-water crossings may be installed or improved as an alternative to repairing or replacing a culvert or bridge. Constructing or upgrading a low-water crossing would typically involve hardening the banks and bottom of a water body. A temporary diversion may be necessary during construction activities.

2.4.4 Constructing a Water Detention, Retention, Storage or Conveyance Facility

Constructing a water detention, retention, storage or conveyance facility may include the construction, enlargement, or restoration of detention basins, retention basins, sediment ponds, reservoirs, or conveyance facilities such as irrigation ditches or flumes to reduce flood flows or to provide a water source for fighting fires in an area of high fire hazard. The creation and/or enlargement of water storage reservoirs would be most frequently associated with flood disasters and to a lesser extent, fire disasters.

Detention dams, retention dams, sediment ponds, and reservoirs would be routinely constructed to temporarily store flood waters to reduce downstream peak flows. The stored water would be released at a slower rate so that the existing drainage-ways can convey water without contributing to downstream flooding. All areas that would be disturbed during the construction of the detention dams, retention dams, sediment ponds, or reservoirs would be revegetated with native plant species. This action would also include the repair or restoration of water retention or conveyance structures. All sediment removed from detention dams, retention dams, and sediment ponds would be disposed of in a manner consistent with Federal, State, and local laws and regulations.

Frequently in rural areas, firefighting is heavily constrained by the lack of water that firefighters can use. In response to this need, proposed activities may also include the creation of retention dams in locations that firefighters can readily accessed, either as a direct source of water or as a source of water to fill water supply trucks. All areas that would be disturbed during the construction of a retention dam would be revegetated with native plant species.

2.4.5 Constructing Other Flood Control Structures

A flood control structure is a facility designed to prevent floodwaters from entering a flood-prone area. Typical examples are levees (also referred to as dikes) and floodwalls. Activities would include:

- Repairing damaged facilities, usually during emergency situations
- Installing embankment protection, as described in Section 2.4.1
- Raising the height of existing facilities to prevent overtopping in future floods
- Constructing new facilities to protect flood-prone areas from damage during future floods
- Modifying or installing interior drainage systems to reduce the risk of damage behind levees and floodwalls during heavy rains or flooding events on tributary streams

Levees would be repaired or constructed using compacted fill and, in some cases, riprap protection at its base. Bare earth would be seeded with grasses to prevent erosion. Typically, a gravel road would be installed on the levee's crest to allow for maintenance. Floodwalls, typically built in urban areas, would be constructed using reinforced concrete or grouted, reinforced concrete block. Excavation would be necessary to install footings. Levees and floodwalls would both have interior drainage systems that may include pumps for removing accumulated water.

2.4.6 Constructing a Coastal Feature

Constructing a coastal feature would involve the repair, replacement, or construction of facilities in coastal environments, such as estuaries, inlets, harbors, and beaches. These facilities include:

- Recreational facilities, such as piers and boat ramps
- Facilities for maritime use, such as docks and slips
- Shoreline protection devices, such as seawalls, groins, jetties, and revetments
- Coastal flood control structures, such as levees

Construction activities would be expected to occur in water and involve driving piles, placing rock or soil, or dredging sand, mud, or other sediment.

2.5 VEGETATION MANAGEMENT

Vegetation management is intended to reduce the risk of loss and damage due to wildfire and, as described in Section 2.4, increase the ability of channels to convey flows, thus reducing the risk of flood damage. Vegetation management may be accomplished using mechanical means, hand-clearing, application of herbicides, or grazing. Some activities may include a combination of these methods. During implementation, environmental mitigation measures are typically used and incorporated as part of the action. These typical measures are described in Appendix C.

Relevant categories of activities are:

- Mechanical or hand-clearing of vegetation
- Herbicidal treatments
- Biological control

2.5.1 Mechanical or Hand Clearing of Vegetation

Mechanical or hand-clearing of vegetation would be used for the selective removal of vegetation so that a certain proportion of vegetation is left in place. This would be done to reduce the amount of vegetative fuels in an area where mechanical removal of vegetation is impractical or the remaining vegetation needs to be protected. Per FEMA's Wildfire Mitigation Policy (MRR-2-08-1) vegetation may be removed to create defensible space around buildings and structures, and to protect life and property beyond defensible space perimeters but proximate to (less than 2 miles from) at-risk structures. The creation and maintenance of fire breaks, access roads, and staging areas is not eligible for FEMA funding.

In mechanical removal, heavy equipment would be used to uproot, crush, pulverize, or cut the trees and brush being removed. Hand removal would involve the use of chainsaws, axes, and hoes to cut and uproot vegetation. Depending on the location of the vegetation removal project and State and local regulations, vegetation downed as a result of mechanical or hand removal would be piled and burned on site, chipped and spread on site, or loaded and hauled away from the site. After the removal of the targeted vegetation, cleared areas may be revegetated with native, fire-resistant species. Vegetation hauled off-site can be recycled but must be disposed of in accordance with appropriate requirements.

2.5.2 Herbicidal Treatments

Activities generally associated with herbicidal treatment would include the removal of targeted exotic invasive species within specific areas and the prevention of growth and resprouting of undesirable vegetation once an area has been cleared of excessive vegetation by mechanical removal and/or hand removal. Only Environmental Protection Agency (EPA)-approved herbicides would be used to control the growth of undesired vegetation in a manner consistent with labeling instructions and applicable Federal and State regulations. After treatment, some areas may be revegetated with native vegetation that is fire resistant.

2.5.3 Biological Control

In biological control, cattle, horses, goats, sheep, or other livestock would be allowed to graze on grasses and other vegetation as a means of control. The area proposed for grazing would be fenced. The type of animals, timing, duration, and stocking rate would be selected based on the targets of the vegetation management plan (i.e., the quantity and quality of residue to remain).

This section provides a description of the primary resources of concern that could potentially be affected by the project types 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 project types that could take place in Arizona, California, or Nevada. The specific activities could be located in geographically diverse areas (urban, suburban, and rural), as well as previously disturbed and undisturbed sites. Because of the wide variety of natural and manmade environments and the complexity of resources potentially affected, it is not possible to provide a detailed comprehensive description of locally affected environments in this PEA. Instead, this section characterizes resources in general terms and identifies those resources that may require additional site-specific analysis (for instance, wetlands). A discussion of applicable regulations is included to define the regulatory framework for this PEA.

The following subsections discuss the Federal regulatory setting and affected environment of 13 resource areas in Arizona, California, and Nevada:

- Geology, Seismicity, and Soils
- Air Quality
- Climate Change and Greenhouse Gas (GHG) Emissions
- Water Resources
- Biological Resources
- Cultural Resources
- Socioeconomics
- Land Use and Planning
- Public Services and Recreation
- Transportation
- Noise
- Hazardous Materials and Wastes
- Visual Resources

3.1 GEOLOGY, SEISMICITY, AND SOILS

Key resource categories and assessment variables described in this section include geology and physical processes, geologic resources, geologic hazards, geomorphology, seismicity and seismic hazards, and soils.

3.1.1 Regulatory Background

3.1.1.1 Federal Laws and Regulations

Executive Order (EO) 12699: Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction

The purpose of this EO is to:

- Reduce risks to the lives of occupants of buildings owned by the Federal government, leased for Federal uses, or purchased or constructed with Federal assistance and to persons who would be affected by the failures of Federal buildings in earthquakes
- Improve the capability of essential Federal buildings to function during or after an earthquake
- Reduce earthquake-related losses to public buildings in a cost-effective manner

A building is defined in this EO as any structure, fully or partially enclosed, used or intended for sheltering persons or property. FEMA may fund the construction of new buildings under the Public Assistance Program if it is the replacement of seriously damaged or destroyed buildings, or an alternate or improved project. Under the Hazard Mitigation Program, FEMA funds the reconstruction of a structure when it is on the same site, and the replacement structure is hazard-resistant (e.g., flood, wind, and fire) and code-compliant.

Under this EO, each Federal agency responsible for the design and construction of a Federal or federally funded new building must ensure that the building is designed and constructed in accordance with appropriate seismic design and construction standards. These standards are promulgated through the National Earthquake Hazard Reduction Program (NEHRP) and are subsequently incorporated into the model building codes that are used as the basis for local building codes in most municipalities. NEHRP periodically publishes new standards; the latest NEHRP standards were published in 2009 (FEMA 2009). This requirement pertains to all building projects for which detailed plans and specifications were initiated subsequent to the issuance of the EO.

Each Federal agency responsible for the construction and lease of a new building must also ensure that the building is designed and constructed in accord with appropriate seismic design and construction standards. Local building codes are used in design and construction and augmented when necessary to achieve appropriate seismic design and construction standards.

According to Office of Management and Budget (OMB) Circular A-119 issued January 17, 1980 and revised February 10, 1998, entitled *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, nationally recognized private-sector standards and practices are to be used unless the responsible agency finds that none are available that meet its requirements (OMB 1998). This circular states that design

criteria should consider the seismic hazards in various areas of the country, as shown in the most recent edition of the American National Standards Institute Standards A58, *Minimum Design Loads for Buildings and Other Structures*, or subsequent maps adopted for Federal use. Local building codes may be used if determined by the responsible agency or by the Interagency Committee for Seismic Safety in Construction to provide adequately for seismic safety. Special seismic standards and practices may be used if required by a unique agency mission.

Farmland Protection Policy Act

The Farmland Protection Policy Act (7 U.S.C. 4201 et seq.) and the U.S. Department of Agriculture's (USDA's) implementing procedures require Federal agencies to evaluate the effects of their activities before taking any action that could result in converting important farmland to nonagricultural purposes. If an action would adversely affect farmland preservation, alternative activities that could avoid or lessen adverse effects must be considered. Federal agencies also must ensure that their programs, to the extent practicable, are compatible with State, local, and private programs to protect farmlands. Determination of the level of impact to important farmland is done by the lead Federal agency, which inventories farmlands affected by the proposed action and scores part of an AD 1006 Form, Farmland Conversion Impact Rating, for each alternative. Through consultation with the Natural Resources Conservation Service (NRCS) staff in the particular county of the proposed action, NRCS completes the AD 1006 Form and determines the level of consideration for protection of farmlands that needs to occur under the Farmland Protection Policy Act.

Though subject to change, the relevant NRCS websites regarding the Farmland Protection Policy Act for Arizona, California, and Nevada, are respectively located at:

- http://www.az.nrcs.usda.gov/programs/frpp/
- http://www.ca.nrcs.usda.gov/programs/frpp/
- http://www.nv.nrcs.usda.gov/programs/frpp.html

These websites provide details about current implementation of the Farmland Protection Policy Act in each state.

3.1.1.2 Native American Tribal, State, and Local Laws and Regulations

Native American tribes, States, and local agencies have developed laws, codes, and other regulations that govern land uses, building design and construction, and other activities that can affect or be affected by geology, geologic hazards, and soils. These regulations are typically specific to the environment of the region they regulate and are typically stricter than similar Federal regulations. These regulations are applicable only in locations under the jurisdiction of the specific regulatory agencies.

3.1.2 Geology, Geologic Hazards, 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 geomorphic province, regional geology, or local geology. Rock types, geologic structure, and geomorphology (landscape features) create distinct geomorphic provinces. The term "geomorphic province" is generally defined to be any area that displays a distinctive geologic

and landscape character as defined by the amount of relief, types of landforms, orientation of valleys and mountain ridges, and types of vegetation. The underlying geology is one of the controlling factors that define the geomorphic character of a region.

Arizona, California, and Nevada encompass several geomorphic provinces. From west to east (Figure 3.1), the provinces are (1) the Pacific Border and the Lower California provinces; (2) the Cascade Sierra Mountains province; (3) the Basin and Range Province; (4) the Columbia Snake River Plateau; and (5) the Colorado Plateau.

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.

Soil is the unconsolidated loose covering of broken rock particles and decaying organic matter overlying the bedrock or parent material. The formation of a soil profile is influenced by five primary factors: climate, topography, soil parent material, biotic influence, and time. Soil types vary widely throughout Arizona, California, and Nevada and are generally characterized by the NRCS. Soil characteristics within an area depend on the parent material located in that area. Areas with similar soils are grouped and labeled as a soil series because of their similar origins and chemical and physical properties, which cause the soils to perform similarly for land use purposes.

The geologic environment of Arizona, California, and Nevada comprises a number of potential geologic hazards. Pertinent geologic hazards include surface fault rupture, earthquake ground shaking, liquefaction, subsidence and uplift, expansive soils, mass wasting, volcanic hazards, tsunami (in California) and seiche, and erosion.

Geologic, topographic, and soil characteristics; and geologic hazards may impose limitations on potential uses for a particular site or may require the use of certain engineering technologies for a project to be implemented. The presence and extent of geologic hazards may preclude the implementation of a project at a particular location. Figure 3.2 shows the seismic hazards in terms of peak horizontal ground acceleration for Arizona, California, and Nevada.

Figure 3.1 Geomorphic Provinces

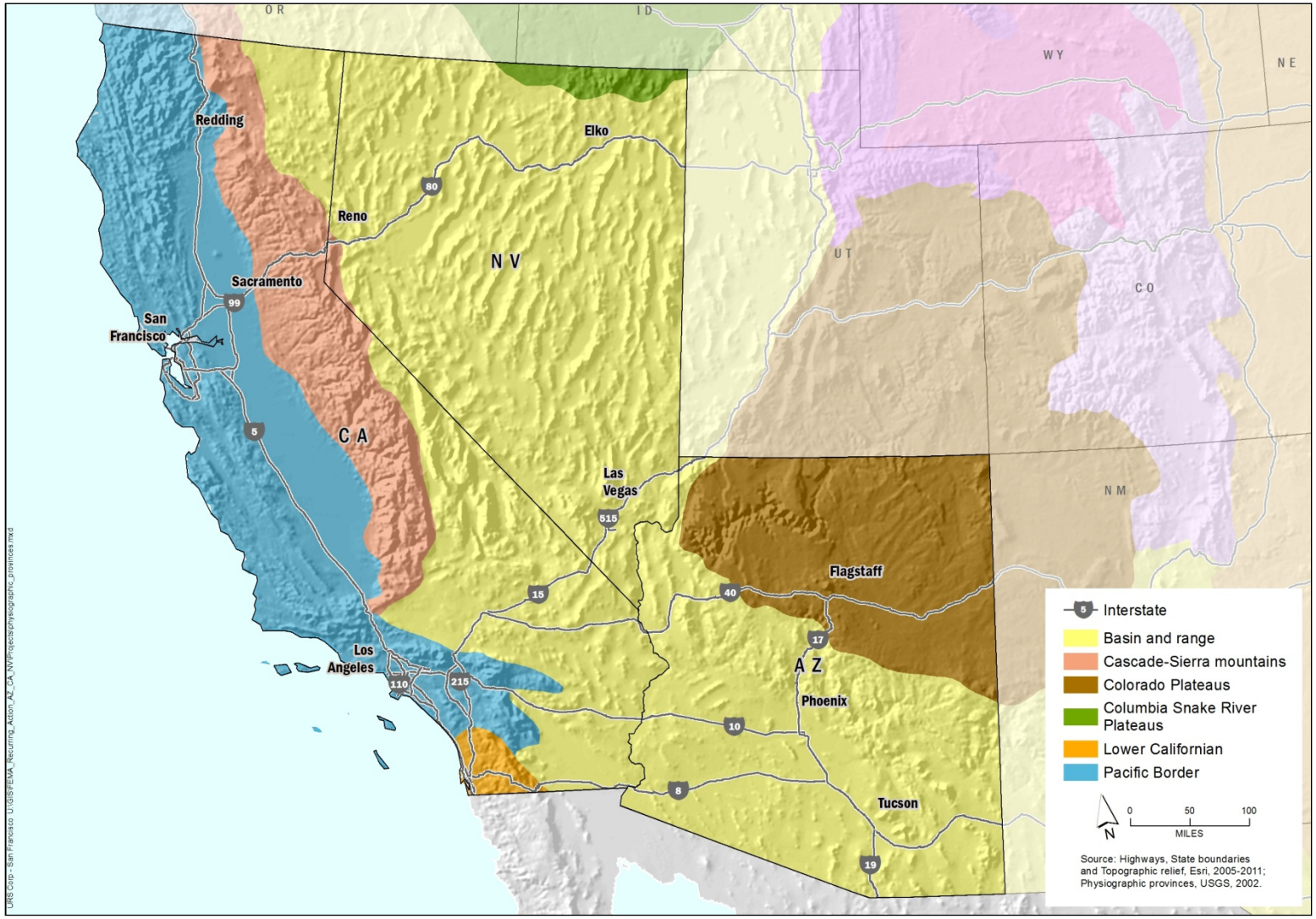
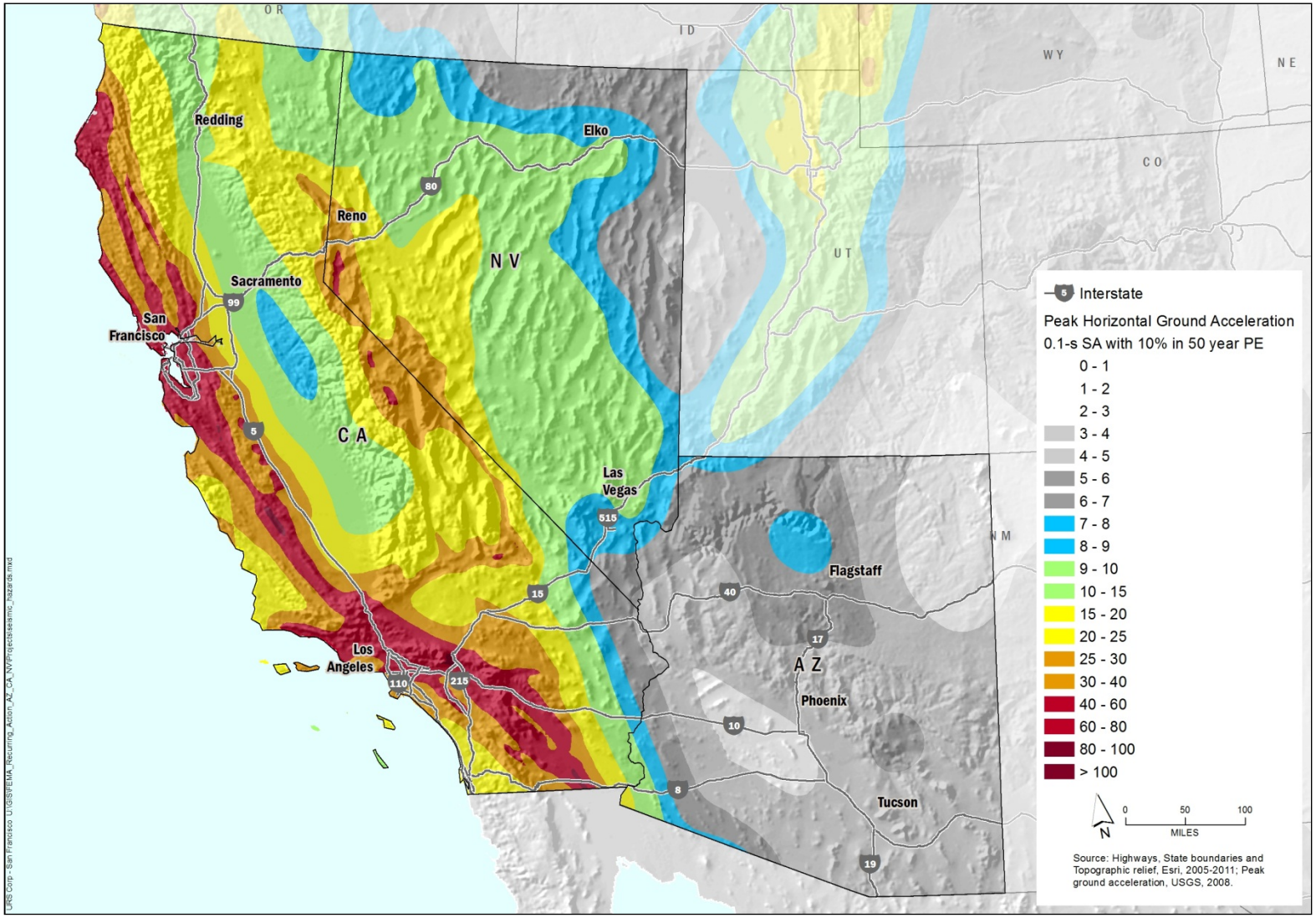


Figure 3.2 Seismic Hazards



3.2 AIR QUALITY

This section describes relevant air quality regulations. This information is necessary to assess the air quality impacts of potential FEMA activities and alternatives.

3.2.1 Regulatory Background

3.2.1.1 Federal Laws and Regulations

Several Federal and State laws regulate air quality in Arizona, California, and Nevada. The Federal Clean Air Act (CAA) of 1970, amended in 1990, was enacted to regulate air emissions from area, stationary, and mobile sources. This law authorized the EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The six most common criteria pollutants regulated by the CAA are carbon monoxide (CO), ozone (O_3), nitrogen oxides (NO_x), particulate matter smaller than 10 microns in diameter (PM_{10}), particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$), and sulfur dioxide (SO_2). Other criteria pollutants include lead, sulfates, and hydrogen sulfide. If the levels of any of the criteria pollutants in a particular geographic area exceed the NAAQS thresholds established for those pollutants, the area is designated as "nonattainment" for those pollutants. Likewise, if standards for pollutants are met in a particular area, the area is designated as "attainment" for those pollutants. In areas where background monitoring data are not available for certain criteria pollutants, the areas are considered "unclassified" for those pollutants.

The CAA requires that State Implementation Plans (SIPs) be prepared and implemented by the applicable State or local regulatory agency for each criteria pollutant in nonattainment in an air basin. In addition, the EPA may develop a Federal Implementation Plan (FIP) and Native American tribes may develop their own Tribal Implementation Plans (TIP). These plans are intended to achieve air quality standards, typically through the use of rules and agreements. Under the New Source Review (NSR) permitting process, any new potential source of emissions exceeding a certain amount may have to be permitted by the applicable local or State regulatory agency which implements and enforces the CAA.

The Federal General Conformity Rule (GCR), established under Section 176(c)(4) of the CAA (42 U.S.C. Section 7506(c)), applies to all Federal activities occurring in designated nonattainment or maintenance areas. The rule states that "no department, agency, or instrumentality of the Federal government shall engage in, support in any way or provide financial assistance for, license, or permit, or approve any activity which does not conform to an implementation plan after it has been approved or promulgated and that such activities will not: Cause or contribute to any new violations of any standard in any area; Increase the frequency or severity of any existing violation of any standard in any area; Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

FEMA actions must be reviewed under the GCR to establish conformity with the applicable SIP, FIP, or TIP. The conformity analysis generally involves a demonstration that:

- Expected emissions from the activity have been appropriately accounted for and/or would not exceed the emission budgets specified in the approved SIP, FIP, or TIP.

- Expected emissions would not cause a new violation of an applicable NAAQS or significantly worsen an existing violation.

There is an extensive list of activities that are exempt from the GCR that are described in 40 CFR §93.153. The following GCR exemptions are the most relevant to potential FEMA activities: activities that result in emissions below the thresholds specified in 40 CFR §93.153; activities involving major stationary sources under NSR; emergency and natural disaster response activities; prescribed burning; planning studies; and routine maintenance and repairs (40 CFR §93.153).

Section 112 of the CAA (42 U.S.C. §7412) requires the EPA to develop emission standards for hazardous air pollutants. In response, the EPA published a list of hazardous air pollutants and promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. NESHAP regulations are established for air pollutants not covered by NAAQS that may cause adverse impacts on human health, including asbestos and lead. Existing concrete features such as culverts, headwalls, and roadway features may contain asbestos-containing materials. Additionally, building insulation often contains asbestos. Interior and exterior paints often contain lead.

3.2.1.2 Native American Tribal, State, and Local Laws and Regulations

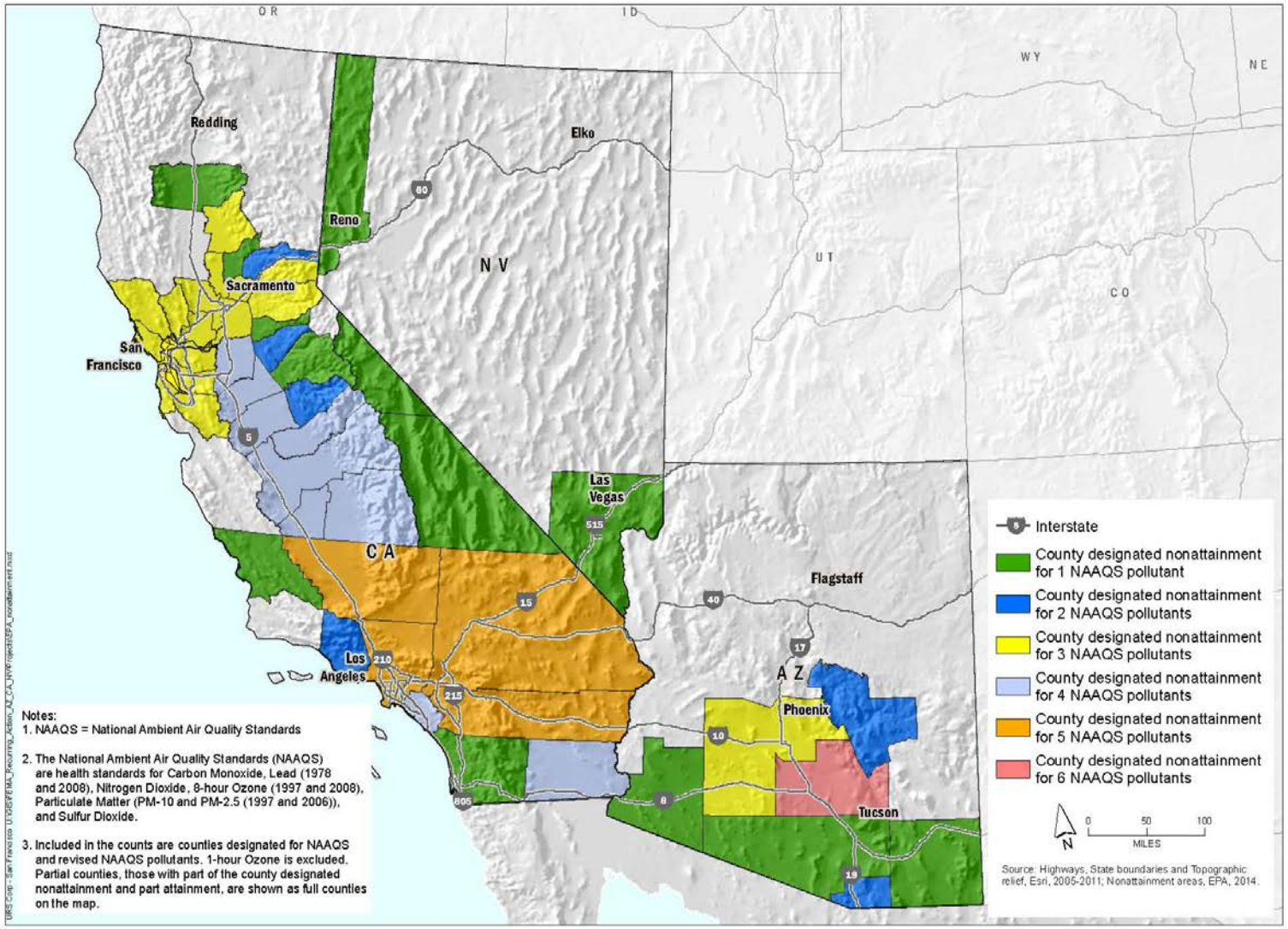
Native American tribes, States, counties, cities, and other local agencies have developed laws, codes, and other regulations that govern air quality. These regulations are typically specific to the environment of the region they regulate and are usually stricter than similar Federal regulations. These regulations are applicable only within the jurisdiction of the specific regulatory agencies. For all activities under this PEA, the subapplicants are responsible for obtaining and following conditions stipulated in project-appropriate air quality permit(s).

3.2.2 Air Quality

Though subject to change, the relevant EPA website regarding air quality for California, Nevada, and Arizona is located at: http://www.epa.gov/region9/air/index.html. This website provides details about current attainment status and the existing Federal air quality regulatory environment for the air basins in these States. Additionally, the EPA maintains a website regarding air quality that is specifically for Native American tribes in Arizona, California, and Nevada. That website is located at http://www.epa.gov/region9/air/tribal/index.html.

Figure 3.3 shows the areas of Arizona, California, or Nevada that are nonattainment for one or more of the NAAQS.

Figure 3.3 Air Quality Nonattainment Areas in Arizona, California, and Nevada



3.3 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

3.3.1 Regulatory Background

On October 5, 2009, EO 13514 on Federal Sustainability was signed. This EO sets measurable environmental performance goals for Federal Agencies and mandates reduction and reporting of GHG emissions. Currently there is no well-established guidance for considering climate change as a part of the NEPA process. Federal agencies have begun to examine how to address climate change within their realm of responsibility, but these efforts are still in progress. The CEQ has provided draft guidance for consideration of the effects of climate change and GHG emissions, and that approach is being followed for this analysis (CEQ 2010). Per this draft guidance, climate change issues arise in relation to:

1) The GHG emissions effects of a proposed action and alternative activities; and
2) The relationship of climate change effects to a proposed action or alternatives, including the relationship to proposed design, environmental impacts, mitigation and adaptation measures.

The CEQ recommends climate change and impacts of greenhouse gases from proposed projects be evaluated in NEPA documents if the proposed action is reasonably anticipated to cause direct emissions of 25,000 metric tons or more on an annual basis (CEQ 2010).

Arizona, California, Nevada, and some Native American tribes have enacted policies or legislation to inventory and reduce GHG emissions in their states. In addition, California has passed regulations to reduce GHG emissions. GHG emissions are generally associated with transportation, industrial processes, waste, agriculture, and electricity production, methane from the fossil-fuel industry, industrial fuel use, and residential and commercial fuel use.

3.4 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 communities and public water supplies. Water bodies include aquifers, springs, streams, rivers, lakes, reservoirs, estuaries, and near-shore and off-shore marine water. 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.

3.4.1 Regulatory Background

3.4.1.1 Federal Laws and Regulations

Clean Water Act

The CWA is a 1977 amendment to the Federal Water Pollution Control Act of 1972 (U.S.C., Title 33), which established the basic structure for regulating pollutant discharges to navigable waters[1] of the United States. The CWA sets forth procedures for effluent limitations, water quality standards and implementation plans, national performance standards, and point source (e.g., municipal wastewater discharges) and nonpoint source programs (e.g., stormwater). The CWA also establishes permits for dredged or fill material under Section 404, certifications that activities meet water quality standards under Section 401, the National Pollutant Discharge Elimination System (NPDES) under Sections 402, and a list of impaired water bodies under Section 303(d).

The USACE is charged with regulating the disposal of dredged and fill materials under Section 404 of the CWA. Certain Waters of the United States (WOUS) are considered “special aquatic sites” under the CWA because they are recognized as having a particular ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallow, eelgrass beds, coral reefs, and riffle and pool complexes. Special aquatic sites are defined in the CWA and may be afforded additional consideration in the USACE permit process for a project.

A Section 404 permit from the USACE must be obtained for most dredge or fill activities within jurisdictional WOUS. During the permit review process, the USACE determines the type of permit appropriate for the proposed action. The USACE issues two types of Section 404 permits:

- 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 are issued for a case-specific activity

[1] “Navigable waters” of the U.S. are those subject to the ebb and flow of the tide shoreward to the mean high water mark and/or presently used, or have been used in the past, or are susceptible for use to transport interstate or foreign commerce. The term includes coastal and inland waters, lakes, rivers and streams that are navigable, and the territorial seas.

As described in Section 1.8.3, FEMA, the USACE, the USFWS, and the NMFS are developing a MOU for the Federal EHP review of projects that would require a permit for the USACE under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act. This MOU would streamline the environmental and historic compliance review of applicable projects by providing a framework for determining the Lead Federal Agency for EHP review and procedures and requirements for NEPA, ESA, and NHPA compliance.

Section 401 of the CWA specifies that states must certify that any activity subject to a permit issued by a Federal agency, such as a CWA Section 404 permit, meets all State water quality standards. States and certain tribal governments, depending on the location and type of a permitted activity, are responsible for reviewing activities and certifying projects under Section 401 of the CWA. A water quality certification is required in order to receive a Section 404 Individual Permit or when a project qualifies for a Section 404 General Permit, even if the activity does not need to be reported to the USACE.

The NPDES Permit Program regulates wastewater discharges from point sources. Point sources are discrete conveyances such as pipes or man-made ditches. Industrial, municipal, and other facilities must obtain a permit for discharges that flow directly to surface waters. Construction activities that exceed an EPA-designated size typically require a permit. Construction site operators often must prepare a Stormwater Pollution Prevention Plan to obtain coverage under a construction NPDES permit for construction-related stormwater discharges. Construction activity that includes routine maintenance is generally excluded from requiring a permit. NPDES permits are authorized by the States, EPA, or certain tribal governments, depending on the location and type of a permitted activity.

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 States and the Native American tribes are also required to develop Total Maximum Daily Loads (TMDLs) for the water bodies with the goal to reduce pollution and meet water quality standards. TMDLs are implemented through the NPDES permitting system.

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401 et seq.) requires authorization from the USACE for the construction of any structure in, over, or under any navigable water of the U.S., the excavation/dredging or deposition of material in these waters, or any obstruction or alteration in a navigable water. Structure or work outside the limits defined for navigable WOUS requires a Section 10 permit if the structure or work affects the course, location, condition, or capacity of the water body. Section 10 and CWA Section 404 overlap in some activities involving wetlands. Permits for activities regulated under both are processed simultaneously by the USACE.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 preserves selected rivers in a free-flowing condition and protects their local environments. These rivers possess outstanding scenic, recreation, geologic, fish and wildlife, historic, or cultural values. Though subject to change, rivers protected

under this act can be found at www.rivers.gov. Three types of wild and scenic designations exist under this Act, depending on a river's characteristics:

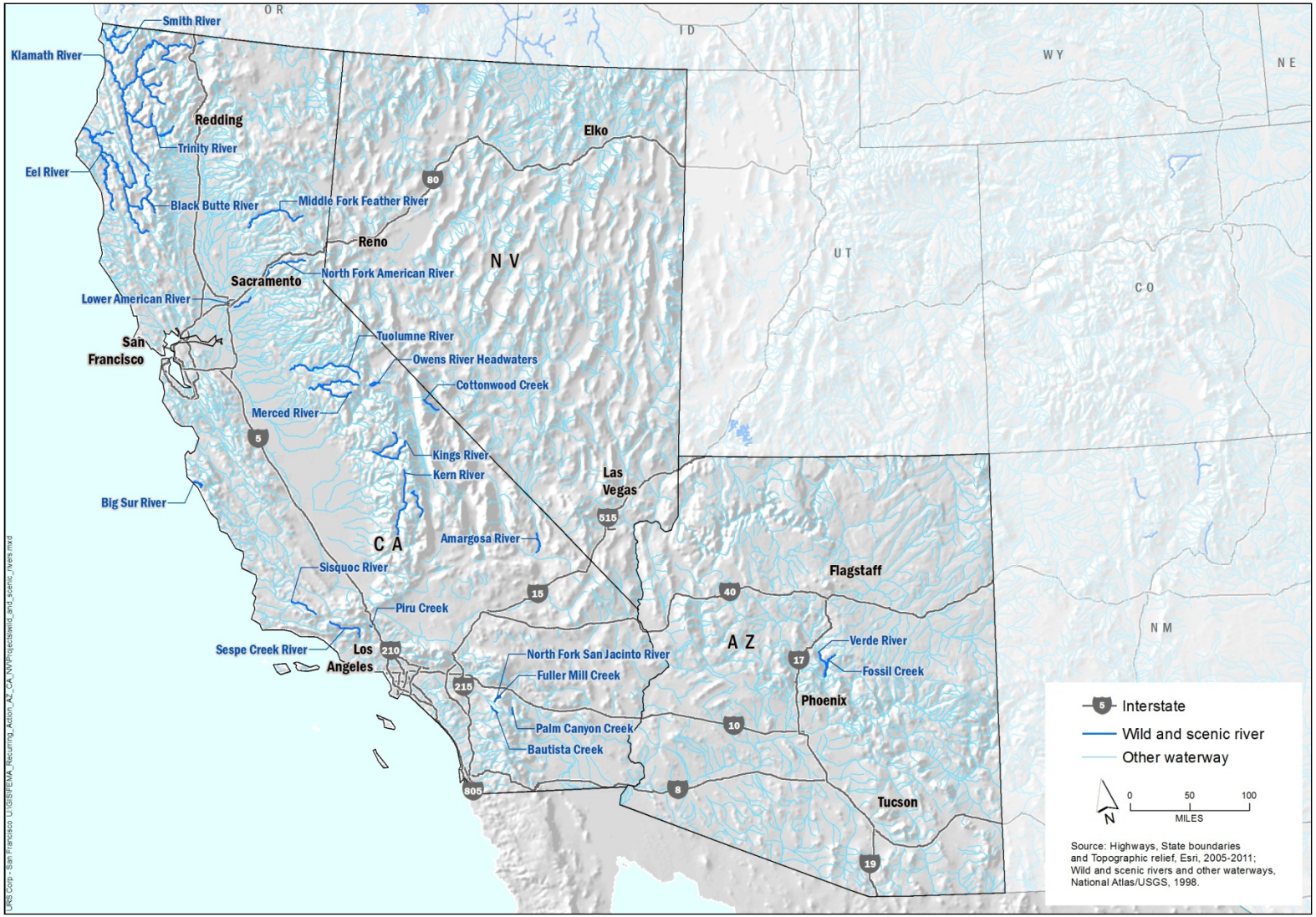
- Wild–undeveloped, generally inaccessible except by trail, with essentially primitive watersheds or shorelines and unpolluted waters
- Scenic–undeveloped, occasionally accessible by road, with shorelines or watersheds largely undeveloped
- Recreational–some development, readily accessible by road or railroad, with some impoundment or diversion in the past

The Wild and Scenic Rivers Act prohibits Federal agencies from assisting in the construction of a project that would have a direct and adverse effect on a designated river or congressionally authorized Study River. The law also regulates projects below, above, or on a stream tributary to a designated river or study river. A designated river or study river is managed by a river-administering agency, consisting of the Bureau of Land Management (BLM), National Park Service (NPS), USFWS, or U.S. Forest Service (USFS), depending on the river reach. FEMA, as a lead Federal agency, is responsible to include an analysis of any effects of a project on a designated river or study river, and the river-administering agency is responsible for making a formal determination under Section 7 of the Wild and Scenic Rivers Act of the effects of the proposed action on the values of the river that establishes its designation or potential designation. Figure 3.4 shows the designated Wild and Scenic Rivers in Arizona, California, and Nevada.

Coastal Zone Management Act

Congress enacted the Coastal Zone Management Act in 1972, last amended in 2004, and the Coastal Zone Act Reauthorization Amendments of 1990, to regulate development of the nation's coastal resources. These acts apply to all activities that are located within a designated coastal zone. The Act (15 CFR §930) requires all Federal agencies to ensure that any activities taken directly, funded, or permitted by the agency with the potential to affect any coastal use or resource are consistent with approved coastal zone management programs.

Figure 3.4 Designated Wild and Scenic Rivers in Arizona, California, and Nevada



3.4.1.2 Coastal Zone

There are no coastal zones in Arizona and Nevada.

The Federal government certified the California Coastal Management Program (CCMP) in 1977. The enforceable policies of that document are Chapter 3 of the California Coastal Act of 1976. Under California's federally-approved CCMP, the California Coastal Commission manages development along the California coast except for San Francisco Bay, where the San Francisco Bay Conservation and Development Commission oversees development. Local Coastal Programs are planning tools used by local governments to guide development in the coastal zone, in partnership with the Coastal Commission. These programs contain the ground rules for future development and protection of coastal resources in the 76 coastal cities and counties in California.

For Federal consistency, the California Coastal Commission is the reviewing agency in all coastal areas of the State of California except the San Francisco Bay area. In the San Francisco Bay area, the San Francisco Bay Conservation and Development Commission is the federally designated State coastal management agency. Federal activities, such as development projects, grants, permits and licenses, and support to State and local governments must be reviewed for consistency with the CCMP objectives.

Executive Order 11988: Floodplain Management

EO 11988 requires Federal agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands and to provide opportunity for early public review of proposals involving new construction in the floodplain. The term floodplain generally refers to the 100-year floodplain, which designates the area subject to inundation from a flood having a 1 percent chance of occurring in a given year. This flood is also referred to as the "base flood" and may occur more or less often than once every 100 years. In circumstances known as "critical activities," the regulated flood-prone area is defined by the 500-year floodplain, which designates the area subject to inundation from a flood having a 0.2 percent chance of occurring in a given year.

FEMA has produced a nationwide system of Flood Insurance Rate Maps (FIRMs) that document flood hazards for communities that participate in NFIP. The NFIP and its implementing regulations (44 CFR §§59 - 78) stipulate minimum standards for floodplain development in communities that participate in the program. Local governments incorporate these standards, or in some cases, more stringent standards, into their floodplain management ordinances. In addition to showing the locations of the 100-year and 500-year floodplains, many FIRMs show the base flood elevation, which is the estimated water-surface elevation during the 100-year flood. In addition to showing the 100- and 500-year floodplains, FIRMs may also show the following:

- Floodway – The channel of a river or other watercourse and adjacent land areas that are required to remain free from development to discharge the base flood without cumulatively increasing the water-surface elevation.

- Coastal high-hazard area – An area subject to flooding accompanied by the additional hazards associated with wave action. The minimum construction standards of the NFIP are more restrictive in these areas.

EO 11988 requires Federal agencies to take action to minimize occupancy and modification of floodplains. Furthermore, EO 11988 requires that Federal agencies proposing to site an action in a 100-year floodplain must consider alternatives to avoid adverse effects and incompatible development in the floodplain. In accordance with 44 CFR §9, critical activities, such as developing hazardous waste facilities, hospitals, or utility plants, must be undertaken outside of a 500-year floodplain. If no practicable alternatives exist to siting an action in the floodplain, the action must be designed to minimize potential harm to or within the floodplain. Furthermore, a notice must be publicly circulated explaining the action and the reasons for siting it in the floodplain. When evaluating activities in the floodplain, FEMA applies the decision process described in 44 CFR §9, referred to as the Eight-Step Process, to ensure that its activities are consistent with EO 11988. By its nature, the NEPA compliance process involves the same basic decision making process as the Eight-Step Process.

Executive Order 11990: Protection of Wetlands

Similar to EO 11988, EO 11990 requires Federal agencies to follow avoidance, mitigation, and preservation procedures, with public input, before proposing new construction in wetlands. The implementation of EO 11990 is described in 44 CFR §9. The Eight-Step Process is also used to evaluate the potential effects of an action on wetlands. As discussed in the CWA subsection above, formal legal protection of jurisdictional wetlands is promulgated through Section 404 of the CWA. A permit from the USACE may be required if an action has the potential to affect wetlands.

Safe Drinking Water Act

The Safe Drinking Water Act of 1974 (42 U.S.C. §300f *et seq*.) (SDWA) was established to protect public health and prescribe requirements for State programs to implement the public water supply supervisor program and underground injection control program. The EPA regulates this act. It authorized the EPA to designate sole-source aquifers, which 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 other feasible alternate source of drinking water is available. Once an aquifer is designated as sole-source, the SDWA allows the EPA to review proposed projects that are to receive Federal funds and gives the EPA the authority to evaluate if the project may have the potential to contaminate the aquifer. Federal agencies cannot provide financial assistance to a project if the EPA finds that it would create a significant hazard to public health by contaminating a designated sole-source aquifer.

3.4.1.3 Native American Tribal, State, and Local Laws and Regulations

Native American tribes, States, counties, cities, and other local agencies have developed laws, codes, and other regulations that govern water resources. Generally, these regulations are specific to the environment of the region they regulate and are typically stricter than similar Federal regulations. These regulations are applicable only within the jurisdiction of the specific regulatory agencies.

3.4.2 Water Resources

3.4.2.1 Surface Water

The U.S. Geological Survey (USGS) defines Arizona, California, and Nevada to be generally composed of three hydrologic units, the Lower Colorado, the Great Basin, and California. The Lower Colorado hydrologic unit is defined as the area that drains into the Colorado River Basin below the confluence of the Colorado River and the Paria River and streams that drain into the Gulf of California. Most of Arizona and a small portion of southeast California are in this hydrologic unit. The Great Basin hydrologic unit is defined as the area that discharges into the states of Utah and Nevada and includes a portion of eastern California and most of Nevada. The Great Basin does not drain into the ocean. The California hydrologic unit includes all water bodies in California that ultimately discharge into the Pacific Ocean and parts of the Great Basin that drain into California (USGS 2013). Additional details about surface water can be obtained from the following USGS Water Resources of the United States website: http://water.usgs.gov/GIS/regions.html.

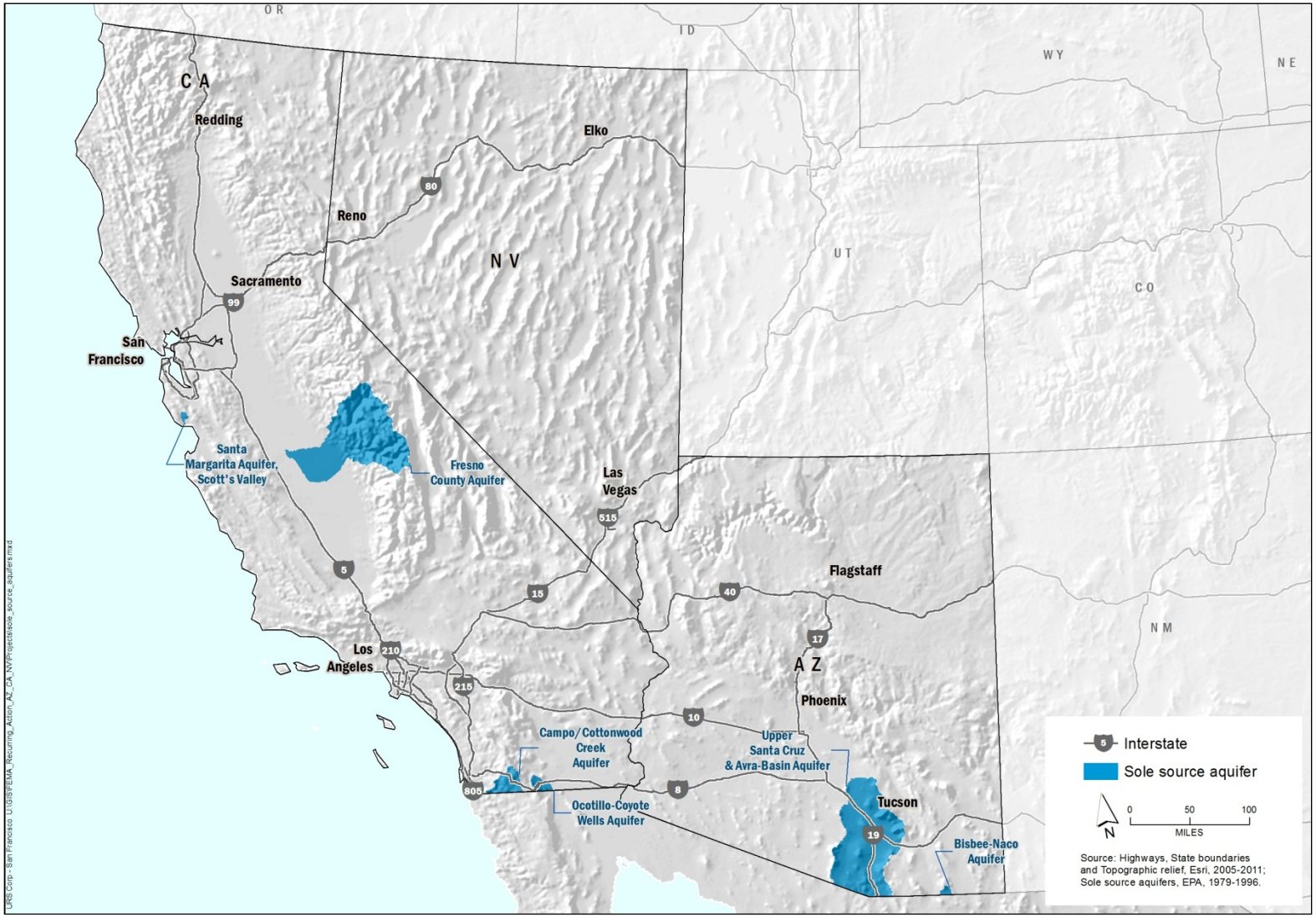
3.4.2.2 Groundwater Basins

A groundwater basin is defined as an area underlain by permeable materials capable of furnishing a substantial supply of groundwater to wells or storing a substantial amount of water. A groundwater basin is three-dimensional and includes both the surface extent and all of the subsurface freshwater-yielding material. However, available data only permit two-dimensional delineations of groundwater basins.

Groundwater basins are delineated and separated from each other by physical features (e.g. geologic features) and human-created conditions (e.g. court ordered established boundaries). The USGS maintains data about groundwater for Arizona, California, and Nevada on its National Water Information System website at: http://waterdata.usgs.gov/nwis/gw. Additionally, each state maintains its own specific groundwater information. Information is available from the Arizona Department of Water Resources, California Department of Water Resources, and Nevada Division of Water Resources.

As of 2013, there are two EPA-designated sole-source aquifers in Arizona, four in California, and none in Nevada. Information pertaining to sole-source aquifers can be found on the EPA's subject webpage, http://www.epa.gov/region9/water/groundwater/ssa.html. Figure 3.5 shows the EPA-designated sole-source aquifers in Arizona, California, and Nevada.

Figure 3.5 EPA Designated Sole-Source Aquifers in Arizona, California, and Nevada



3.5 BIOLOGICAL RESOURCES

This section presents a general description of resources, including endangered or threatened species and their habitats, wildlife, wetlands, and other key biological resources.

3.5.1 Regulatory Background

3.5.1.1 Federal Laws and Regulations

Federal Endangered Species Act

The ESA defines "endangered" species as those in danger of extinction throughout all or a substantial portion of their range. A "threatened" species is any species that is likely to become an endangered species within the foreseeable future throughout all or a substantial portion of its range. "Candidate species" are those for which the USFWS and NMFS have enough information on file to propose listing as endangered or threatened and are protected through a Candidate Conservation Program until they are formally listed as threatened or endangered. A "delisted" species is one whose population has met its recovery goal target and is no longer found to be in jeopardy of extinction. As part of the ESA, USFWS or NMFS must consider whether there are areas of habitat essential to the species' conservation and recovery. Those areas may be proposed for designation as "critical habitat." Designated critical habitat areas are based on the life history needs of the species and focus on areas that require special management and protection.

Section 7 of the ESA requires that Federal agencies shall in consultation with the USFWS and/or NMFS insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species.

"Take" of a federally listed species is prohibited under Section 9 of the ESA. "Take" is defined in ESA Section 3(19) as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." A Federal action which could result in an "incidental take" of a listed species, or destroy or adversely modify designated critical habitat, requires consultation between the Federal lead agency and the USFWS or NMFS in accordance with Section 7 of the ESA and authorization of the incidental take from the USFWS or NMFS. The USFWS and NMFS administer the ESA and issue a final opinion determining whether the federally listed species would be adversely affected, or designated critical habitat adversely destroyed or modified, by the action. In addition, the Federal lead agency is responsible for developing conservation measures to minimize or compensate project effects to federally listed species and/or designated critical habitat. FEMA, when acting as a Federal lead agency, would be responsible for preparing a biological assessment to initiate formal or informal consultation with the USFWS and/or NMFS, to evaluate the potential adverse effects to a federally listed species and/or designated critical habitat, and develop conservation measures where appropriate.

As mentioned in Section 1.8.3 of this PEA, FEMA is in the process of completing a programmatic consultation with the USFWS for future activities throughout Arizona, California, and Nevada and a programmatic consultation with NMFS for future activities in California. These programmatic consultations will establish a framework for FEMA to comply with Section 7 requirements for PEA-covered activities where species or critical habitat is involved.

A MOU is in the process of being completed between FEMA and the USACE, for the environmental review of applicable projects dependent on CWA Section 404 and Rivers and Harbors Act Section 10 permitting requirements, as administered by USACE. The MOU would include the framework for determining the lead Federal agency for environmental review and procedures and requirements for ESA compliance for projects that involve USACE permits. See Section 1.8.3 for details regarding this MOU.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–711) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR §10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR §21). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandoning eggs or young) may be considered a take and is potentially punishable by fines and/or imprisonment. If an action is determined to cause a potential take, as described above, of migratory birds, then a consultation process with the USFWS needs to be initiated to determine measures to minimize or avoid these impacts.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act of 1934, last amended in 1958, was enacted to protect fish and wildlife for federal activities that result in the control or modification of a natural stream or body of water. The statute requires Federal agencies to take into consideration the effect that water-related projects would have on fish and wildlife resources, take activities to prevent loss or damage to these resources, and provide for the development and improvement of these resources. For an action resulting in the control or modification of a body of water, the Federal agency must consult with the USFWS or NMFS (as appropriate) to develop measures to mitigate action-related losses of fish and wildlife resources. These measures need to be included in public documentation for the action, and where possible, the Federal lead agency must incorporate the measures in the plans for the action.

Magnuson-Stevens Fisheries Act

The Magnuson-Stevens Fishery Conservation and Management Act, last amended with the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, also known as the Sustainable Fisheries Act (Public Law [PL] 104-297), require all Federal agencies to consult with the NMFS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH). If the Federal agency determines that the Federal action may adversely affect EFH, they must prepare an EFH Assessment (50 CFR §600.920(e)(1)). Guidelines for preparation of the assessment are available at 50 CFR §§600.05-600.930.

This regulation is only applicable in California because there are no EFH in Arizona or Nevada. The EFH provisions of the Sustainable Fisheries Act are designed to protect fisheries habitat from being lost due to disturbance and degradation.

There are several types of EFH in California such as coastal wetlands, river habitat, oyster ecosystems, and submerged aquatic vegetation. The locations of these different habitats can be found on the National Oceanic and Atmospheric Administration NMFS EFH mapper located at: www.habitat.noaa.gov/protection/efh/efhmapper/.

Marine Mammal Protection Act

Under the Marine Mammal Protection Act of 1972 (16 U.S.C. 1371), last amended in 2007, it is unlawful to take or import marine mammals and marine mammal products. Under Section 101(a)(5)(D) of the act, an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. This regulation is only applicable in California because marine mammals are not present in Arizona or Nevada. An incidental harassment permit covers activities that last for no more than one year and that would have a negligible impact on the impacted species. If an action has been determined to potentially harass marine mammals, a consultation process must be initiated with NMFS to obtain an incidental harassment permit.

Executive Order 13112: Invasive Species

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.

3.5.1.2 Native American Tribal, State, and Local Laws and Regulations

Native American tribes, States, counties, cities, and other local agencies have developed laws, codes, and other regulations that govern biological resources. These regulations are usually specific to the environment of the region they regulate and are sometimes stricter than comparable Federal regulations. These regulations are applicable within the jurisdiction of the specific regulatory agencies. For example, the Arizona Native Plant Law and the California Native Plant Protection Act protects rare plant species from collection and protects some species from overharvesting. Special permits are necessary from the respective state agencies to remove or collect plants protected under these regulations.

3.5.2 Biological Resources

The biological resources present in Arizona, California, and Nevada vary greatly due to physical characteristics, topography, climate, and distance to rivers and the ocean, among others. The majority of the area is arid or semi-arid, but areas proximal to the coast or higher in elevation receive more precipitation and exhibit a wide variety of ecotypes from temperate rain forest to alpine meadows and coniferous woodland. The gradation of conditions from arid to wetter areas has created a wide diversity of biological resources within this region. The general ecological regions that cover the majority of Arizona, California, and Nevada are described below, adapted from the USDA Ecoregions of the United States (USDA 2013). Although invasive species are present in each ecoregion, the presence and prevalence of invasive species in a particular project area varies dependent on site-specific characteristics.

The **Great Basin Desert** is a large basin with no water outlets to the oceans. The majority of Nevada and the eastern edge of northern California are within the Great Basin. This ecological region is arid or semi-arid, and dominated by pinion juniper woodland, sage scrub, and grassland

communities. The greater sage grouse (*Centrocercus urophasianus*) is a prominent special-status species that occurs in this ecological region.

The **Mojave and Sonoran Deserts** cover the interior portion of southern California, the southern tip of Nevada, and southern Arizona. This arid or semi-arid region experiences warmer winters than the Great Basin Desert. In this ecological region, cacti and yucca are prominent in the extensive desert scrub that dominates this region. Much of the Sonoran Desert drains into the Colorado River. The desert tortoise (*Gopherus agassizii*) is a prominent special-status species that occurs in this ecological region.

The **Colorado Plateau** covers the northern portion of Arizona and is dissected by the drainages of the Colorado River. This high-desert region is topographically diverse, with numerous canyons, escarpments, and other rock formations. Juniper woodland and desert scrub are dominant communities, and drainages with perennial waters support riparian and riverine communities that in-turn may support several special-status species.

The **Coastal California** ecological region includes a diversity of communities, depending on latitude, proximity to the coast, and prevalence of coastal fog. A Mediterranean climate is typical of this region. Interior valleys cut off from coastal influence, such as the Central Valley, are often hotter and drier. Typical communities found within this region include redwood forest, oak woodlands, coastal scrub, and annual grasslands. Overall, this ecological region supports many special-status plants and animals.

The **Western Ranges** ecological region includes the Sierra Nevada in California and several smaller, high elevation ranges in Arizona, California, and Nevada. In this discontinuous ecological region, the distribution of communities is dependent on elevation, and includes oak woodland, conifer forest, and alpine meadows. Some of these ranges support special-status species that are endemic to small, isolated areas.

3.6 HISTORIC PROPERTIES AND ARCHAEOLOGICAL RESOURCES

Historic properties include archaeological and historical objects, sites, and districts; historic buildings and structures; cultural landscapes; and sites and resources of concern to local Native Americans and other ethnic groups.

3.6.1 Regulatory Background

3.6.1.1 Federal Laws and Regulations

National Historic Preservation Act, as amended

The NHPA declares Federal policy to protect historic sites and values in cooperation with other nations, states, and local governments. Subsequent amendments designated the SHPO as the individual responsible for administering State-level programs. The act also created the Advisory Council on Historic Preservation (ACHP). Section 106 of the NHPA and implementing regulations (36 CFR §800) outline the procedures to be followed in the documentation, evaluation, and mitigation of effects on historic properties. A THPO acts as the official representative responsible for carrying out Section 106 responsibilities, instead of the SHPO, when the Federal undertaking is on tribal lands. The Section 106 process applies to any Federal undertaking that has the potential to affect properties that are listed in or eligible for listing in the NRHP. The Section 106 process includes identifying historic properties potentially affected by an undertaking and avoiding, minimizing, or mitigating adverse effects on historic properties.

As mentioned in Section 1.8.3 of this PEA, FEMA has executed PAs with the California and Nevada SHPOs to streamline the Section 106 review process. Copies of the PAs are provided in Appendix B. FEMA is in the process of preparing an updated PA with the SHPO. FEMA has not executed PAs with any Native American tribes in Arizona, California, and Nevada.

The four steps of the Section 106 compliance process are as follows:

1. **Initiate the Section 106 Process.** FEMA in consultation with the SHPO/THPO determines and documents whether an undertaking exists, engages the appropriate SHPO or THPO, identifies potential consulting parties, and develops an appropriate plan for public involvement.
2. **Identify historic properties.** FEMA in consultation with the SHPO/THPO determines and documents the Area of Potential Effects (APE) for the undertaking and review existing information on historic properties within the APE. FEMA gathers information from the SHPO/THPO, Indian tribes, consulting parties, and other individuals or organizations likely to have knowledge of historic properties in the area, and identifies issues relating to the undertaking's potential effects on historic properties. This step also involves FEMA making a determination of whether a property is eligible for listing on the NRHP. FEMA also consults with the SHPO/THPO to for concurrence of the APE, information gathering process, and eligibility determinations.
3. **Assess adverse effects of undertaking on historic properties.** If FEMA determines that no historic properties are affected by the undertaking or that there would be no adverse effect to historic properties, FEMA must seek the concurrence of the SHPO/THPO. In addition, FEMA is required to notify other consulting parties and invite their views on the

effects and assessment of adverse effects in accordance with 36 CFR §800.5. If no concurrence on finding of adverse effects is reached, FEMA must notify the ACHP to determine their participation in the consultation process. If FEMA and the SHPO/THPO concur, the compliance process ends at this step. However, if FEMA determines that the undertaking may adversely affect historic properties, they must notify the SHPO/THPO, the ACHP, and any other consulting parties through a letter and supporting documentation.

4. **Resolve adverse effects to historic properties.** FEMA must resolve adverse effects by seeking ways to avoid, minimize, or mitigate the undertaking's adverse effect through consultation with the SHPO/THPO, and other identified consulting parties, including the applicant and subapplicant, and ACHP, if participating. If avoiding or minimizing the adverse effect through re-design or other alternative means is not possible, FEMA, the SHPO/THPO, the applicant and subapplicant, and other consulting parties may enter into a Memorandum of Agreement that outlines appropriate measures to avoid, minimize, or mitigate the adverse effect(s) to historic properties. In cases where FEMA and the other consulting parties fail to agree on appropriate measures to treat the adverse effect(s), FEMA or the other consulting parties may decide to terminate consultation, in which case the ACHP issues comments. FEMA must take these comments into consideration before notifying ACHP of its final decision, after which the project may proceed. The PA that FEMA has executed in Nevada expedites the Section 106 compliance process. Some of the more pertinent streamlining components include a reduction in the time period for the SHPO's to respond to FEMA's request for consultation and a list of Programmatic Allowances. The Programmatic Allowances are a list of FEMA programs and activities that FEMA may fund that not require review by the SHPO or ACHP.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act (42 U.S.C. 1996 et seq.), regulated under 43 CFR §7, was established to protect religious practices, ethnic heritage sites, and land uses of Native Americans. The act makes it a policy to protect and preserve for Native Americans, Eskimos, Aleuts, and Native Hawaiians their inherent right to believe, express, and exercise their traditional religions. The act allows them access to sites, use and possession of sacred objects, and freedom to worship through ceremonial and traditional rights. It further directs Federal departments, agencies, and other instrumentalities responsible for administering relevant laws to evaluate their policies and procedures in consultation with Native American traditional religious leaders to determine changes necessary to protect and preserve Native American cultural and religious practices.

3.6.1.2 Native American Tribal, State, and Local Laws and Regulations

Native American tribes, States, counties, cities, and other local agencies have developed laws, codes, and other regulations that govern historic properties, such as the Arizona Antiquities Act. These regulations are specific to the environment of the region they regulate and are sometimes stricter than comparable Federal regulations. These regulations are applicable only within the jurisdiction of the specific regulatory agencies.

3.6.2 Historic Properties

The NRHP was established by the NHPA in 1966. It is the Nation's official listing of prehistoric and historic properties worthy of preservation. It affords recognition and protection for districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. This significance can be at the local, state, or national level. The National Register serves both as a planning tool and as a means of identifying buildings, sites, and districts that are of special significance to a community and worthy of preservation. There are numerous historic properties in Arizona, California, and Nevada that are listed on the NRHP, including approximately 1,498 in Arizona, 2,696 in California, and 435 in Nevada (NPS 2013).

In addition to the NRHP, properties can be designated as a National Historic Landmark (NHL). NHLs are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction. If a Federal action has the potential to affect an NHL, the Federal agency must consult with the Secretary of the Department of Interior in addition to the SHPO. There are 45 NHLs in Arizona, 144 in California, and 8 in Nevada. Appendix D includes a listing of the NHLs in Arizona, California, and Nevada.

3.7 SOCIOECONOMICS

Potential impacts to socioeconomic resources include changes to demographics, housing, employment, the local economy, and public safety. The general basis for socioeconomic considerations is data obtained from the U.S. Department of Commerce Bureau of the Census. Additional data obtained from State and local resources may also be used for socioeconomic considerations.

3.7.1 Regulatory Background

3.7.1.1 Federal Laws and Regulations

Executive Order 12898: Environmental Justice

EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires federal agencies to incorporate environmental justice as part of their missions (*Federal Register*, Volume 59, page 7629, February 16, 1994). Specifically, it directs them to address, as appropriate, any disproportionately high and adverse human health or environmental effects of their actions, programs, or policies on minority and low-income populations.

The EO also requires agencies to work to ensure effective public participation and access to information. Thus, within its NEPA process and through other appropriate mechanisms, each Federal agency must, "wherever practicable and appropriate, translate crucial public documents, notices and hearings, relating to human health or the environment for limited English speaking populations." In addition, each agency must work to "ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public."

Uniform Relocation Assistance and Real Property Acquisition Policies Act (URARPAPA, PL 91-646) and Title IV Uniform Relocation Act (U.S. Bureau of Reclamation)

These regulations provide uniform and equitable treatment of persons displaced from their homes, businesses, or farms by Federal or federally assisted programs. These regulations also establish uniform and equitable land acquisition policies for Federal and federally assisted programs. Agencies are required to reimburse for and provide relocation planning, assistance co-ordination, and advisory services to persons displaced by such programs.

3.7.1.2 Native American Tribal, State, and Local Laws and Regulations

Native American tribes, States, counties, cities, and other local agencies develop laws, codes, and other regulations that govern socioeconomics and public safety. These regulations are usually specific to the environment of the region they regulate and are sometimes stricter than comparable federal regulations. These regulations are applicable only within the jurisdiction of the specific regulatory agencies.

3.7.2 Socioeconomic Conditions

The U.S. Department of Commerce Bureau of the Census provides much of the relevant data on demographics and housing. Census data are provided by the political subdivisions of the country, that is by states, counties, and cities. In addition, census data can also be provided by statistical subdivision that include (in order of decreasing size) tracts, block numbering areas, block groups, and blocks. These statistical subdivisions of counties are delineated to be homogeneous with respect to demographics, economic status, and living conditions. Most local governments also have basic demographic, economic, and employment data based on political subdivisions. The EPA has created an interactive and map-based website to allow easy access to socioeconomic data that can be reviewed over a broad area or a site-specific locale. This website is located at: http://nepassisttool.epa.gov/nepassist/entry.aspx.

3.8 LAND USE AND PLANNING

This resource category evaluates land uses and zoning designations in areas where an action would take place. Proposed alternatives can contradict or be consistent with designated uses. Impacts can occur if changes to real and designated use areas are necessary to implement an alternative, or if implementation results in an imbalanced land use. This resource category also evaluates the issue of land ownership.

3.8.1 Regulatory Background

All levels of government regulate land use, the existing function of real property. The Federal government regulates land use through regulation. However, local authorities implement the majority of land use control and zoning.

3.8.1.1 Federal Laws and Regulations

Local jurisdictions regulate land use through their general plans, which provide goals and policies to guide current and long-term development within their communities. In addition, a number of federal laws and regulations specific to environmental resource topics, such as the Farmland Protection Policy Act and Coastal Zone Management Act, impose regulations on land use. These laws and regulations are described in other sections of this document, where applicable to a specific resource topic.

In order for a subapplicant to receive certain types of Hazard Mitigation Assistance Grant Program funding, such as Pre-Disaster Mitigation Program funding, the subapplicant must have a FEMA-approved local hazard mitigation plan. A hazard mitigation plan identifies policies and activities that can be implemented over the long-term to reduce risk and future losses. These plans create a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters, and they serve as the long-term strategy for communities to reduce disaster losses.

3.8.1.2 Native American Tribal, State, and Local Laws and Regulations

Regulations in Arizona, California, and Nevada require that local municipalities prepare general plans. The general plan is the primary planning document that establishes goals and policies to regulate the development, function, and use of land within the jurisdictional boundaries of each city or county. General plan policies and county or city zoning ordinances define permissible land uses within each designated land use area or zone. These policies and ordinances prohibit development that is inconsistent with land uses in a given zone. Compliance with zoning ordinances is normally enforced by local governments as part of the building permit process. Under most zoning ordinances, land uses that are compatible with a land use designation require a simplified land use permitting process. There are also typically established processes to change land use or zoning designations.

There are numerous tribal lands and tribal governments in Arizona, California, and Nevada (Figure 3.6). Many of the tribal governments have developed general land use plans as well as integrated resource management plans for their tribal lands.

Figure 3.6 Tribal Lands

3.8.2 Land Uses

In general, land uses include areas that are rural and areas that are urbanized (Figure 3.7). Rural areas in Arizona, California, and Nevada are characterized by large expanses of public lands (e.g., lands administered by the BLM, USFS), tribal lands, farmlands, and small towns. Typical land uses in these areas include forestry, agriculture, recreation, renewable energy facilities (e.g., geothermal, solar, and wind farms), and open space.

Some of the metropolitan statistical areas (MSAs) in Arizona, California, and Nevada are listed in Table 3.1. MSAs are typically large urban areas. The U.S. OMB defines a MSA as a core based statistical area having at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration.

Table 3.1 Metropolitan Statistical Areas in Arizona, California, and Nevada

Metropolitan Statistical Areas	2010 Population
Phoenix-Mesa-Scottsdale	4,192,887
Tucson	1,027,683
Los Angeles-Long Beach-Santa Ana	12,944,801
San Francisco-Oakland-Fremont	4,391,037
Riverside-San Bernardino-Ontario	4,304,997
San Diego-Carlsbad-San Marcos	3,140,069
Sacramento-Arden Arcade-Roseville	2,158,910
San Jose-Sunnyvale-Santa Clara	1,885,450
Las Vegas-Paradise	1,951,269

Source: Census 2013

Figure 3.7 Land Use in Arizona, California, and Nevada

3.9 PUBLIC SERVICES AND RECREATION

3.9.1 Regulatory Background

3.9.1.1 Federal Laws and Regulations

Land and Water Conservation Fund Act, Section 6(f)

The Land and Water Conservation Fund Act (LWCF Act) of 1965 as amended, 16 U.S.C. Sections 4601-4 et seq., commonly known as Section 6(f), allows the Secretary of Interior, acting through the Director of the NPS, to establish a land and water conservation fund. The fund provides money to Federal agencies, states, or a state's designee for purchasing land and developing outdoor recreational facilities for the public. The LWCF Act requires that lands acquired or developed with LWCF Act assistance must be maintained in public outdoor recreation use, or suitably replaced. The LWCF Act restricts the conversion of parklands and open space that were acquired or improved with Federal funds through the LWCF Act. Once a city, county, or agency has used Section 6(f) for funds, either the land or the park appurtenances cannot be eliminated or acquired without coordination with the NPS and implementation of mitigation that replaces the eliminated items. The mitigation must be at least at a ratio of 1:1, for both quality and quantity.

National Trails System Act

The National Trails System Act, P.L. 90-543, became law October 2, 1968. The Act and its subsequent amendments authorized a national system of trails and defined four categories of national trails. Since the designation of the Appalachian and Pacific Crest National Scenic Trails as the first two components, the system has grown to include 20 national trails. Now, 30 years after its inception, issues remain regarding funding, quality and quantity of trails, new trail categories, and nationwide promotion to make Americans more aware of this system. The National Trails System includes four classes of trails:

- National Scenic Trails provide outdoor recreation and the conservation and enjoyment of significant scenic, historic, natural, or cultural qualities;
- National Historic Trails follow travel routes of national historic significance;
- National Recreation Trails are in, or reasonably accessible to, urban areas on federal, state, or private lands; and
- Connecting or Side Trails provide access to or among the other classes of trails.

3.9.2 Public Services and Recreation

Public services include fire protection, police protection, public schools, parks, and other services at public facilities. Guidelines and statutes regarding public services and recreation are generally found at the local level. Local jurisdictions frequently establish building codes and other construction standards and prescribe requirements for local police and fire protection. Local planning agencies may establish goals or ordinances for parks or maintaining open space. Although the State and the Federal government constrain aspects of school policy decision making, local school boards determine school operations.

Public utilities infrastructure includes surface water and groundwater extraction, storage, treatment, and distribution; electric utility generation and transmission; communication transmission; and natural gas extraction, storage, and distribution. Some of the infrastructure and facilities related to public utilities are privately owned and their owners cannot receive funding from FEMA related to this infrastructure; while others are publicly owned by agencies like municipal utility districts and may receive FEMA funding.

Properties acquired and/or improved with 6(f) funds are present in Arizona, California, and Nevada. In Arizona, 728 LWCF grants have been awarded, which account for 4,256 acres of land. Jurisdictions in California have received 1,544 LWCF grants, which account for over 211,000 acres of land. In Nevada 325 LWCF grants have been awarded, which represent approximately 17,300 acres of land.

3.10 TRANSPORTATION

3.10.1 Regulatory Background

Arizona, California, and Nevada have state transportation agencies and commissions that are responsible for programming and allocating funds for the construction of highway, passenger rail, and transit improvements and that participate in the initiation and development of State and Federal legislation that seeks to secure financial stability for the states' transportation needs. The transportation planning agencies of local governments and regional authorities are responsible for the design, construction, and maintenance of county and local transportation systems.

Some, but not all, Native American tribal governments have their own transportation agencies and commissions, which are responsible for the design, construction, and maintenance of transportation infrastructure on tribe-owned property.

The Bureau of Indian Affairs (BIA), Division of Transportation also provides management and oversight of the road maintenance and road construction programs on tribal lands. Transportation-related program activities are provided to tribes directly and through contracts, grants, compacts and other appropriate agreements. Such activities include:

- Operation and Maintenance of BIA roads;
- Tribal Transportation Program (TTP); and
- Programs administered through the Federal Highway Administration that are specifically related to TTPs.

In addition, the Indian Reservation Roads (IRR) Program addresses the transportation needs of tribes by providing funds for planning, designing, construction, and maintenance activities for all public roads. The program is jointly administered by the Federal Highway Administration's Federal Lands Highway Office and the BIA, division of Transportation, in accordance with an interagency agreement. The authorizing legislation is the Highway Administration Act (23 U.S.C. and 25 CFR §170).

The IRRs are public roads that provide access to and within Indian reservations, Indian trust land, restricted Indian land, and Alaska native villages. Approximately 29,000 miles are under the jurisdiction of BIA and tribes, and another 73,000 miles are under State and local ownership. The IRR program funds can be used for any type Title 23 transportation project providing access to or within Federal or Indian lands and may be used for the State/local matching share for apportioned Federal-aid Highway Funds

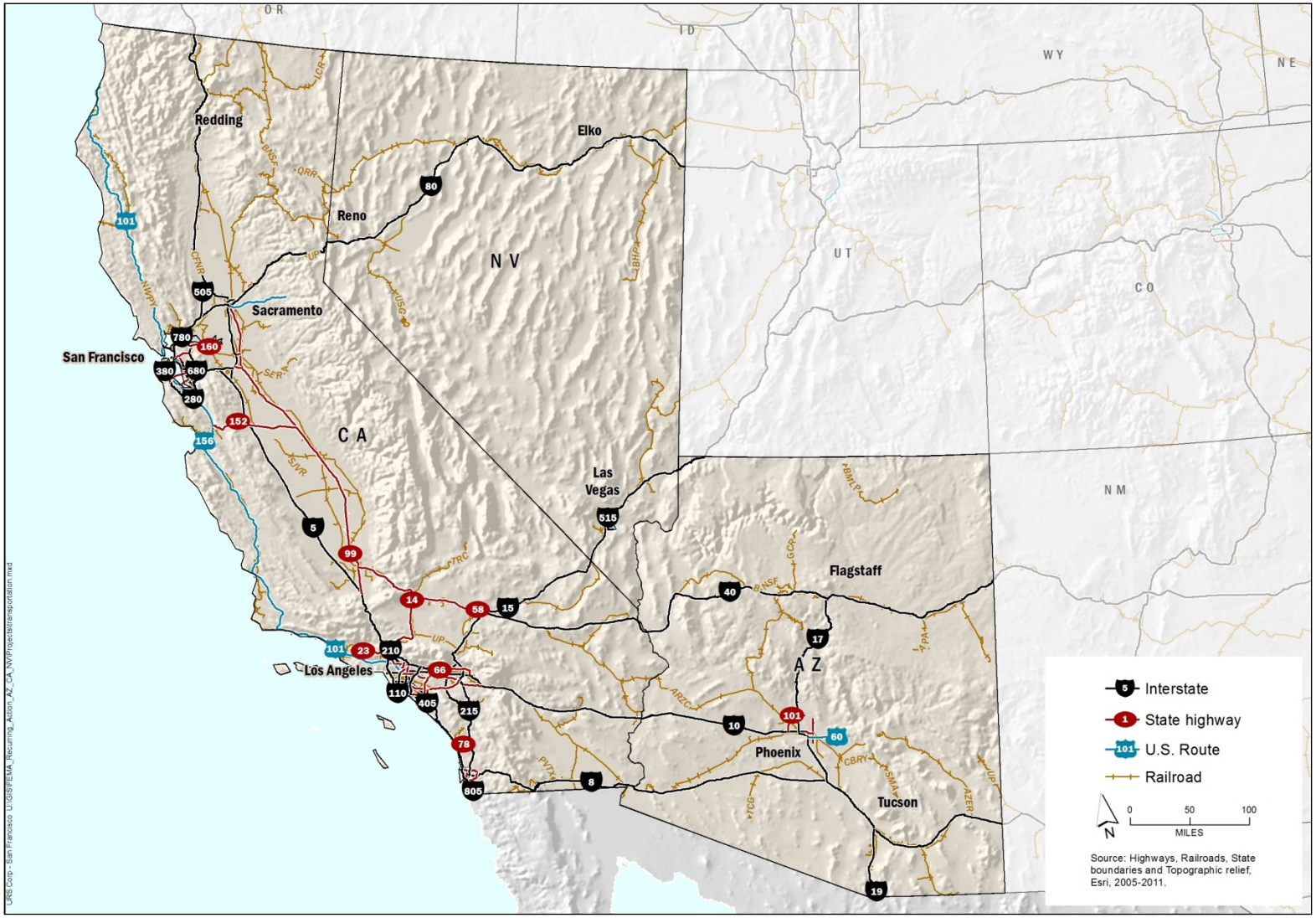
On State and Federal roadways, permission is typically needed from the State or Federal administering agency for work to be conducted in the roadway right-of-way, changes to interstate access, or for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles. Native American tribes and local authorities often have their own rules and regulations for local roads.

There are both privately and publicly owned and operated passenger rail lines in Arizona, California, and Nevada. Freight rail lines are privately owned. Working within a rail line right-of-way typically requires the approval of the rail line owner.

3.10.2 Transportation

Safe and effective transportation is vital to the three-state region and to the regional economy. Work commutes, shipping and distribution, and routine daily tasks rely on a dependable and safe transportation system. There are major transportation hubs in Phoenix, Flagstaff, and Tucson in Arizona; San Francisco Bay Area and the South Coast (Los Angeles to San Diego) in California; and Las Vegas in Nevada. Figure 3.8 shows the major highway and rail transportation routes in the three states.

Figure 3.8 Major Highway and Rail Transportation Routes



3.11 NOISE

Commonly defined as unwanted and/or unwelcome sound, noise could be associated with activities that are part of this PEA. Sound is most commonly measured in decibels on the A-weighted scale (a scale based on the range of sounds that the human ear can hear) and expressed as dBA. The day-night averaged sound level (DNL or L_{dn}) is an average measure of sound for a 24-hour period expressed in dBA. It takes into account the volume of each sound incident, the number of times each incident occurs, and the time of day each incident occurs (nighttime sound being weighted more heavily because it is assumed to be more annoying to the community). Federal agencies accept the DNL descriptor as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

3.11.1 Regulatory Background

3.11.1.1 Federal Laws and Regulations

The Noise Control Act

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

The EPA 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 (EPA 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 EPA guideline recommends an L_{eq} of 70 dBA or less over a 40-year period.

Noise Emission Standards for Transportation Equipment

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR §205(b). The Federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline (Crocker 1997). Vehicle noise limits are implemented through regulatory controls on vehicle manufacturers.

Department of Housing and Urban Development (HUD) Standards

FEMA, along with many other Federal agencies, does not have its own standards for acceptable noise levels. Of the Federal agencies that do have standards for noise levels, HUD's standards are considered the most appropriate for residential use. HUD standards define L_{dn} below 65 dBA as acceptable for residential use (HUD 1985). Levels up to 75 dBA L_{dn} can be made acceptable through the use of insulation in buildings.

3.11.1.2 Native American Tribal, State, and Local Laws and Regulations

Native American tribes, States, counties, cities, and other local agencies have often developed laws, codes, and other regulations that govern noise. These regulations are usually specific to the environment of the region they regulate and are sometimes stricter than comparable Federal

regulations. These regulations are applicable only within the jurisdiction of the specific regulatory agencies.

Local jurisdictions employ regulatory noise standards that generally fall into two categories: noise control ordinances and noise/land use compatibility guidelines. Noise produced by non-transportation-related noise sources is usually regulated using ordinances that limit the amount of noise such sources may produce, as measured at the nearest sensitive receptor or at property lines. Standards in local noise ordinances may be in the form of quantitative noise performance levels, or they may simply be in the form of a qualitative prohibition against creating a nuisance. Many ordinances employ both approaches. Local ordinances typically specify daytime and nighttime limits of statistical noise levels for various land uses or zoning categories. Nighttime limits are usually lower than daytime limits, accounting for the lower ambient noise levels at night and people's increased sensitivity to nighttime noise.

Because local jurisdictions are preempted from regulating noise emissions from transportation noise sources such as cars, trucks, trains, airplanes, and ferries, such jurisdictions also typically implement noise controls through adoption and implementation of noise/land use compatibility guidelines. Noise/land use compatibility guidelines identify the range of noise levels with which various land uses are deemed compatible, which allows local jurisdictions to achieve noise/land use compatibility for the land uses exposed to noise, even if the noise sources themselves cannot be regulated. Also, when existing noise and land uses are not compatible, local jurisdictions might provide aid to local residents to protect them from extreme noise levels.

3.12 HAZARDOUS MATERIALS AND WASTES

Activities involving hazardous materials or generating hazardous wastes must be in compliance with applicable regulations. A proposed action would have an impact if it interferes with ongoing or planned remediation programs or if it introduces or contributes to existing contamination.

3.12.1 Regulatory Background

The terms hazardous material and hazardous waste are defined by both Federal and State regulations and often can encompass different materials, depending on which regulation is being referred to and which State a site is located in. For the purposes of this document, hazardous material is defined as any solid, liquid, or gas that when improperly handled or released would have acute or chronic effects on human health or the environment. Hazardous waste is defined as any solid, liquid, or gas that is a hazardous material and is discarded or is intended to be discarded.

3.12.1.1 Federal Laws and Regulations

Federal laws and subsequent regulations governing the assessment, transportation, and disposal of hazardous materials and wastes include the Resource Conservation and Recovery Act (RCRA); the RCRA Hazardous and Solid Waste Amendments; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Solid Waste Act; the Toxic Substances Control Act of 1976 (TSCA); the CAA. In addition, as described in Section 3.2 Air Quality and Section 3.3 Water Resources, laws and regulations such as NESHAP and the CWA also regulate hazardous materials and wastes.

Resource Conservation and Recovery Act

RCRA regulates hazardous waste from “cradle to grave,” that is, from the time the waste is generated through its management, storage, transportation, treatment, and final disposal. The EPA is responsible for implementing this law and may delegate its implementation responsibility to the States. Arizona, California, and Nevada have been delegated with this responsibility. RCRA also sets forth a framework for the management of nonhazardous wastes. The 1986 amendments to RCRA enable the EPA to address the environmental problems that can result from underground tanks storing petroleum and hazardous substances. RCRA focuses only on active and proposed facilities and does not address abandoned or historic sites.

Hazardous and Solid Waste Amendment

The Federal Hazardous and Solid Waste Amendments to RCRA require phasing out the land disposal of hazardous waste. Some of the other mandates of this law include increased enforcement authority for the EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank (UST) program.

Toxic Substances Control Act

Congress enacted the TSCA to give the EPA the ability to track the approximately 75,000 industrial chemicals currently produced or imported into the U.S. The EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. The EPA may ban the manufacture and import of those chemicals that pose an unreasonable risk. The EPA may also control these chemicals as necessary to protect

human health and the environment. TSCA supplements other federal statutes, including CAA and the Toxic Release Inventory under the Emergency Planning and Community-Right-to-Know Act. The TSCA also includes regulations for asbestos and polychlorinated biphenyls (PCBs).

Comprehensive Environmental Response Compensation and Liability Act and the Superfund Amendments and Reauthorization Act (SARA)

CERCLA and SARA are the Federal laws that govern the process of identifying and prioritizing the cleanup of abandoned or other sites not regulated under RCRA that have been contaminated by the release of hazardous materials to the environment. The process is conducted through the National Contingency Plan, which ranks sites and determines whether a site should be placed on the National Priority List. Sites on the list are commonly referred as Superfund sites. The EPA is responsible for enforcing CERCLA and SARA. The EPA was given power to seek out the parties responsible for any hazardous substance release and ensure their cooperation in the cleanup. Superfund site identification, monitoring, and response activities in States are coordinated through the State environmental protection or waste management agencies.

3.12.1.2 Native American Tribal, State, and Local Laws and Regulations

Native American tribes have been granted many of the powers created by the Federal regulations described above, and may have additional tribal laws and regulations that affect the management of hazardous material and wastes. In addition to the powers granted to the State by the Federal government, State and local laws and regulations affect the management of hazardous materials and wastes. State, local, and Native American tribal hazardous waste regulations are sometimes stricter than comparable Federal regulations. However, these regulations are applicable only within the jurisdiction of the specific regulatory agencies.

3.12.2 Hazardous Materials and Wastes and the Affected Environment

Hazardous materials and wastes are generally grouped into the following four categories based on their properties: toxic (causes human health effects); ignitable (has the ability to burn); corrosive (causes severe burns or damage to materials); and reactive (causes explosions or generates toxic gases). Although petroleum products are not considered a hazardous material under Federal regulations, they are often regulated as hazardous materials by State and local governments.

Hazardous materials and wastes may be part of the affected environment of FEMA's activities considered in this PEA. In general, activities that are foreseen to involve hazardous materials or wastes include:

- Demolishing or modifying facility components coated with leaded paint
- Demolishing or modifying of facility components that have asbestos containing materials
- Demolishing, acquiring, or modifying structures that contain fluorescent or high-intensity discharge lighting (PCBs and mercury)
- Acquiring or constructing on sites that contain hazardous materials or wastes
- Acquiring or constructing on sites containing USTs or ASTs
- Acquiring structures that contain leaded paint or asbestos

- Using equipment that utilizes hazardous materials such as petroleum, antifreeze, etc.
- Using herbicides

When appropriate, based on site-specific characteristics, an environmental site assessment is completed to determine if there is potential or existing hazardous materials contamination at a project site. Typically, the subapplicant completes this assessment because it is necessary for permitting or real estate transactions unrelated to FEMA's EHP review process.

Waste management regulations by EPA are codified at 40 CFR §§239–282; regulations for management of hazardous waste begin at 40 CFR §260. Nearly all developed areas in the continental U.S. 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 EPA.

3.13 VISUAL RESOURCES

Scenic values have historically not had the same level of policy recognition as other environmental values. However, a diverse set of Federal laws recognize scenic and aesthetic values, and courts nationwide have ruled favorably for aesthetic regulation. Several Federal laws contain some reference to scenic beauty or aesthetics.

3.13.1 Regulatory Background

3.13.1.1 Federal Laws and Regulations

While there is no overarching Federal law or regulation related to visual resources, several other Federal regulations address visual resources, such as 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. FEMA does not have its own guidance for assessing impacts to visual resources. Visual resource study 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 BLM (1986) and the *Visual Resource Assessment Procedures* developed by the USACE (1988).

3.13.1.2 Native American Tribal, State, and Local Laws and Regulations

State, local, and Native American tribal regulations may include laws that support or enforce scenic and aesthetic values.

3.13.1.3 Viewshed and Sensitivity

A viewshed is the surface area visible from a viewpoint or series of viewpoints. It is the portion of the landscape that would be potentially visually impacted by project activities. Often, the potential effects of an action are assessed from selected viewpoints within a viewshed to describe the visual change or contrasts that would result from the action. Viewpoints may be selected due to the sensitivity of a location or because they present a view that is representative of the landscape. Locations in Arizona, California, and Nevada that have been recognized for their scenic quality include designated scenic roads, wild and scenic rivers, and designated scenic viewpoints.

Visual sensitivity is a measure of people’s concern for scenic quality. It is a function of the type and number of viewers, activities of viewers, visual exposure of the action, and its distance from sensitive viewing locations.

This section describes direct and indirect impacts expected from proposed FEMA activities, alternatives, and associated maintenance; and prescribe environmental mitigation measures that would be implemented to limit adverse impacts. Cumulative impacts are assessed in Section 5.

As discussed in the introduction to Section 3, FEMA's proposed activities could occur anywhere in the states of Arizona, California, and Nevada. As such, the environmental impacts of each activity could vary depending on local conditions. Therefore, this PEA does not assess the site conditions or environmental impacts of any particular activity. Rather, the PEA focuses on the broad, programmatic impacts and regulatory implications of each of the project types assessed within the affected environments described in Section 3.

For each resource addressed the discussion provides information regarding the assessment of impacts from the No Action Alternative and from each project type assessed. This section's discussion of potential impacts focuses on direct and indirect impacts, and whether the impacts are significant. Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and are later in time or removed in distance, but are still reasonably foreseeable.

The environmental consequences are addressed for each resource in terms of the significance of potential impacts from the No Action Alternative and from each project type. For purposes of the impact assessment, the No Action Alternative assumes that disaster-damaged facilities would be repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. A determination of "significance" as defined by Section 1508.27 of the CEQ regulations requires consideration of both context (such as society as a whole [human, national], the affected region, the affected interests, and the locality) and intensity. Significance varies with the setting of the proposed action, and both short-term and long-term effects are relevant.

The first subsection under each resource area describes the impacts associated with the No Action Alternative. The second subsection under each resource area describes the impacts and prescribes environmental mitigation measures that would be expected to occur or be implemented for activities covered in this PEA. For some of the activities assessed in this PEA, the impacts and associated environmental mitigation measures will be very similar. These activities may be addressed in the same section. Typically, the impacts and environmental mitigation measures are associated with construction or other ground-disturbing activities. The third subsection describes the impacts and environmental mitigation measures associated with specific activities ("Consequences Attributable to Specific Activities"). The activities described in this subsection correspond to the major action types described in Section 2 (e.g., nonemergency debris removal; constructing, modifying, or relocating facilities).

Environmental mitigation measures are general construction practices that can be employed to reduce adverse effects associated with typical construction activities. Environmental mitigation measures would be employed during the implementation of activities described in this PEA to reduce the impacts of these activities. Based on its experience, FEMA can apply these environmental mitigation measures to reduce the impacts of activities in many resource areas, such as biological resources. These environmental mitigation measures are generally accepted by other resource agencies, such as the USFWS. A listing of typical environmental mitigation measures is included in Appendix C.

"Construction activities," as used in Section 4, refer to any action involving the repair, modification, demolition or reconstruction of existing human-made facilities, or the process of building new human-made facilities. Human-made facilities include buildings; roads; floodwalls; levees; bridges; culverts; water storage devices; water conveyance systems; human-modified waterways; coastal features; and railroad lines, utility lines, or other structures associated with electricity, communications, natural gas, domestic water, wastewater, or stormwater transport, generation, or processing. Relocating the function of an existing facility may involve construction activities, and if so, are included in this definition.

4.1 GEOLOGY, SEISMICITY, AND SOILS

4.1.1 No Action Alternative

Under the No Action alternative, construction activities would not be funded by FEMA. However, disaster-damaged facilities would likely be restored using other funding sources. Geology and soils would not be affected by construction activities, except for minor temporary impacts associated with restoration activities. FEMA would not fund activities to reduce or eliminate soil erosion from disturbed soils as a result of a natural or man-made disaster, stabilizing soils, or removing facilities that exacerbate erosion. Erosion and the resulting loss of soil would be increased in areas subject to future wildfires, high winds, floods, and rains, unless stabilized through other means.

FEMA would not fund seismic retrofitting of facilities and the vulnerability of structures to seismic shaking would not be reduced unless funded through other sources.

4.1.2 General Consequences of Proposed Activities

As a result of construction activities related to most of the proposed activities, area soils would be disturbed through excavation; heavy equipment use; demolition; site construction; vegetation removal; or similar activities. Soil loss would occur directly from ground disturbance or indirectly through wind or water erosion. The subapplicant would implement environmental mitigation measures, 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, to prevent soils from eroding and dispersing off-site. 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.

In some cases, ground-disturbing activities occurring on steep slopes could trigger landslides. To mitigate this potential, the subapplicant would review an area's landslide potential (for example, existing slopes greater than 45 percent, presence of hillside seeps, or historical slides) before implementing the ground-disturbing activities. The subapplicant would mitigate potential effects by appropriate siting of facilities and the use of proper geotechnical construction practices.

The potential exists for many activities to convert agricultural land to other uses, such as by constructing a new facility. For any action involving the conversion of important farmland, FEMA would prepare the appropriate sections of an AD-1006 Farmland Conversion Impact Rating Form for the action and would coordinate with the local NRCS representative to determine the overall impact of the conversion, to ensure compliance with the Farmland Protection Policy Act.

4.1.3 Consequences Attributable to Specific Activities

4.1.3.1 Nonemergency Debris Removal

Impacts and appropriate environmental mitigation measures related to geology, seismicity, and soils for this activity are the same as those discussed in Section 4.1.2.

4.1.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Upgrading or otherwise modifying structures
- Providing temporary facilities
- Constructing new facilities or relocating an existing facility

All other activities described in Section 2.3 are either not expected to impact geology, soils and seismicity; or their impacts and appropriate environmental mitigation measures related to geology, seismicity, and soils are the same as those discussed in Section 4.1.2.

To ensure FEMA's compliance with EO 12699, the subapplicant would be encouraged to implement a number of construction standards. For activities involving human-occupied structures, the subapplicant would review seismic hazard maps to evaluate the risk of earthquakes in the area where the action would be implemented. The subapplicant would also review local building codes and standards to determine seismic safety requirements. The subapplicant would conduct all building construction and modification in compliance with any appropriate county or city ordinances regarding geology or geologic resources. All new structures, such as equipment and storage buildings, in areas of seismic risk that are covered by this PEA, would be designed and constructed in accordance with appropriate design and construction standards, which are promulgated through NEHRP.

4.1.3.3 Activities Involving Watercourses and Coastal Features

Impacts in this section incorporate all activities described in Section 2.4.

Activities that involve work in stream channels or areas with high erosion potential may be especially susceptible to soil loss through erosion, bank failure, or landslides. The subapplicant would employ environmental mitigation measures to reduce this potential, such as the use of sand bags, silt fences, coffer dams, and temporary diversion channels. After the completion of construction activities, the subapplicant would apply stream restoration measures such as vegetation stabilization, establishing a buffer, and erosion and sediment control to restore the site.

4.1.3.4 Vegetation Management

Impacts in this section incorporate all activities described in Section 2.5.

Mechanical or Hand-Clearing of Vegetation

Mechanical-clearing and hand-clearing of vegetation would increase soil loss and erosion through the removal of ground cover. The subapplicant would install erosion protection measures, as appropriate, to minimize soil loss. Such measures are described in Section 4.1.2 and listed in Appendix C. In addition, the subapplicant would avoid the use of mechanized equipment on slopes or unstable soils to the extent feasible.

Herbicidal Treatment

Herbicidal treatment to remove targeted exotic invasive species has the potential to increase soil loss and erosion through the removal of ground cover. Only readily accepted and registered chemicals would be used to control the growth of undesired vegetation. The subapplicant would

install erosion protection measures, as appropriate, to minimize soil loss such as the measures described in Section 4.1.2 and Appendix C. The subapplicant would avoid the use of herbicidal treatments on slopes or unstable soils, as appropriate.

After treatment, some areas may be revegetated with locally occurring, native vegetation that is fire resistant, which would decrease the potential for soil loss and erosion.

Biological Control

Livestock grazing has the potential to increase erosion and soil loss through the removal of ground cover. The subapplicant would install erosion protection measures, as appropriate, to minimize soil loss such as the measures described in Section 4.1.2 and Appendix C. The subapplicant would monitor grazing locations and modify grazing practices to ensure that livestock does not deplete vegetation.

4.2 AIR QUALITY

4.2.1 No Action Alternative

FEMA funding would not be available to the community, but disaster-damaged facilities would likely be repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. Heavy equipment would be used for activities associated with facility restoration. Ground-disturbing activities would only consist of activities associated with restoration of existing facilities to pre-disaster conditions. Consequently, emissions from heavy equipment would be minor, and these activities would create minimal quantities of fugitive dust as the disturbance area being similar to the original footprint.

No vegetation management activities would occur. Consequently, fire risk in prone areas would remain high. Wildfires substantially increase levels of most criteria pollutants and many hazardous air pollutants. Particulate matter emissions would increase as a result of future wildfires, floods, and winds that may damage vegetation and leave soils exposed to wind erosion.

4.2.2 General Consequences of Proposed Activities

Short-term, local impacts to air quality from construction activities would likely include fossil-fuel use for construction equipment, and use of materials containing VOCs, and fugitive dust emissions from soil disturbance and demolition. Fossil-fuel use for construction equipment would produce emissions of CO, NO_x, SO_2, VOCs, PM_{10}, $PM_{2.5}$, and hazardous air pollutants. VOCs and hazardous air pollutants emissions could also occur at construction sites from the use of paving materials, paints, thinners, solvents, and other materials. Long-term emissions could also occur as a result of construction activities that might include an expansion of an existing facility (e.g., the relocation/expansion of a power-generating facility).

The subapplicant would be responsible for applying for and obtaining construction and operation permits required under NSR and PSD review, if required. Regardless of whether a permit is needed, the subapplicant would employ environmental mitigation measures to limit construction emissions, including watering disturbed areas, maintaining and covering soil piles, scheduling staging area siting to minimize fugitive dust, and keeping construction equipment properly tuned. Some local air quality districts enforce general prohibitory rules that require similar air quality control measures to be implemented.

The GCR does not apply to any Federal action occurring in an area designated as attainment for all criteria pollutants. Before approval of any Federal action occurring in designated nonattainment or maintenance areas, the GCR requires that the responsible Federal agency make a determination of conformity with the applicable SIP, FIP, or TIP. FEMA would review all activities to determine whether they qualify for one of the exemptions listed in the GCR. Many of the contemplated activities would likely qualify for an exemption either because the action would be one of the specifically exempted activities under the GCR or because expected emissions from the activity would fall below specific emission thresholds at which a conformity analysis is required. In the event that a proposed action is not found to be exempt, FEMA would conduct an air quality analysis in conformance with GCR requirements to demonstrate that the proposed action would not result in any of the following:

- Adverse effects or delay in air quality plan maintenance
- New violations of an air quality standard
- Increased frequency or severity of an existing violation
- Delay in achieving attainment or emission reductions in any area

The proposed activities are generally expected to be in conformance with GCR requirements. If an action were to occur that were not in conformance, FEMA would document the results of the air quality analysis in an SEA.

Older structures often contain lead-based paint or ACM. Additionally, roadway shoulders can contain lead that was deposited from past leaded fuel vehicle emissions. Any activities associated with the modification of facilities or ground disturbance along roadway shoulders must be done by the subapplicant in accordance with Federal and State laws and regulations regarding the handling and disposal of hazardous materials, such as lead-based paint and asbestos-containing materials and soil contaminated with aerially deposited lead.

4.2.3 Consequences Attributable to Specific Activities

4.2.3.1 Nonemergency Debris Removal

The potential use of heavy equipment and the use of haul vehicles associated with debris removal would result in fossil-fuel emissions. These would generally result in adverse impacts at loading/staging areas or at intersections in transport routes where local CO “hot spots” could occur. Particulate matter emissions would potentially undergo a temporary increase from debris handling, as would emissions of asbestos and other hazardous air pollutants.

4.2.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following activities described in Section 2.3:

- Upgrading or otherwise modifying buildings
- Providing temporary facilities
- Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines
- Constructing new facilities or relocating existing facilities
- Relocating the function of an existing facility

All other activities described in Section 2.3 are either not expected to impact air quality, or their impacts and appropriate mitigation measures related to air quality are adequately discussed in Section 4.2.2.

Upgrading or Otherwise Modifying Buildings; Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

Activities to upgrade or modify buildings, structures, and utilities would be completed to current building codes and standards; resulting in buildings are likely to be more energy efficient than older facilities and reduce fossil-fuel emissions. Therefore, upgrading or modifying these types of facilities would be expected to have a beneficial impact to air quality.

Providing Temporary Facilities

Impacts from this action would include the operation of fossil-fuel burning equipment to provide heat and hot water to the facilities. Increased emissions would also result from automobile and truck traffic associated with the use of the facilities, particularly if they are not located in the immediate area previously occupied by the populations that the facilities served.

Once the temporary facilities are no longer needed, the facilities would be removed and the land would be restored to its original use. These activities may result in short-term and minor impacts from an increase in local emissions from vehicular access, heavy equipment, ground disturbance, and demolition.

Constructing New Facilities or Relocating Existing Facilities; Relocating the Function of an Existing Facility

Construction of new facilities and activities to upgrade or modify buildings, structures, and utilities would be completed to current building codes and standards; as such, these buildings are likely to be more energy efficient than older facilities and reduce fossil-fuel emissions. New utility systems such as power plants, electricity transmission stations, and wastewater treatment plants are also expected to be more energy efficient than older facilities.

In addition to the short-term impacts, as described in Section 4.2.2, and impacts associated with construction and demolition, relocation of facilities or functions could result in long-term air quality impacts by increasing traffic or altering traffic patterns, increasing utility use, or introducing new activities with the potential to affect air quality.

4.2.3.3 Activities Involving Watercourses and Coastal Features

Impacts and appropriate environmental mitigation measures related to air quality are similar to those for activities discussed in Section 4.2.2.

4.2.3.4 Vegetation Management

Impacts in this section incorporate only the following activities described in Section 2.5:

- Mechanical or Hand Clearing of Vegetation
- Herbicidal Treatments

Biological Control, as described in Section 2.5, is either not expected to impact air quality, or the action's impacts and appropriate mitigation measures are similar to those discussed in Section 4.2.2.

Mechanical or Hand Clearing of Vegetation

The use of mechanical vehicles and fuel-powered chain saws to clear vegetation would also increase emissions and reduce air quality. These emissions would be short-term, and limited in time during project implementation.

Herbicidal Treatments

Use of EPA-approved herbicides according to manufacturer's specifications would result in negligible emissions.

4.3 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

4.3.1 No Action Alternative

As described previously, no FEMA funding would be available, but disaster-damaged facilities would likely be repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. Heavy equipment would only be used for activities associated with facility repair and restoration. Consequently, emissions from heavy equipment would be minor, and these activities would emit minimal quantities of GHGs.

No vegetation management activities would occur. Consequently, fire risk in prone areas would remain high. Wildfires substantially increase levels of most criteria pollutants and many hazardous air pollutants, including GHGs. In addition, carbon dioxide that is stored in vegetation would be released during wildfires.

GHG emissions could also increase as a result of future floods and winds damaging vegetation not protected by any project-specific action, and releasing stored carbon.

4.3.2 General Consequences of Proposed Activities

Short-term, local impacts to GHG emissions from construction activities would likely include fossil-fuel use from construction equipment, which would produce GHG emissions. The subapplicant would employ environmental mitigation measures to limit emissions, including keeping construction equipment properly tuned.

Long-term emissions could also occur as a result of relocation or reconstruction of facilities that might include the expansion of an existing activity (e.g., the relocation/expansion of a power-generating facility). The construction of a new facility that includes new or modified stationary sources (for example, fossil-fuel fired electrical generators) would also have the potential to increase GHG emissions. New or relocated facilities or other activities that involve a change in traffic patterns could result in a change in GHG emissions. Replaced, remodeled, and repaired facilities could result in the installation and use of more energy efficient systems (such as air conditioners), which would indirectly result in a reduction in GHG emissions.

4.3.3 Consequences Attributable to Specific Activities

4.3.3.1 Nonemergency Debris Removal

Impacts related to CO2 emissions for this action are discussed in Section 4.3.2.

4.3.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Upgrading or otherwise modifying structures
- Providing temporary facilities
- Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines
- Constructing new facilities or relocating existing facilities
- Relocating the function of an existing facility

For all other activities described in Section 2.3, the consequences and mitigation measures for these activities are included in Section 4.3.2.

Upgrading or Otherwise Modifying Buildings; Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

New heating systems and insulation in buildings are likely to be more energy efficient than older facilities, hence reducing GHG emissions. New utility systems such as power plants, electricity transmission stations, and wastewater treatment plants are also expected to be more energy efficient than older facilities, resulting in beneficial GHG impacts.

Providing Temporary Facilities

Impacts from this action could include the operation of fossil-fuel burning equipment to provide electricity, heat, and hot water to the facilities, though these GHG emissions may be similar or the same as those emissions from the homes rendered uninhabitable as a result of the disaster. Increased emissions would also result from automobile and truck traffic associated with the use of the facilities, particularly if they are not located in the immediate area previously occupied by the populations that the facilities served.

Once the temporary facilities are no longer needed, the facilities would be removed and the land would be restored to its original use. These activities may result in short-term emissions from heavy equipment.

Constructing New Facilities or Relocating Existing Facilities; Relocating the Function of an Existing Facility

New heating systems and insulation in new building facilities are likely to be more energy efficient than older facilities and hence reduce fossil-fuel emissions. New utility systems such as power plants, electricity transmission stations, and wastewater treatment plants are also expected to be more energy efficient than older facilities and thus have lower GHG emissions, assuming the new facilities provide the same level of service as the older facility.

In addition to the short-term impacts, as describe in Section 4.3.2, and associated with construction and demolition, relocation of facilities or functions could increase GHG emissions by increasing traffic or altering traffic patterns, increasing utility use, or introducing new activities with the potential to emit GHGs.

4.3.3.3 Activities Involving Watercourses and Coastal Features

Impacts related to GHG emissions for these activities are adequately discussed in Section 4.3.2.

4.3.3.4 Vegetation Management

Vegetation management would result in indirect GHG emissions from the loss of carbon sinks contained in the vegetation that would be removed. For projects that include regrowth along with vegetation removal that could occur during maintenance in an action area, indirect GHG emissions could be negligible because young vegetation stands (i.e., regrowth) tend to sequester carbon at a faster rate than older vegetation stands. As treatment areas cycle through regrowth and maintenance, future carbon sequestration rates in the action area may meet or exceed the current sequestration rate.

4.4 WATER RESOURCES

4.4.1 No Action Alternative

In general, the No Action Alternative would not impact water resources; however, there would be minor, temporary impacts as a result of restoration activities associated with disaster-damaged facilities being repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. Existing drainage patterns would remain, and wetlands would not be permanently affected. Because no hazard mitigation measures would be implemented, flood-prone areas and the facilities located in those areas would remain subject to future flooding. Water quality would continue to be subject to degradation from erosion, sedimentation, and contamination from pollutants released when floods affect buildings, transportation features, equipment, and utilities.

The potential for large-scale wildfires would remain. If such fires were to occur, the hydrology in the burned watersheds would be substantially affected. Runoff volume and velocity would increase due to the lack of vegetation, and the presence of hydrophobic soils. Runoff would cause unstable soils and debris to wash into streams and other water bodies, adversely affecting water quality.

4.4.2 General Consequences of Proposed Activities

Temporary impacts to water quality could occur due to the operation of heavy equipment, disturbance of soils, placement of rock or soil in water sources, and dewatering of water sources during construction activities. The subapplicant would employ environmental mitigation measures, as necessary, to limit these impacts. Environmental mitigation measures could consist of one or more of the following: developing and implementing an erosion and sedimentation control plan; using silt fences, hay bales, and similar measures to prevent soils from entering water bodies; revegetating disturbed soils to provide stability and runoff filtration after construction activities are complete; and maintaining soil stockpiles adjacent to waterways. Activities taken to prevent future flood damage to facilities, including: acquisition and demolition; upgrades to meet current codes and standards, particularly through structure elevation; flood proofing; realignment; relocation; and bank stabilization using bioengineering techniques, would generally have long-term beneficial impacts on water quality. These activities would reduce the potential for erosion and sedimentation, and reducing flood damage risk to facilities would further reduce potential exposure to debris and sources of pollutants. Activities involving working in watercourses could result in short-term impacts to water quality which could be minimized through the implementation of environmental mitigation measures.

If an action would take place within or affect identified flood hazard areas, FEMA would ensure that the action complies with EO 11988 and 44 CFR §9. Such an action would only be selected if no practicable alternative to the action exists outside of the floodplain. Under EO 11988 and 44 CFR §9, FEMA would notify the public, and minimize potential impacts. The subapplicant would be required to conduct detailed engineering analysis of floodplain changes, obtain concurrence from affected communities, individually notify all property owners affected by increases in flood elevations, and request that FEMA update the NFIP maps to reflect changes in flood hazard information. The subapplicant would be required to budget appropriate additional funds for operation and maintenance of the facility.

If an action would take place within or affect a wetland, FEMA would ensure that the action complies with EO 11990 and 44 CFR §9. Such an action would only be selected if no practicable alternative to the action exists. Under EO 11990 and 44 CFR §9, FEMA would notify the public, and minimize potential impacts.

FEMA would conduct the public notification required under EO 11988, EO 11990, and 44 CFR §9 during its NEPA compliance process. For activities requiring an Initial Public Notice, the notice could be sent to all interested parties (list and contact information provided by the subapplicant) and the subapplicant would post the notice in a local newspaper. For applicable activities, a Final Public Notice would be provided for public review (e.g., posted in a local newspaper). If a FONSI is prepared for an action, the FONSI would include the Final Public Notice.

The subapplicant would also comply with any stormwater or effluent permitting requirements under Section 401 and 402 of the CWA, such as NPDES. The subapplicant would apply for and obtain the necessary permits from the State before initiating any work.

The subapplicant would implement specific environmental mitigation measures for activities that do not require NPDES permits and that would take place in or adjacent to an impaired water body, as described under Section 303(d) of the CWA. These environmental mitigation measures would eliminate the potential for construction activities to result in the release of pollutant(s) that have impaired the water body.

Activities that affect wetlands and other WOUS or navigable WOUS would require coordination with the USACE to ensure compliance with Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. For these activities, FEMA would coordinate with the USACE to determine the Lead Federal Agency for EHP review and procedures and requirements for NEPA, ESA, and NHPA compliance. The subapplicant would apply for and obtain required Section 404 and Section 10 permits. Further, the subapplicant would be responsible for obtaining a water quality certification for any project subject to Section 404 permitting.

FEMA would prepare an SEA for any action that would adversely affect a wild, scenic, or recreational river, as defined by the Wild and Scenic Rivers Act.

For activities that occur within or affect the coastal zone (California only), the subapplicant would be responsible for coordinating with the California Coastal Commission or San Francisco Bay Conservation and Development Commission and obtaining a Federal consistency certification in compliance with the Coastal Zone Management Act and the California Coastal Act.

If an action would take place above a sole-source aquifer, as designated by the EPA under the SDWA, FEMA, with assistance from the subapplicant, would conduct an initial analysis for review by EPA to determine the potential for the action to contaminate the aquifer.

4.4.3 Consequences Attributable to Specific Activities

4.4.3.1 Nonemergency Debris Removal

Impacts and appropriate mitigation measures related to water resources for this action are discussed in Section 4.4.2.

4.4.3.2 Constructing, Modifying, or Relocating Facilities

Impacts and appropriate mitigation measures from all activities related to water resources are discussed in Section 4.4.2.

4.4.3.3 Activities Involving Watercourses and Coastal Features

Impacts in this section incorporate all the types of activities described in Section 2.4. These types of activities have a high potential to require permitting under the CWA or the Rivers and Harbors Act as discussed in Section 4.4.2.

Repairing, Stabilizing, or Armoring Embankments

Using natural materials, vegetation, and bioengineering techniques to repair, stabilize, or armor embankments could result in impacts to water quality and hydrology. These impacts would not likely be adverse because planted vegetation and root wads may provide mitigation from erosion of fill material and can restore a more historical hydrological flow pattern to a waterway. The use of "hard" engineering techniques could have adverse effects to water quality and hydrology. A technique to mitigate these impacts could be to use bioengineering techniques in combination with hard engineering techniques. For instance, vegetation could be planted among rock and geotextiles on a repaired stream embankment to reduce the potential for soil erosion and to alter hydrology so as to reduce the potential for downstream scouring impacts. Additionally, activities involving embankments would be completed to current design and construction standards and water quality requirements. In doing so, an action could result in an improvement to water quality—a long-term beneficial impact—because many older existing embankments are made or designed using materials, such as rubber tires, that are detrimental to water quality.

Creating, Widening, Clearing, or Dredging a Waterway

This action would beneficially impact water quality if the floodplain is altered to draw floodwaters away from developed areas and into a watercourse. Watercourses constructed or modified using natural materials and vegetation and bioengineering techniques would also have beneficial impacts on water quality. Adverse impacts would occur if the realignment of existing channels, removal of material from existing channels, or construction of concrete channels increases flows beyond the capacity of natural waterways, causing sedimentation and increased flooding effects at downstream locations. These types of activities could only be implemented if there were no other practicable alternatives that avoided such impacts. Increased flow rates under such conditions would also prevent settling of silt and other suspended materials and could increase scouring and erosion if nearby in-stream features exist. Water quality could also be adversely impacted if the new or improved waterway prevented floodwaters from occupying natural floodplains, where silt and other suspended material would otherwise settle.

Constructing or Modifying a Water Crossing

Construction and modifications to water crossings typically involve measures to increase flow efficiency and reduce the potential for scour and erosion. By increasing flow efficiency, such measures would reduce the risk of flooding to areas adjacent to the crossing, which could have a beneficial impact on water quality by potentially moving waters away from developed areas, which could be pollutant sources. Measures that reduce scour and erosion would also have a beneficial impact on water quality by reduction of sedimentation. Adverse impacts would occur

if the modifications caused discharges downstream of the structure to increase substantially, causing increased flooding at downstream locations. Water quality could also be adversely impacted if the new or modified water crossing prevented floodwaters from occupying natural floodplains, where silt and other suspended material would otherwise settle.

Construction of new water crossings could have the potential to affect water quality and hydrology by increasing flow velocities around in-stream features such as piers and headwalls. This scenario would increase the potential for scour and erosion, which would increase sedimentation and worsen water quality. In-stream features also increase the potential for debris to be trapped, which could also impact water quality.

Constructing or Modifying a Water Detention, Retention, Storage or Conveyance Facility

Constructing a detention or retention basin would alter the floodplain characteristics by decreasing the extent of the floodplain downstream of the basin and increasing the extent of the floodplain around the sediment pool. Depending on the design of the storage structure inlet, this action could alter the volume and velocity of watercourses downstream from the structure and could also change the natural flow of sediment and hence water quality.

This action could beneficially impact water quality by potentially moving waters away from developed areas, reducing the area exposed to pollutant sources, and into other land uses consistent with floodplain management. In addition, this action would allow particulate material carried in stormwater runoff to settle and would increase the potential for groundwater recharge, which would also be a beneficial impact.

Constructing or Modifying Other Flood Control Structures

Constructing or modifying a flood control structure would alter floodplain characteristics by decreasing the extent of the downstream floodplain. This action may beneficially impact water quality by potentially moving waters away from developed areas, reducing the area exposed to pollutant sources, and into other land uses consistent with floodplain management. Adverse impacts would occur if discharges or velocities downstream of the structure were increased substantially, causing erosion and increased flooding at downstream locations, or if flood elevations on adjacent properties were increased. Water quality could also be adversely impacted if the structure prevented floodwaters from occupying natural floodplains, where silt and other suspended material would otherwise settle out.

Constructing or Modifying a Coastal Feature

Measures to stabilize coastlines have the potential to beneficially impact water quality by reducing erosion. However, some coastal features, such as seawalls, revetments, groins, jetties, and levees, could accelerate erosion by disrupting the natural flow of sediments or by concentrating the force of waves.

4.4.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

Vegetation management activities have the potential to result in adverse impacts to hydrology and water quality due to the following:

- Reduction in vegetation to hold soils in place resulting in erosion and sedimentation into water bodies
- Soil disturbances caused by use of vehicles and construction equipment, resulting in erosion and sedimentation into water bodies
- Pollutant spills caused by use of vehicles and construction equipment, resulting in pollutants washing into water bodies
- Soil disturbances from managed grazing used to clear vegetation resulting in erosion and sedimentation into water bodies
- Waste from animals from managed grazing, used to clear vegetation resulting in the waste washing into water bodies
- Release of herbicides into water bodies

The subapplicant would implement the following mitigation measures, as applicable, to minimize impacts to hydrology and water quality:

- Management of grazing to minimize the number of animals required to control vegetative growth and use of alternate methods of vegetation management such as hand clearing, before allowing grazing within 100 feet of water bodies
- Use of herbicides following application methods that minimize chemical use and runoff such as avoiding applications during rain events
- Revegetation of cleared areas with native fire-resistant species

4.5 BIOLOGICAL RESOURCES

4.5.1 No Action Alternative

Under this alternative it is assumed that repair, restoration, and continued use of a facility would be done using public funding other than from FEMA, private funds, or insurance payments. The repair, restoration, and continued use of a facility would occur within the existing footprint of the facility, and the facility would continue to operate at the same capacity. Similarly, existing access routes to the facility would continue to be used. Therefore, no long-term adverse impacts to vegetation, wetlands, or wildlife would occur. No Federal action by FEMA would occur under this alternative; therefore FEMA has no requirement for compliance with the ESA. However, any public or private entity that performs work under the No Action Alternative would need to comply with the ESA.

Because fire hazard mitigation would not be implemented, if a fire were to occur in the future due to the lack of vegetation management, it would result in the loss of terrestrial wildlife habitat. Furthermore, indirect impacts would occur to aquatic habitat and resources as fire residue and eroded soils would be washed into local streams and reservoirs. These indirect impacts associated with the loss of existing vegetation would continue until adequate vegetation is reestablished within the burnt area. Without vegetation management, fires would be anticipated to burn hotter and faster and affect a wider area, resulting in more tree kills, trapped species, and damage to the natural environment.

4.5.2 General Consequences of Proposed Activities

Except for activities affecting riparian habitat or waterways, activities that involve construction within or immediately adjacent to the footprint of an existing facility would not substantially disturb the biology of the action area, assuming that the facility would not substantially increase in size; existing access routes are used; and staging areas are returned to original conditions. The ingress and egress of equipment and personnel during construction could temporarily adversely affect wildlife resources close to the activities. Potential impacts would be short-term and could include displacement or mortality of individual wildlife. Displaced individuals would likely return following construction, except in instances where increased use raises noise levels, quantities of light pollution, or frequency of human presence.

Activities undertaken in previously undisturbed areas, such as realignment or relocation of facilities or construction of temporary or permanent facilities, could adversely affect biological resources. Vegetation would be removed and displacement or mortality of individual wildlife could occur. The subapplicant would minimize impacts to biological resources through proper siting and design. Except for staging areas on hardened surfaces, the subapplicant would seed or sod staging areas with native vegetation. Beneficial effects would be expected in the areas previously occupied by relocated facilities, assuming that these areas are restored to natural conditions once demolition is complete.

For all activities, FEMA is responsible for evaluating presence of federally listed or proposed threatened or endangered species, their habitat, and/or their proposed or designated critical habitat, in the area in which the action is implemented. If FEMA determines that species that are federally listed or proposed to be listed, their habitat, or proposed or designated critical habitat

has the potential to be affected by an action, FEMA would comply with Section 7 of the ESA, as appropriate. Toward this end, if the action complies with the ongoing Programmatic Biological Assessment-Programmatic Biological Opinion (PBA-PBO) between FEMA, the USFWS, and NMFS; FEMA and the subapplicant would ensure that conditions contained in the ongoing PBA-PBO are met. If FEMA and the subapplicant cannot meet the conditions in the PBA-PBO for the species in question, FEMA would conduct an individual consultation for that specific action with the USFWS and/or NMFS under Section 7 of the ESA. Similarly, if a PBO/Programmatic Incidental Take Statement that could cover the potentially impacted species does not exist, FEMA would consult with the USFWS and/or NMFS under Section 7 of the ESA, as appropriate. Until the ongoing PBA-PBO has been completed, FEMA would complete an individual Section 7 consultation for any individual project if effects to special-status species or designated critical habitat have the potential to occur.

For activities that have the potential to adversely affect EFH, FEMA would consult with NMFS in accordance with the Sustainable Fisheries Act. In most instances, such consultation is conducted as part of the Section 7 ESA consultation process.

If the action has the potential to affect migratory birds, or species protected under the State or local regulations, the subapplicant is responsible for coordination with the USFWS, NMFS, or State or local agency, as appropriate.

Activities that occur in a natural stream or other water body may be required to comply with the Fish and Wildlife Coordination Act. FEMA would consult with the USFWS or NMFS (as appropriate) to develop measures to mitigate action-related losses of fish and wildlife resources.

Some activities could impact sensitive plant populations such as Federal or State threatened and endangered plants in the vicinity of construction activities. These activities would be designed to avoid native plant species populations and individuals to the extent feasible.

To minimize impacts associated with invasive species, the subapplicant would ensure that any disruption of soils and existing vegetation would be stabilized or reseeded with a native seed mix or allowed to revegetate with native plants. The subapplicant would implement environmental mitigation measures, as appropriate, to prevent the introduction of invasive species at the construction site or the spread of invasive species from the construction site, including cleaning all equipment before bringing it onsite and using only certified, weed-free erosion control and re-vegetation materials.

4.5.3 Consequences Attributable to Specific Activities

4.5.3.1 Nonemergency Debris Removal

For activities that involve removing debris from riparian habitat and waterways, short-term impacts would include decreases in water quality due to discharge of sediment into waters when conducting work directly in or adjacent to water; disruption of flow patterns through dewatering part or all of a stream channel; removal of riparian vegetation and riparian wildlife habitat through the use of machinery; and displacement or mortality of individual wildlife through the use of machinery. Impacts to water quality and hydrology would indirectly affect hydrophytic plants in or near the affected waters and wildlife species that live in or drink from the affected

water or use the affected vegetation for habitat or food due to activities conducted directly in water.

To minimize adverse impacts, the subapplicant would not operate heavy equipment in flowing water whenever other methods are feasible. The subapplicant would employ environmental mitigation measures to limit the effects of erosion and sedimentation.

Debris removal activities have the potential to spread invasive species by facilitating the movement of invasive species that may be a part of the removed debris to areas not previously occupied by those particular species. To facilitate compliance with EO 13112, the subapplicant would be responsible for ensuring that all trucks carrying debris are covered while in transit.

In the event that nonemergency debris operations may occur in a natural stream or other water body or be facilitated by the control or modification of the water body, the action would be required to comply with the Fish and Wildlife Coordination Act. FEMA would consult with the USFWS or NMFS (as appropriate) to develop measures to mitigate action-related losses of fish and wildlife resources.

4.5.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines

All other activities described in Section 2.3 are not expected to impact biological resources, or the consequences and environmental mitigation measures for these activities are adequately described in Section 4.5.2.

Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

Activities related to these activities, such as working on roads adjacent to waterways, could affect riparian habitat and waterways. Impacts to riparian habitats and waterways as a result of these activities are discussed in Section 4.4.2. Appropriate mitigation measures are discussed in Section 4.5.3.1. Substituting bioengineering techniques for “hard” engineering solutions such as riprap, when practicable, may be performed by the subapplicant.

4.5.3.3 Activities Involving Watercourses and Coastal Features

Impacts in this section incorporate all the types of activities described in Section 2.4.

These activities could affect riparian habitat and waterways. Impacts from these activities occurring within riparian habitats and waterways are partially discussed in Section 4.5.3.1. Appropriate mitigation measures are discussed in Section 4.5.3.1. In addition, long-term impacts would include altering flow patterns and discharge rates with culverts, bridge piers, in-stream weirs, concrete channels, or channel excavations. Permanent indirect impacts resulting from potential water quality and hydrology changes discussed in Section 4.4.3.1 would occur to vegetation and wildlife.

Expanding or constructing water storage structures has the potential to permanently convert vegetation types within the footprint of the area to be permanently or seasonally inundated.

Activities such as stabilizing an embankment or modifying a water crossing to reduce scour and sedimentation, could have a beneficial impact on vegetation and wildlife, such as the development of late successional growth and multilayered, multi-aged habitats.

4.5.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

Under these activities, invasive, nonnative species have the potential to become established in areas where vegetation management has been performed. Therefore, the subapplicant would be responsible for monitoring and maintaining fuel management zones and continuing to treat these areas as necessary or as required by the regulatory agencies (i.e., USFWS and/or NMFS) to maintain appropriate vegetation densities and species composition. In some instances, without proper maintenance, these areas could create an increased fire risk compared to pre-action conditions. The subapplicant would use native, fire-resistant species. Vegetation management activities could eliminate individual mature native trees such as oaks that are often a resource of local concern. The subapplicant would implement locally identified measures to reduce or avoid impacts where possible.

Mechanical or Hand-Clearing of Vegetation

Mechanical-clearing and hand-clearing activities would not necessarily disturb the overall biology of an area because thinning and removing vegetation could decrease the quality of habitat for some species and increase the quality of habitat for others. These changes could result in minor impacts when compared to the overall habitat quality in the general area.

Herbicide Treatment

Herbicide treatment has the potential to directly affect non-target plant and animal species by causing mortality and morbidity. Indirect impacts to wildlife include loss of habitat due to effects on non-target plant species. These activities could eliminate individual mature native trees such as oaks that are often a resource of local concern. To minimize these potential impacts, the subapplicant would be required to demonstrate that herbicide treatments are only applied by licensed applicators that follow the manufacturer's specifications for use. Activities would be designed to avoid native plant species populations and individuals to the extent practicable, when such species are not specifically targeted for fuel reduction activities.

Biological Control

The potential exists for livestock (especially sheep and goats) to deplete vegetation in an area proposed for grazing. Further, grazing livestock have the potential to displace natural wildlife species or disrupt feeding and nesting patterns.

The subapplicant would select the livestock breed, stocking rate, and grazing duration and monitor the quantity and quality of residual vegetation to obtain the desired amount of vegetation management without overgrazing. To avoid loss of desirable plants, such as sensitive species or locally protected species (e.g., oak trees), the subapplicant would be required to fence or otherwise protect the area to be grazed to avoid such plants. The subapplicant would avoid grazing programs during seed production of non-target species.

4.6 HISTORIC PROPERTIES AND ARCHAEOLOGICAL RESOURCES

4.6.1 No Action Alternative

Under the No Action Alternative, no historic properties review would be required under Section 106 of the NHPA or the appropriate PA. However, the applicant would still comply with local or State cultural resource laws and regulations.

Historic properties located in high hazard areas, such as floodplains, could continue to be at risk from damage in future events. If damaged in future events, some historic properties could be demolished and replaced through undertakings by State or local governments or private entities, causing the loss of irreplaceable resources. Other historic properties could be repaired without adherence to guidelines to ensure that the work would be sensitive to the historic characteristics of the structure or its surroundings.

If activities under the No Action Alternative do not include a Federal role and State or local requirements do not apply, then no consideration of the action's impact on historic-era structures may be required and buildings could likely be demolished or repaired before identification, evaluation, or treatment studies.

Archaeological resources associated with built environment resources or located in high-hazard areas, or coincidentally in close proximity to such resources, could also be affected by future events; and repair, demolition, or other related activities that could result in ground disturbance.

4.6.2 General Consequences of Proposed Activities

Direct physical impacts could occur when historic properties are demolished, modified, upgraded, realigned, or relocated. The original setting, design, and construction materials of such facilities may be affected. Direct physical impacts could occur to subsurface historic and prehistoric archaeological sites when ground-disturbing activities are conducted. Indirect impacts to historic properties could occur when nearby facilities are modified or relocated or when temporary facilities are constructed, resulting in indirect changes, such as visual or noise impacts, that change the context of the historic setting "and are typically an adverse effect pursuant to 36 CFR §800.5(2).

For all activities, FEMA is responsible for complying with Section 106 of the NHPA. Toward this end, FEMA would consult with the SHPO/THPO, as directed in the appropriate PA (if applicable) to identify the APE, the presence or absence of historic properties, the effects the action would have on historic properties, and the appropriate measures to avoid or mitigate effects to historic properties. Additionally, FEMA would inform federally recognized Native American groups and other appropriate interested parties about the action. If FEMA is unable to consult and coordinate with these parties within the framework of the appropriate PA, FEMA would consult with the SHPO/THPO, Native American groups, and interested parties following the standard NHPA Section 106 Process.

FEMA is committed to work with tribes as subapplicants and consulting parties, when applicable, in its efforts to comply with the NHPA Section 106. As part of the NHPA Section 106 process, FEMA would inform federally recognized Native American groups and other Native American groups about the action. In compliance with the American Indian Religious Freedom Act, FEMA would consult and coordinate with interested Native American

groups regarding concerns involving access to sites, use and possession of sacred objects, and ability to worship. FEMA is currently implementing an outreach program to all federally-recognized tribes in Arizona, Nevada, and California. This coordination will support FEMA's Tribal Policy signed by Administrator Fugate in June 2010—a direct response to the President Obama's Tribal Consultation memorandum of November 5, 2009.

The subapplicant would be responsible for compliance with any applicable State, county, or local historic properties regulations or ordinances.

4.6.3 Consequences Attributable to Specific Activities

4.6.3.1 Nonemergency Debris Removal

Impacts and appropriate measures related to protection of historic properties for this action are discussed in Section 4.6.2.

4.6.3.2 Constructing, Modifying, or Relocating Facilities

Consequences and mitigation measures for all activities described in Section 2.3 are included in Section 4.6.2.

4.6.3.3 Activities Involving Watercourses and Coastal Features

Impacts and appropriate mitigation measures related to historic properties for these activities are discussed in Section 4.6.2.

4.6.3.4 Vegetation Management

Impacts in this section incorporate only the following types of activities described in Section 2.5:

- Mechanical or hand-clearing of vegetation

All other activities described in Section 2.5 are not expected to impact historic properties.

Mechanical or Hand Clearing of Vegetation

In addition to direct effects described under Section 4.6.2, indirect effects may also result if vegetation is removed and archaeological sites are openly exposed, increasing the likelihood of vandalism, looting, and natural hazards such as erosion. Hand-clearing of vegetation would be less likely to result in direct impacts to historic properties, because the action involves the use of hand tools and physical effort instead of heavy equipment.

4.7 SOCIOECONOMICS

4.7.1 No Action Alternative

Disasters disrupt the social and economic framework of the communities they impact. Communities would rely on insurance, lending, and State and local revenues to restore their socioeconomic infrastructures. The exclusive use of such funds for disaster response would have an adverse impact on the local economic health. Restoring disaster-damaged facilities and patterns of traffic, residential use, and commercial activity can result in beneficial impacts to socioeconomic resources.

If a substantial number of residents and businesses are affected, entire communities could feel the indirect economic consequences. Residents and businesses that suffer financial hardships from damage are likely to alter their purchasing habits by reducing expenditures, especially on nonessential goods and services. Residents and businesses that migrate out of the area would likely terminate financial transactions in the community. The profitability of businesses providing these goods and services would then decrease. Businesses that decline or fail would lay off employees, thus increasing unemployment. Failing businesses, reduced expenditures, and migration of residents would decrease local tax revenues and, therefore, either increase tax rates or decrease budgets for local governments' services.

If local companies are used for labor and materials, some economic benefits would trickle down to other sectors of the community. Except for unusually large activities, however, these beneficial impacts would have a negligible effect on the local economy as a whole.

4.7.2 General Consequences of Proposed Activities

The proposed activities would have beneficial impacts on socioeconomic resources. These impacts consist of restoring disaster-damaged facilities and patterns of traffic, residential use, and commercial activity; reducing the potential for disaster-related losses to residents, businesses, and government facilities; decreasing risks to human safety for persons inhabiting or using facilities that are protected from future damage; and reducing the corresponding adverse indirect impacts described in Section 4.7.1.

The use of local labor, purchase of local materials, and use of local services by construction crews would result in some economic benefits to the community. Except for unusually large activities, however, these beneficial impacts would have a negligible effect on the local economy as a whole.

The subapplicant would be responsible for any associated maintenance. Unless activities are designed to require little long-term maintenance, subapplicants would incur a financial burden to pay the annual costs to maintain these areas.

To comply with EO 12898, FEMA would study demographic and economic data for local residents to determine if minority or low-income persons are present; if such populations are present FEMA would determine if a proposed action would cause a disproportionately high and adverse effect on them. If an action would result in impacts on minority or low-income persons, these effects would be documented in an SEA which would include an analysis and determination of whether the action would comply with EO 12898.

4.7.3 Consequences Attributable to Specific Activities

4.7.3.1 Nonemergency Debris Removal

Impacts and appropriate mitigation measures related to socioeconomics and public safety for this action are adequately discussed in Section 4.7.2.

4.7.3.2 Constructing, Modifying, or Relocating the Functions of Existing Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Acquiring and demolishing existing facilities
- Constructing new facilities or relocating existing facilities; relocating the functions of existing facilities

All other activities described in Section 2.3 are not expected to impact socioeconomics, or their impacts are adequately discussed in Section 4.7.2.

Acquiring and Demolishing Existing Facilities

Participation in an acquisition program is a voluntary choice. By choosing to participate, many owners of acquired properties would migrate from their current locations. An adverse impact would occur to residents and business owners whose compensated property value, savings, and credit are not sufficient to purchase or build comparable structures. Residents who migrate to distant communities could be subject to financial burdens as a result of changes in commutes and possibly employment. Additional impacts to businesses that move to distant communities include potential losses of customers, employees, and site-specific resources or services. Nonetheless, the choice to participate would be up to the individual. The subapplicant would be responsible for implementing property acquisition activities in compliance with the URARPAPA, and the applicable state and local regulations, which would mitigate these potential impacts to some extent. The subapplicant could work with other Federal agencies (such as the Small Business Administration) and lending institutions to mitigate impacts to displaced residents and businesses by attempting to secure partially subsidizing loans, offering low-interest loans, and granting rent subsidies to renters forced to relocate. The migration of residents and businesses outside of the community and the financial burden on residents and businesses that remain would indirectly affect the local economy as described in Section 4.7.1.

Renters and home/business owners that are not offered buyouts could be affected to a greater extent because of their lack of choice regarding acquisition activities. Tenants in rental properties that are acquired could be adversely affected if their income is not sufficient to pay rent in comparable units or if rental units are not available. Similarly, home owners and business owners that are not part of acquisition programs may find it economically infeasible to relocate and must remain in the community. The relocation of employers, employees, customers, and businesses selling goods and providing services could present substantial economic impacts to residents and business owners. Specific impacts and potential mitigation for these impacts would be discussed in an SEA, should one be required.

Conversely, acquisition and demolition activities would decrease potential property damage and risk to human safety from future disasters. For property owners and tenants who relocate out of high-hazard areas, property acquisition activities would also decrease potential property damage

and risk to human safety from future disasters. These measures would prevent future financial losses to residents, businesses, and governments, and the adverse indirect impacts described in Section 4.7.1 would be less likely to occur.

Constructing New Facilities or Relocating Existing Facilities; Relocating the Functions of Existing Facilities

Relocating the function of buildings to alternative structures could adversely affect socioeconomic resources. In most cases, this action would result in people and property being relocated outside of high-hazard areas. Residents would likely require interim housing, and businesses would be impacted by loss of sales caused by closings. However, these impacts would be mitigated by the subapplicant relocating residents and businesses in compliance with URARPAPA, and applicable State regulations.

Nonetheless, relocating public facilities could adversely impact demographics and housing in some infrequent cases. Examples of such cases would include residents of a community that react to their school being relocated by moving closer to the site of the alternate school, or the relocation of a county jail resulting in jail employees and ancillary businesses moving closer to the alternate jail. Businesses that depend on the proximity of their offices to the building proposed for relocation may also be affected; for example, notary publics and bail-bond providers are usually located within blocks of a courthouse. Residents and businesses that move under these circumstances would suffer economic consequences; most would not be eligible for funding under the URARPAPA, and State regulations. If a substantial number of residents and businesses are adversely affected, entire communities could feel the indirect economic consequences, as described in Section 4.7.1.

Providing alternate roads and water crossings would impact road users. For motorists, other than the ones for residents, businesses, and governmental agencies that front on the roads to be closed, socioeconomic impacts are expected to be minor changes in transportation costs due to increased distance traveled if applicable. In some instances, the alternate routes may shorten drive times or reduce out of direction travel and thereby reduce transportation costs. The subapplicant could mitigate for those affected by constructing private driveways to connect properties with existing roads, and by acquiring or relocating properties. Acquisition and relocation in such circumstances would be mitigated by the subapplicant through compliance with the URARPAPA, and applicable State regulations.

4.7.3.3 Activities Involving Watercourses and Coastal Features

Impacts in this section incorporate all the types of activities described in Section 2.4.

These activities could result in increased flood elevations on private property. This situation would lead to decreased property values, increased flood insurance premiums, and increased cleanup and repair costs from future floods. As stated in Section 4.3.2, concurrence from property owners is required to increase flood elevations. Therefore, these impacts would occur to voluntary recipients. Where entire communities are affected, the indirect impacts described in Section 4.7.1 could occur.

4.7.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

Vegetation management activities would decrease the hazard of wildfires and, thus, positively impact public safety and reduce property damage. These activities would not require the relocation of people. Vegetation management activities would potentially impact property values if visual resources in the area of the activities are adversely affected or if noise levels are permanently increased as a result of the loss of vegetation buffers to sound sources. In cases where visual resources are adversely affected or noise levels cause an adverse impact, an economic analysis would be completed by the subapplicant. The local economy would potentially be positively impacted if materials are purchased at local businesses and local contractors are hired.

4.8 LAND USE AND PLANNING

4.8.1 No Action Alternative

Because no new facilities would be constructed and existing facilities would not be modified, the No Action Alternative would not affect land use or zoning. Restoration of existing facilities would not impact land use or zoning. Existing land use incompatibilities would remain.

4.8.2 General Consequences of Proposed Activities

Activities that include constructing or relocating facilities have the potential to result in a direct change in land use or cause a conflict with the local zoning ordinance or general plan. Before implementing any action, the subapplicant would be required to review zoning ordinances and the local county and city general plan(s), if applicable to ensure that the action is compatible. If the action is not compatible with zoning ordinances and the general plan, the subapplicant would be responsible for obtaining a conditional use permit, a zoning variance, or other legal solution to rectify the nonconforming use, such as having the local planning authority amend land use maps or the general plan. The subapplicant would also need to obtain any applicable local building permits.

FEMA would require the subapplicant to coordinate with the California Coastal Commission or the Bay Conservation and Development Commission to obtain a consistency certification when the proposed action occurs within California's designated coastal zone.

If the proposed action would convert designated important farmland to nonagricultural purposes, FEMA would complete the required Form AD-1006 and consult with NRCS. If the Form AD-1006 indicates that the proposed project would score more than 160 points, FEMA would document this finding in a memorandum.

4.8.3 Consequences Attributable to Specific Activities

Impacts and appropriate mitigation measures related to land use for all specific activities are discussed in Section 4.8.2.

4.9 PUBLIC SERVICES AND RECREATION

4.9.1 No Action Alternative

Under the No Action Alternative, no improvements would be made to public facilities. Disaster-damaged facilities would be repaired or otherwise restored to pre-disaster conditions with non-FEMA public funds, private funds, or insurance payments. Restoration of existing facilities would not impact public services or recreational opportunities. However, public services would not be protected from damage caused by future disasters.

4.9.2 General Consequences of Proposed Activities

Temporary construction impacts to public services and recreation may occur as a result of limitations in access to areas; however, these impacts would be short-term and negligible. Environmental mitigation measures to avoid temporary impacts to public services may include timing construction activities to minimize impacts to public utility users or providing alternate locations for recreational opportunities. The subapplicant would be responsible for implementing such measures. In many cases, the proposed activities would lead to beneficial impacts to public services by reducing the impact caused by future natural disasters, which would result in less of a demand on emergency operations and responses.

The sites of properties that are acquired and demolished are frequently made into public parks, resulting in a beneficial impact to recreational services.

4.9.3 Consequences Attributable to Specific Activities

4.9.3.1 Nonemergency Debris Removal

Impacts and appropriate mitigation measures related to public services and recreation for this action are adequately discussed in Section 4.9.2.

4.9.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Constructing new facilities or relocating existing facilities
- Relocating the functions of existing facilities
- Upgrading or otherwise modifying buildings
- Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines

All other activities described in Section 2.3 are not expected to impact public services and recreation, or the consequences and mitigation measures for these activities are included in Section 4.9.2.

Constructing New Facilities or Relocating Existing Facilities; Relocating the Functions of Existing Facilities

Constructing new facilities, relocating existing facilities, or relocating the function of facilities to existing facilities would likely affect public services. Beneficial effects would occur by reducing the risk of future damage to the relocated facility. Adverse effects associated with this action could involve changes in the time and distance required to access public services. Relocation of

schools could involve students having longer or shorter bus rides or students being bused instead of walking. The relocation of police and fire stations would likely increase average response times for some areas and decrease them for others. Recreational facilities would be closer to some users and more distant to others. Because utility service is not as dependent on proximity to users, no direct impacts would occur.

Functions at schools impacted by a disaster are frequently relocated to other operating schools. Impacts from this action could include increasing class size and school density, holding classes in trailers, phasing classes or grades to share space, and integrating students from disparate grades. These impacts could adversely influence the educational experience for students but would allow schools to operate during flood events.

Relocating facilities could cause indirect impacts to public services. For example, a relocated school or other public facility with a substantial number of occupants could require changes to existing fire or police services and utility connections. Utilities may have to be removed from acquired property, including buildings with utility connections and roads that share easements with utility lines.

Upgrading or Otherwise Modifying Buildings

Improving public facilities and utilities through activities such as seismic retrofitting, fire proofing, elevating, or floodproofing has the potential to directly affect public services. These improvements would benefit the public service facility by reducing the risk of future disaster-related damage. However, the public service facility may be forced to close temporarily so that the improvements can be made in which case, the function of the temporarily closed facilities could be relocated to an existing facility for the duration of the improvements.

Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

Repairing, realigning, or modifying roads would indirectly affect public services because of the temporary closure of roads. School buses and police and fire vehicles could be forced to take alternate routes and could potentially experience delays. Closures would be temporary and short-term. However, some roadway modifications and realignments could result in permanent changes and have long-term impacts to public services. For instance, roadways may become permanently closed and alternate routes for police and fire vehicles would result in potential service delays.

4.9.3.3 Activities Involving Watercourses and Coastal Features

Impacts in this section incorporate the following types of activities:

- Constructing or modifying a water crossing

Constructing or modifying a water crossing could indirectly affect public services because of the temporary closure of roads or water crossings. School buses and police and fire vehicles could be forced to take alternate routes and could potentially experience delays.

4.9.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

Expanding fire reduction zones could affect public services by causing the temporary closure of a public facility, road, or bridge. School buses and police and fire vehicles could be forced to take alternate routes or experience delays; however, these impacts are expected to be temporary.

More than other public services, this action has the potential to impact some recreational facilities. A natural park or forest[1] could experience an extended closure to conduct mechanized clearing or even implement a grazing program. In the case of certain activities, such as clear-cutting, some recreational resources, such as the enjoyment of natural beauty, could be damaged for many years following the action. Noise from mechanical equipment could decrease a natural experience for recreational users. The subapplicant would be responsible for adequately notifying the public of vegetation management activities that have the potential to impact recreational users. Methods of notification could include posting fliers at information centers, trailheads, and restrooms of recreational areas and updating recorded telephone and radio information. With implementation of these mitigation measures, the benefits of decreasing the risk of future wildfires would outweigh the impacts.

[1] Per FEMA's Wildfire Mitigation Policy, Federal lands such as a national parks or forests are ineligible for wildfire hazard mitigation funding.

4.10 TRANSPORTATION

4.10.1 No Action Alternative

Restoration activities to damaged facilities would likely be conducted using non-FEMA public funds, private funds, or insurance payments. Such restoration activities could potentially result in temporary detours, delays, and congestion. Under this alternative, FEMA would not assist with activities that would prevent damage in future disasters; therefore, any long-term benefit to transportation would not be realized. Without these activities, future disaster events have the potential to cause additional damage and, therefore, repeated congestion, delays, and detours from repairs and closures.

4.10.2 General Consequences of Proposed Activities

In general, the implementation of the proposed activities could result in temporary impacts to transportation. Construction activities could result in roadway and traffic lane closures and heavy construction equipment use on roadways. Additionally, pedestrian and bicycle facilities such as sidewalks and bike lanes could incur temporary impacts such as short-term closures. These activities would result in congestion, delays, and detours, whose intensity would depend on the location and extent of the activities associated with an action. To minimize adverse impacts to traffic and circulation, the subapplicant would be required to implement the following mitigation measures, or more stringent measures if so required by local law, ordinance, or permits:

- Temporarily reroute traffic along adjacent roadways or sidewalks as necessary during construction activities which would result in roadway or sidewalk closures. Traffic lane closures would be coordinated with appropriate local agencies (e.g., emergency services) and community officials
- To the maximum extent feasible, construction-related vehicles would be prohibited from parking on residential streets
- Construction equipment and vehicle staging would be located to minimize hindrance of traffic flow
- Adjacent residential neighborhoods and commercial/industrial areas would be notified in advance of construction activities and any rerouting of local traffic

4.10.3 Consequences Attributable to Specific Activities

4.10.3.1 Nonemergency Debris Removal

Debris removal has the potential to result in temporary traffic congestion and delay due to vehicular crews using roadways for collection and removal of accumulated debris. The subapplicant would be responsible for planning haul routes and siting staging areas to minimize inconvenience to individuals using the affected transportation facilities.

4.10.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Providing temporary facilities

- Constructing new facilities or relocating existing facilities
- Relocating the functions of existing facilities
- Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines

All other activities described in Section 2.3 are not expected to impact transportation, or the consequences and mitigation measures for these activities are adequately discussed in Section 4.10.2.

Providing Temporary Facilities; Constructing New Facilities or Relocating Existing Facilities; Relocating the Functions of Existing Facilities

These activities have the potential to affect traffic and transportation. Traffic volumes would increase in the vicinity of the replacement facility and decrease in the vicinity of the existing facility. The subapplicant would review affected roads and public transportation routes to determine if existing roads and services would adequately handle the proposed activities or if improvements to existing roads and services are required as part of the proposed action.

Detouring road users to alternate routes could also impact transportation networks. The subapplicant would review affected roads, and public transportation systems using these roads, to determine if proposed detours could serve an increased number of users. The subapplicant would coordinate detour routes and signs with appropriate transportation planning agencies.

Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

Construction, realignment, or modification of any of the above-listed infrastructure would directly impact use of the facility being constructed, realigned, or modified. However, these activities would also indirectly impact the use of other transportation routes in the area. The subapplicant would review traffic and usage patterns to determine if modifications are required to other facilities. The subapplicant would coordinate these activities with appropriate local agencies with jurisdiction over the transportation or utility infrastructure.

4.10.3.3 Activities Involving Watercourses and Coastal Features

Impacts in this section incorporate the following types of activities:

- Constructing or modifying a water crossing

Construction or modification of water crossings would directly impact the water crossing being constructed or modified. However, these activities would also indirectly impact other transportation routes or marine facilities, such as boat docks, in the area. The subapplicant would review traffic patterns to determine if modifications are required to other roads or water crossings. The subapplicant would coordinate these activities with appropriate transportation planning agencies.

4.10.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

Vegetation removal and other vegetation management activities would cause congestion, delays, and possible detours from heavy equipment when roads are used to access areas scheduled for

vegetation management. The subapplicant would coordinate detour routes and signage with appropriate transportation planning agencies to minimize the impacts.

4.11 NOISE

4.11.1 No Action Alternative

Under the No Action Alternative, no permanent changes to noise levels are expected. However, disaster-damaged facilities would be repaired or otherwise restored to pre-disaster conditions with non-FEMA public funds, private funds, or insurance payments. Activities associated with facility repair and restoration would temporarily increase noise levels.

4.11.2 General Consequences of Proposed Activities

Construction activities would typically result in temporary noise increases from use of construction equipment and the increased sound associated with work crews/personnel and demolition, construction, and hauling activities. However, activities would comply with local noise ordinances and State and Federal standards and guidelines. Special precautions may be required around noise-sensitive receptors such as funeral homes, schools, or hospitals. These precautions, which the subapplicant would implement, may include special work hours, public notification, and environmental mitigation measures related to maintaining mechanized equipment in good working order.

Construction of new facilities may introduce permanent noise sources into a location, including traffic noise; however, the impact of this change depends on the land uses involved. The subapplicant would comply with local noise ordinances and State and Federal standards and guidelines for potential impacts caused by constructing noise-generating facilities.

4.11.3 Consequences Attributable to Specific Activities

4.11.3.1 Nonemergency Debris Removal

Impacts and appropriate mitigation measures related to noise from this action are discussed adequately in Section 4.11.2.

4.11.3.2 Constructing, Modifying, or Relocating Facilities

Impacts and appropriate mitigation measures related to noise from these activities are discussed adequately in Section 4.11.2.

4.11.3.3 Activities Involving Watercourses and Coastal Features

Impacts and appropriate mitigation measures related to noise from these activities are discussed adequately in Section 4.11.2.

4.11.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

Vegetation attenuates noise more than open space. Therefore, removal of vegetation could result in a long-term increase noise at some receptors, such as in an area where an area of dense vegetation separates residences from a highway. The appropriate mitigation measures related to noise impacts from these activities are discussed adequately in Section 4.11.2 above.

4.12 HAZARDOUS MATERIALS AND WASTES

4.12.1 No Action Alternative

Under the No Action Alternative, no FEMA funds would be available. Disaster-damaged facilities would be repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. The restoration of existing facilities is not expected to impact hazardous materials and wastes. In general, hazardous materials at the sites of potential activities (for example, USTs and toxic release sites) would not be altered from their existing condition under this action. In circumstances where hazardous materials and wastes (such as asbestos, lead-based paint, USTs) are involved in restoration activities, public or private entities responsible for restoration are expected to follow all applicable local, State, and Federal regulations for use, storage, handling, and disposal of these substances.

4.12.2 General Consequences of Proposed Activities

Construction activities may disturb hazardous materials present at the site of an action. When appropriate, based on site-specific characteristics, a Phase I environmental site assessment would be completed to determine if there is potential or existing hazardous materials contamination at a project site. Typically, the subapplicant completes this assessment because it is necessary for permitting or real estate transactions unrelated to FEMA's EHP review process.

The subapplicant would follow local, State, and Federal regulations for the handling and disposal of hazardous materials or for removing USTs. The subapplicant would coordinate with the Air Quality Management District, EPA, and State agencies that regulate hazardous materials, as appropriate. The removal and proper disposal of the materials would result in a beneficial effect to the community.

Construction activities typically use petroleum-powered equipment. Improper use and storage of this equipment or inappropriate handling of petroleum could result in an accidental release of petroleum materials. The subapplicant would implement environmental mitigation measures to limit the effects of any accidental release. These environmental mitigation measures could include inspecting of equipment for signs of fuel or fluid (e.g., hydraulic fluids) leaks; establishing areas for refueling with appropriate emergency cleanup gear for spills (spill containment and absorption materials); and immediately cleaning up leaks, drips, and other spills. The implementation of environmental mitigation measures would make hazardous material releases or accidents unlikely and would ensure that any accidental release would be finite, and localized.

4.12.3 Consequences Attributable to Specific Activities

4.12.3.1 Nonemergency Debris Removal

Debris removal would potentially result in the transportation and disposal of hazardous waste. The subapplicant would be responsible for ensuring that all disaster debris is handled, transported, and disposed of in compliance with Federal, State, and local regulations.

4.12.3.2 Constructing, Modifying, or Relocating Facilities

Existing facilities may have been constructed using materials considered hazardous such as asbestos and lead. The following activities could be affected by the presence of hazardous materials described in Section 2.3:

- Upgrading or otherwise modifying structures
- Acquiring and demolishing existing facilities
- Relocating the functions of existing facilities
- Constructing new facilities or relocating existing facilities

Other activities described in Section 2.3 are not expected to be impacted by the potential presence of hazardous materials.

The subapplicant would be responsible for meeting the "all appropriate inquiries" rule in 40 C.F.R. §312.10 before acquiring a new property. In addition, subapplicants must prepare, implement, and regularly update a spill prevention and control plan when needed and required by law. The use, handling, storage, and disposal of hazardous materials would be conducted according to Federal, State, and local regulations which would minimize any impacts to hazardous materials or waste.

4.12.3.3 Activities Involving Watercourses and Coastal Features

Impacts and appropriate mitigation measures related to hazardous materials and waste for these activities are adequately discussed in Section 4.12.2.

4.12.3.4 Vegetation Management

Impacts in this section incorporate the activities described in Section 2.5.

Vegetation management activities may involve the storage and use of potentially hazardous materials, such as chemical treatments, fuel, and fire-suppression materials. If used and stored in accordance with local, State, and Federal regulations, herbicides and other chemical treatments would not be expected to result in adverse impacts related to human health or the natural environment.

4.13 VISUAL RESOURCES

4.13.1 No Action Alternative

Under the No Action Alternative, no FEMA funds would be available. It is assumed that disaster-damaged facilities would be repaired or otherwise restored to pre-disaster conditions with other public or private funds, including insurance payments. Restoration activities would result in minor, temporary visual impacts associated with construction equipment. No impacts would occur to existing visual resources from improvements or new construction. However, the potential for future damage in the event of a disaster, and the effects of that damage on visual resources, would remain.

Unmitigated flood, earthquake, wildfire, rain, and wind hazards could result in future disaster damage with corresponding visual impacts. These impacts could be short-term and long-term. Examples of short-term impacts include sediment on scenic roadways due to rain-caused landslides and the degradation of air quality as a result of a wildfire. Examples of long-term impacts include burnt vegetation resulting from a wildfire, structures severely damaged by an earthquake, and mold that grows on structures that have been inundated from a flood.

4.13.2 General Consequences of Proposed Activities

Short-term impacts to visual resources would be expected to be caused by heavy equipment, the debris and construction materials, work crews, the temporary increase in construction-generated dust, the potential presence of areas that may visually contrast with the context of an action area, and the disruption of the site during construction. The subapplicant would implement environmental mitigation measures during construction activities and conduct site cleanup and restoration following the completion of construction, which would limit these impacts.

Modifications to existing facilities would generally not have substantial long-term impacts on visual resources. Impacts that do occur would be limited to the immediate vicinity of the action. For example, use of concrete to armor the bank of the stream in an area that was riprapped before the disaster would affect the visual quality of the immediate area of the action. Most facility improvements would be designed to be visually compatible with the existing surroundings, as prescribed by local building permits or ordinances. If an action were to occur in an area with specific visual resources guidelines, improvements would be carried out in accordance with the appropriate Federal, State, or local regulations.

Construction of new facilities and relocation or realignment of existing facilities could affect visual resources if the action is undertaken in an area that was previously undisturbed or in a developed area where land use differs substantially from that of the action. For example, construction of a rock revetment to limit shoreline erosion could have an impact on visual resources associated with the shoreline. Similarly, construction of a floodwall to protect a developed area could have an impact on visual resources if that wall would affect views from, and of, that area. The subapplicant would implement environmental mitigation measures, such as maintaining existing stands of trees and revegetating with native plants where possible, to minimize long-term impacts to visual resources.

4.13.3 Consequences Attributable to Specific Activities

4.13.3.1 Nonemergency Debris Removal

Impacts and appropriate mitigation measures related to visual resources for this action are adequately discussed in Section 4.13.2.

4.13.3.2 Constructing, Modifying, or Relocating Facilities

Impacts in this section incorporate only the following types of activities described in Section 2.3:

- Providing temporary facilities
- Acquiring and demolishing existing facilities
- Upgrading or otherwise modifying buildings

All other activities described in Section 2.3 are not expected to impact visual resources, or the consequences and mitigation measures for these activities are included in Section 4.13.2.

Providing Temporary Facilities

Temporary facilities located on land not previously disturbed or on a site that is not located in a compatible residential area could have a potentially adverse impact on the visual character of the area where the action is implemented, depending on the surrounding context and visual character of the area where the temporary facility is located. This impact would be short-term as the facilities would be removed when they are no longer needed and the land would be restored to its original use.

Acquiring and Demolishing Existing Facilities

In areas where existing facilities would be demolished and removed, the resulting space would be graded to visually conform to adjacent topography. These areas would be converted to open space, parks, or recreational use. If the adjacent areas consist of vegetated areas or other open space, this conversion from the built environment to the natural environment would have a beneficial impact on visual resources. However, the removal of structures from a neighborhood could disrupt continuity; the resulting gaps could provide a strong contrast that would be highly noticeable and could result in blight in the long-term.

Upgrading or Otherwise Modifying Buildings

Exterior modifications to structures would have an impact on visual resources. In most cases, work would be completed in a manner that is visually compatible with the existing structure and therefore, the impact would be negligible or minor and would not result in indirect effects to neighboring structures. However, the elevation of a structure above flood levels could adversely impact the surrounding structures, if they are not similarly elevated, by cutting off views and disrupting continuity in the profile of adjacent structures.

4.13.3.3 Activities Involving Watercourses and Coastal Features

Impacts and appropriate mitigation measures related to visual resources for this action are adequately discussed in Section 4.13.2.

4.13.3.4 Vegetation Management

Impacts in this section incorporate all the types of activities described in Section 2.5.

The removal of vegetation along highways and in residential, commercial, and recreational areas has the potential to impact visual resources. Depending on the maintenance schedule of the vegetation management project, the impact to visual resources could be short-term or permanent. Activities that include revegetation with native, fire-resistant species could yield long-term beneficial impacts to visual resources, while a poorly maintained action could cause permanent impacts to visual resources if invasive, nonnative species that do not conform to the existing visual setting dominate the cleared or burned area.

The use of biological control would change the visual context of an area by adding livestock and fencing to the viewshed. The visual texture of areas under biological control could be changed relative to adjacent areas not being controlled in a way that results in a patchwork-type pattern in the viewshed.

The appropriate mitigation measures related to visual impacts from these activities are discussed adequately in Section 4.13.2 above.

5.1 CUMULATIVE IMPACTS

Under CEQ's NEPA Implementing Regulations, a cumulative impact is defined as an impact on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of which 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). In other words, cumulative effects result from combining the direct and indirect effects of the proposed action with the direct and indirect effects of other actions.

Through this PEA, FEMA is evaluating the potential environmental consequences of actions FEMA typically funds in Arizona, California, and Nevada to respond to disasters resulting from floods, earthquakes, wildfires, rain and windstorms. These actions are described in Section 2 of this document and include non-emergency debris removal; constructing, modifying, or relocating facilities; actions involving water courses and coastal facilities; and vegetation management. In addition, the No Action Alternative is evaluated.

Because these actions would result from a future disaster event, the specific locations of the actions are unknown at the time of this assessment. Therefore, FEMA is relying on its experience with and knowledge of the typology, descriptions, and consequences of typical recurring actions in Arizona, California, and Nevada, as described in previous NEPA documents such as FEMA's 2003 *Final Programmatic Environmental Assessment for Typical Recurring Actions in California*. The 2003 PEA and other NEPA documents that have been conducted for these typical actions are valuable tools and provide the framework for the analysis conducted in the PEA. FEMA's knowledge, experience, and past NEPA documentation was supplemented with a review of scientific literature, consultation with regulatory agencies for previous FEMA actions, NEPA documentation for programmatic actions taken by other Federal agencies in Arizona, California, and Nevada, and expert opinion.

The scope of the cumulative impact analysis in this chapter assumes the actions funded under FEMA's various grant programs would be similar to the level of funding over the last 3 years The amount of funding granted to Arizona, California, and Nevada for calendar years (CY) 2011 through CY 2013 are as follows[8]:

- Arizona: $8,621,843.63
- California: $21,352,828.68
- Nevada: $1,570,864.66

5.1.1 Other Programmatic Actions in Arizona, California, and Nevada

In July 2012, the U.S. Department of the Interior, BLM and the U.S. Department of Energy (DOE) published the *Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy*

[8] Source: http://www.fema.gov/disasters - searched by state

Development in Six Southwestern States (BLM and DOE PEIS). This PEIS included a cumulative impact analysis for solar projects in various states including in Arizona, California, and Nevada. FEMA has used some of the information provided in the PEIS' cumulative impact. Other past, present and foreseeable future actions in Arizona, California, and Nevada that were considered in the cumulative impact analysis include programmatic level projects, actions, and trends that could affect the human environment, as defined in the CEQ regulations (40 CFR §1508.14). Some of the actions were derived from the BLM and DOE PEIS (BLM and DOE 2012) as well as from additional literature reviews.

5.1.1.1 Renewable Energy Projects

Mandatory State Renewable Portfolio Standards. Arizona, California, and Nevada are among the 30 states that have set mandatory standards, known as Renewable Portfolio Standards (RPS), that require electric utilities to generate a specified amount of electricity from renewable sources (e.g., solar, wind, geothermal, or biomass) by a given date (EPA, 2014)[9]. There can be multiple goals for an RPS such as local, regional, or global environmental benefits (cleaner air and reduction in GHGs),, as well as economic development goals and benefits of job creation, energy security, and advancing specific technologies(Pew Center on Global Climate Change 2010).

States have tailored their RPS requirements to satisfy particular policy objectives, electricity market characteristics and renewable resource potential. As such, there is wide variation in RPS rules from state to state with regard to the minimum requirement of renewable energy, implementation timing, eligible technologies and resources, and other policy design details. For example, Arizona requires use of 15% renewable energy sources by 2025, while California requires use of 33% renewable sources of total energy generation by 2020. (North Carolina Solar Center and Interstate Renewable Energy Council 2010). In Nevada the RPS' requirement of using 25% renewable sources by 2025, include a solar set-aside, requiring that 5 percent of the utilities' portfolios be provided from solar energy. Because of these RPS', there is an increased interest in the states for solar projects.

Solar Energy. In 2008, solar energy accounted for about 1 percent of renewable electricity generation and about 0.097 percent of the total U.S. electricity supply (BLM and DOE 2012). As of February 2010, there were 127 active applications pending for utility-scale solar power–generating facilities on BLM-administered public lands, with a total estimated capacity of approximately 74,000 MW. Manufacturing of components for utility-scale solar facilities occurs in all states in the study area; these facilities are generally located in larger urban areas (BLM and DOE 2012). Tables 5.2, 5.3, and 5.4 show large solar projects in Arizona, California, and Nevada.

5.1.1.2 Other Programmatic Level Projects

Additional programmatic level actions in the three states that are not on federal land and were taken into consideration for the cumulative impact assessment are discussed below.

California High-Speed Rail. The California High-Speed Rail Authority has proposed high-speed train service for intercity travel in California between the major metropolitan centers of the San

[9] EPA AgSTAR Program Website: http://www.epa.gov/agstar/tools/funding/renewable.html. Accessed September 3, 2014.

Francisco Bay Area and Sacramento in the north, through the Central Valley, to Los Angeles and San Diego in the south. To comply with the California Environmental Quality Act (CEQA) and the NEPA, a Final Program EIR/EIS has been prepared. The Authority is both the project sponsor and the lead agency for purposes of the State CEQA requirements. The Federal Railroad Administration is the federal lead agency for compliance under NEPA.

Figure 5.1 shows the preferred alignment and station locations for the California High Speed Rail Project.

Table 5.1 Solar Projects in Arizona on BLM Lands

Project Name	Location	Size (megawatts)	Owner	Status
Horizon Aguila	Maricopa	250	Horizon Wind Energy LLC	Under Development
Gila Bend	Maricopa	500	First Solar	Under Development
Hyder Valley Solar Energy	Maricopa	300	Pacific Solar Investment	Under Development
Mountain	Mohave	250	Boulevard Associates LLC	Under Development
Eagletail	La Paz	1,500	Pacific Solar Investment	Under Development
Rangegras	La Paz	2,000	Pacific Solar Investment	Under Development
La Posa Solar Thermal	La Paz	2,000	Pacific Solar Investment	Under Development
Quartzsite	La Paz	500	First Solar	Under Development
Vicksburg	La Paz	500	First Solar	Under Development
Centennial	La Paz	500	First Solar	Under Development
Palomas	Yuma	500	First Solar	Under Development
Quartzsite	La Paz	100	Solar Reserve	Under Development
Little Horn	La Paz	1,000	IDIT Inc.	Under Development
Wildcat Quartzsite	Yuma	800	Wildcat Quartzsite LLC	Under Development
Bouse	La Paz	500 & (2) 250	(BrightSource Energy)	Under Development
Wildcat Harcuvar South	La Paz	(4) 200	Boulevard Associates LLC	Under Development
Horizon	La Paz	250	Wildcat Harcuvar South LLC	Under Development

Source: http://www.blm.gov/az/st/en/prog/energy/solar/pend-solar.html

Table 5.2 Solar Projects in California

Project Name	Location	Size (megawatts)	Owner	Status*
Victorville 2 Hybrid Power	Victorville	563	City of Victorville	Approved 7/16/08
Beacon Solar Energy	Kern County	250	Beacon Solar LLC	Approved 8/25/2010
Abengoa Mojave Solar	San Bernardino County	250	Abengoa Solar Inc.	Approved 9/8/2010
Blythe Solar Power	Riverside County	1,000	NextEra Blythe Energy Center LLC	Approved 9/15/2010
Ivanpah Solar	San Bernardino County	370	Solar Partners/Brightsource	Approved 9/22/2010
Imperial Valley Solar (Formerly SES Solar Two Project)	Imperial County	709	Imperial Valley Solar LLC	Approved 9/29/2010

Project Name	Location	Size (megawatts)	Owner	Status*
Genesis Solar	Riverside County	250	Genesis Solar LLC / NextEra™ Energy Resources LLC	Approved 9/29/2010
Calico Solar Project (Formerly SES Solar One Project)	San Bernardino County	663	Calico Solar LLC/Tessera Solar (formerly Stirling Energy Systems)	Approved 10/28/2010
Palen Solar Power	Riverside County	500	Nalep Solar Project I, LLC	Approved 12/15/2010
Rice Solar Energy	Riverside County	150	Rice Solar LLC / SolarReserve LLC	Approved 12/15/2010
City of Palmdale Hybrid Gas-Solar	Palmdale	570	City of Palmdale	Approved 8/10/2011
Carrizo Energy Solar Farm	San Luis Obispo County	Withdrawn	Carrizo Energy LLC	Withdrawn
San Joaquin Solar 1 & 2	Fresno County	Withdrawn	San Joaquin Solar LLC	Withdrawn
Ridgecrest Solar Power Project	Kern County	250	Solar Millennium	Under Review
Hidden Hills Solar Electric	Inyo County	500	BrightSource Energy Inc.	Under Review
Rio Mesa Solar Electric	Riverside County	750	BrightSource Energy Inc.	Under Review

*AFC = Application For Certification is the license application filed with California Energy Commission for thermal power plants 50 megawatts or larger.

Source: http://www.energy.ca.gov/siting/solar/

Table 5.3 Solar Projects in Nevada

Project Name	Location	Size (megawatts)	Owner	Status
Amonix Pecos Solar	North Las Vegas	0.5	Amonix	Operational
CNLV Solar	North Las Vegas	1	Amonix	Operational
Crescent Dunes	Tonopah, Nevada	110	SolarReserve	Under Construction
FRV Spectrum Solar	Clark County	30	SunEdison	Under Development
Las Vegas Valley Water District (6 projects)	Las Vegas	3.	Las Vegas Valley Water District (operated by PowerLight Corporation)	Operational
Mountain View Solar	Apex, Nevada	20.	City of North Las Vegas	Under Development
Nellis Air Force Base Solar Star	Nellis Air Force Base	13	Fotowatio	Operational
Nevada Solar One	Eldorado Valley	69	Acciona Solar Power	Operational
RV Apex Solar	Northeast of Las Vegas	20	SunEdison	Under Construction
Searchlight Solar	Searchlight, Nevada	17	American Capital Energy	Under Development
Silver State solar	Primm, Nevada	52	Enbridge, Inc.	Operational

Source: https://www.nvenergy.com/renewablesenvironment/renewables/solar.cfm

Figure 5.1 - California High Speed Rail Preferred Alignment and Station Locations

Source: http://www.hsr.ca.gov/docs/programs/eir-eis/statewide_EIR_EIS_brochure.pdf

California State Water Project. The California State Water Project is a water storage and delivery system comprised of reservoirs, aqueducts, power plants and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. Of the contracted water supply, 70 percent goes to urban users and 30 percent goes to agricultural users. The Project is maintained and operated by the California Department of Water Resources. Future Activities associated with the project include the East Branch Extension from the Devil Canyon Powerplant Afterbay to Cherry Valley through a series of existing and new facilities that will be constructed in two phases (California Department of Water Resources 2013).

Nevada Pumped Storage Projects. The proposed Nevada Blue Diamond Pump Storage project is a 450 megawatt pumped storage facility located in Clark County, Nevada. The facility includes construction of closed-loop upper and lower reservoirs, utilizing water to be imported from an outside source. Additional pumped-storage projects include two sites in Humboldt County being developed by Winnemucca Farms Inc. while Gridflex Energy LLC, a private company based in Boise, Idaho, is hoping to build plants in three locations: in Clark County, Ely County and a site straddling Lyon and Mineral counties. All five projects have received preliminary permits from the Federal Energy Regulatory Commission (Nevada Hydro Company 2013).

5.1.2 Cumulative Impacts Assessment for Typical FEMA Actions

5.1.2.1 Geology, Seismicity, and Soils

Construction activities, whether related to FEMA actions or other past, present and foreseeable action, can disturb area soils through excavation; heavy equipment use; demolition; site construction; vegetation removal; or similar actions. For utility scale solar projects, the primary concern is the large acreages that would be disturb for construction.

Soil loss would occur directly from ground disturbance or indirectly through wind or water erosion. The subapplicant would implement mitigation measures to prevent soils from eroding and dispersing off-site, and to control erosion from construction access and equipment staging and stockpiling. Actions that would involve work in stream channels or areas with high erosion potential may be especially susceptible to soil loss through erosion, bank failure, or landslides. The subapplicant would employ mitigation measures such as the use of sand bags, silt fences, coffer dams, and temporary diversion channels to mitigate these impacts.

Although some FEMA actions could occur on steep slopes, the topography of suitable solar sites is necessarily flat in general. However, the entire solar field site would have to be graded to produce a very smooth, very flat surface for solar collectors. While mitigation measures would be used, some soil loss would be unavoidable.

The impacts of FEMA-funded projects on soil would be minimal with the use of mitigation measures. Solar energy development would be a major contributor to cumulative impacts on soil from foreseeable development in Arizona, California, and Nevada. Other actions that would contribute to soil erosion are rail and road construction, including that associated with solar and other renewable energy development, transmission lines, pipelines, mining, agriculture, and off-highway vehicle (OHV) use. Overall foreseeable cumulative impacts on soil would be small to

moderate with appropriate mitigations in place and given the relatively small fraction of total land area potentially affected by all development.

5.1.2.2 Air Quality

Short-term, localized impacts to air quality from construction activities would likely include fossil-fuel use for construction equipment, and use of materials containing VOCs, and PM_{10} emissions from soil disturbance and demolition. Associated particulate matter concentrations could temporarily exceed ambient air quality standards near construction areas. Mitigation measures would be used to limit construction emissions, including watering disturbed areas, maintaining and covering spoil piles, scheduling staging area siting to minimize fugitive dust, and keeping construction equipment properly tuned. Some local air quality districts enforce general prohibitory rules that require such good housekeeping measures to be implemented. In addition to the short-term impacts associated with construction and demolition, relocation of facilities or functions could result in long-term air quality impacts by increasing traffic or altering traffic patterns, increasing utility use, or introducing new activities with the potential to affect air quality.

Similar temporary, localized emissions can result from construction activities associated with solar and other foreseeable projects. BLM requires an extensive dust abatement plan for solar projects on their lands to reduce the PM levels generated during construction (BLM and DOE 2012). The operation of solar facilities would produce very few emissions. Power-block facilities in solar thermal plants could produce some cooling tower drift if water cooling is used, as well as small levels of pollutants from natural gas or propane combustion from backup generators or occasionally from emergency diesel generators. Portions of facilities that are maintained vegetation-free during operations could be a source of windblown fugitive dust, although design features requiring dust minimization would reduce this effect. There also would be limited emissions from vehicles and natural gas-fired pre-heat boilers (if used) (BLM and DOE 2012).

Overall, emissions from FEMA actions, solar facilities, and other actions would be low and would not contribute to local or regional air pollution. Contributions to cumulative effects on air quality would likewise be low, and cumulative effects from other foreseeable development in Arizona, California, and Nevada would be low because solar facilities are generally built in remote areas where air quality issues are rare. Portions of the study area, such as southern California, have ongoing air quality problems. With appropriate application of mitigation measures, FEMA actions are not expected to have substantial long-term impacts. Solar developments in the three-state region would also not have long-term impacts. Both activities would contribute to an increase in particulate matter (fugitive dust) during construction.

5.1.2.3 Climate Change and Greenhouse Gas Emissions

As discussed in Section 4.3, FEMA actions could result in relatively minor short-term, local impacts to GHG emissions from the use of fossil fuels in construction equipment. Long-term, minor emissions could also result from relocating or reconstructing facilities that include expansion of an existing activity (e.g., the relocation/expansion of a power-generating facility); constructing a new facility that includes new or modified stationary sources (e.g., fossil-fuel fired electrical generators); constructing new or relocating facilities or other actions involving a change in traffic patterns. Since new heating systems are typically more efficient, adding a new

heating system to existing buildings could reduce GHG emissions. New utility systems such as power plants, electricity transmission stations, and wastewater treatment plants are also expected to be more energy efficient than older facilities, and could result in beneficial impacts.

An indirect increase in GHG emissions could result from vegetation management and the loss of carbon sinks contained in the vegetation that would be removed. For projects that include regrowth along with vegetation removal that could occur during maintenance in an action area, indirect GHG emissions could be negligible because young vegetation stands (i.e., regrowth) tend to sequester carbon at a faster rate than older vegetation stands, and therefore any impacts would likely be minor.

Utility-scale solar energy development contributes relatively minor GHG emissions as a result of emissions from heavy equipment, primarily used during the construction phase; vehicular emissions; and natural gas or propane combustion from backup generators. The removal of vegetation from within the footprint of solar energy facilities would reduce the amount of carbon uptake by terrestrial vegetation, but only by a small amount (about 1 percent of the CO_2 emissions avoided by a solar energy facility compared to fossil-fuel generation facilities [BLM and DOE 2012]).

Utility-scale solar energy production over the next 20 years may result in fewer CO_2 emissions from utilities by offsetting emissions from new fossil-fuel energy sources. CO_2 emission offsets related to increased solar energy production could range from a few percentage points to more than 20 percent in some of the study area states if future fossil energy production were offset by solar energy (BLM and DOE 2012).

Because GHG emissions are aggregated across the global atmosphere and cumulatively contribute to climate change, the specific impact on global climate change from GHG emissions associated with FEMA actions or with solar energy development cannot be estimated. However, increased solar energy generation could cumulatively result in fewer GHG emissions if it offsets electricity generation from new fossil-fuel facilities and therefore, the cumulative impact of these activities would not be significant.

5.1.2.4 Water Resources

Temporary impacts to water quality could occur due to the operation of heavy equipment, disturbance of soils, placement of rock or soil in water sources, and dewatering of water sources during construction activities; and any work in a watercourse. The subapplicant would employ Mitigation measures, as necessary, to limit these impacts. Actions taken to prevent future flood damage to facilities, including acquisition and demolition; upgrading to meet current codes and standards, particularly through structure elevation; floodproofing; realignment; relocation; and bank stabilization using bioengineering techniques would generally have long-term beneficial impacts on water quality.

Vegetation management activities have the potential to result in adverse impacts to hydrology and water quality due to an increased potential for erosion and sedimentation and for herbicides to reach water bodies. These impacts can be short-term or long-term, but can be mitigated by using mitigation measures and by revegetating the sites. Overall, FEMA actions are not expected to have a significant impact on water quality.

As described in the BLM and DOE PEIS (BLM and DOE 2012) solar energy facilities have a higher potential to impact water quantity than FEMA actions. Groundwater sources would typically be used for water cooled facilities because surface water sources in Arizona, California, and Nevada are scarce. Where groundwater or surface water use for cooling was available, the operation of solar energy facilities could affect surface water flows and groundwater supplies and water levels. This water use could impact aquatic, riverine, and wetland habitats and communities, municipal and agricultural water supplies, and ground surface subsidence. Effects could occur at significant distances down gradient from the point of use, depending on local hydrology (BLM and DOE 2012).

Cumulative impacts on water supplies in the three-state region from foreseeable development could range from small to moderately high. Impacts would be constrained by the limited availability of water rights, and oversight by state and local water authorities. Large drawdowns due to solar energy demands are not expected because of state and local oversight of groundwater supplies and because supplies are fully allocated in much of the study area.

5.1.2.5 Biological Resources

FEMA actions in previously disturbed areas would not substantially disturb the biology of the action area. Potential impacts would be short-term and could include displacement or mortality of individual wildlife. Displaced individuals would probably return following construction, except in instances where increased use raises noise levels, quantities of light pollution, or frequency of human presence. Actions undertaken in previously undisturbed areas could adversely affect biological resources, including displacement or mortality of individual wildlife. Beneficial effects would be expected in the areas previously occupied by relocated facilities, assuming that these areas are restored to natural conditions.

Actions involving removal of debris from riparian habitat and waterways could result in short-term impacts to water quality and hydrology, which would indirectly affect hydrophytic plants in or near the affected waters and wildlife species that live in or drink from the affected water or use the affected vegetation for habitat or food. Actions involving watercourses and coastal features could affect riparian habitat and waterways. Permanent indirect impacts resulting from potential water quality and hydrology changes would occur to vegetation and wildlife. Vegetation management activities would eliminate wildlife habitat and without proper maintenance, could allow invasive species to become established.

For all actions, FEMA would be responsible for evaluating the area in which the action is implemented for the presence of federally listed or proposed threatened or endangered species, their habitat, and/or their proposed or designated critical habitat and would comply with Section 7 of the ESA, as appropriate. Similarly, FEMA would comply with other relevant regulations as described in Section 4.5 of this PEA.

The construction of solar energy facilities requires the total removal of vegetation over large portions of land, most of which is in arid or semiarid regions where restoration of vegetation is difficult and where the introduction of invasive species is a concern. The main cover types affected are typically abundant in the affected regions, so impacts to these plant communities would not be large. However, a number of minor species associated with rare or limited habitats,

such as dunes, woodland, or riparian areas in desert regions, might incur greater impacts if not avoided or protected (BLM and DOE 2012).

For solar facilities sited on BLM lands, projects may not be sited in critical habitat or occupied habitat for sensitive plant species (BLM and DOE 2012). While solar facilities would avoid wash areas and wetlands to the extent practicable, some sensitive areas could still be affected by the facilities or by access roads, transmission lines, or pipelines that traverse them (BLM and DOE 2012).

Cumulative direct impacts on plant communities from FEMA actions, solar projects, and other projects in Arizona, California, and Nevada could be moderate for some sensitive species. Because of the large land areas disturbed and the presence of sensitive communities, solar energy facilities could be a major contributor to such impacts. Mitigation measures, including avoidance, could protect most sensitive plant communities. Cumulative impacts on primary cover species would be small due to their abundance in the region.

Cumulative impacts on wildlife and aquatic biota from FEMA actions, solar projects, and other projects in Arizona, California and Nevada would be small, provided mitigation measures to preserve important habitat and migration corridors are implemented. This assumes solar projects would affect the largest amount of acreage in the study area in comparison with other activities. A few species would be of concern in some areas, including the desert tortoise, Western burrowing owl, and ferruginous hawk. Contributions to cumulative impacts from solar projects is because of disturbance to large, continuous, areas and disturbance from associated roads, transmission lines, and pipelines. However, implementation of measures identified through compliance with the ESA would minimize impacts to wildlife and sensitive species.

5.1.2.6 Historic Properties

As described in Section 4.6, historic properties, including prehistoric and historic archaeological sites, structures, and features and traditional cultural properties that have been listed in or are eligible for listing in the NRHP are of concern. Consultation under Section 106 of the NHPA must be conducted prior to initiating any action. Consultation with affected local Native American Tribes regarding their knowledge of and/or concerns for cultural resources in a given project area must be implemented early and often throughout the project development process. In the event that cultural resources are unexpectedly encountered during construction activities, provisions should be in place to address the appropriate evaluation and treatment of such cultural resource discoveries.

Direct physical impacts could occur when historic structures are demolished, modified, upgraded, realigned, or relocated or to subsurface historic and prehistoric archaeological sites when ground-disturbing activities are conducted. Indirect impacts to historic properties could occur when nearby facilities are modified or relocated or when temporary facilities are constructed, resulting in indirect changes, such as visual or noise impacts, that change the context of the historic setting. In addition, indirect effects to archaeological sites may result if vegetation is removed and the site is openly exposed, increasing the likelihood of vandalism, looting, and natural hazards such as erosion. As with FEMA actions, cultural resources are also subject to loss during construction of solar facilities and associated roads and transmission lines.

Cumulative effects on cultural resources from FEMA actions, solar projects, and other projects in Arizona, California, and Nevada are expected to be small because of the relatively small fraction of total land disturbed by the aggregate of actions. Solar energy development could be the biggest contributor to these impacts. However, as stated in the BLM and DOE PEIS (BLM and DOE 2012) solar facilities would be sited away from areas rich in cultural resources, where possible.

5.1.2.7 Socioeconomics

FEMA actions would have beneficial impacts on socioeconomic resources, including restoring disaster-damaged facilities and patterns of traffic, residential use, and commercial activity; reducing the potential for disaster-related losses to residents, businesses, and government facilities; decreasing risks to human safety for persons inhabiting or using facilities that are protected from future damage. Nonetheless, individual actions can result in adverse socioeconomic impacts.

Acquisition programs, although voluntary, may result in adverse financial impacts related with the amount compensated not being sufficient to purchase or build a comparable structure; the cost of relocation; community disruption; and changes in commuting patterns or employment. Tenants in rental properties that are acquired could be adversely affected if their income is not sufficient to pay rent in comparable units or if rental units are not available. Similarly, home owners and business owners that are not part of acquisition programs may find it economically infeasible to relocate and must remain in the community. Conversely, acquisition and demolition actions would decrease potential future human health and property risk. These measures would prevent future financial losses to residents, businesses, and governments.

Relocating the function of buildings to alternative structures outside of high-hazard areas could have impacts. Residents would likely require interim housing, and businesses would be impacted by loss of sales caused by closings. Providing alternate roads and water crossings would impact road users. However, these impacts would be mitigated by compliance with the URARPAPA, and applicable state regulations.

Some actions involving watercourses or coastal features could result in increased flood elevations on private property, which could decrease property values, increase flood insurance premiums, and increase cleanup and repair costs from future floods. Vegetation management actions would decrease the hazard of wildfires having a beneficial impact on public safety and future property damages. In cases where visual resources or noise are adversely affected in residential areas, there could be adverse impacts to property values.

Solar energy generation can result in construction jobs and permanent operations jobs being created. Photo-voltaic (PV) facilities require the fewest workers, while parabolic solar thermal trough technologies require the most workers.

Cumulative social impacts for all actions would likely be minor, due to the distribution of many of the activities over a long period of time. However, the overall cumulative economic activity related to general development in Arizona, California, and Nevada would benefit the economies of any of the affected localities.

Environmental justice effects concern any disproportionately high and adverse human health or environmental effects of federal actions, programs, or policies on minority or low income

populations. FEMA actions and other programmatic actions have the potential for such effects where minority or low-income populations may be affected. Such effects may derive from air pollution, noise, land use change, cultural, or socioeconomic impacts. These effects may be negative, as in the case of increased noise levels or altered land use patterns, or positive, as in the case of local or regional economic benefits resulting from increased jobs and revenue.

The cumulative effects on environmental justice from FEMA actions, solar projects and other projects in Arizona, California, and Nevada are expected to be small because of the low level of health and environmental effects associated with most of the project types and the availability of effective mitigation.

5.1.2.8 Land Use and Planning

FEMA actions that include constructing, modifying, or relocating facilities have the potential to result in a direct change in land use or cause a conflict with the local zoning ordinance or general plan. In addition, actions that include creating or widening a waterway or constructing or modifying a water detention, retention, or storage facility have the potential to affect land use.

If the proposed action would convert designated prime farmland, unique farmland, or farmland of statewide or local importance to nonagricultural purposes, FEMA would complete the required Form AD-1006 and consult with NRCS.

Solar energy facilities, for the most part, would be built in rural areas on large tracks of flat, open, lands where high levels of solar insolation are present. Such lands are typically sparsely populated, often isolated, and typically lightly used, including for grazing, mineral production, limited recreation, and ROWs for wind energy development, transmission lines, other linear utilities, and roads. Placing solar energy facilities in these areas usually represents a new and different land use, creating areas of commercial/industrial character in rural environments (BLM and DOE 2012).

Solar energy development results in intensive coverage of land surface that renders the land used incompatible for most other uses, including grazing, mineral development, and recreation. Although wind and geothermal facilities also encompass large areas, they are generally more compatible with other such uses, because they require less land and can accommodate multiple uses. The magnitude of land use effects from solar development could be fairly large locally, but significantly smaller regionally, and small overall over the three-state area (BLM and DOE 2012).

Renewable energy development is by far the largest potential new future use of rural lands. No other major contributors to cumulative impacts on lands and realty are foreseeable, beyond perhaps additional energy transmission and other linear systems, some of which would be built to serve renewable energy development. Thus, renewable energy development would be a major contributor to cumulative impacts on land use in Arizona, California, and Nevada. Solar energy development, because of its intensive land use, would be the biggest contributor to those impacts (BLM and DOE 2012).

5.1.2.9 Public Services and Recreation

Temporary construction impacts to public services and recreation may be expected as a result of limitations in access to areas; however, these impacts would be short-term and negligible.

Mitigation measures to avoid temporary impacts to public services may include timing construction activities to minimize impacts to public utility users or providing alternate locations for recreational opportunities. The sites of properties that are acquired and demolished would frequently be made into public parks, resulting in a beneficial impact to recreational services.

Constructing new facilities, relocating existing facilities, or relocating the function of disaster-prone facilities to existing facilities would probably directly affect public services. Beneficial impacts would occur by reducing the risk of future damage to the relocated facility. Adverse impacts associated with this action could involve changes in the time and distance required to access public services, including the length of school bus trips or average response times for police and fire.

Additional impacts from relocating a school's function could include increased class size and school density, holding classes in trailers, phasing classes or grades to share space, and integrating students from disparate grades. These impacts could adversely influence the educational experience for students but would allow schools to operate during flood events.

Expanding fire reduction zones could affect public services by causing the temporary closure of a public facility, road, or bridge. School buses, police, and fire vehicles could be forced to take alternate routes or experience delays; however, these impacts are expected to be temporary. More than other public services, vegetation management would have the potential to impact some recreational facilities. A natural park or forest could experience an extended closure to conduct mechanized clearing or even implement a grazing program. In the case of certain activities, such as clear-cutting, some recreational resources, such as the enjoyment of natural beauty, could be damaged for many years following the action. Noise from mechanical equipment could decrease a natural experience for recreational users.

As described in the BLM EIS (2012), for solar projects on BLM lands, special recreation management areas (SRMAs) are excluded from solar development, so these areas could be affected only indirectly by solar facilities located close to their boundaries. SRMAs identify public lands with many of the BLM's most well-known and highly used recreational opportunities, so excluding SRMAs from solar development would limit the significance of impacts to recreation. The presence of solar facilities would affect mainly OHV use and low levels of hunting, camping, and photography. In addition, access to recreational areas could be restricted by solar facilities.

The cumulative effects on public services and recreation from FEMA actions, solar projects and other projects in Arizona, California, and Arizona are expected to be small. Other renewable energy facilities would affect areas of low recreational use, as would most other types of foreseeable development in the region, including mining, agriculture, and linear transmission facilities.

5.1.2.10 Transportation

In general, the implementation of the proposed activities would result in temporary impacts to transportation. Construction activities could result in roadway and traffic lane closures and heavy construction equipment use on roadways. Additionally, pedestrian and bicycle facilities such as sidewalks and bike lanes could incur temporary impacts such as short-term closures. These activities would result in congestion, delays, and detours, whose intensity would depend on the

location and extent of the activities associated with an action. To minimize adverse impacts to traffic and circulation, the subapplicant would be required to implement several mitigation measures listed in Section 4.10.

Providing temporary facilities; constructing new facilities or relocating existing facilities; relocating the functions of existing facilities would have the potential to affect traffic and transportation but increasing traffic volumes in the vicinity of the replacement facility and decreasing them in the vicinity of the existing facility. Detouring road users to alternate routes could also impact transportation networks.

Construction, realignment, or modification of infrastructure would directly impact use of the facility being constructed, realigned, or modified. However, these actions would also indirectly impact the use of other transportation routes in the area. Construction or modification of water crossings would directly impact the water crossing being constructed or modified. However, these actions would also indirectly impact other transportation routes or marine facilities, such as boat docks, in the area. Vegetation removal and other vegetation management actions would cause congestion, delays, and possible detours from heavy equipment when roads are used to access areas scheduled for vegetation management.

Effects on transportation systems from solar development would occur mainly during construction of facilities and would affect primarily local road systems and traffic flow. Such effects would be temporary and could be mitigated through minor road improvements at access points and through reduction in traffic congestion through carpooling and coordination of shift changes. Because of the small number of workers required to operate plants and the relatively low level of delivery traffic to and from facilities required for operation, cumulative impacts on transportation systems during facility operations would be minimal (BLM 2012). Only minor contributions to cumulative effects on transportation would be expected in the three-state study area during from FEMA actions, solar facilities, and other projects.

5.1.2.11 Noise

FEMA construction activities would typically result in short-term noise increases from the use of construction equipment, and the increased sound associated with work crews and demolition, construction, and hauling activities. Construction of new facilities may introduce long-term noise sources such as traffic, into a location. Vegetation removal could also result in a long-term increase in noise at some receptors. Activities would comply with local noise ordinances and State and Federal standards and guidelines. Special precautions may be required around noise-sensitive receptors such as outdoor amphitheaters, funeral homes, schools, or hospitals, including special work hours, public notification, and mitigation measures related to maintaining mechanized equipment in good working order.

Similar to FEMA activities, noise effects during construction of solar facilities would be similar to those from any large construction project. Such impacts would depend on the type of solar technology being installed, with the lowest noise impacts for PV and dish engine installation and the greatest noise impacts and ground vibration associated with power block construction for solar energy facilities. Facility construction typically requires from1 to 3 years, with intermittent noise nuisance effects possible on nearby residents and/or wildlife (BLM 2012).

Noise for solar facility operations would be generally low and depend on the solar technology. PV facilities would produce little or no noise. Solar thermal facilities would produce low levels of continuous noise from power blocks and from cooling towers or cooling fans in air cooled plants. Power blocks represent a localized noise source typically located near the center of a solar facility and far from facility boundaries. Dish engine facilities present the greatest concern for noise, because each dish represents a single, distributed noise source. While a single dish engine produces modest noise levels, a solar facility might employ thousands of them, presenting a significant noise concern near facility boundaries. Careful siting would mitigate such impacts. For example, SEZ-specific design features generally require siting of dish engine solar fields from 1 to 2 miles (2 – 3 kilometers) from residential areas. Since noise impacts are short range and solar development areas are mainly sparsely populated and otherwise largely undeveloped, few cumulative noise impacts would occur.

5.1.2.12 Hazardous Materials and Wastes

FEMA construction activities may disturb hazardous materials present at the site of an action. The removal and proper disposal of the materials would result in a beneficial effect to the community. In addition, construction activities typically use petroleum-powered equipment. Improper use and storage of this equipment or inappropriate handling of petroleum could result in an accidental release of petroleum materials. Use of mitigation measures can reduce the potential for hazardous material releases or accidents and ensure that any accidental release would be finite, and localized.

Debris removal would likely result in the transport and disposal of hazardous waste. In addition, existing facilities may have hazardous materials such as asbestos and lead. Such waste must be handled, transported, and disposed of in compliance with Federal, State, and local regulations. Vegetation management actions may involve the storage and use of potentially hazardous materials, such as chemical treatments, fuel, and fire-suppression materials. If used and stored in accordance with local, State, and Federal regulations, herbicides and other chemical treatments would not be expected to result in adverse impacts related to human health or the natural environment.

Construction activities associated with construction and operation of solar energy plants may have some of the same impacts discussed for FEMA actions, and can be mitigated through the use of mitigation measures and proper handing, transporting and disposing of the materials.

Cumulative effects on hazardous wastes from FEMA actions, solar projects, and other projects in Arizona, California, and Nevada are expected to be small. The use of Environmental mitigation measures and handling, transporting and disposing of in compliance with Federal, State, and local regulations should minimize any impacts.

5.1.2.13 *Visual Resources*

Short-term impacts to visual resources from FEMA actions would be caused by heavy equipment, the debris and construction materials, work crews, the temporary increase in construction-generated dust, and the disruption of the site during construction. Modifications to existing facilities would generally not have substantial long-term impacts on visual resources. Most facility improvements or modifications would be designed to be visually compatible with the existing surroundings, as prescribed by local building permits or ordinances. However,

elevating a structure above flood levels could adversely impact the surrounding structures, if they are not similarly elevated. Construction of new facilities and relocation or realignment of existing facilities could affect visual resources if the action is undertaken in an area that was previously undisturbed or in a developed area where land use differs substantially from that of the action. The removal of vegetation could also impact visual resources.

Temporary facilities could also have a short-term adverse impact on the visual character of the area where the action is implemented, based on the surrounding context and visual character of the area. In areas where existing facilities would be demolished and removed, the sites would be converted to open space, parks, or recreational use. This conversion could be beneficial if surrounded by natural areas. However, the removal of structures from a neighborhood could create a “checkerboard” effect and could result in blight in the long-term.

The introduction of solar facilities and their associated transmission lines, roads, pipelines, and lighting would alter the landscape and produce changes in the visual character. In addition, solar energy production locations are typically in basin flats surrounded by mountains or highlands where sensitive viewing locations exist. Thus, solar development would be a major contributor to cumulative visual impacts in Arizona, California, and Nevada. Visual impacts from solar facilities would be mitigated through design features and careful siting of facilities relative to sensitive viewing sites. Concerns for visual impacts could also affect solar technology selection, such as the height of solar tower facilities (BLM and DOE 2012).

Cumulative effects on visual resources from FEMA actions, solar projects, and other projects in Arizona, California, and Nevada are expected to be small because of the relatively small fraction of total land disturbed by the aggregate of actions. Solar energy development could be the biggest contributor to these impacts.

The Draft PEA was circulated to interested public and government agencies, and made available online to the general public for review and comment. Agencies that received a copy of the Draft PEA are listed in Appendix E. No concerns or comments regarding this project were received during the 30 day comment period. FEMA will circulate its findings determination (i.e. a Finding of No Significant Impact) as a result of the preparation of the Draft PEA and public and government agency review. The PEA and Finding of No Significant Impact will be available to the public through the life of the document.

In addition to the circulation of the Draft PEA, SEAs would go through an appropriate level of public review before FEMA makes a NEPA compliance determination. FEMA would determine the need for public involvement and circulation of an SEA based on the factors described in Section 1.8.2 or as otherwise determined by FEMA. For instance, in many cases the subapplicant would have already completed extensive public and agency outreach as part of project development or local environmental compliance. FEMA may determine that the subapplicant has independently performed adequate public involvement and no additional public involvement is warranted.

FEMA would comply with the public notification process required for compliance with EO 11988 and 11990 and 40 CFR §9, when applicable for an action. Additionally, a Cumulative Public Notice will be published at the time of the Presidential Declaration of each future disaster subject to this PEA.

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8.1 GEOLOGY, SEISMICITY, AND SOILS (SECTIONS 3.1 AND 4.1)

FEMA (Federal Emergency Management Agency). 2009. *National Earthquake Hazards Reduction Program (NEHRP) Recommended Seismic Revisions for New Buildings and Other Structures (FEMA P750) 2009 Edition*. Prepared by the Building Seismic Safety Council of the National Institute of Building Sciences. Washington, D.C.

Hart, E.W. 1994. Fault-rupture hazard zones in California. Alquist-Priolo Earthquake Fault Zoning Act with index to Earthquake Fault Zones maps. *California Division of Mines and Geology Special Publication* 42.

Hart, E.W., Bryant, W.A., and Trieman, J.A. 1993. Surface faulting associated with the June 1992 Landers earthquake, California. *California Geology* 46:10-16.

Heaton, T.H., and Hartzell, S.H. 1987. Earthquake hazards on the Cascadia subduction zone. *Science* 236:162-168.

Jennings, C.W. 1994. Fault activity map of California and adjacent areas. *California Division of Mines and Geology Geologic Data Map* 6, scale 1:750,000.

Jibson, R.W., Harp, E.L., Keefer, D.K., and Wilson, R.C. 1994. Landslides triggered by the Northridge earthquake. *Earthquakes and Volcanoes* 25:31-41.

Knudsen, K.L., Noller, J.S., Sowers, J.M., and Lettis, W.R. 1997. Quaternary geology and liquefaction susceptibility maps, San Francisco, California 1:100,000 quadrangle. *U.S. Geological Survey Open-File Report* 97-715.

Legg, M.R., and Kamerling, M.J. 2000. Large-scale basement-involved landslides along the California Continental Borderland. In *Workshop on the Prediction of Underwater Landslide and Slump Occurrence and Tsunami Hazards off of Southern California,* University of Southern California, March 10-11.

Lubetkin, L.K.C., and Clark, M.M. 1988. Late Quaternary activity along the Lone Pine fault, eastern California. *Geological Society of America Bulletin* 100:755-766.

Ludwin, R.S., Weaver, C.S., and Crosson, R.S. 1991. Seismicity of Washington and Oregon. In *Neotectonics of North America*, Slemmons, D.B., Engdahl, E.R., Zoback, M.D., and Blackwell, D.D. eds., pp. 77-98. *Geological Society of America Decade Map* 1. Boulder, CO.

McEntire, David A. and Jill Cope. 2004. *Damage Assessment After the Paso Robles (San Simeon, California) Earthquake: Lessons for Emergency Management.* Quick Response Report 166, Natural Hazards Center, University of Colorado at Boulder. http://www.colorado.edu/hazards/qr/qr166/qr166.html.

Miles, S.R., and Goudey, C.B. 1997. *Ecological Subregions of California: Section and Subsection Descriptions.* U.S. Department of Agriculture, Forest Service, Book number R5-EM-TP-005.

Miller, C.D. 1989. Potential hazards from future volcanic eruptions in California. *U.S. Geological Survey Bulletin* 1847.

Mualchin, L. 1996. Development of the Caltrans deterministic fault and earthquake hazard map of California. *Engineering Geology* 42:217-222.

National Earthquake Information Center. n.d. URL: http://neic.usgs.gov. World Data Center for Seismology, U.S. Geological Survey Earthquake Hazard Program, Denver, CO.

NPS (National Park Service). U.S. Department of the Interior. 2006. *Eucalyptus: A Transcontinental Legacy, Fire Management, Resource Protection, and the Challenges of the Tasmania Blue Gum*. San Francisco Bay Area National Parks, Fire Education Office, Point Reyes Station, CA.

OMB (Office of Management and Budget). 1998. *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities, Circular No. A-119 Revised*. Washington, D.C.

Ogden Beeman and Associates. 1992. *Sediment Budget Study for San Francisco Bay, Final Report.* Prepared for the U.S. Army Corps of Engineers, San Francisco District.

Poland, J.F., Lofgren, B.E., Ireland, R.L., and Pugh, R.G. 1975. Land subsidence in the San Joaquin Valley, California, as of 1972. *U.S. Geological Survey Professional Paper* 437-H.

Ritter, J.R., and Dupre, W.R. 1972. Maps showing areas of potential inundation by tsunamis in the San Francisco Bay region, California. *U.S. Geological Survey Miscellaneous Field Studies Map* MF-480, scale 1:125,000.

Sharp, R.V., Rymer, M.J., and Lienkaemper, J.J. 1986. Surface displacement on the Imperial and Superstition Hills faults triggered by the Westmorland, California, earthquake of 26 April 1981. *Bulletin of the Seismological Society of America* 76:949-965.

Shreve, R.L. 1987. Blackhawk landslide, southwestern San Bernardino County, California. In *Cordilleran Section of the Geological Society of America Centennial Field Guide*, Hill, M.L. ed., Volume 1, pp. 109-114. Geological Society of America, Boulder, CO.

Stover, C.W., and Coffman, J.L. 1993. Seismicity of the United States 1568-1989 (Revised). *U.S. Geological Survey Professional Paper* 1527.

Toppozada, T.R., Bennett, J.H., Hallstrom, C.L., and Youngs, L.G. 1992. 1898 “Mare Island” earthquake at the southern end of the Rodgers Creek fault. In *Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area*, Borchardt, G., Hirschfeld, S.E., Lienkaemper, J.J., McClellan, P., Williams, P.L., and Wong, I.G., eds., pp. 385-392. California Department of Conservation, Division of Mines and Geology.

Toppozada, T., Branum, D., Petersen, M., Hallstrom, C., Cramer, C., and Reichle, M. 2000. Epicenters of and areas damaged by M 5 California earthquakes, 1800–1999. *California Division of Mines and Geology Map Sheet* 49, scale 1:1,000,000.

Urhammer, R.A. 1991. Northern California seismicity. In *Neotectonics of North America*, Slemmons, D.B., Engdahl, E.R., Zoback, M.D., and Blackwell, D.D., eds., pp. 99-106. *Geological Society of America Decade Map* 1. Boulder, Colorado.

U.S. Geological Survey, Southern California Earthquake Center, and California Division of Mines and Geology. 2000. Preliminary report on the 16 October 1999 M 7.1 Hector Mine, California, earthquake. *Seismological Research Letters* 71:1-23.

Wakabayashi, J., and Smith, D.L. 1994. Evaluation of recurrence intervals, characteristic earthquakes and slip-rates associated with thrusting along the Coast Range-Central Valley geomorphic boundary. *Bulletin of the Seismological Society of America* 84:1960-1970.

Wallace, R.E. 1990. The San Andreas Fault System, California. *U.S. Geological Survey Professional Paper* 1515.

Wicks, C.W., Thatcher, W., Monastero, F.C., and Hasting, M.A. 2001. Steady state deformation of the Coso Range, eastcentral California, inferred from satellite radar interferometry. *Journal of Geophysical Research* 106:13,769-13,780.

Youd, T.L. 1973. Liquefaction, flow, and associated ground failure. *U.S. Geological Survey Circular* 688.

Youd, T.L., and Hoose, S.N. 1978. Historical ground failures in Northern California triggered by earthquakes. *U.S. Geological Survey Professional Paper* 993.

Yu, E., and Segal, P. 1996. Slip in the 1868 Hayward earthquake from analysis of historical triangulation data. *Journal of Geophysical Research* 101:16,101-16,118.

8.2 AIR QUALITY (SECTIONS 3.2 AND 4.2)

CARB (California Air Resources Board). 2010. Ambient air quality standards. URL: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Last updated September 18. California Environmental Protection Agency, Sacramento, CA.

South Coast Air Quality Management District. 2010. Fact Sheet on Emergency Backup Generators. URL: http://www.aqmd.gov/permit/fact_sheet_emergency_backup_gen.htm. Last updated November 24. Diamond Bar, CA.

8.3 CLIMATE CHANGE AND GREENHOUSE GASES (SECTIONS 3.3 AND 4.3)

California Energy Commission. 2006. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report* (CEC-600-2006-013-SF). URL: http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-SF.PDF. Sacramento, CA.

California Energy Commission. 2007. Memorandum: Revisions to the 1990 to 2004 Greenhouse Gas Emission Inventory Report, Published in December 2006 (CEC-600-2006-013). URL: http://www.energy.ca.gov/2006publications/CEC-600-2006-013/2007-01-23_GHG_INVENTORY_REVISIONS.PDF. Sacramento, CA.

California Energy Commission. 2011a. California Climate Change Portal. URL: http://www.climatechange.ca.gov/index.php. Sacramento, CA.

California Energy Commission. 2011b. Greenhouse Gas Emission Inventory. URL: http://www.climatechange.ca.gov/inventory/index.html. Sacramento, CA.

CEQ (Council of Environmental Quality). 2010. *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions.*

8.4 WATER RESOURCES (SECTIONS 3.4 AND 4.4)

California Department of Water Resources. n.d. World Wide Web home pages (links to the four California groundwater districts). URL: http://www.dwr.water.ca.gov/about/websites.html. Sacramento, CA.

California Environmental Resources Evaluation System. 1997. Watershed information technical system: About the watershed regions. URL: http://www.ceres.ca.gov/watershed/geographic/about_regions.html. Last updated August 26. California Resources Agency, Sacramento, CA.

NPS (National Park Service). 2003. Wild and scenic rivers by state. URL: http://www.nps.gov/rivers/wildriverslist.html. Last updated January 24. U.S. Department of the Interior, Washington DC.

DOE (U.S. Department of Energy). 1996. EH-41 Environmental law summary: Coastal Zone Management Act. URL: http://tis-nt.eh.doe.gov/oepa/law_sum/CZMA.htm. Posted January 25. Office of Environmental Policy and Guidance.

USGS (U.S. Geographical Service). 2013. Hydrologic Unit Map. URL: http://water.usgs.gov/GIS/regions.html. Accessed on March 14, 2013.

Water Education Foundation. 1987. *California Water Map.* August.

8.5 BIOLOGICAL RESOURCES (SECTIONS 3.5 AND 4.5)

Mayer, K.E., and Laudenslayer, W.F. 1988. *A Guide to Wildlife Habitats of California.* California Department of Fish and Game, Sacramento, CA.

Navy. 2008. *Final Atlantic Fleet Active Sonar Training EIS/OEIS*. December 2008. URL: http://afasteis.gcsaic.com/docs/FinalOEIS/Executive%20Summary.pdf.

NMFS (National Marine Fisheries Service). 2008. Biological Opinion for the Implementation of the National Flood Insurance Program in the State of Washington, Phase One Document – Puget Sound Region, September 2008.

NMFS. 2009a. Marina Mammal Protection Act of 1972. URL: http://www.nmfs.noaa.gov/pr/laws/mmpa/.

NMFS. 2009b. Marine Mammals. URL: http://www.nmfs.noaa.gov/pr/species/mammals/.

Reynolds, J.R. 2008. Submarines, sonar, and death of whales: Enforcing the delicate balance of environmental compliance and national security in military training. Wm. & Mary Envtl. L. & Pol'y Rev. 32:759-802.

Steinhart, P. 1990. *California's Wild Heritage: Threatened and Endangered Animals in the Golden State.* San Francisco, CA: Sierra Club Books.

USDA (United States Department of Agriculture). 2013. Ecoregions of the United States. Available online at http://www.fs.fed.us/rm/ecoregions/products/map-ecoregions-united-states/. Accessed March 13, 2013.

EPA 2007. Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites. URL: http://www.epa.gov/npdes/pubs/sw_swppp_guide.pdf. Washington, D.C.

8.6 HISTORIC PROPERTIES AND ARCHAEOLOGICAL RESOURCES (SECTIONS 3.6 AND 4.6)

Chartkoff, J., and Chartkoff, K.K. 1984. *The Archaeology of California.* Palo Alto, CA: Stanford University Press.

NPS (National Park Service). 2013. National Register of Historic Places, Database Search. URL: http://nrhp.focus.nps.gov/natregadvancedsearch.do. Accessed on July 10, 2014.

8.7 SOCIOECONOMICS (SECTIONS 3.7 AND 4.7)

No references cited.

8.8 LAND USE AND PLANNING (SECTIONS 3.8 AND 4.8)

CALFED. 2000. Final Programmatic Environmental Impact Statement/Environmental Impact Report. CALFED Bay-Delta Program. July.

Census (U.S. Census Bureau). 2013. American Fact Finder. URL: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml. Website visited June 19, 2013.

8.9 PUBLIC SERVICES AND RECREATION (SECTIONS 3.9 AND 4.9)

CALFED. 2000. Final Programmatic EIS/EIR. July.

California Department of Conservation. 2005. Oil, Gas & Geothermal Statistics, Oil and Gas Facts for 2005. URL:: http://www.consrv.ca.gov/dog/Pages/statistics.aspx. Sacramento, CA.

California State Census Data Center. n.d.a. State and county summary (Excel table). URL: http://www.dof.ca.gov/HTML/DEMOGRAP/State-County%20Summary.xls. Census 2000. California Department of Finance Demographic Research Unit, Sacramento, CA.

California State Census Data Center. n.d.b. Table 2: Population by race/ethnicity, incorporated cities by county (Excel table).
URL: http://www.dof.ca.gov/HTML/DEMOGRAP/table2.xls. Census 2000, PL 94-171. California Department of Finance Demographic Research Unit, Sacramento, CA.

National Park Service. Land and Water Conservation Fund. Project List by County and Summary Reports. URL: http://waso-lwcf.ncrc.nps.gov/public/. Accessed on July 11, 2014.

Water Education Foundation. 1987. California Water Map. August.

Water Education Foundation. 2003. A briefing on California water issues. URL: http://www.water-ed.org/cabriefing.asp. Sacramento, CA. Last updated January.

8.10 TRANSPORTATION (SECTIONS 3.10 AND 4.10)

No references cited.

8.11 NOISE (SECTIONS 3.11 AND 4.11)

CALFED. 2000. Final Programmatic Environmental Impact Statement/Environmental Impact Report. CALFED Bay-Delta Program. July.

California Governor's Office of Planning and Research (OPR). 1998. *General Plan Guidelines.* Sacramento, CA. November.

Crocker, M. 1997. *Encyclopedia of Acoustics.* Four volumes. Hoboken, N.J: Wiley Publishing.

EPA (U.S. Environmental Protection Agency). 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.

Federal Transit Administration. 1995. *Transit Noise and Vibration Impact Assessment Final Report.* Table 5-7. Prepared for the U.S. Department of Transportation, Federal Transit Administration, Office of Planning. Prepared by Harris Miller Miller & Hanson Inc., Burlington, MA. April.

HUD (U.S. Department of Housing and Urban Development). 1985. The Noise Guidebook. Office of Environment and Energy, Environmental Planning Division.

8.12 HAZARDOUS MATERIALS AND WASTES (SECTIONS 3.12 AND 4.12)

CARB (California Air Resource Board). 1997. URL: http://www.arb.ca.gov/toxocs/asbestos/reginfo,htm. Last updated September 9, 2002. Compliance Division. November.

HUD (U.S. Department of Housing and Urban Development). 1996. *Siting of HUD-Assisted Projects near Hazardous Facilities* (HUD-1060-CPD). September 1996. URL: http://www.hud.gov/offices/cpd/environment/training/guidebooks/hazfacilities/.

State Water Resource Control Board (SWRCB). 1997.

EPA (U.S. Environmental Protection Agency). 1992. *A Guide to Normal Demolition Practices Under the Asbestos NESHAP*. EPA 340/1-92-013. Office of Air Quality Planning and Standards, Stationary Source Compliance Division, Washington, D.C. September.

8.13 VISUAL RESOURCES (SECTIONS 3.13 AND 4.13)

Federal Highway Administration. 1986. Memorandum to Regions, Esthetics and Visual Quality Guidance Information, August 18.

(USFS) U.S. Forest Service. 1974. National Forest Landscape Management, Volume 2, Chapter 1, The Visual Management System. Agriculture Handbook 462. U.S. Department of Agriculture, Washington, DC.

8.14 CUMULATIVE IMPACT ASSESSMENT (SECTION 5.0)

BLM (Bureau of Land Management) and the U.S. Department of Energy (DOE). 2012. *Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States.*

BLM. 2013. Solar Projects in Arizona on BLM Lands. URL: http://www.blm.gov/az/st/en/prog/energy/solar/pend-solar.html Website visited June 10, 2013.

California Department of Water Resources. *California State Water Project Overview*. URL: http://www.water.ca.gov/swp/index.cfm Website visited June 10, 2013.

California Energy Commission. 2013. Solar Projects in California. URL: http://www.energy.ca.gov/siting/solar/ Website visited June 9, 2013.

California High-Speed Rail Authority and the Federal Rail Administration. Nd. Highlights of the Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-speed Train System.

FEMA. 2003. *Final Programmatic Environmental Assessment for Typical Recurring Actions in California.*

FEMA. 2013. 2010–2012 FEMA Individual Assistance and Public Assistance Grant funding to California, Arizona, and Nevada. URL: http://www.fema.gov/disasters Website visited June 10, 2013.

Nevada Hydro Company, Inc. 2013. Blue Diamond Pumped Storage Project. URL: http://nevadahydro.com/index-1.html Website visited June 10, 2013.

North Carolina Solar Center and Interstate Renewable Energy Council. 2010. DSIRE: Database of State Incentives for Renewables and Efficiency. State search of Renewable Portfolio Standards. URL: http://www.dsireusa.org/ Website visited June 11, 2013.

Appendix A
National Marine Fisheries Service Guidance Regarding Fish Passages

National Marine Fisheries Service
Southwest Region

GUIDELINES FOR SALMONID PASSAGE AT STREAM CROSSINGS

1.0 INTRODUCTION

This document provides guidelines for design of stream crossings to aid upstream and downstream passage of migrating salmonids. It is intended to facilitate the design of a new generation of stream crossings, and assist the recovery of threatened and endangered salmon species. These guidelines are offered by the National Marine Fisheries Service, Southwest Region (NMFS-SWR), as a result of its responsibility to prescribe fishways under the Endangered Species Act, the Magnuson-Stevens Act, the Federal Power Act, and the Fish and Wildlife Coordination Act. The guidelines apply to all public and private roads, trails, and railroads within the range of anadromous salmonids in California.

Stream crossing design specifications are based on the previous works of other resource agencies along the U.S. West Coast. They embody the best information on this subject at the time of distribution. Meanwhile, there is mounting evidence that impassable road crossings are taking a more significant toll on endangered and threatened fish than previously thought. New studies are revealing evidence of the pervasive nature of the problem, as well as potential solutions. Therefore, this document is appropriate for use until revised, based on additional scientific information, as it becomes available.

The guidelines are general in nature. There may be cases where site constraints or unusual circumstances dictate a modification or waiver of one or more of these design elements. Conversely, where there is an opportunity to protect salmonids, additional site-specific criteria may be appropriate. Variances will be considered by the NMFS on a project-by-project basis. When variances from the technical guidelines are proposed, the applicant must state the specific nature of the proposed variance, along with sufficient biological and/or hydrologic rationale to support appropriate alternatives. Understanding the spatial significance of a stream crossing in relation to salmonid habitat within a watershed will be an important consideration in variance decisions.

Protocols for fish-barrier assessment and site prioritization are under development by the California Department of Fish and Game (CDFG). These will be available in updated versions of the *California Salmonid Stream Habitat Restoration Manual.* Most streams in California also support important populations of non-salmonid fishes, amphibians, reptiles, macroinvertebrates, insects, and other organisms important to the aquatic food web. Some of these may also be threatened or endangered species and require "ecological connectivity" that dictate other design criteria not covered in this document. Therefore, the project applicant should check with the local Fish and Game office, the U.S. Fish and Wildlife Service (USFWS), and/or tribal biologists to ensure other species are fully considered.

The California Department of Transportation Highway Design Manual defines a culvert as "A closed conduit which allows water to pass under a highway," and in general, has a single span of less than 20 feet or multiple spans totaling less than 20 feet. For the purpose of fish passage, the distinction between bridge, culvert or low water crossing is not as important as the effect the structure has on the form and function of the stream. To this end, these criteria conceptually apply to bridges and low water crossings, as well as culverts.

2.0 PREFERRED ALTERNATIVES AND CROSSINGS

The following alternatives and structure types should be considered in order of preference:

1. *Nothing* - Road realignment to avoid crossing the stream
2. *Bridge* - spanning the stream to allow for long term dynamic channel stabilty
3. *Streambed simulation strategies* - bottomless arch, embedded culvert design, or ford
4. *Non-embedded culvert* - this is often referred to as a hydraulic design, associated with more traditional culvert design approaches limited to low slopes for fish passage
5. *Baffled culvert, or structure designed with a fishway* - for steeper slopes

If a segment of stream channel where a crossing is proposed is in an active salmonid spawning area then only full span bridges or streambed simulations are acceptable.

3.0 DESIGNING NEW AND REPLACEMENT CULVERTS

The guidelines below are adapted from culvert design criteria published by many federal and state organizations including the California Department of Fish and Game (CDFG, 2001). It is intended to apply to new and replacement culverts where fish passage is legally mandated or important.

3.1 Active Channel Design Method

The Active Channel Design method is a simplified design that is intended to size a culvert sufficiently large and embedded deep enough into the channel to allow the natural movement of bedload and formation of a stable bed inside the culvert. Determination of the high and low fish

passage design flows, water velocity, and water depth is not required for this method since the stream hydraulic characteristics within the culvert are intended to mimic the stream conditions upstream and downstream of the crossing. This design method is usually not suitable for stream channels that are greater than 3% in natural slope or for culvert lengths greater than 100 feet. Structures for this design method are typical round, oval, or squashed pipes made of metal or reinforced concrete.

- Culvert Width - The minimum culvert width shall be equal to, or greater than, 1.5 times the active channel width.
- Culvert Slope - The culvert shall be placed level (0% slope).
- Embedment - The bottom of the culvert shall be buried into the streambed not less than 20% of the culvert height at the outlet and not more than 40% of the culvert height at the inlet.

3.2 Stream Simulation Design Method

The Stream Simulation Design method is a design process that is intended to mimic the natural stream processes within a culvert.. Fish passage, sediment transport, flood and debris conveyance within the culvert are intended to function as they would in a natural channel. Determination of the high and low fish passage design flows, water velocity, and water depth is not required for this option since the stream hydraulic characteristics within the culvert are designed to mimic the stream conditions upstream and downstream of the crossing. The structures for this design method are typically open bottomed arches or boxes but could have buried floors in some cases. These culverts contain a streambed mixture that is similar to the adjacent stream channel. Stream simulation culverts require a greater level of information on hydrology and geomorphology (topography of the stream channel) and a higher level of engineering expertise than the Active Channel Design method.

- Culvert Width - The minimum culvert width shall be equal to, or greater than, the bankfull channel width. The minimum culvert width shall not be less than 6 feet.
- Culvert Slope - The culvert slope shall approximate the slope of the stream through the reach in which it is being placed. The maximum slope shall not exceed 6%.
- Embedment - The bottom of the culvert shall be buried into the streambed not less than 30% and not more than 50% of the culvert height. For bottomless culverts the footings or foundation should be designed for the largest anticipated scour depth.

3.3 Hydraulic Design Method

The Hydraulic Design method is a design process that matches the hydraulic performance of a culvert with the swimming abilities of a target species and age class of fish. This method targets distinct species of fish and therefore does not account for ecosystem requirements of non-target species. There are significant errors associated with estimation of hydrology and fish swimming speeds that are resolved by making conservative assumptions in the design process. Determination of the high and low fish passage design flows, water velocity, and water depth are required for this option.

The Hydraulic Design method requires hydrologic data analysis, open channel flow hydraulic calculations and information on the swimming ability and behavior of the target group of fish. This design method can be applied to the design of new and replacement culverts and can be used to evaluate the effectiveness of retrofits of existing culverts.

- Culvert Width - The minimum culvert width shall be 3 feet.
- Culvert Slope - The culvert slope shall not exceed the slope of the stream through the reach in which it is being placed. If embedment of the culvert is not possible, the maximum slope shall not exceed 0.5%.
- Embedment - Where physically possible, the bottom of the culvert shall be buried into the streambed a minimum of 20% of the height of the culvert below the elevation of the tailwater control point downstream of the culvert. The minimum embedment should be at least 1 foot. Where physical conditions preclude embedment, the hydraulic drop at the outlet of a culvert shall not exceed the limits specified above.

Hydrology for Fish Passage under the Hydraulic Design Method

- **High Fish Passage Design Flow -** The high design flow for adult fish passage is used to determine the maximum water velocity within the culvert. Where flow duration data is available or can be synthesized the high fish passage design flow for adult salmonids should be the 1% annual exceedance. If flow duration data or methods necessary to compute them are not available then 50% of the 2 year flood recurrence interval flow may be used as an alternative. Another alternative is to use the discharge occupied by the cross-sectional area of the active stream channel. This requires detailed cross section information for the stream reach and hydraulic modeling. For upstream juvenile salmonid passage the high design flow should be the 10% annual exceedance flow.
- **Low Fish Passage Design Flow -** The low design flow for fish passage is used to determine the minimum depth of water within a culvert. Where flow duration data is available or can be synthesized the 50% annual exceedance flow or 3 cfs, whichever is greater, should be used for adults and the 95% annual exceedance flow or 1 cfs, whichever is greater, should be used for juveniles.

Maximum Average Water Velocities in the Culvert at the High Fish Passage Design Flow - Average velocity refers to the calculated average of velocity within the barrel of the culvert. Juveniles require 1 fps or less for upstream passage for any length culvert at their High Fish Passage Design Flow. For adult salmonids use the following table to determine the maximum velocity allowed.

Culvert Length (ft)	Velocity (fps) - Adult Salmonids
<60	6
60-100	5
100-200	4
200-300	3
>300	2

Minimum Water Depth at the Low Fish Passage Design Flow - For non-embedded culverts, minimum water depth shall be twelve 12 inches for adult steelhead and salmon, and six 6 inches for juvenile salmon.

Juvenile-Upstream Passage - Hydraulic design for juvenile upstream passage should based on representative flows in which juveniles typically migrate. Recent research (NMFS, 2001, in progress) indicates that providing for juvenile salmon up to the 10% annual exceedance flow will cover the majority of flows in which juveniles have been observed moving upstream. The maximum average water velocity at this flow should not exceed 1 fps. In some cases over short distances 2 fps may be allowed.

Maximum Hydraulic Drop - Hydraulic drops between the water surface in the culvert and the water surface in the adjacent channel should be avoided for all cases. This includes the culvert inlet and outlet. Where a hydraulic drop is unavoidable, its magnitude should be evaluated for both high design flow and low design flow and shall not exceed 1 foot for adults or 6 inches for juveniles. If a hydraulic drop occurs at the culvert outlet, a jump pool of at least 2 feet in depth should be provided.

3.4 Structural Design and Flood Capacity

All culvert stream crossings, regardless of the design option used, shall be designed to withstand the 100-year peak flood flow without structural damage to the crossing. The analysis of the structural integrity of the crossing shall take into consideration the debris loading likely to be encountered during flooding. Stream crossings or culverts located in areas where there is significant risk of inlet plugging by flood borne debris should be designed to pass the 100-year peak flood without exceeding the top of the culvert inlet (Headwater-to-Diameter Ratio less than one). This is to ensure a low risk of channel degradation, stream diversion, and failure over the life span of the crossing. Hydraulic capacity must be compensated for expected deposition in the culvert bottom.

3.5 Other Hydraulic Considerations

Besides the upper and lower flow limit, other hydraulic effects need to be considered, particularly when installing a culvert:

- Water surface elevations in the stream reach must exhibit gradual flow transitions, both upstream and downstream. Abrupt changes in water surface and velocities must be avoided, with no hydraulic jumps, turbulence, or drawdown at the entrance. A continuous low flow channel must be maintained throughout the entire stream reach.
- In addition, especially in retrofits, hydraulic controls may be necessary to provide resting pools, concentrate low flows, prevent erosion of stream bed or banks, and allow passage of bedload material.

- Culverts and other structures should be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing. This can often be accommodated by changes in road alignment or slight elongation of the culvert. Where elongation would be excessive, this must be weighed against better crossing alignment and/or modified transition sections upstream and downstream of the crossing. In crossings that are unusually long compared to streambed width, natural sinuosity of the stream will be lost and sediment transport problems may occur even if the slopes remain constant. Such problems should be anticipated and mitigated in the project design.

4.0 RETROFITTING CULVERTS

For future planning and budgeting at the state and local government levels, redesign and replacement of substandard stream crossings will contribute substantially to the recovery of salmon stocks throughout the state. Unfortunately, current practices do little to address the problem: road crossing corrections are usually made by some modest level of incremental, low cost "improvement" rather than re-design and replacement. These usually involve bank or structure stabilization work, but frequently fail to address fish passage. Furthermore, bank stabilization using hard point techniques frequently denigrates the habitat quality and natural features of a stream. Nevertheless, many existing stream crossings can be made better for fish passage by cost-effective means. The extent of the needed fish passage improvement work depends on the severity of fisheries impacts, the remaining life of the structure, and the status of salmonid stocks in a particular stream or watershed.

For work at any stream crossing, site constraints need to be taken into consideration when selecting options. Some typical site constraints are ease of structure maintenance, construction windows, site access, equipment, and material needs and availability. The decision to replace or improve a crossing should fully consider actions that will result in the greatest net benefit for fish passage. If a particular stream crossing causes substantial fish passage problems which hinder the conservation and recovery of salmon in a watershed, complete redesign and replacement is warranted. *Consolidation and/or decommissioning of roads can sometimes be the most cost-effective option.* Consultations with NMFS or CDFG biologists can help in selecting priorities and alternatives.

Where existing culverts are being modified or retrofitted to improve fish passage, the Hydraulic Design method criteria should be the design objective for the improvements. However, it is acknowledged that the conditions that cause an existing culvert to impair fish passage may also limit the remedies for fish passage improvement. Therefore, short of culvert replacement, the Hydraulic Design method criteria should be the goal for improvement but not necessarily the required design threshold.

Fish passage through existing non-embedded culverts may be improved through the use of gradient control weirs upstream or downstream of the culvert, interior baffles or weirs, or in some cases, fish ladders. However, these measures are not a substituted for good fish passage design

for new or replacement culverts. The following guidelines should be used:

- **Hydraulic Controls -** Hydraulic controls in the channel upstream and/or downstream of a culvert can be used to provide a continuous low flow path through culvert and stream reach. They can be used to facilitate fish passage by establishing the following desirable conditions: Control depth-and water velocity within culvert, concentrate low flows, provide resting pools upstream and downstream of culvert and prevent erosion of bed and banks. A change in water surface elevation of up to one foot is acceptable for adult passage conditions, provided water depth and velocity in the culvert meet other hydraulic guidelines. A jump pool must be provided that is *at least* 1.5 times the jump height, or a minimum of two feet deep, whichever is deeper.

- **Baffles -** Baffles may provide incremental fish passage improvement in culverts with excess hydraulic capacity that can not be made passable by other means. Baffles may increase clogging and debris accumulation within the culvert and require special design considerations specific to the baffle type. Culverts that are too long or too high in gradient require resting pools, or other forms of velocity refuge spaced at increments along the culvert length.

- **Fishways -** Fishways are generally not recommended, but may be useful for some situations where excessive drops occur at the culvert outlet. Fishways require specialized site-specific design for each installation. A NMFS or CDFG fish passage specialist should be consulted.

- **Multiple Culverts -** Retrofitting multiple barrel culverts with baffles in one of the barrels may be sufficient as long as low flow channel continuity is maintained and the culvert is reachable by fish at low stream flow.

5.0 OTHER GENERAL RECOMMENDATIONS

Trash racks and livestock fences should not be used near the culvert inlet. Accumulated debris may lead to severely restricted fish passage, and potential injuries to fish. Where fencing cannot be avoided, it should be removed during adult salmon upstream migration periods. Otherwise, a minimum of 9 inches clear spacing should be provided between pickets, up to the high flow water surface. Timely clearing of debris is also important, even if flow is getting around the fencing. Cattle fences that rise with increasing flow are highly recommended.

Natural or artificial supplemental lighting should be provided in new and replacement culverts that are over 150 feet in length. Where supplemental lighting is required the spacing between light sources shall not exceed 75 feet.

The NMFS and the CDFG set in-stream work windows in each watershed. Work in the active stream channel should be avoided during the times of year salmonids are present. Temporary crossings, placed in salmonid streams for water diversion during construction activities, should meet all of the guidelines in this document. However, if it can be shown that the location of a

temporary crossing in the stream network is not a fish passage concern at the time of the project, then the construction activity only needs to minimize erosion, sediment delivery, and impact to surrounding riparian vegetation.

Culverts shall only be installed in a de-watered site, with a sediment control and flow routing plan acceptable to NMFS or CDFG. The work area shall be fully restored upon completion of construction with a mix of native, locally adapted, riparian vegetation. Use of species that grow extensive root networks quickly should be emphasized. Sterile, non-native hybrids may be used for erosion control in the short term if planted in conjunction with native species.

Construction disturbance to the area should be minimized and the activity should not adversely impact fish migration or spawning. If salmon are likely to be present, fish clearing or salvage operations should be conducted by qualified personnel prior to construction. If these fish are listed as threatened or endangered under the federal or state Endangered Species Act, consult directly with NMFS and CDFG biologists to gain authorization for these activities. Care should be taken to ensure fish are not chased up under banks or logs that will be removed or dislocated by construction. Return any stranded fish to a suitable location in a nearby live stream by a method that does not require handling of the fish.

If pumps are used to temporarily divert a stream to facilitate construction, an acceptable fish screen must be used to prevent entrainment or impingement of small fish. Contact NMFS or CDFG hydraulic engineering staff for appropriate fish screen specifications. Unacceptable wastewater associated with project activities shall be disposed of off-site in a location that will not drain directly into any stream channel.

6.0 POST-CONSTRUCTION EVALUATION AND LONG TERM MAINTENANCE AND ASSESSMENT

Post-construction evaluation is important to assure the intended results are accomplished, and that mistakes are not repeated elsewhere. There are three parts to this evaluation:

1) Verify the culvert is installed in accordance with proper design and construction procedures.
2) Measure hydraulic conditions to assure that the stream meets these guidelines.
3) Perform biological assessment to confirm the hydraulic conditions are resulting in successful passage.

NMFS and/or CDFG technical staff may assist in developing an evaluation plan to fit site-specific conditions and species. The goal is to generate feedback about which techniques are working well, and which require modification in the future. These evaluations are not intended to cause extensive retrofits of any given project unless the as-built installation does not reasonably conform to the design guidelines, or an obvious fish passage problem continues to exist. Over time, the

NMFS anticipates that the second and third elements of these evaluations will be abbreviated as clear trends in the data emerge.

Any physical structure will continue to serve its intended use only if it is properly maintained. During the storm season, timely inspection and removal of debris is necessary for culverts to continue to move water, fish, sediment, and debris. In addition, all culverts should be inspected at least once annually to assure proper functioning. Summary reports should be completed annually for each crossing evaluated. An annual report should be compiled for all stream crossings and submitted to the resource agencies. A less frequent reporting schedule may be agreed upon for proven stream crossings. Any stream crossing failures or deficiencies discovered should .be reported in the annual cycle and corrected promptly.

8.0 DEFINITIONS

These definitions apply to terms used in this document. Meanings may differ when used in another context and are not legal unless otherwise noted. Definitions were shortened, paraphrased or adapted to fit regional conditions and for ease of understanding.

Active Channel: A waterway of perceptible extent that periodically or continuously contains moving water. It has definite bed and banks which serve to confine the water and includes stream channels, secondary channels, and braided channels. It is often determined by the "ordinary high water mark" which means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Bankfull: The point on a streambank at which overflow into the floodplain begins. The floodplain is a relatively flat area adjacent to the channel constructed by the stream and overflowed by the stream at a recurrence interval of about one to two years. If the floodplain is absent or poorly defined, other indicators may identify bankfull. These include the height of depositional features, a change in vegetation, slope or topographic breaks along the bank, a change in the particle size of bank material, undercuts in the bank, and stain lines or the lower extent of lichens and moss on boulders. Field determination of bankfull should be calibrated to known stream flows or to regional relationships between bankfull flow and watershed drainage area.

Bedload: Sand, silt, and gravel, or soil and rock debris rolled along the bottom of a stream by the moving water. The particles of this material have a density or grain size which prevents movement far above or for a long distance out of contact with the streambed under natural flow conditions.

Fish Passage: The ability of both adult and juvenile fish to move both up and down stream.

Flood Frequency: The frequency with which a flood of a given discharge has the probability of recurring. For example, a "100-year" frequency flood refers to a flood discharge of a magnitude

likely to occur on the average of once every 100 years or, more properly, has a one-percent chance of being exceeded in any year. Although calculation of possible recurrence is often based on historical records, there is no guarantee that a "100-year" flood will occur at all within the 100-year period or that it will not recur several times.

Flood Prone Zone: Spatially, this area generally corresponds to the modem floodplain, but can also include river terraces subject to significant bank erosion. For delineation, see definition for floodplain.

Floodplain: The area adjacent to the stream constructed by the river in the present climate and inundated during periods of high flow.

Flow Duration Curve: A cumulative frequency curve that shows the percentage of time that specified discharges are equaled or exceeded. Flow duration curves are usually based on daily streamflow and describe the flow characteristics of a stream throughout a range of discharges without regard to the sequence of occurrence. If years of data are plotted the annual exceedance flows can be determined.

Ordinary High Water Mark: The mark along the bank or shore up to which the presence and action of the water are common and usual, and so long continued in all ordinary years, as to leave a natural line impressed on the bank or shore and indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics.

Roads: For purposes of these guidelines, roads include all sites of intentional surface disturbance for the purpose of vehicular or rail traffic and equipment use, including all surfaced and unsurfaced roads, temporary roads, closed and inoperable roads, legacy roads, skid trails, tractor roads, layouts, landings, turnouts, seasonal roads, fire lines, and staging areas.

Section 10 and 404 Regulatory Programs: The principal federal regulatory programs, carried out by the U.S. Army Corps of Engineers, affecting structures and other work below mean high water. The Corps, under Section **10** of the River and Harbor Act of 1899, regulates structures in, or affecting, navigable waters of the U.S. as well as excavation or deposition of materials (e.g., dredging or filling) in navigable waters. Under Section 404 of the Federal Water Pollution Control Act Amendments (Clean Water Act of 1977), the Corps is also responsible for evaluating application for Department of the Army permits for any activities that involve the placement of dredged or fill material into waters of the United States, including adjacent wetlands.

Waters of the United States: Currently defined by regulation to include all navigable and interstate waters, their tributaries and adjacent wetlands, as well as isolated wetlands and lakes and intermittent streams.

9.0 REFERENCES

Baker, C.O. and F.E. Votapka. 1990. *Fish Passage Through Culverts.* Federal Highways Administration & USDA Forest Service. FHWA-FL-90-006. 67 pages. (Available from USDA Forest Service publications, San Dimas Laboratory, CA)

Bates, K. 1992. *Fishway Design Guidelines for Pacific Salmon.* Working paper 1.6. (Available from Ken Bates, Lands and Restoration Program Chief Engineer, Washington Dept. of Fish and Wildlife. 600 Capitol Way North, Olympia, WA, 98501-1091.)

Beechie, T., E. Beamer, and L. Wasserman. 1994. *Estimating Coho Salmon Rearing Habitat and Smolt Production Losses in a Large River Basin, and Implications for Habitat Restoration.* North Am. J. Fish. Mgt. 14:797 - 811.

Behlke, C.E., D.L. Kane, R.F. McLean, and M.D. Travis. 1991. *Fundamentals of Culvert Design for Passage of Weak-Swimming Fish, Final Report.* Alaska DOT&PF and USDT, Federal Highway Administration, FHWA-AK-RD-90-10. 177 pages.

California Department of Fish and Game. 1998. *California Salmonid Stream Habitat Restoration Manual, 3rd Edition, Part X Fish Passage Evaluation At Road Crossings* (Part X is in preparation, expected fall 2001).

California Department of Fish and Game. 2001. *Culvert Criteria for Fish Passage.*

Clay, C.H. 1995. *Design of Fishways and Other Fish Facilities, 2nd Edition.* Lewis Publishers, CRC Press (imprint), Boca Raton, FL. 248 pages.

Evans, W.A. and B. Johnston. 1980. *Fish Migration and Fish Passage: a Practical Guide to Solving Fish Passage Problems.* U.S. Forest Service, EM - 7100 - 2, Washington, D.C.

Furniss, M.J., T.D. Roelofs, and C.S. Yee. 1991. *Road Construction and Maintenance.* American Fisheries Society Special Publication 19:297-323.

Gebhards, S., and J. Fisher. 1972. *Fish Passage and Culvert Installations.* Idaho Fish and Game Rep. 12 pages.

Groot, C., and L. Margolis, editors. 1991. *Pacific Salmon Life Histories.* Univ. British Columbia Press, Vancouver. 564 pages.

Hassler, T.J. 1987. *Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Southwest) Coho Salmon.* U.S. Fish Wildl. Serv. Biol. Rep. 82(11.70). U.S. Army Corps of Engineers, TR EL-82-4. 19 pages.

Johnson, A. and J.F. Orsborn. Undated, circa 1990. *Welcome to Culvert College.* Washington Trout, Duvall, WA. 67 pages.

Kay, AR., and R.B. Lewis. 1970. *Passage of Anadromous Fish Through Highway Drainage Structures.* California Division of Highways, Dist. 01 Res. Rep. 629110. 28 pages.

Katopodis, C. 1992. *Introduction to Fishway Design.* Working Document from Fish Passageways and Diversion Structures Course presented by National Education and Training Center, USFWS.

Lauman, J.E. 1976. *Salmonid Passage at Stream-Road Crossings.* Oregon Dept. of Fish and Wildlife.

McClellan, T.J. 1970. *Fish Passage Through Highway Culverts.* U.S. Dept. Trans., Federal Highway Administration and Oregon State Game Comm., Portland OR. 16 pages.

Meehan, W.R., editor. 1991. *Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats.* American Fisheries Society Special Publication 19.

ODFW, 1997. Oregon Department of Fish and Wildlife *Guidelines and Criteria for Stream-Road Crossings.* 7 pages.

Pearsons, T.N., G.A. McMichael, S.W. Martin, E.L. Bartrand, A. Long, and S.A. Leider. 1996. *Yakima Species Interactions Studies Annual Report 1994.* U.S. Department of Energy, Bonneville Power Administration Annual Report 1994. No. DOE/BP-99852-3.

Poulin, V.A., and H.W. Argent. 1997. *Stream Ccrossing Guidebook for Fish Streams, a Working Draft.* Prepared for British Columbia Ministry of Forests. 80 pages.

Sandercock, F.K. 1991. *Life History of Coho Salmon.* Pages 397-445 *in* C. Groot and L. Margolis (ed.s.), Pacific salmon life histories. Univ. British Columbia Press, Vancouver. 564 pages.

Shirvell, C.S. 1994. Effect of changes in streamflow on the microhabitat use and movement of sympatric juvenile coho salmon *(Oncorhynchus kisutch)* and chinook salmon *(O. tshawytscha)* in a natural stream. Can. J. Fish. Aquat. Sci. 51:1644-1652.

Salmonid Restoration Federation Conference. 1996. *Culvert Fish Passage Design and Retrofitting Workshop.* Fortuna, CA. 30 pages.

U.S.D.A., Forest Service, 1999. *Water Road Interaction Series.*

U.S. Fish and Wildlife Service. *1983-19_. Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates.* U.S. Fish Wildlife Service, Biol. Rep. 82(11). U.S. Army Corps of Engineers, TR EL-82-4.

Waples, R.S. 1991. *Definition of "Species" under the. ESA: Application to Pacific Salmon.* U.S. Dep. Commer., NOAA Tech. Memo., NMFS, F/NWC-194, 29 pages.

Washington State Department of Fish and Wildlife, 1999. Design Guidelines for Fish Passage Design at Road Culverts.

Washington State Department of Transportation. 1998. *Juvenile and Resident Salmonid Movement and Passage Through Culverts. Final Report. Rept. No. WA-RD 457.1.* (Available through the National Technical Information Service, Springfield, VA 22616).

Washington State Department of Transportation. 1997. *Fish Passage Program Department of Transportation Inventory Final Report.* G. Johnson (Project Leader) and nine others. 58 pages.

Washington State Department of Transportation. 1996. *Investigation o f Culvert Hydraulics Related to Juvenile Fish Passage. Final Report. Rept. No. WA-RD 388.1.* (Available through the National Technical Information Service, Springfield, VA 22616)

Weaver, W.E., and D.K. Hagans. 1994. *Handbook for Forest and Ranch Roads.* Mendocino County Resource Conservation District. 161 pages.

Wietkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. *Status Review of Coho Salmon from Washington, Oregon, and California. U.S.* Dep. Commer., NOAA Tech. Memo., NMFS-NWFSC-24, Northwest Fisheries Science Center, Seattle, Washington. 258 pages.

Ziemer, G.L. 1961. *Fish Transport in Waterways.* Alaska Dept. of Fish and Game. 2 pages.

Internet Resources:

California Department of Fish and Game
http://www.dfg.ca.gov

National Marine Fisheries Service Southwest Region
http://swr.nmfs.noaa.gov

Washington Department of Fish and Wildlife Fish Passage Technical Assistance
http://www.wa.gov/wdfw/hab/engineer/habeng.htm

Oregon Road/Stream Crossing Restoration Guide, Spring 1999 (with ODFW criteria)
http://www.nwr.noaa.gov/lsalmon/salmesa/4ddocs/orfishps.htm

FishXing software and learning systems for the analysis of fish migration through culverts
http://www.stream.fs.fed.us/fishxing/

USDA Forest Service Water-Road Interaction Technology Series Documents
http://www.stream.fs.fed.us/water-road/index.html

British Columbia Forest Practices Code Stream Crossing Guidebook for Fish Streams
http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/stream/str-toc.htm

Please direct questions regarding this material to:

National Marine Fisheries Service
Hydraulic Engineering Staff
777 Sonoma Avenue, Suite 325
Santa Rosa, CA 95404

Phone: (707) 575-6050
Fax: (707) 578-3425

Email: nmfs.swr.fishpassage@noaa.gov

Appendix B
Programmatic Agreements for Section 106 among FEMA, SHPO, and ACHP with AZ DEM, Cal EMA, and Nevada DEM

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL EMERGENCY MANAGEMENT AGENCY,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICE,
THE ARIZONA DIVISION OF EMERGENCY MANAGEMENT, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
REGARDING FEMA-1422-DR-AZ

WHEREAS, in response to the Rodeo-Chediski Wildfire Disaster, FEMA-1422-DR-AZ (Disaster), the Federal Emergency Management Agency (FEMA), which has been incorporated into the Department of Homeland Security, Emergency Preparedness and Response Directorate, proposes to administer the Federal disaster Public Assistance Program, the Hazard Mitigation Grant Program, Pre-disaster Hazard Mitigation, Federal Assistance to Individuals and Households, and the Flood Mitigation Assistance Program (Programs) pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206 (Stafford Act), its implementing regulations contained in Title 44, Code of Federal Regulations (44 CFR) Part 206, Sections 1366 and 1367 of the National Flood Insurance Act of 1968, 42 U.S.C. 4104c and 4104d, and its implementing regulations contained in 44 CFR Part 78; and

WHEREAS, FEMA has determined that implementation of these Programs may affect properties listed in or eligible for the National Register of Historic Places (National Register), and has consulted with the Advisory Council on Historic Preservation (ACHP) and the Arizona State Historic Preservation Officer (SHPO), pursuant to 36 CFR Part 800, the regulations implementing Sections 106 and 110(f) of the National Historic Preservation Act (NHPA), 16 U.S.C. 470f and 470h-2; and

WHEREAS, ~~FE~~MA has determined that implementation of these Programs may effect historic properties with religious and cultural significance to Federally recognized Tribes (Tribes), or that are under the jurisdiction of Tribes, and FEMA may request that these Tribes participate in this Programmatic Agreement (Agreement) to fulfill the requirements of Section 106; and

WHEREAS, any Tribal Historic Preservation Officer (THPO) that is a signatory to this Agreement will be consulted on an equal basis with the SHPO, thus the term "SHPO" will be understood to include any THPO or Tribe that is signatory to this Agreement; and

WHEREAS, as a result of the Disaster, the State of Arizona is receiving financial and technical assistance from FEMA and is in turn providing monies and other assistance to qualified applicants to alleviate the effects of the Disaster, and as such the Arizona Division of Emergency Management (ADEM) is responsible for administering these Programs, has participated in this consultation, and has been invited to execute this Agreement; and

WHEREAS, FEMA, ACHP, ADEM, and the SHPO acknowledge that implementation of these Programs will be more effective if, pursuant to 36 CFR § 800.14(b), an Agreement is in place to: specify procedures that define roles and responsibilities in the historic review process, exclude the SHPO and ACHP from review of certain routine activities with little potential to adversely affect historic properties, and promote efficiency so that the effects of these Programs on historic properties may be considered while delays to FEMA's delivery of disaster assistance are minimized;

NOW, THEREFORE, FEMA, ACHP, ADEM, and the SHPO agree that these Programs will be administered in accordance with the following Stipulations to satisfy FEMA's Section 106 responsibilities for all of its Undertakings, and effectively integrate historic preservation issues with the needs of FEMA's Undertakings. FEMA will not fund any application for assistance under these Programs until the review of individual Undertakings is completed pursuant to this Agreement.

STIPULATIONS

To the extent of its legal authority and in coordination with ACHP, ADEM, and the SHPO, FEMA shall require that the following measures be implemented:

I. LEAD AGENCY COORDINATION

A. FEMA, when determined to be the Lead Agency, shall be responsible for coordinating the activities of all Federal agencies and Tribes that may participate in the Undertaking. FEMA shall be responsible for resolving all disputes among parties according to the terms of this Agreement.

B. FEMA may request that a Tribe become a signatory to this Agreement by the execution of an Addendum to the signature page; the addition of such Tribe without further changes to this Agreement will not require an amendment of the Agreement. The execution of such an Addendum, and the participation of such Tribe in this Agreement, evidence that the Tribe has accepted the provisions of this Agreement. (A sample Addendum is attached as Appendix B.)

II. APPLICABILITY

This Agreement applies to all FEMA Programs outlined above for this Disaster (FEMA-1422-DR-AZ) after execution by all signatory parties. The Agreement may be extended to apply to future disasters without an amendment, through a letter concurred by FEMA, the SHPO, and ACHP.

III. GENERAL

A. Professional Qualifications:

1. FEMA will ensure that all cultural resource staff of FEMA, ADEM, and consultants, employed under FEMA's contract to conduct work in the field of cultural resources, meet the qualifications in the Secretary of Interior's (Secretary's) *Professional Qualifications Standards (Qualifications)* in the required discipline.

2. FEMA acknowledges that Tribes possess special expertise in assessing the National Register eligibility of properties with religious and cultural significance to them.

B. Time designations: All time designations will be as calendar days. If any party does not comment within an agreed upon time frame, FEMA may assume that party's concurrence with FEMA's determination, will notify any consulting parties of the action, and will proceed in accordance with this Agreement.

C. FEMA responsibilities:

1. May request Federal, State agency, or applicant staff who meet or exceed the *Qualifications,* as determined by FEMA's Federal Preservation Officer, to conduct the identification and evaluation of historic properties on behalf of FEMA, as set forth in 36 CFR § 800.4(b-c). FEMA will provide 100 percent funding under the Stafford Act through standard procurement procedures (Form 40-1) for the performance of these delegated activities.

2. Will review any National Register eligibility determination resulting from the performance of these delegated activities.

3. Will provide the SHPO and ACHP with an annual report for the previous calendar year on March 31st of each year that this Agreement is in effect. This report will summarize the actions taken to implement the terms of this Agreement, and recommend any actions or revisions that should be considered during the next year. These parties will review this information to determine if amendments are necessary.

D. The SHPO, at its discretion, may:

1. Delegate some or all of its responsibilities under this Agreement to persons who are not currently members of the SHPO staff and who will serve as the SHPO representative with respect to the decisions and actions required by this Agreement. The SHPO will consult with FEMA about

the choice of a representative, the scope of responsibilities delegated, and implementing procedures related to the decisions and actions delegated.

2. Delegate the responsibility for preparing documentation related to the potential effects of an Undertaking on historic properties to a qualified preservation consultant hired by an applicant, who meets or exceeds the *Qualifications* referenced in Stipulation III.A. This will be a reimbursable expense for the applicant, subject to the cost/share provisions of the FEMA-State Agreement. The applicant will submit the names of consultants being considered for this responsibility to the SHPO for approval. The SHPO will comment on the qualifications of the proposed consultants within 5 days of receipt of such written request from the applicant.

E. ADEM responsibilities:

ADEM will ensure that all applicants are fully informed about their responsibilities as stipulated in this Agreement. This includes providing applicants with guidance about in kind repairs, pursuant to the Secretary's *Standards for the Treatment of Historic Properties* 1995 *(Standards),* and ensuring that applicants understand and acknowledge any additional stipulations that may be placed on Undertakings as a result of Section 106 consultation or other terms of this Agreement. ADEM will also ensure that all applicants understand that failure to comply with these terms may jeopardize FEMA participation in the Undertaking.

IV. INITIAL COORDINATION FOLLOWING DECLARATION OF THE DISASTER

Upon execution of this Agreement, FEMA will meet with the SHPO and ADEM to establish points of contact and relevant protocols for the implementation of the Programs. The SHPO and ADEM will attend scoping meetings and present information about the Section 106 review process to various applicants. The SHPO will provide or make available to FEMA information about known historic properties within the declared Disaster area, including: properties listed in or previously determined eligible for the National Register through a Section 106 review or by the Secretary, properties listed in the State Register of historic properties, areas with high potential for archeological resources, and areas where it is known there are no archeological resources. The SHPO will also provide or make available to FEMA basic non-restricted, non-confidential information about Traditional Cultural Properties and properties of religious and cultural significance to Tribes. If such a property is within the declared Disaster area and information about the property is considered confidential, the Tribe or other appropriate party will designate a knowledgeable contact person to advise FEMA on avoiding, minimizing, or mitigating impacts to the property. The signatory parties will follow up on the initial coordination by participating in the following activities:

Immediately following a Disaster declaration or prior to the implementation of the Programs, as appropriate,

A. FEMA will:

1. Jointly with the SHPO, prepare a list of historic properties (standing structures) that no longer retain integrity. Provisions of this Agreement will apply only to historic properties that retain integrity in the aftermath of the Disaster, pursuant to 36 CFR Part 60. If either FEMA or the SHPO disagrees that a property no longer retains integrity, FEMA will review any Undertakings that may affect the property in accordance with Stipulations V. through VIII.

2. Consult with other Federal agencies and any Tribes having jurisdiction for activities associated with the Programs, to ensure compliance with applicable laws and regulations and to mutually determine lead Federal agency status for specific Undertakings.

B. At the time of the scoping meeting, the SHPO will:

1. Work with FEMA to jointly compile a list of previously identified or unevaluated historic properties, and geographic areas with high potential for unidentified historic properties.

2. Identify SHPO staff or consultants to assist FEMA staff with its Section 106 responsibilities, and identify any specific activities that the SIIPO may be able to conduct at FEMA's request.

3. Assist EWA in identifying Tribes having jurisdiction for activities related to the Programs, Tribes that may attach religious and cultural significance to historic properties in the Disaster area; individuals or organizations with a demonstrated interest in an Undertaking affecting historic properties, due to the nature of their legal or economic relation to, or their concern with, the effects of the Undertaking on historic properties; and organizations in the Disaster area that are known to have an interest in historic properties. FEMA will contact these interested parties to inform them of the implementation of this Agreement and to request information on the location of damaged historic properties. The SHPO will also assist ADEM in identifying staging and landfill sites for debris disposal, and areas for chipping of vegetation debris, if applicable, that would avoid or minimize effects on historic properties.

V. EXPEDITED PROJECT REVIEW FOR EMERGENCIES

A. Immediate rescue and salvage operations conducted to preserve life and property are exempt from the provision of Section 106 [36 CFR § 800.12(d)].

B. As a result or in anticipation of the Disaster, FEMA may be required to perform or authorize funding for emergency protective measures, in response to an immediate threat to human health and safety or improved property, that may adversely affect properties listed in or eligible for the National Register, or listed in the State Register. For all other Undertakings that the Federal Coordinating Officer (FCO) determines are of an emergency nature, FEMA will conduct the following expedited review:

1. The expedited review period will begin at the time that FEMA determines that an emergency action is required, and will remain in effect for the time necessary to implement this expedited review, but for no more than 30 days from the time of discovery of the emergency.

2. The FCO will certify in writing to the SHPO the need for FEMA to conduct expedited project review for individual Undertakings. Should FEMA determine that it is necessary to extend the expedited review period beyond 30 days, FEMA will, in 30-day increments, as needed, request an extension from ACHP in writing. FEMA will immediately assume ACHP's concurrence unless otherwise notified by ACHP.

C. If the FCO determines that the expedited review procedures apply, FEMA may authorize funding for an emergency action after completing the following review:

1. FEMA will conduct expedited review only for those historic properties or in those geographic areas identified by FEMA and the SHPO in Stipulation IV.B.1.

2. If it appears that an emergency action will adversely affect a historic property during this expedited review period, FEMA will provide the SHPO with available information about the condition of the property, the proposed action, and prudent and feasible measures that would take the adverse effect into account, requesting the SHPO's comments. FEMA may furnish this information to the SHPO in writing, or through telephone conversations, meetings, or electronic media, at its discretion. The SHPO will respond to any FEMA request for comments within 3 days of receipt, unless FEMA determines the nature of the emergency action warrants a shorter time period.

3. If FEMA does not accept the SHPO recommendations pursuant to this Stipulation, or if the SHPO objects to FEMA's proposal to conduct an emergency review, or to proposed treatment measures, FEMA will consult with the SHPO to resolve the dispute. If FEMA is unable to resolve the dispute, FEMA will seek ACHE) comments. ACHP will provide final comments to FEMA within 3 days of receipt of FEMA's

request, unless FEMA determines the nature of the emergency action warrants a shorter time period.

VI. PROGRAMMATIC ALLOWANCES

A. FEMA will determine if an Undertaking is included in the Programmatic Allowances (Allowances) listed in Appendix A. If so, FEMA will document the determination in the project file and may authorize funding for the Undertaking.

B. For all other activities, FEMA will conduct Section 106 review in accordance with Stipulation V. or VII. of this Agreement.

VII. STANDARD PROJECT REVIEW

Except as described in Stipulation VI., the signatory parties will conduct the standard project review for all non-emergency Undertakings:

A. Area of Potential Effects (APE): For all project review of standing structures, the APE will be the individual facility [as defined in 44 CFR § 206.201(c)] when a proposed Undertaking is limited to the repair or rehabilitation of the facility's interior or exterior. FEMA will establish the APE in consultation with the SHPO for all other Undertakings, including APEs for ground disturbing activities.

B. If there is a reasonable potential for archeological properties to be within the APE, FEMA will determine the level of effort necessary to identify these properties, and the actual existence and limits of the properties.

C. FEMA will identify and evaluate properties to determine if they are National Register eligible. If no historic properties listed in or eligible for the National Register are identified, or if an Undertaking is designed to avoid archeological properties or character defining features of standing structures, FEMA will make a determination of "no historic properties affected" as defined in 36 CFR § 800.4(d)(1). Unless the SHPO or other consulting party objects within 14 days of receipt of the determination and all supporting documentation, FEMA will complete the review and may authorize funding for the Undertaking.

D. If an Undertaking may affect identified historic properties, or if the SHPO objects to the determination of "no historic properties affected," FEMA will apply the criteria of adverse effect, set out in 36 CFR § 800.5(a)(1), or determine whether the project meets the *Standards,* or any other applicable Secretary *Standards.*

1. FOR STANDING STRUCTURES:

a. If FEMA and the SHPO agree that the Undertaking does not meet the adverse effect criteria, or that it meets the *Standards,* FEMA will make a determination of "no adverse effect," as described in 36 CFR § 800.5(b),

notify the SHPO and any other consulting party of the determination, and provide required project documentation pursuant to 36 CFR § 800.5(c). Unless the SHPO or other consulting party objects within 14 days of receipt, FEMA will complete the review and may authorize funding for the Undertaking.

b. If the SHPO objects to the "no adverse effect" determination, FEMA will require the applicant to revise the scope of work, in consultation with the SHPO and any other consulting party, to substantially conform to the *Standards.* FEMA will review the revised scope of work for funding eligibility. If the applicant revises the scope of work to address the objections, FEMA will notify the SHPO and any other consulting party, and may authorize funding for the Undertaking.

c. lithe Undertaking cannot be modified to meet the *Standards* or to address the objections, FNMA will initiate adverse effect consultation pursuant to Stipulation **VIII.**

2. FOR ARCHEOLOGICAL PROPERTIES:

If the SHPO or other consulting party objects to the determination that the identified historic properties may be avoided through project redesign or procedures/requirements agreed upon among all the consulting parties, or concurs that there will be an adverse effect, FEMA will initiate adverse effect consultation pursuant to Stipulation VITT.

VIII. RESOLUTION OF ADVERSE EFFECTS FOR HISTORIC PROPERTIES

A. If FEMA determines that an Undertaking will adversely affect a historic property, FEMA will determine if the Undertaking will be reviewed under 36 CFR § 800.6(b), or be addressed with a Secondary Programmatic Agreement (Secondary Agreement). FEMA will notify the SHPO and any other consulting party of this determination, and provide ACHP with an adverse effect notice, including documentation in accordance with 36 CFR § 800.11(e).

B. FEMA will involve the public in the resolution of adverse effects in accordance with 36 CFR § 800.6(a)(4).

C. When FEMA determines that an Undertaking may adversely affect a National Historic Landmark (NHL), FEMA will also notify the Secretary of this consultation [through the NHL Program Manager at the National Park Service Intermountain Support Office in Santa Fe, New Mexico], and invite the Secretary to participate. When ACHP participates in consultation related to an NHL, it will report the outcome of the review process to the FEMA Director and the Secretary.

1. Memorandum of Agreement: FEMA will develop a Memorandum of Agreement in accordance with 36 CFR § 800.6(c) to outline measures to

minimize or mitigate adverse effects to historic properties. FEMA may consider alternate treatment measures that serve an equivalent or greater public benefit than recordation or archeological data recovery, while promoting the preservation of historic properties. FEMA will identify the list of feasible measures in coordination with the consulting parties. Alternate measures may include, but are not limited to, activities such as preservation planning, interpretive programs, or development of a historic properties database using Geographic Information Systems.

2. Secondary Programmatic Agreement: FEMA, ADEM, the SHPO, if participating, and any other party may consult to develop a Secondary Agreement to identify programmatic conditions and/or treatment measures required for FEMA to approve multiple similar Undertakings by a single applicant.

IX. CHANGES TO APPROVED SCOPE OF WORK

ADEM will notify FEMA as soon as practicable of any proposed change to the approved scope of work for an Undertaking involving a National Register listed or eligible property. FEMA then will consult with the SHPO to determine if the change will affect the historic property. FEMA may authorize the applicant to proceed with the modified scope of work if the proposed change meets an Allowance, or if modifications to a standing structure can be brought into conformance to the *Standards.* If FEMA determines that the proposed change does not meet an Allowance, or if FEMA and the SHPO determine that the proposed change cannot conform to the *Standards,* FEMA will initiate adverse effect consultation pursuant to Stipulation VIII.

X. UNEXPECTED DISCOVERIES

ADEM will notify FEMA as soon as practicable if it appears that an Undertaking will affect a previously unidentified property that may be eligible for the National Register, or affect a known historic property in an unanticipated manner. FEMA will require the applicant to stop construction activities in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the property until FEMA concludes consultation with the SHPO. FEMA will notify the SHPO at the earliest possible time and consult to develop actions to take into account the effects of the Undertaking. FEMA will notify the SHPO of any time constraints, and FEMA and the SHPO will mutually agree upon time frames for this consultation. ADEM and the applicant may participate in this consultation. FEMA will provide the SHPO with written recommendations that take into account the effects of the Undertaking. If the SHPO does not object to FEMA's recommendations within the agreed upon time frame, FEMA will require the applicant to modify the scope of work to implement the recommendations.

XI. DISPUTE RESOLUTION

A. Should ADEM, the SHPO, ACHP, or other consulting party object within time frames provided by this Agreement to any plans, specifications, or actions subject to review pursuant to this Agreement, FEMA will consult with that party to seek resolution. Should FEMA object within time frames provided by this Agreement to any plans, specifications, or actions subject to review pursuant to this Agreement, FEMA will consult with the other parties to seek resolution. If FEMA determines within 14 days of receipt that the ADEM, SHPO, ACHP, or other consulting party's objection cannot be resolved, FEMA will forward to ACHP all documentation relevant to the dispute, including FEMA's proposed resolution.

B. Any recommendation or comment provided by ACHP will pertain only to the subject of the dispute. The responsibility of the signatory parties to implement all measures of this Agreement that are not subject to dispute will remain unchanged.

C. At any time while this Agreement is in effect, should a member of the public object to any measure of the Agreement or its implementation, FEMA will take the objection into account and consult with that party, the SHPO, and ADEM, as needed, to address the objection.

XII. ANTICIPATORY ACTIONS

A. FEMA will not grant assistance to an applicant who, with intent to avoid the requirements of this Agreement or Section 106 of the NHPA, has significantly adversely affected a historic property to which the assistance would relate, or having legal power to prevent it, allowed such significant adverse effect. After consultation with ACHP, FEMA. may determine that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant, and will complete consultation for the Undertaking pursuant to Stipulation VIII.

B. FEMA will specifically advise ADEM of this Stipulation and will require that ADEM advise its applicants in writing that they may not initiate construction on projects for which they are seeking Federal funding prior to compliance with this Agreement. ADEM also will advise its applicants that they will jeopardize Federal funding if construction is initiated prior to compliance with this Agreement.

XIII. DURATION, AMENDMENTS, TERMINATION, AND EXTENSION

A. Duration: Unless terminated pursuant to Stipulation XIII.C., this Agreement shall remain in effect from the date of execution until FEMA, in consultation with all other signatories, determines that the terms of this Agreement have been fulfilled in a satisfactory manner. Upon such determination, or 5 years after the

date of execution of this Agreement, unless amended otherwise, this Agreement will terminate and have no further force or effect. FEMA will provide all other signatories with written notice of its determination and of termination of this Agreement.

B. Amendments: If any signatory determines that the Agreement cannot be carried out, the signatories will consult to seek amendment of the Agreement. Amendments to this Agreement will be specific to the applicable Disaster unless otherwise agreed to by the signatories.

C. Termination: FEMA, ADEM, the SHPO, or ACHP may terminate this Agreement by providing a 30 day written notice to the other signatories, provided that these parties will consult during this time period to seek agreement on amendments or other actions that would prevent termination. Termination of this Agreement will require compliance with 36 CFR Part 800. This Agreement may be terminated without further consultation by the execution of a subsequent Agreement that explicitly terminates or supersedes its terms, or by FEMA's implementation of Program Alternatives, pursuant to 36 CFR § 800.14.

D. Extension: FEMA may extend this Agreement to apply to future disasters without an amendment, through a letter concurred by FEMA, the SHPO and ACHP.

XIV. EXECUTION OF PROGRAMMATIC AGREEMENT

This Agreement will become effective on the date of the ACHP signature to this Agreement.

EXECUTION AND IMPLEMENTATION of this Programmatic Agreement evidences that FEMA has afforded ACHP a reasonable opportunity to comment on FEMA's administration of all aforementioned Programs pursuant to the Stafford Act, and further evidences that FEMA has satisfied its Section 106 responsibilities for all individual Undertakings of these Programs.

FEDERAL EMERGENCY MANAGEMENT AGENCY

EMERGENCY PREPAREDNESS AND RESPONSE DIRECTORATE

By: _____ Date: _____
Anthony S. Lowe, Director
Mitigation Division

By: _____ Date: _____
Laurence W. Zensinger, Acting Director
Recovery Division

By: _____ Date: _____
Jeff Griffin, Regional Director, Region IX

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____
John M. Fowler, Executive Director

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
James Garrison, State Historic Preservation Officer

ARIZONA DIVISION OF EMERGENCY MANAGEMENT

By: _____ Date: _____
Frank F. Navarette, Director

A. The following Programs and types of activity will not require review by the SHPO or ACHP pursuant to Stipulations V. or VII.:

I. Implementation of Federal assistance to individuals and households pursuant to Section 411 of the Stafford Act, Individual and Family Grant Programs, with the exception of construction and ground disturbing activities associated with temporary housing;

II. Implementation of Federal assistance pursuant to Section 422 of the Stafford Act, Simplified Procedures, when it has the effect of restoring a facility to its pre-disaster condition, using in kind materials; and

III. Release of initial funding for the administrative action of acquiring properties in buyout projects. ADEM will ensure that the applicant agrees to secure the structures from physical alteration, illegal entry, and damage until the requirements of the Agreement are completed. Applicant communities will agree to the above provisions as part of the grant before FEMA will release any project funding.

B. The following project activities will not require review by the SHPO or ACHP pursuant to Stipulations V. or VII. Activities may be added to or deleted from this list without amending the Agreement, through a letter concurred by FEMA, the SHPO, and ACHP.

I. GROUND DISTURBING ACTIVITIES AND SITE WORK

A. The ground disturbing activities related to the repair, in-place replacement, or hardening of:

1. footings, foundations, retaining walls, and other earth retaining or slope stabilization systems (such as gabion baskets, etc.); roadways; and utilities (such as sewer, water, storm drains, electrical, gas, communication, and leach lines, and septic tanks, etc.), and

2. culvert systems within rivers, streams, or drainage ways when work is substantially in kind, including a modest increase in size or capacity when excavation will not disturb the profile of undisturbed soil that existed following the previous excavation necessary for the installation of such man-made improvements.

If the items being repaired or replaced have achieved a historic significance of their own, this Allowance will not apply unless the work is done in kind to exactly match existing materials and form.

B. Installation and hardening of utilities such as sewer, water, storm drains, electrical, gas and communication lines, within existing rights-of-way, but not placed under improved roads or roadways, provided the affected portion of the right-of-way was previously surveyed for cultural resources and contains no properties.

C. Repair or replacement of driveways, parking lots and walkways.

D. Repair or replacement of fencing and freestanding exterior walls when work is done in kind to exactly match existing materials and form.

E. Repair or replacement of metal utilitarian structures, including major exposed pipelines and pump houses, if reconstructed in kind, or in the same size and configuration using (superior functioning) modem materials. The finish on modem materials must be sympathetic to the site and context. Bridges, water towers, and antenna towers are not considered metal utilitarian structures for the purposes of this Allowance.

F. Installation of temporary structures to house uses such as classrooms or offices. This Allowance will not be applicable to ground disturbing activities and structures installed in historic districts.

G. Installation of scaffolding, temporary barriers such as chain link fences, and polyethylene sheeting or tarps.

H. Repair or replacement of hardscaping and utilities, including paving, planters, trellises, irrigation, and lighting, if done in kind to match existing materials and form.

I. Repair or replacement, and upgrades to codes and standards, of existing piers, docks, boardwalks, boat ramps, and dune crossovers, where the footprint remains the same. This Allowance will not apply to such structures that are listed in or eligible for the National Register, unless work is done in kind to exactly match existing materials and form.

J. Debris collection from public rights-of-way, transport, and disposal in existing licensed solid waste facilities. This Allowance does not include establishment or expansion of debris staging areas.

K. Sediment removal from man-made drainage facilities, including retention/detention basins, ponds, ditches, and canals, where work restores the

facility to its pre-disaster condition and sediment is either used to repair eroded banks or is disposed of at an existing licensed or permitted spoil site.

L. Dewatering flooded built-up areas.

II. BUILDINGS

A. Interior Floors, Walls, Stairs and Ceilings

1. Interior rehabilitation projects limited to actions for repairing and replacing, retaining and preserving, and protecting and maintaining in kind materials and features, consistent with the Secretary's *Standards.*

2. Repair of interior walls and ceilings, including plaster and drywall to exactly match existing walls; this can include the repair of interior cracks up to one inch wide. Any material used to repair such cracks should match the color and workmanship of the existing materials. The repairs must be restricted to the damaged area and care must be taken in the application to avoid damage to adjacent materials. This Allowance will not apply to walls that have decorative plaster trim or other finishes that contribute to the architectural significance of the property.

3. Replacement or repair of suspended or glued ceiling tiles.

4. Installation of grab bars and minor interior modifications for handicapped accessibility.

5. Non-destructive testing for hazardous materials (lead paint, asbestos, etc.) or testing in concealed/concealable locations.

B. Utilities and Mechanicals

1. Minor electrical, plumbing, and mechanical work within buildings, limited to upgrading, elevation, or in kind replacement, with the exception of historic fixtures that will be repaired when possible.

2. Replacement or installation of fire detection and suppression systems, security alarm systems, and HVAC systems, that does not affect the exterior of the building or require installation of new duct work throughout the interior.

C. Windows and Doors

1. Repair or replacement of severely damaged or deteriorated windows and doors, when the repair or replacement is done in kind to exactly match the existing materials and form.

2. Replacement of window panes in kind or with double or triple glazing, so long as the glazing is clear and untinted, and the window does not alter the existing window materials and form. This Allowance does not apply to the replacement of existing archaic or decorative glass. Historic windows and/or glazing may be treated with window films provided the films are without color or tint.

3. Historic door and window hardware should be repaired when possible.

D. Exterior Walls, Cornices, Porches and Foundations

1. Repainting of existing painted surfaces provided that destructive surface preparation treatments, including but not limited to, waterblasting, sandblasting and chemical cleaning, are not used.

2. Repair or partial replacement of porches, cornices, exterior siding, doors, balustrades, stairs, or other trim when the repair or replacement is done in kind to exactly match existing materials and form.

3. Repair or replacement of signs or awnings when work is done in kind to closely match existing materials and form.

4. Temporary bracing or shoring as part of stabilization.

5. Anchoring of masonry walls to floor systems, so long as anchors are embedded and concealed from exterior view, such as in the Hilti systems.

    a. Reconstruction or repair of parapets, chimneys, and cornices to exactly match existing in all material and visual aspects. Bracing and reinforcing of chimneys and fireplaces, as long as bracing and reinforcing are either concealed from exterior view or removable in the future.

    b. Stabilization of foundations and the addition of foundation bolts, provided that masonry foundation mortars match the historic color, strength, and joint tooling configuration of the existing foundation.

E. Roofing

Repair, replacement, or strengthening of roofing, gutters, and downspouts, when replacement or the mitigation action is done in kind to exactly match existing materials and form. However, cement asbestos shingles may be replaced with asphalt based shingles, and untreated wood shingles may be replaced with fire resistant wood shingles.

F. Weatherproofing and Insulation

1. Caulking and weather-stripping with compatibly colored material.

2. Replacement or installation of insulation, provided that decorative interior plaster, woodwork or exterior siding is not altered by this work item. This Allowance will not apply to urea formaldehyde foam insulation or any other thermal insulation that contains water in its chemical composition and is installed within wall cavities.

G. Seismic Upgrades

The installation of the following seismic upgrades, provided that such upgrades are not visible on the exterior or within character defining historic interiors: cross bracing on pier and post foundations; metal fasteners; collar ties; gussets; tie downs; strapping and anchoring of mechanical, electrical and plumbing equipment; concealed anchoring of furniture; installation of plywood diaphragms beneath first floor joists, above top floor ceiling rafters and on roofs; and the addition of seismic automatic gas shut off valves.

III. ROADS AND ROADWAYS

A. Repair of road to pre-disaster geometric design standards and conditions using in kind materials, number and width of lanes, shoulders, medians, curvature, grades, clearances, and side slopes.

B. Repair of road composition with in kind surface materials to maintain pre-disaster size, traffic capacity, and load classifications of motor vehicles, such as the reshaping and compacting of roadbed soil, as well as the repair of asphaltic concrete and Portland cement concrete pavement. The repair of brick or stone paving is not included in this Allowance, nor is the regrading of native materials to reconstruct the roadbed.

C. Repair of traffic control devices such as traffic signs, delineators, pavement markings, ramp and traffic surveillance control systems, and traffic signals.

D. Repair of road lighting with in kind systems.

E. Repair of other road appurtenances with in kind appurtenances such as curbs, berms, sidewalks, and fences. The repair of brick sidewalks is not included in this Allowance.

F. Repair of roadway safety elements with in kind elements such as barriers, guardrails, and impact-attenuation devices.

APPENDIX B

{FEDERALLY RECOGNIZED TRIBES]

ADDENDUM TO THE PROGRAMMATIC AGREEMENT

AMONG
THE FEDERAL EMERGENCY MANAGEMENT AGENCY,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICE,
THE ARIZONA DIVISION OF EMERGENCY MANAGEMENT, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
REGARDING FEMA-1422-DR-AZ

WHEREAS, in response to the Rodeo-Chediski Wildfire Disaster, FEMA-1422-DR-AZ (Disaster), the Federal Emergency Management Agency (FEMA), which has been incorporated into the Department of Homeland Security, Emergency Preparedness and Response Directorate, proposes to administer the Federal disaster Public Assistance Program, the Hazard Mitigation Grant Program, Pre-disaster Hazard Mitigation, Federal Assistance to Individuals and Households, and the Flood Mitigation Assistance Program (Programs) pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206 (Stafford Act), its implementing regulations contained in Title 44, Code of Federal Regulations (44 CFR) Part 206, Sections 1366-1367 of the National Flood Insurance Act of 1968, 42 U.S.C. 4104c-d, and its implementing regulations contained in 44 CFR Part 78; and

WHEREAS, FEMA, the Arizona Division of Emergency Management, the Arizona State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation have recognized that certain Undertakings and activities may occur on tribal lands under the jurisdiction of the Indian Tribe, which did not participate in the development of the Programmatic Agreement (Agreement). In addition an Undertaking may affect other historic properties of religious and cultural significance to the _____Indian Tribe; and

WHEREAS, FEMA has determined that the implementation of these Programs may affect properties located on tribal lands, or other properties of religious and cultural significance to the _____ Tribe, that are listed in or eligible for the National Register of Historic Places (National Register), and has consulted with the _____ Indian Tribe and its Tribal Historic Preservation Officer (THPO) pursuant to 36 CFR § 800.14(b)(3) of the regulations implementing Section 106 of the National Historic Preservation Act (NHPA);

NOW, THEREFORE, FEMA has requested that the _____ Tribe execute this Addendum to facilitate the Section 106 review of those actions of an Undertaking that will directly or indirectly affect historic properties on tribal lands or other properties of religious and cultural significance.

STIPULATIONS

FEMA will ensure that the following measures are implemented:

[**OPTION 1:** The THPO has not assumed SHPO responsibilities under §101(d)(2) of the NHPA]

1. FEMA will consult with the _____THPO in addition to the SHPO, in accordance with the terms of the Agreement, for all actions of the Undertaking that will occur on or affect historic properties on tribal lands, or affect other historic properties of religious and cultural significance to the _____ Tribe, and the THPO agrees to participate in the review of actions of the Undertaking occurring on or affecting historic properties on tribal lands in accordance with the terms of the Agreement. All references to the term "SHPO" in the Agreement are understood to include a reference to the _____THPO for the review of Undertakings occurring on or affecting historic properties on tribal lands, or affecting other historic properties of religious and cultural significance to the Tribe.

2. FEMA will require all Federal agencies participating in the implementation of the Undertaking to consult with the THPO in addition to the SHPO in accordance with the terms of the Agreement and this Addendum.

3. This Addendum shall become effective on the date it has been fully executed by FEMA, [any other participating Federal agency], and the _____ THPO.

[OPTION 2: The THPO has assumed SHPO responsibilities under §101(d)(2) of the NHPA]

1. FEMA recognizes that the _____ Tribe has assumed the responsibilities of the SHPO for Section 106 on tribal lands under § 101(d)(2) of the NHPA, and shall consult with the _____ THPO pursuant to the Agreement, in lieu of the SHPO, for all actions of the Undertaking that will occur on or affect historic properties on tribal lands, or affect other historic properties of religious and cultural significance to the _____ Tribe. The_____THPO agrees to participate in the review of actions of the Undertaking in accordance with the terms of the Agreement. All references to the term "SHPO" in the Agreement are understood to relate only to the _____ THPO for the review of Undertakings occurring on or affecting historic properties on tribal lands. All references to the term "SHPO" in the Agreement will apply to both the SHPO and the THPO for the review of Undertakings that may affect other historic properties of religious and cultural significance to the _____Tribe, unless the SHPO declines to participate in such review.

2. FEMA will require all Federal agencies participating in the implementation of the Undertaking to consult with the THPO in accordance with the terms of the Agreement and this Addendum.

3. The parties recognize that the SHPO shall participate as a consulting party pursuant to the Agreement if an action of the Undertaking will occur on tribal lands but affect historic properties off of tribal lands. The SHPO may also participate in consultation if requested in accordance with 36 CFR § 800.3(c)(1)(ii).

4. This Addendum shall become effective on the date it has been fully executed by FEMA, [any other participating Federal agency], and the _____THPO.

SIGNATORY PARTIES:

FEMA AND THE TRIBE

SHPO-2002-1678 (89788)

U.S. Department of Homeland Security
Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

RECEIVED
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SC-21
ARIZONA STATE PARKS

February 18, 2011

Mr. Reid Nelson
Director, Office of Federal Agency Programs
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 809
Washington, DC 20004
Attention: Ms. Charlene Dwin Vaughn

Mr. James Garrison
State Historic Preservation Officer
Arizona State Parks
1300 West Washington
Phoenix, AZ 85007

Mr. Lou Trammell, Director
Division of Emergency Management
State of Arizona
5636 East McDowell Road
Phoenix, AZ 85008-3495
Attention: Ms. Wendy Smith-Reeve

Re: FEMA/Arizona Section 106 Programmatic Agreement
FEMA Disasters — 1940-DR-AZ, 1950-DR-AZ

Dear Consulting Parties:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) executed a Section 106 Programmatic Agreement (PA) for 1422-DR-AZ with your offices in July 2003. The purpose of the PA was to expedite FEMA's responsibilities under the National Historic Preservation Act for FEMA-funded Undertakings in Arizona. The PA originally applied to a specific Presidentially-declared disaster and has since been extended to apply to subsequent disasters.

As a result of the successive Presidentially-declared disasters in 2010, FEMA initiated consultation with the Arizona State Historic Preservation Office (SHPO) on a new PA to supersede the 1422-DR-AZ Programmatic Agreement. FEMA is in the process of developing a prototype Programmatic

Agreement which we expect to begin negotiating with consulting parties near year's end. In an email exchange between Mr. David Jacobs of the Arizona SHPO and myself (February 10, 2011) regarding our request (February 1, 2011) to extend the PA for all future disasters in Arizona, the SHPO's office has indicated it is now timely to move forward and has asked that FEMA modify its request to extend the PA for one year. We therefore are proposing to extend the above referenced PA to March 31, 2012 pursuant to Stipulation XIII D.

As a result of recent storm events in Arizona two new Presidentially-declared disasters are currently eligible for FEMA funding. They are:

1940-DR-AZ declared on October 4, 2010 in response to the July 20 to August 7, 2010 Severe Storms and Flooding. Coconino County and the Hopi Indian Reservation are eligible for FEMA funding.

1950-DR-AZ declared on December 21, 2010 in response to the October 3 to October 5, 2010 Severe Storms and Flooding. The Sovereign Tribal Nation of the Havasupai Tribe is eligible for FEMA funding.

FEMA believes that the PA extension is in the best interest of meeting its responsibility and compliance requirements pursuant to Section 106 of the National Historic Preservation Act. If we do not receive any written objections within 30 days of your receipt of this letter, FEMA will assume concurrence with our extension and intended use of the Programmatic Agreement for the most recent Presidentially-declared disasters and any that occur prior to March 31, 2012.

If you have any questions or require additional information please do not hesitate to contact Donna M. Meyer, Deputy Regional Environmental Officer of my staff at (510)-627-7728 or donna.mever@dhs.gov.

CONCUR

2 MAR 11

Arizona State Historic Preservation Office

Sincerely,

Alessandro Amaglio
Regional Environmental Officer

Enclosure

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL EMERGENCY MANAGEMENT AGENCY,
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
AND
THE CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES

WHEREAS, the mission of the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards; and

WHEREAS, FEMA makes assistance available to States, communities, Federally recognized Indian Tribes (Tribes) and other eligible entities through programs (Programs) set forth in Appendix A, pursuant to the Homeland Security Act of 2002, Pub. L. No. 107-296 (2002) (codified as amended at 6 U.S.C. § 101 *et seq.);* the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288 (1974) (codified as amended at 42 U.S.C. § 5121 *et seq.)* (Stafford Act); the National Flood Insurance Act of 1968, Pub. L. No. 90-448 (1968) (as amended); the National Flood Insurance Reform Act of 1994, Pub. L. No. 103-325 (1994) (as amended); the Post-Katrina Emergency Management Reform Act of 2006, Pub. L. No. 109-295 (2006) (as amended); implementing regulations contained in Title 44 of the Code of Federal Regulations (CFR), Executive Order 13407 (2006), and such other acts, executive orders, implementing regulations, or Congressionally authorized programs as are enacted from time to time; and

WHEREAS, FEMA has determined that implementing its Programs may result in Undertakings [as defined by 16 U.S.C. § 470w and 36 CFR § 800.16(y)] that may affect properties listed in or eligible for listing in the National Register of Historic Places (National Register) pursuant to 36 CFR Part 60 (historic properties), and FEMA has consulted with the California State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act (NHPA), Pub. L. No. 89-665 (1966) (codified as amended at 16 U.S.C. § 470f), and the regulations implementing Section 106 of the NHPA (Section 106) at 36 CFR Part 800; and

WHEREAS, FEMA, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) have determined that FEMA's Section 106 requirements can be more effectively and efficiently implemented and delays to the delivery of FEMA assistance minimized if a programmatic approach is used to stipulate roles and responsibilities, exempt certain Undertakings from Section 106 review, establish protocols for consultation, facilitate identification and evaluation of historic properties, and streamline the assessment and resolution of adverse effects; and

WHEREAS, FEMA has developed a Prototype Programmatic Agreement (FEMA Prototype Agreement) pursuant to 36 CFR § 800.14(b)(4) in consultation with the ACHP and NCSHPO to

serve as a basis for negotiation of a State-specific Programmatic Agreement (Agreement) with the SHPO, State Emergency Management Agency, and/or participating Tribe(s); and

WHEREAS, this Agreement conforms to the FEMA Prototype Agreement as designated by the ACHP on December 17, 2013, and therefore does not require the participation or signature of the ACHP; and

WHEREAS, in order• to implement its Programs, FEMA will provide assistance to State of California or Tribes [Grantee(s)] that may provide monies and other assistance to eligible subgrantees, and as such, the California Governor's Office of Emergency Services (Cal OES) that is typically responsible for administering funds provided under these Programs, has participated in this consultation, and FEMA has invited Cal OES to execute this Agreement as an Invited Signatory; and

WHEREAS, FEMA also may directly perform its own Undertakings pursuant to this Agreement; and

WHEREAS, in anticipation or in the immediate aftermath of an event, impacted communities and the State California, and/or affected Tribes, may conduct critical preparedness, response and recovery activities to safeguard public health and safety and/or to restore vital community services and functions before, during, and or following an event. Some of these activities may become Undertakings requiring Section 106 review subject to the terms of this Agreement, and FEMA shall coordinate the appropriate review as warranted; and

WHEREAS, FEMA has determined that its Programs may result in Undertakings with the potential to affect historic properties having religious and cultural significance to Tribes, including sites that may contain human remains and/or associated cultural items; and

WHEREAS, FEMA recognizes that Tribes may have sites of religious and cultural significance on or off Tribal lands [as defined in 36 CFR § 800.16(x)], and in meeting its Federal trust responsibility, FEMA has engaged in government-to-government consultation with all Tribes in California, and all Tribes in neighboring states that have sites of religious and cultural significance within California, and pursuant to 36 CFR § 800.2(c)(2)(ii)(E) has invited participating Tribes to enter into an agreement that specifies how FEMA and Tribes will carry out Section 106 responsibilities, including the confidentiality of information; and

WHEREAS, none of these Tribes have indicated an interest in entering into a State-specific Agreement; and

WHEREAS, certain Tribes have assumed the responsibilities of the SHPO in their Tribal lands through appointment of a Tribal Historic Preservation Officer (THPO) in accordance with Section 101 of the NHPA, and FEMA shall consult with the THPO in lieu of the SHPO for Undertakings occurring on or affecting their Tribal lands; and

WHEREAS, FEMA may invite Tribes that have sites of religious and cultural significance to enter into the terms of this Agreement as invited signatories or concurring parties in accordance

with 36 CFR § 800.14(f), and nothing in this Agreement prevents a Tribe from entering into a separate Programmatic Agreement or other agreement with FEMA for administration of FEMA Programs; and

WHEREAS, the terms of this Agreement shall not apply to Undertakings on or affecting Tribal lands without prior execution of the Agreement by the affected Tribe(s); and

WHEREAS, for the review of specific Undertakings under this Agreement, FEMA may invite other agencies, organizations, and individuals to participate as consulting parties; and

NOW, THEREFORE, FEMA, Cal OES, and the SHPO (Signatories) agree that FEMA Programs in the State of California shall be administered in accordance with the following Stipulations to satisfy FEMA's Section 106 and Section 110(k) responsibilities for all resulting Undertakings, and effectively integrate historic preservation compliance considerations into the delivery of FEMA assistance. FEMA will not authorize implementation of an individual Undertaking until Section 106 review is completed pursuant to this Agreement.

STIPULATIONS

To the extent of its legal authority, and in coordination with other Signatories, FEMA shall ensure that the following measures are implemented:

I. GENERAL

A. Applicability

For FEMA Undertakings that also are within the jurisdiction of the Federal Communications Commission (FCC) and within the scope of its Section 106 Programmatic Agreements for communication facilities, FEMA defers Section 106 review in accordance with the ACHP Program Comment of October 23, 2009. The approval of funding for the FEMA Undertaking shall be conditioned upon the compliance of the subgrantee with FCC's applicable Section l06 review, including any required consultation with Tribes. FEMA shall notify the SHPO/THPO when it applies the ACHP Program Comment to an Undertaking. FEMA remains responsible for any FEMA Undertakings it determines are outside the jurisdiction of FCC.

2. In the event of a Stafford Act major disaster or emergency declaration (Declaration), State, Tribal and local governments may lack the capability to perform or to contract for emergency work, and instead request that the work be accomplished by a Federal agency. Through a mission assignment (MA), FEMA may direct appropriate Federal agencies to perform the work. This Agreement shall apply to such Federal assistance undertaken by or funded by FEMA pursuant to Titles IV and V of the Stafford Act and 44 CFR Part 206.

3. FEMA may utilize this Agreement to fulfill its Section 106 responsibilities and those of other Federal agencies that designate FEMA as the lead Federal agency pursuant to

36 CFR § 800.2(a)(2) with appropriate notification to the other Signatories and the ACHP regarding Undertakings that fall within the scope of this Agreement. When FEMA is not designated as the lead Federal agency, all Federal agencies, including FEMA, remain individually responsible for their compliance with Section 106.

4. If another Federal program or Federal agency has concluded Section 106 consultation review and approved an Undertaking within the past 2 years, FEMA has no further requirement for Section 106 review regarding that Undertaking provided that FEMA:

   a. adopts the findings and determinations of the previous agency;

   b. confirms that the scope and effect [as defined by 36 CFR § 800.16(i)] of its Undertaking are the same as that of the Undertaking reviewed by the previous agency, and;

   c. determines that the previous agency complied with Section 106 appropriately.

   FEMA shall document these findings in its project file in order to confirm that the requirements of Section 106 have been satisfied. Should FEMA, in consultation with SHPO and participating Tribe(s), determine that the previous Section 106 review was insufficient or involved interagency disagreements about eligibility, effect, and/or treatment measures, FEMA shall conduct additional Section 106 consultation in accordance with the terms of this Agreement.

5. With the written concurrence of the Signatories, other Federal agencies providing financial assistance for the same type of activities covered under the terms of this Agreement as outlined in Appendix A may satisfy their Section 106 responsibilities for such activities by accepting and complying in writing with the terms of this Agreement.

   a. Other Federal Agencies may include States and units of local government who have assumed environmental responsibilities of the U.S. Department of Housing and Urban Development and, acting as the Responsible Entity pursuant to 24 CFR Part 58, are responsible for environmental review, decision-making and action.

   b. In such situations, the other Federal Agency shall notify the Signatories in writing of its intent to use this Agreement to achieve compliance with its Section 106 requirements, and consult with the Signatories regarding its Section 106 compliance responsibilities. Resumes of staff who meet the Secretary of the Interior's Professional Qualification Standard(s) and will review Second Tier projects in accordance with Appendix B of this Agreement shall be provided to FEMA and the SHPO/THPO.

6. FEMA has determined that the following types of activities have limited or no potential to affect historic properties and FEMA has no further Section 106 responsibilities with regards to them, pursuant to 36 CFR § 800.3(a)(1):

a. Pursuant to 44 CFR § 206.110(m), assistance to individuals and households provided under 44 CFR Part 206, Subpart D and Section 408 of the Stafford Act, including funding for owner-occupied home repair and replacement, content replacement, personal property, transportation and healthcare expenses, is exempt from the provisions of Section 106. For ground disturbing activities, and construction related to 44 CFR §§ 206.117(b)(1)(ii) (temporary housing), 206.117(b)(3) (replacement housing), 206.117(b)(4) (permanent housing construction), 206.117(c)(1)(vi) (repair or replacement of privately-owned access routes), and repair of multi-family housing units, FEMA shall conduct Section 106 review.

b. Administrative actions such as personnel actions, travel, procurement of services, supplies (including vehicles and equipment) for the support of day-to-day and emergency operational activities, and the temporary storage of goods provided storage occurs within existing facilities or on previously disturbed soils.

c. Granting of variances, and actions to enforce Federal, State, or local codes, standards or regulations.

d. Monitoring, data gathering, and reporting in support of emergency and disaster planning, response and recovery, and hazard activities.

e. Research and development of hazard warning systems, hazard mitigation plans, codes and standards, and education/public awareness programs.

f. Assistance provided for planning, studies, design and engineering costs that involve no commitment of resources other than staffing and associated funding.

g. Assistance provided for training, management and administration, exercises, and mobile/portable equipment purchases; with the exception of potential ground-disturbing activities and modification of existing structures.

h. Community Disaster Loans for funding to perform governmental functions for any eligible jurisdiction in a designated disaster area that has suffered a substantial loss of tax and other revenue.

i. Funding the administrative action of acquisition or lease of existing facilities where planned uses conform to past use or local land use requirements.

j. Funding the administrative action of acquiring properties in acquisition projects, including the real estate transaction.

k. Labor, equipment and materials used to provide security in the Declaration area, including lease, rental, purchase or repair of equipment or vehicles and payment for staff and contract labor.

l. Application of pesticides to reduce adverse public health effects, including aerial and truck-mounted spraying.

m. Unemployment assistance.

n. Distribution of food coupons.

o. Legal services.

p. Crisis counseling.

7. Any FEMA Programs authorized by the United States Congress in the future may be included in this Agreement in accordance with Stipulation IV.A., Amendments. Any change in the FEMA name, Programs, or organizational structure shall not affect this Agreement.

B. Roles and Responsibilities of the Signatories

1. FEMA:

a. FEMA shall use Federal, Tribal, State, subgrantee, or contractor staff whose qualifications meet the Secretary of the Interior's (Secretary's) Professional Qualifications Standards (Professional Qualifications) set forth in the Federal Register at 48 Fed. Reg. 44716-01 (September 29, 1983), as amended (Qualified), in completing identification and evaluation of historic properties and in making determinations of effects. FEMA shall review any National Register eligibility determination and make its own findings of effect resulting from. the performance of these activities prior to submitting such determinations to the SHPO and participating Tribe(s).

i. FEMA acknowledges that Tribes possess special expertise in assessing the National Register eligibility of properties with religious and cultural significance to them. Tribal leaders, and as appropriate, their representatives, shall decide who meets qualifications/standards as defined by their Tribes for review of Undertakings affecting properties with religious and cultural significance to them.

b. FEMA alone shall conduct all Section 106 consultation with Tribe(s). In accordance with 36 CFR § 800.2(c)(4), FEMA may authorize the Grantee(s), or a subgrantee through the Grantee(s), to initiate the Section 106 process with the SHPO and other consulting parties, assist in identifying other consulting parties with a demonstrated interest in the Undertaking, and prepare any necessary analyses and documentation, but FEMA shall remain responsible for determinations of National Register eligibility and findings of effect recommended by the authorized party. FEMA shall follow the process set forth in

Stipulation I.B.1.a., FEMA Roles and Responsibilities, and notify the SHPO in writing when a Grantee or subgrantee has been authorized to initiate consultation on FEMA's behalf.

c. Prior to authorizing the release of funds for individual Undertakings requiring grant conditions pursuant to this Agreement, FEMA shall inform the Grantee(s) of all stipulations and conditions and ensure that they are understood so they can be adequately conveyed to the subgrantee. FEMA shall work in partnership with the Grantee(s) to provide subgrantees with guidance on in-kind repair pursuant to *The Secretary of the Interior's Standards for the Treatment of Historic Properties 1995 (Standards),* 36 CFR Part 68, or the most updated version, and techniques to avoid or minimize adverse effects to historic properties.

d. FEMA shall provide the other Signatories and the ACHP with an annual report for the previous calendar year by March 1 of each year that this Agreement is in effect. This annual report will summarize the actions taken to implement the terms of this Agreement, statistics on Undertakings reviewed, and recommend any actions or revisions to be considered, including updates to the appendices.

e. FEMA shall confer annually and as necessary with the other Signatories within 60 days after issuance of the annual report, to review the report and/or discuss issues and concerns in greater detail. This review shall occur in person or by telephone as determined by FEMA.

f. FEMA shall notify the SHPO and affected Tribe(s), as soon as practicable, following a Declaration to provide specific points of contact and other pertinent information about the Declaration.

g. FEMA may convene an initial scoping meeting with the Signatories and other interested parties as soon as practicable after each Declaration to address Declaration-specific issues and procedures.

h. FEMA shall ensure that all documentation resulting from Undertakings reviewed pursuant to this Agreement is consistent with applicable SHPO and Tribal guidelines and the confidentiality provisions of 16 U.S.C. § 470w-3 and 36 CFR § 800.11(c).

2. SHPO:

a. The SHPO shall review FEMA's determination of the Areas of Potential Effects (APE), National Register eligibility determinations, and FEMA's effect findings, and respond within timeframes required by this Agreement.

b. The SHPO maintains and administers the California Historical Resources Information System (CHRIS), which is an inventory of known historical resources in the State of California. This inventory is archived and made

available through regional Information Centers (IC's) located throughout the state.

i. Upon request, the appropriate IC(s) shall provide FEMA with all requested inventory records, unless otherwise precluded by confidentiality restrictions, such as tribal objections. In the case of an Emergency Undertaking (Stipulation II.B.), records shall be provided on an expedited basis at no charge. For all other Undertakings, the records shall be provided to FEMA or Cal OES (on behalf of FEMA) in accordance with normal CHRIS operating procedures. Alternatively, FEMA or Cal OES may enter into access agreements with specific IC's that specify terms of records provision.

ii. If, as a result of a disaster, an IC(s) is closed or rendered inoperable, FEMA or Cal OES may request records for the affected area(s) directly from the SHPO. The SHPO will make every effort to provide all available records on a timely basis, although the records may be less extensive and complete than those retained by the IC(s).

c. The SHPO shall identify staff or consultants to assist FEMA staff with their Section 106 responsibilities, and identify, in coordination with FEMA, those activities within the Section 106 review process that the SHPO may perform for specific Undertakings as agreed in writing with FEMA.

d. As requested, SHPO staff shall be reasonably available as a resource and for consultation through site visits, written requests, telephone conversations or electronic media. In those instances where consultation with the SHPO has occurred, FEMA shall provide a written summary via e-mail or regular mail to the SHPO, including any decisions that were reached.

e. The SHPO may delegate some or all of its responsibilities under this Agreement to one or more Liaisons to serve as a dedicated point of contact for consultation with FEMA. The SHPO shall confer with FEMA about the selection of any Liaisons, the scope of responsibilities delegated and related implementing procedures. The SHPO shall formally document these decisions for concurrence by FEMA. Liaisons are not required to be members of the SHPO staff.

f. The SHPO shall participate in an initial scoping meeting for a Declaration.

g. The SHPO may assist local jurisdictions and/or the Grantee(s) in the State of California with advance planning efforts to consider historic properties in the context of homeland security considerations, including disaster preparedness, response, recovery, and mitigation programs for which FEMA funding may be requested.

h. The SHPO shall coordinate with FEMA, to identify consulting parties, including any communities, organizations, or individuals that may have an interest in a specific Undertaking and its effects on historic properties.

i. The SHPO shall participate in annual reviews convened by FEMA to review the effectiveness of this Agreement in accordance with Stipulation I.B.1.e.

3. Grantee(s):

a. The Grantee(s) shall ensure that their subgrantees understand and acknowledge conditions and potential requirements that may be placed upon Undertakings as a result of Section 106 consultation and the provisions of this Agreement.

b. The Grantee(s) shall participate in an initial scoping meeting for a Declaration.

c. The Grantee(s) shall ensure that their subgrantees understand that failure to comply with any project-specific conditions that have been placed on their grants could jeopardize FEMA funding.

d. The Grantee(s) shall notify FEMA as soon as possible of any proposed change to the approved scope of work. The Grantee(s) shall direct their subgrantee not to implement the changes to the proposed scope of work until any additional review required by this Agreement is complete.

e. The Grantee(s) shall ensure that its subgrantees are made aware that in the event of an unexpected discovery involving an Undertaking that has affected a previously unidentified historic property or human remains, or affected a known historic property in an unanticipated manner, the subgrantee will comply with Stipulation III.B., Unexpected Discoveries, Previously Unidentified Properties, or Unexpected Effects.

f. The Grantee(s) shall ensure that in its subgrant agreements, any scope of work involving ground disturbance, and resultant contracts to execute said work, provide for the protection of and notification protocols for unexpected discoveries or unexpected effects to historic properties and human remains.

g. If a Signatory Tribe assumes the role of Grantee for projects on Tribal lands, the Tribe shall assume the same responsibilities as outlined in Stipulation I.B.3. of this Agreement, Roles and Responsibilities of the Signatories.

C. Tribal Consultation

1. For FEMA Undertakings on Tribal lands or affecting properties of religious and cultural significance, and where no tribe-specific consultation agreements or protocols are in place, FEMA shall consult with affected Tribe(s) in accordance with 36 CFR Part 800. In determining who the affected Tribe(s) may be, FEMA will first

establish that it is a type of Undertaking with potential to affect historic properties with religious and cultural significance and may consult with the SHPO, Tribe(s), or any State Tribal Agency, and access the National Park Service (NPS) Native American Consultation Database or other tools to identify geographic tribal interests.

2. To the extent permitted by Section 304 of the NHPA, Section 9(a) of the Archeological Resources Protection Act (ARPA) (16 U.S.C. § 470aa — 470mm), and any other applicable laws, FEMA shall ensure it withholds information protected by such laws from public disclosure.

3. FEMA shall invite affected Tribe(s) to participate in the initial scoping meeting within their geographic area of interest for each Declaration.

D. Public Participation

1. FEMA recognizes that the views of the public are essential to informed decision making throughout the Section 106 consultation process. FEMA shall notify the public of proposed Undertakings in a manner that reflects the nature, complexity, significance of historic properties likely affected by the Undertaking, the likely public interest given FEMA's specific involvement, and any confidentiality concerns of Tribe(s), private individuals and businesses.

2. FEMA may consult with the Grantee(s), subgrantee, SHPO, participating Tribe(s), and other consulting parties to determine if there are individuals or organizations with a demonstrated interest in historic properties that should be included as a consulting party for the Undertaking in accordance with 36 CFR § 800.2(c)(5). If such parties are identified or identify themselves to FEMA, FEMA shall provide them with information regarding the Undertaking and its effects on historic properties, consistent with the confidentiality provisions of 36 CFR § 800.11(c).

3. In accordance with the outreach strategy developed for an Undertaking in consultation with the SHPO and participating Tribe(s), for involving the public, FEMA shall identify the appropriate stages for seeking public input during the Section 106 consultation process. FEMA shall consider all views provided by the public regarding an Undertaking.

4. FEMA may also provide public notices and the opportunity for public comment or participation in an Undertaking through the public participation process of the National Environmental Policy Act (NEPA) and its implementing regulations set out at 44 CFR Part 10, and/or Executive Orders 11988 and 11990 relating to floodplains and wetlands as set out in 44 CFR Part 9, and Executive Order 12898, Environmental Justice, provided such notices specifically reference Section 106 as a basis for public involvement.

5. Should a member of the public object in writing to implementation of the Agreement's terms, FEMA will notify the other Signatories in writing and take the

objection into consideration. FEMA shall consult with the objecting party and, if that party so requests, the other Signatories, for not more than 30 days. In reaching its decision regarding the objection, FEMA shall take into consideration all comments from these parties. Within 15 days after closure of this consultation period, FEMA shall provide the other parties with its final decision in writing.

E. Timeframes and Communications

1. All time designations shall be in calendar days unless otherwise stipulated. If any Signatory does not object to FEMA's finding or determination related to an Undertaking within an agreed-upon timeframe, FEMA may proceed to the next step in the consultation process as described in Stipulation II., Project Review.

2. Due to the varied nature of Undertakings, the individual response times to FEMA's requests for comment/concurrence will vary. These response times are contingent upon FEMA ensuring that its findings and determinations are made by Qualified staff and supported by documentation as required by 36 CFR § 800.11(d) and 36 CFR § 800.11(e), and consistent with FEMA guidance.

   a. For Emergency Undertakings as outlined in Stipulation Expedited Review of Emergency Undertakings, the SHPO shall respond to any FEMA request for comments within three (3) days after receipt, unless FEMA determines the nature of the emergency action warrants a shorter time period.

   b. For Undertakings associated with the Individual Assistance (IA) and Public Assistance (PA) programs, the response time for each request for concurrence shall be a maximum of fifteen (15) days, or in accordance with temporary timelines established by FEMA on a Declaration-by-Declaration basis.

   c. For the Hazard Mitigation Grant Program (HMGP) and all non-disaster programs, the response time for each request for concurrence shall be a maximum of thirty (30) days.

3. The consulting parties may send and accept official notices, comments, requests for further information and documentation, and other communications required by this Agreement by e-mail. As appropriate, if it will facilitate completion of reviews, hard copies may be requested.

II. PROJECT REVIEW

A. Programmatic Allowances

1. If FEMA determines an Undertaking conforms to one or more of the Programmatic Allowances (Allowances) in Appendix B of this Agreement, FEMA shall complete the Section 106 review process by documenting this determination in the project file, without SHPO review or notification.

2. If the Undertaking involves a National Historic Landmark (NHL), FEMA shall notify the SHPO, participating Tribe(s), and the NPS NHL Program Manager of the appropriate NPS Regional Office that the Undertaking conforms to one or more Allowances. FEMA shall provide information about the proposed scope of work for the Undertaking and the Allowance(s) enabling FEMA's determination.

3. If FEMA determines any portion of an Undertaking's scope of work does not conform to one or more Allowances listed in Appendix B, FEMA shall conduct expedited or standard Section 106 review, as appropriate, for the entire Undertaking in accordance with Stipulation II.B., Expedited Review for Emergency Undertakings, or Stipulation TLC., Standard Project Review.

4. Allowances may be revised and new Allowances may be added to this Agreement in accordance with Stipulation IV.A.3., Amendments.

B. Expedited Review for Emergency Undertakings

1. Determine Expedited Review

a. As part of the Declaration process, FEMA shall define the time interval during which the disaster-causing incident occurs [the incident period, as defined in 44 CFR § 206.32(0]. FEMA may approve direct Federal assistance and/or funding for emergency work [as defined in 44 CFR § 206.201(b)] that occurs during the incident period, including work already completed, in response to an immediate threat to human health and safety or property. Pursuant to 36 CFR § 800.12(d), FEMA may conduct expedited review of emergency Undertakings for 30 days from the beginning of the incident period.

b. Should FEMA determine that it is necessary to extend the expedited review period for emergency Undertakings beyond the initial 30 days, FEMA shall, in 30-day increments, as needed, notify in writing the ACHP, SHPO, Cal OES, and participating Tribe(s).

2. Conduct Expedited Reviews

a. If the emergency Undertaking is an immediate rescue and salvage operation conducted in response to an event to preserve life and property, FEMA has no Section 106 consultation responsibilities in accordance with 36 CFR § 800.12(d); or

b. If the emergency Undertaking meets one or more of the Allowances in Appendix B of this Agreement, FEMA shall complete the Section 106 review process pursuant to Stipulation MAI., Programmatic Allowances.

c. If FEMA determines that the emergency Undertaking would adversely affect a historic property during this expedited review period:

i. To the extent practicable, FEMA will propose treatment measures (avoidance, minimization, and mitigation) that would resolve adverse effects during implementation, and request the comments of the SHPO, subgrantee, and participating Tribe(s) within 3 days of receipt of this information unless FEMA determines the nature of the emergency warrants a shorter time period.

ii. FEMA may provide this information through written requests, telephone conversations, meetings, or electronic media. In all cases, FEMA shall clarify that an "expedited review" is being requested for the Undertaking.

iii. FEMA shall take into account any timely comments provided by the SHPO, subgrantee, and/or participating Tribe(s) in making a decision on how to proceed.

iv. Should the SHPO, subgrantee, and/or participating Tribe(s) not comment within 3 days, FEMA shall complete Section 106 consultation for the Undertaking based on the available information.

v. FEMA shall notify the SHPO, subgrantee, and participating Tribe(s) of the final decision, indicating how any comments received were considered in reaching that decision.

C. Standard Project Review: For Undertakings not exempt from further Section 106 review, FEMA shall ensure that the following standard project review steps are implemented. In the interest of streamlining, FEMA may combine some or all of these steps during consultation in accordance with 36 CFR § 800.3(g).

1. Consulting Parties: FEMA shall consider all written requests of individuals and organizations to participate as consulting parties, and consult with the SHPO and participating Tribe(s) to identify any other parties that meet the criteria to be consulting parties and invite them to participate in the Section 106 process. FEMA may invite others to participate as consulting parties as the Section 106 consultation proceeds. FEMA shall invite any individual or organization that will assume a specific role or responsibility outlined in a Memorandum of Agreement or Programmatic Agreement to participate as an invited signatory to the Agreement.

2. Area of Potential Effects:

a. For standing structures not adjacent to or located within the boundaries of a National Register listed or eligible district, Qualified staff may define the APE, as defined at 36 CFR § 800.16(d), as the individual structure when the proposed Undertaking is limited to its repair or rehabilitation [as defined in 36 CFR § 68.2(b)].

b. For all other Undertakings, Qualified staff shall determine the APE in consultation with the SHPO and participating Tribe(s). FEMA may consider

information provided by other parties, such as local governments and the public, when establishing the APE.

3. Identification and Evaluation: Qualified staff shall determine, in consultation with the SHPO and participating Tribe(s) if the APE contains historic properties, including properties of religious and cultural significance. This may include the review of documentation provided by the Grantee(s) or subgrantee in coordination with the SHPO.

   a. Level of Effort: FEMA shall make a reasonable and good faith effort to identify historic properties in accordance with 36 CFR § 800.4(b)(1). FEMA may consult with. the SHPO to determine the level of effort and methodology necessary to identify and evaluate a variety of historic property types. For properties of religious and cultural significance to affected Tribe(s), FEMA shall consult with the affected Tribe(s) to determine geographical areas containing them that may be affected by an Undertaking and determine the necessary level of effort to identify and evaluate or avoid any such historic properties.

   b. National Historic Landmarks: When FEMA identifies an Undertaking with the potential to affect an NHL, FEMA shall contact the NPS NHL Program Manager• of the appropriate NPS Regional Office (Pacific West Region, 333 Bush Street, Suite 500, San Francisco, CA 94104-2828) in addition to the SHPO, participating Tribe(s), and other consulting parties. The purpose of this notification is to ensure early coordination for the Undertaking, which FEMA later may determine adversely affects the NHL as outlined in Stipulation II.C.6.

   c. Determinations of Eligibility: FEMA shall review or determine National Register eligibility based on identification and evaluation efforts, and consult with the SHPO, participating Tribe(s), and other consulting parties regarding these determinations. Should the SHPO, participating Tribe(s), or another• consulting party disagree with the determination of eligibility, FEMA shall:

      i. Elect to consult further with the objecting party until the objection is resolved;

      ii. Treat the property as eligible for the National Register; or

      iii. Obtain a determination of eligibility from the Keeper of the National Register (Keeper) in accordance with 36 CFR § 63.2(d)-(e) and 36 CFR § 800.4(c)(2).

4. Findings of No Historic Properties Affected: FEMA shall make a finding of "no historic properties affected" under the following circumstances:

   a. If no historic properties are present in the APE;

b. The Undertaking is designed to avoid effects to historic properties, including National Register listed or eligible properties of religious and cultural significance to participating Tribe(s); or

c. The Undertaking does not affect the character-defining features of a historic property.

d. FEMA shall notify the SHPO, participating Tribes(s), and any other consulting parties of this finding and provide supporting documentation in accordance with 36 CFR § 800.11(d). Unless the SHPO or participating Tribe(s) objects to the finding within the applicable timeframe outlined in Stipulation I.E., Timeframes and Communications, the Section 106 review of the Undertaking will have concluded.

e. If the SHPO or participating Tribe(s) objects to a finding of "no historic properties affected," FEMA shall consult with the objecting party to resolve the disagreement.

i. If the objection is resolved, FEMA either may proceed with the Undertaking in accordance with the resolution or reconsider effects on the historic property by applying the criteria of adverse effect pursuant to Stipulation II.C.5., Application of the Criteria of Adverse Effect, below.

ii. If FEMA is unable to resolve the disagreement, it will forward the finding and supporting documentation to the ACHP and request that the ACHP review FEMA's finding in accordance with 36 CFR § 800.4(d)(l)(iv)(A) through 36 CFR § 800.4(d)(1)(iv)(C). FEMA shall consider the ACHP's recommendation in making its final determination. If FEMA's final determination is to reaffirm its "no historic properties affected" finding, the Section 106 review of the Undertaking will have concluded. Otherwise, FEMA will proceed to Stipulation II.C.5., below.

5. Application of the Criteria of Adverse Effect: If FEMA finds an Undertaking may affect historic properties in the APE, including those of religious and cultural significance to affected Tribe(s), FEMA shall apply the criteria of adverse effect to historic properties within the APE(s), taking into account the views of the consulting parties and the public concerning effects in accordance with 36 CFR § 800.5(a).

a. If FEMA determines that an Undertaking does not meet the adverse effect criteria, FEMA shall propose a finding of "no adverse effect" in accordance with 36 CFR § 800.5(b).

i. FEMA shall notify the SHPO, participating Tribe(s), and all other consulting parties of its finding and provide supporting documentation pursuant to 36 CFR §800.11(e).

ii. Unless a consulting party objects within the applicable timeframe outlined in Stipulation I.E., Timeframes and Communications, FEMA will proceed with its "no adverse effect" determination and conclude the Section 106 review.

iii. If a consulting party objects to a finding of "no adverse effect," FEMA will consult with the objecting party to resolve the disagreement.

1) If the objection is resolved, FEMA shall proceed with the Undertaking in accordance with the resolution, or;

2) If the objection cannot be resolved, FEMA shall request that the ACHP review the findings in accordance with 36 CFR § 800.5(c)(3)(i)-(ii), and submit the required supporting documentation. FEMA shall consider the ACHP's comments in making its final determination.

b. If FEMA finds the Undertaking may adversely affect historic properties, FEMA shall request through the Grantee(s) that the subgrantee revise the scope of work to substantially conform to the *Standards* for standing structures, or avoid or minimize adverse effects for National Register listed or eligible archaeological properties.

i. If the subgrantee modifies the scope of work to avoid the adverse effect, FEMA shall notify the SHPO, participating Tribe(s), and all other consulting parties, and provide supporting documentation, including the necessary conditions. Unless a consulting party makes a timely objection in accordance with the applicable timeframe outlined in Stipulation I.E., Timeframes and Communications, FEMA shall proceed with its "no adverse effect" determination, including any conditions, and conclude the Section 106 review.

ii. If an Undertaking is not modified to avoid the adverse effect(s), FEMA shall initiate consultation to resolve the adverse effect(s) in accordance with Stipulation II.C.6., Resolution of Adverse Effects.

6. Resolution of Adverse Effects: If FEMA determines that an Undertaking may adversely affect a historic property, it shall resolve the effects of the Undertaking in consultation with the SHPO, Grantee(s), subgrantee, participating Tribe(s), the ACHP, if participating, and other• consulting parties, by one of the following methods depending upon the severity of the adverse effect(s) as well as the determination of the historic property's significance on a local, state or national level. When FEMA determines an Undertaking will adversely affect an NHL, FEMA shall notify and invite the Secretary and the ACHP to participate in consultation in accordance with 36 CFR § 800.10. When the ACHP participates in consultation related to an NHL, the ACHP shall report the outcome of the consultation to the Secretary and the FEMA Administrator.

a. Abbreviated Consultation Process: FEMA will propose in writing to the consulting parties to resolve the adverse effects of the Undertaking through the application of one or more Treatment Measures outlined in Appendix C as negotiated with the SHPO, participating Tribes, and other consulting parties. The use of these Treatment Measures shall not require the execution of a Memorandum of Agreement (MOA) or Programmatic Agreement.

   i. In consultation with the SHPO, participating Tribe(s), and other consulting parties, FEMA shall propose in writing the implementation of a specific Treatment Measure, or combination of Treatment Measures, with the intent of expediting the resolution of adverse effects, and provide documentation as required by 36 CFR § 800.11(e), subject to the confidentiality provisions of 36 CFR § 800.11(c). Unless a consulting party or the ACHP objects within 15 days of receipt of FEMA's proposal, FEMA shall proceed with the implementation of the Treatment Measure(s) and will conclude the Section 106 review.

   ii. If any of the consulting parties or the ACHP objects within the 15-day review-and-comment period to the resolution of adverse effects through the application of the Abbreviated Consultation Process, FEMA shall resolve the adverse effect(s) using procedures outlined below in Stipulation II.C.6.b., MOA, or Stipulation II.C.6.c., Programmatic Agreement.

   iii. Because funding and implementation details of Treatment Measures for specific Undertakings may vary by program, FEMA shall provide written notice to the consulting parties within sixty (60) days of the completion of the Treatment Measure(s). This written notice will serve as confirmation that the Treatment Measure(s) for a specific Undertaking have been implemented. FEMA also shall include information pertaining to the completion of Treatment Measures in the annual report pursuant to Stipulation I.B.1.d., FEMA Roles and Responsibilities.

b. Memorandum of Agreement: FEMA shall provide the ACHP with an adverse effect notice in accordance with 36 CFR § 800.6(a)(1) if it has not already provided such under the Abbreviated Consultation Process of this Agreement, if a consulting party or the ACHP objects in accordance with Stipulation II.C.6.a.ii., or if FEMA in consultation with the SHPO, participating Tribe(s), and other consulting parties has determined that an MOA would be more appropriate to resolve the adverse effect(s). In consultation with the SHPO, participating Tribe(s), and other consulting parties, including the ACHP (if participating), FEMA shall develop an MOA in accordance with 36 CFR § 800.6(c) to agree upon treatment measures to avoid, minimize, and/or mitigate adverse effects on historic properties. The MOA may also include treatment measures that serve an equal or greater public benefit in promoting the preservation of historic properties in lieu of more traditional treatment measures.

c. Programmatic Agreement: Should the execution of an MOA be inappropriate given the similar nature of effects on historic properties, the inability to determine effects prior to approval of an Undertaking, or where other circumstances warrant, FEMA shall consult with the SHPO, participating Tribe(s), the ACHP, if participating, and any other consulting parties to develop a Programmatic Agreement in accordance with 36 CFR § 800.14(b), and identify programmatic conditions or treatment measures to govern the resolution of potential or anticipated adverse effects from certain complex project situations for an Undertaking or for multiple but similar Undertakings by a single subgrantee.

7. Objections: Should any Signatory or consulting party object within the timeframes established by this Agreement to any plans, specifications, or actions taken pursuant to resolving an adverse effect, FEMA shall consult further with the objecting party to seek resolution. If FEMA determines the objection cannot be resolved, FEMA shall address the objection in accordance with Stipulation IV.B., Dispute Resolution.

III. OTHER CONSIDERATIONS

A. Changes to an Approved Scope of Work: The Grantee(s) shall notify FEMA and shall require a subgrantee to notify it immediately when a subgrantee proposes changes to an approved scope of work for an Undertaking.

1. If FEMA determines the change meets a Programmatic Allowance or has no effect on the property, FEMA shall approve the change.

2. If the change can be modified to meet an Allowance, or conform to any applicable Secretary's *Standards*, FEMA shall conclude its Section 106 review responsibilities.

3. If FEMA determines that the change does not meet an Allowance, FEMA shall initiate consultation pursuant to Stipulation II.C., Standard Project Review.

B. Unexpected Discoveries, Previously Unidentified Properties, or Unexpected Effects:

1. Upon notification by a subgrantee of an unexpected discovery, or if it appears that an Undertaking has affected a previously unidentified property or affected a known historic property in an unanticipated manner, in accordance with Stipulation I.B.3.e., Grantee(s) Roles and Responsibilities, the Grantee(s) shall immediately notify FEMA and require the subgrantee to:

a. Stop construction activities in the vicinity of the discovery.

b. Take all reasonable measures to avoid or minimize harm to the property until FEMA has completed consultation with the SHPO, participating Tribe(s), and any other consulting parties. Upon notification by the Grantee of a discovery, FEMA shall immediately notify the SHPO, participating Tribe(s), and other consulting parties that may have an interest in the discovery, previously unidentified property

or unexpected effects, and consult to evaluate the discovery for National Register eligibility and/or the effects of the Undertaking on historic properties.

c. If human remains are discovered, ensure that there shall be no further excavation of disturbance of any nearby area that may also contain human remains, and notify the county coroner/medical examiner immediately in accordance with Section 7050.5 of the California Health and Safety Code. Discoveries of human remains on Federal or Tribal lands shall be subject to the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. § 3001-3013, 18 U.S.C. § 1170) and the Archeological Resources Protection Act (ARPA) (16 U.S.C. 470aa-470mm; Public Law 96-95 as amended), as applicable.

d. Assist FEMA in completing the following actions, as required:

i. FEMA shall consult with the SHPO, participating Tribe(s), and other consulting parties in accordance with the consultation process outlined in Stipulation II., Project Review, to develop a mutually-agreeable action plan with timeframes to identify the discovery or• previously unidentified property, take into account the effects of the Undertaking, resolve adverse effects if necessary, and ensure compliance with applicable Federal, State, and local statutes.

ii. FEMA shall coordinate with the Grantee(s) and the subgrantee regarding any needed modification to the scope of work for the Undertaking necessary to implement recommendations of the consultation and facilitate proceeding with the Undertaking.

iii. In cases where discovered human remains are determined to be American Indian, FEMA shall consult with the appropriate Tribal representatives and the SHPO. In addition, FEMA shall follow the guidelines outlined in the ACHP's *Policy Statement Regarding the Treatment of Burial Sites, Human Remains, and Funerary Objects (2007)* and any State-specific policies that may be in force.

C. Curation

1. In cases where archaeological survey and testing are conducted on private land, any recovered collections remain the property of the land owner. In such instances, FEMA and the Grantee(s), in coordination with the SHPO and affected Tribe(s), shall encourage land owners to donate the collection(s) to an appropriate public or Tribal entity. In cases where the property owner wishes to transfer ownership of the collection(s) to a public or Tribal entity, and in the case of artifacts recovered from public lands, FEMA and the Grantee(s) shall ensure that recovered artifacts and related documentation are curated in a suitable repository as agreed to by FEMA, the SHPO, and affected Tribe(s), following applicable State or Tribal guidelines.

2. When an Undertaking will adversely affect an archaeological resource listed in or eligible for the National Register only under Criterion D, FEMA may treat the adverse effect by providing for the recovery of significant information through archaeological data recovery. FEMA shall consult with the SHPO, participating Tribe(s), and other consulting parties to prepare a research design (data recovery plan), including a specific plan for curation. This plan will incorporate any relevant curation provisions contained in the *California Guidelines for the Curation of Archeological Collections (May 7, 1993)*, ACHP 's *Recommended Approach for Consultation on Recovery of Significant Information _from Archaeological Sites* published in the Federal Register [64 Federal Register 27085-27087 (May 18, 1999)], or other provisions agreed to by the consulting parties. No excavation should be initiated before FEMA acceptance and approval of the curation plan.

   a. As stipulated in the curation plan, artifacts, as well as field and laboratory records sufficient to document the collection, shall be curated at a facility, preferably in-state, that meets the standards of, and in accordance with the provisions of 36 CFR Part 79, *Curation of Federally Owned and Administered Archaeological Collections*, and applicable State or Tribal requirements.

D. Review of Undertakings Initiated Before Initiation or Completion of Section 106 Review

1. In accordance with Section 110(k) of the NHPA, FEMA shall not grant assistance to a subgrantee who, with intent to avoid the requirements of this Agreement or Section 106 of the NHPA, has intentionally significantly and adversely affected a historic property to which the assistance would relate, or having legal power to prevent it, allowed an adverse effect to occur. However, if after consultation with the SHPO, Grantee, appropriate Tribes(s), and ACHP, FEMA determines that extraordinary circumstances justify granting assistance despite the adverse effect created or permitted by the subgrantee, FEMA shall complete consultation for the Undertaking pursuant to the terms of this Agreement.

2. FEMA shall specifically advise the Grantee(s) and shall require that the Grantee(s) advise its subgrantees in writing that they may jeopardize Federal funding if work is performed without all required local, State, and Federal licenses, permits, and/or approvals, including the completion of the Section 106 process. FEMA also shall document this requirement in its Record of Environmental Consideration, as applicable, as well as all project approval documents specifying the project scope and limits, and containing all conditions and caveats.

3. In circumstances where FEMA determines a subgrantee has initiated an Undertaking without willful intent to avoid the requirements of this Agreement or Section 106 of NHPA, FEMA shall proceed as follows:

   a.Determine if the Undertaking is of a type for which FEMA has no further Section 106 responsibilities, namely:

      i. An Undertaking listed in Stipulation I.A.8.; or

ii. An immediate rescue and salvage operation in accordance with 36 CFR § 800.12(d); or

iii. A Programmatic Allowance as described under Stipulation MA.

b. In any such cases listed in Stipulation III.D.3.a., above, FEMA shall document this determination in the project files, and consider the Undertaking Section 106 compliant.

c. If FEMA determines the Undertaking would have required Section 106 review, FEMA shall coordinate with the SHPO and appropriate Tribe(s) to determine if consultation is feasible.

i. If after coordination with the SHPO and appropriate Tribes, FEMA determines that consultation is feasible, FEMA shall review the Undertaking in accordance with Stipulation II.C., Standard Project Review.

ii. If after coordination with the SHPO and appropriate Tribe(s), FEMA determines that review is infeasible, FEMA shall document the outcome of the Section 106 review process, and the applicable FEMA Program shall take the outcome into account before making a decision whether to fund the Undertaking. FEMA shall provide written notification of its funding decision to the SHPO, the Grantee, appropriate Tribe(s), and the ACHP.

4. FEMA shall ensure that all Undertakings considered for after-the-fact review in accordance with this Stipulation are included in the annual report.

IV. IMPLEMENTATION OF AGREEMENT

A. Amendments

1. If any Signatory determines that an amendment to the terms of this Agreement must be made, the Signatories shall consult for no more than 30 days to seek amendment of the Agreement.

2. An amendment to this Agreement, exclusive of the Appendices, shall be effective only when it has been signed by all the Signatories. An amendment shall be effective for Undertakings occurring on or affecting historic properties on Tribal lands only when the Tribe has signed the Agreement and its amendment.

3. Appendix A (FEMA Programs), Appendix B (Programmatic Allowances), and Appendix C (Treatment Measures) may be amended at the request of FEMA or another Signatory in the following manner:

a. FEMA, on its own behalf or on behalf of another Signatory, shall notify the Signatories of the intent to modify the current Appendix or Appendices and shall provide a draft of the updated Appendix or Appendices to all Signatory parties.

b. If no other Signatory objects in writing within 30 days of receipt of FEMA's proposed modification, FEMA shall date and sign the amended Appendix and provide a copy of the amended Appendix to the other Signatories. Such an amendment shall go into effect on the date FEMA transmits the amendment to the other Signatories.

B. Dispute Resolution

1. Should any Signatory object in writing to the terms of this Agreement, FEMA shall consult with the objecting party for not more than 30 days to resolve the objection.

2. If the objection is resolved within 30 days, FEMA shall proceed in accordance with the resolution.

3. If FEMA determines within 30 days that the objection cannot be resolved, FEMA shall forward to the ACHP all documentation relevant to the objection, including FEMA's proposed resolution. Within 30 days of receipt, the ACHP will:

   a. Concur in FEMA's proposed resolution; or

   b. Provide FEMA with recommendations, which FEMA shall take into account in reaching a final decision regarding the objection; or

   c. Notify FEMA that the objection will be referred for comment in accordance with 36 CFR § 800.7(a)(4), and proceed to do so.

4. FEMA shall take into account any ACHP recommendations or comments, and any comments from the other Signatories, in reaching a final decision regarding the objection. FEMA shall provide in writing to the ACHP and Signatories a summary of its final decision before authorizing any disputed action to proceed. The Signatories shall continue to implement all other terms of this Agreement that are not subject to objection.

5. Should the ACHP not respond within 30 days, FEMA may assume the ACHP has no comment and proceed with its proposed resolution to the objection after providing the ACHP and Signatories a written summary of its final decision.

C. Severability and Termination

1. In the event any provision of this Agreement is deemed by a Federal court to be contrary to, or in violation of, any applicable existing law Or regulation of the United

States of America, only the conflicting provision(s) shall be deemed null and void, and the remaining provisions of the Agreement shall remain in effect.

2. FEMA, the SHPO, Cal OES, or the ACHP may terminate this Agreement by providing 30 days written notice to the other Signatories, provided that the Signatories consult during this period to seek amendments or other actions that would prevent termination. If this Agreement is terminated, FEMA shall comply with Section 106 through other applicable means pursuant to 36 CFR Part 800. Upon such determination, FEMA shall provide all other Signatories and the ACHP with written notice of the termination of this Agreement.

3. A participating Tribe may notify the other Signatories that it is fully withdrawing from participation in the Agreement. Following such a withdrawal, FEMA shall review Undertakings that may affect historic properties of religious and cultural significance to the Tribe, and Undertakings that occur on the Tribal lands of the relevant Tribe, in accordance with 36 CFR §§ 800.3 through 800.7, 36 CFR § 800.8(c), or an applicable alternative under 36 CFR § 800.14. Withdrawal from this Agreement by a Tribe does not terminate the Agreement. At any time that this Agreement remains in effect, a Tribe that has withdrawn from the Agreement may notify FEMA, the Grantee(s), and the SHPO in writing that it has rescinded its notice withdrawing from participation in the Agreement.

4. This Agreement may be terminated by the implementation of a subsequent Agreement, pursuant to 36 CFR § 800.14(b), that explicitly terminates or supersedes this Agreement, or by FEMA's implementation of Alternate Procedures, pursuant to 36 CFR § 800.14(a).

D. Duration and Extension

1. This Agreement shall remain in effect from the date of execution for a period not to exceed 5 years unless otherwise extended pursuant to Stipulation IV.D.2. below, or terminated pursuant to Stipulation IV.C.2. or IV.C.4., Severability and Termination. The Agreement shall remain in effect for Declarations made prior to expiration of the Agreement in order to minimize delays in delivery of FEMA assistance.

2. The Signatories may collectively agree to extend this Agreement to cover additional calendar years, or portions thereof, through an amendment per Stipulation IV.A., provided that the original Agreement has not expired.

E. Execution and Implementation

1. This Agreement may be executed in counterparts, with a separate page for each Signatory, and shall become effective on the date of the final signature of FEMA and the SHPO.

2. The Agreement shall go into effect regarding Undertakings occurring, or affecting historic properties, on Tribal lands when the relevant Tribe has signed the Agreement.

3. FEMA shall ensure that each Signatory is provided with a complete copy of the Agreement, including an original set of signatures.

4. Execution and implementation of this Agreement evidence that FEMA has afforded the ACHP a reasonable opportunity to comment on FEMA's administration of all referenced Programs, and that FEMA has satisfied its Section 106 responsibilities for all individual Undertakings of its referenced Programs.

SIGNATORY PARTIES

FEDERAL EMERGENCY MANAGEMENT AGENCY

By: _____ Date: 10/30/2014
Karen Armes, Acting Regional Administrator, Region IX

By: _____ Date: 10/30/14
Alessandro Amaglio, Environmental Officer, Region IX

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 10-30-14
Carol Roland-Nawi, State Historic Preservation Officer

CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES

By: _____ Date: 10/28/14
Mark Ghilarducci, Director

Appendix A

FEMA Program Summaries

This Appendix may be amended in accordance with Stipulation IV.A., Amendments.

Disaster Response and Recovery Programs

The following Programs are authorized under Titles IV and V of the Stafford Act.

Public Assistance Program (PA)
This program assists States, Tribal and local governments, and certain types of private nonprofit organizations to quickly respond to and recover from major disasters or emergencies declared by the President. Grants are provided for debris removal (Category A), emergency protective measures (Category **B),** and the repair, replacement, or restoration of disaster-damaged, publicly-owned and certain private non-profit facilities (Categories C-G).

Individual Assistance Programs (IA)
These programs help to ensure that individuals and families that have been affected by disasters have access to the full range of FEMA assistance including: crisis counseling (Section 416), disaster legal services (Section 415), essential assistance (Section 403), emergency sheltering assistance (Section 403), transportation (Section 419), funeral services, minor home repairs (Section 408), and temporary housing assistance (Section 408). It should be noted that other Federal agencies provide disaster assistance programs, services, and activities to individuals as well, including the U.S. Small Business Administration, U.S. Department of Agriculture, and U.S. Department of Labor, but these other assistance programs are not subject to the terms of this Agreement.

Fire Management Assistance Grant Program (FMAG)
The FMAG is available to State, Tribal, and local governments for the mitigation, management, and control of fires on publicly or privately owned lands. Eligible costs may include expenses for field camps, equipment use, repair and replacement, materials and supplies, and mobilization and demobilization activities.

Hazard Mitigation Grant Program (HMGP)
The HMGP provides grants to States, Territories, Tribes, and local governments to implement long-term hazard mitigation measures after a Declaration. Activities may include buyouts, retrofits, relocations, elevations, and minor flood control projects.

Non-Disaster Programs

Pre-Disaster Mitigation Program (PDM)
The PDM program provides competitive grants to States, Territories, Tribes, and local governments for hazard mitigation planning and the implementation of mitigation projects prior

to a disaster event. Activities may include planning, buyouts, retrofits, relocations, elevations, minor flood control projects, and vegetative fuels reduction.

Flood Mitigation Assistance Program (FMA)
The FMA program provides grants to States, Territories, Tribal entities, and communities to assist in their efforts to reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program (NFIP).

Assistance to Firefighters Grant Program.
The AFG program provides funding for purchase of equipment and retrofit or construction of fire stations to improve first responder capabilities.

Homeland Security Grant Program (HSGP)
The HSGP plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal (NPG) of a secure and resilient Nation. HSGP is comprised of three interconnected grant programs: (1) the State Homeland Security Program (SHSP), (2) the Urban Areas Security Initiative (UASI), and (3) the Operation Stonegarden (OPSG). Together, these grant programs and other future projects that may be included under the HSGP fund a range of preparedness activities, including planning, organization, equipment purchase, training, exercises, management, and administration.

State Homeland Security Program (SHSP)
This core assistance program provides funds to build capabilities at the state and local levels and to implement the goals and objectives included in state homeland security strategies and initiatives in the State Preparedness Report.

Urban Areas Security Initiative (UASI) Program
The Urban Areas Security Initiative program focuses on enhancing regional preparedness in major metropolitan areas. The UASI program directly supports the National Priority on expanding regional collaboration in the National Preparedness Guidelines and is intended to assist participating jurisdictions in developing integrated regional systems for prevention, protection, response and recovery.

Metropolitan Medical Response System (MMRS) Program
The MMRS program supports the integration of emergency management, health, and medical systems into a coordinated response to mass casualty incidents caused by any hazard. Successful MMRS grantees reduce the consequences of a mass casualty incident during the initial period of a response by having augmented existing local operational response systems before the incident occurs.

Citizen Coms• Program (CCP)
The Citizen Corps mission is to bring community and government leaders together to coordinate community involvement in emergency preparedness, planning, mitigation, response and recovery.

State Homeland Security Program Tribal (SHSP Tribal)
To provide supplemental funding to directly eligible Tribes to help strengthen the nation against risks associated with potential terrorist attacks. Pursuant to the 9/11 Act, "a directly eligible tribe applying for a grant under section 2004 [SHSP] shall designate an individual to serve as a tribal liaison with [DHS] and other Federal, state, local, and regional government officials concerning preventing, preparing for, protecting against and responding to acts of terrorism."

Nonprofit Security Grant Program (NSGP)
NSGP provides funding support for target-hardening activities to nonprofit organizations that are at high risk of a terrorist attack and are located within one of the specific UASI-eligible urban areas.

Operation Stonegarden (OPSG)
The intent of OPSG is to enhance cooperation and coordination among local, State and Federal law enforcement agencies in a joint mission to secure the United States borders along routes of ingress from international borders to include travel corridors in States bordering Mexico and Canada, as well as States and territories with international water borders.

Transit Security Grant Program (TSGP)
The TSGP provides grant funding to the nation's key high-threat urban areas to enhance security measures for their critical transit infrastructure including bus, ferry and rail systems.

Freight Rail Security Grant Program (FRSGP)
The FRSGP funds security training for frontline employees, the completion of vulnerability assessments, the development of security plans within the freight rail industry, and GPS tracking systems for railroad cars transporting toxic inhalation materials.

Intercity Passenger Rail (Amtrak)
The purpose of the Intercity Passenger Rail (1PR) is to create a sustainable, risk-based effort to protect critical surface transportation infrastructure and the traveling public from acts of terrorism, major disasters and other emergencies within the Amtrak rail system.

Port Security Grant Program (PSGP)
The PSGP provides grant funding to port areas for the protection of critical port infrastructure from terrorism. PSGP funds are primarily intended to assist ports in enhancing maritime domain awareness, enhancing risk management capabilities to prevent, detect, respond to and recover from attacks involving improvised explosive devices (IEDs), weapons of mass destruction (WMDs) and other non-conventional weapons, as well as training, exercises and Transportation Worker Identification Credential (TWIC) implementation.

Intercity Bus Security Grant Program (IBSGP)
The IBSGP provides funding to create a sustainable program for the protection of intercity bus systems and the traveling public from terrorism. The program seeks to assist operators of fixed-route intercity and charter bus services in obtaining the resources required to support security measures such as enhanced planning, facility security upgrades, and vehicle and driver protection.

Trucking Security Program (TSP)
TSP funding will be awarded to eligible applicants to implement security improvement measures and policies deemed valuable by DHS as indicated in the *Security Action Items* publication of June 26, 2008. These items are primarily focused on the purchase and installation or enhancement of equipment and systems related to tractor and trailer tracking systems. Additionally, the TSP will provide funding to develop a system for DHS to monitor, collect and analyze tracking information; and develop plans to improve the effectiveness of transportation and distribution of supplies and commodities during catastrophic events.

Buffer Zone Protection Program (BZPP)
The BZPP provides funding to increase the preparedness capabilities of jurisdictions responsible for the safety and security of communities surrounding high-priority pre-designated Tier 1 and Tier 2 critical infrastructure and key resource (CIKR) assets, including chemical facilities, financial institutions, nuclear and electric power• plants, dams, stadiums and other high-risk/high-consequence facilities, through allowable planning and equipment acquisition.

Emergency Management Performance Grants (EMPG)
The purpose of the EMPG program is to assist State and local governments in enhancing and sustaining all-hazards emergency management capabilities.

Interoperable Emergency Communications Grant Program (IECGP)
IECGP provides governance, planning, training and exercise and equipment funding to States, territories, and local and Tribal governments to carry out initiatives to improve interoperable emergency communications, including communications in collective response to natural disasters, acts of terrorism and other man-made disasters. According to the legislation that created IECGP, all proposed activities must be integral to interoperable emergency communications and must be aligned with the goals, objectives, and initiatives identified in the grantee's approved statewide Communication Interoperability Plans (SCIP). IECGP will also advance DHS near-term priorities that are deemed critical to improving interoperable emergency communications and are consistent with goals and objectives of the National Emergency Communications Plan.

Emergency Operations Center (EOC) Grant Program
The EOC grant program is intended to improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure, and interoperable Emergency Operations Centers (EOCs) with a focus on addressing identified deficiencies and needs. This program provides funding for construction or renovation of a State, local, or tribal governments' principal EOC. Fully capable emergency operations facilities at the State and local levels are an essential element of a comprehensive national emergency management system and are necessary to ensure continuity of operations and continuity of government in major disasters caused by any hazard.

Driver's License Security Grant Program
The purpose of the Driver's License Security Grant Program is to prevent terrorism, reduce fraud, and improve the reliability and accuracy of personal identification documents that States and territories issue.

Integrated Public Alert and Warning System (IPAWS)

The Integrated Public Alert and Warning System (IPAWS) was established by Executive Order 13407 in 2006. In the event of a national emergency, the President may use IPAWS to send a message to the American people quickly and simultaneously through multiple communications pathways. FEMA has identified several radio transmission sites across the nation with significantly powerful signals for this purpose, and FEMA is responsible for upgrading, maintaining, and managing the agency installed and owned auxiliary fuel systems at each of these radio transmission sites.

Appendix B

Programmatic Allowances

This list of Programmatic Allowances enumerates FEMA funded activities that based on FEMA experience have no or minimal effect on historic properties if implemented as specified in this Appendix, and will not require review by the SHPO and participating Tribe(s).

The Programmatic Allowances consist of two tiers — First Tier and Second Tier. Staff may apply First Tier Allowances whether or not they meet professional historic preservation qualification standards, while only staff meeting the applicable Secretary of Interior's Professional Qualifications Standards in accordance with Stipulation I.B.1.a. of this Agreement may apply Second Tier Allowances.

First Tier Allowances are those that will have no or minimal effect on historic properties, while Second Tier Allowances require the use of professionally qualified staff to ensure that the proposed scope of work will result in no adverse effect on identified historic properties within the project's Area of Potential Effect.

When referenced in the Programmatic Allowances, "in-kind" shall mean that the result of the work shall match all physical and visual aspects of existing materials, including design, form, color, finish, texture, workmanship, and to the greatest extent possible, the materials. "In-kind" mortar will also match the strength and joint tooling of existing mortar, as appropriate. The "in-kind" repair provided for in both First and Second Tier Allowances in Appendix B should be limited to pre-existing architectural features and physical components of buildings and structures.

When referenced in the Allowances, "previously disturbed soils" shall refer to soils that are not likely to possess intact and distinct soil horizons, and have the reduced likelihood of possessing historic properties within their original depositional contexts in the area and to the depth to be excavated.

I. First Tier Allowances

A. GROUND DISTURBING ACTIVITIES AND SITE MODIFICATION, when proposed activities described below substantially conform to the original footprint and/or are performed in previously disturbed soils, including the area where the activity is staged.

1. Debris and Snow Removal

a. Debris removal and collection, including removal of snow, uprooted trees, limbs and branches from public rights-of-way and public areas, as well as the transport and disposal of such waste to existing licensed waste facilities or landfills. This includes the temporary establishment and expansion of non-hazardous debris

staging, reduction, and disposal areas at licensed transfer stations, or existing hard-topped or graveled surfaces (e.g., parking lots, roads, athletic courts) but not the creation of new or temporary access roads.

b. Removal of debris from private property provided that buildings are not affected, ground disturbance is minimal and in-ground elements, such as driveways, walkways or swimming pools are left in place.

c. Chipping and disposal of woody debris by broadcasting within existing rights-of-way.

d. Sediment removal from man-made drainage facilities, including retention/detention basins, ponds, ditches, and canals, in order to restore the facility to its pre-disaster condition. The sediment may be used to repair eroded banks or disposed of at an existing licensed or permitted spoil site.

e. Dewatering flooded developed areas by pumping.

2. Temporary Structures and Housing

a. Installation and removal of temporary structures for use as school classrooms, offices, or temporary shelters for essential public service agencies, such as police, fire, rescue and medical care, as well as temporary housing for disaster personnel and survivors at the following types of locations:

i. Single units on private residential sites when all utilities are installed above ground or tie into pre-existing utility lines.

ii. Existing RV/Mobile Home Parks and campgrounds with pre-existing utility hookups.

iii. Paved areas, such as parking lots and paved areas at such facilities as conference centers, shopping malls, airports, industrial port facilities, business parks, and military bases when all utilities are installed above ground or tie into pre-existing utility lines.

iv. Sites that have been previously prepared for planned construction, such as land being developed for public housing, office buildings, city parks, ball fields, schools, etc. when all utilities are installed above-ground or tie into preexisting utility lines.

v. Areas previously filled to depths of at least six feet so that subsurface utilities can be installed.

3. Recreation and Landscaping

a. Installation of temporary removable barriers.

b. In-kind repairs, installation, or replacement, and minor upgrades/mitigation of bollards and associated protective barriers when in previously disturbed areas.

B. BUILDINGS AND STRUCTURES

1. Repair or retrofit of buildings less than 45 years old.

2. Removal of water by physical or mechanical means.

3. Installation of exterior security features and early warning devices on existing light poles or other permanent utilities.

C. TRANSPORTATION FACILITIES, when proposed activities substantially conform to the original footprint and/or are performed in previously disturbed soils, including any staging areas.

1. Roads and Roadways

a. Paving and repair of roads to pre-disaster geometric design standards and conditions using in-kind materials, shoulders medians, clearances, curbs, and side slopes. This Allowance does not include improvement to existing roadways and appurtenances.

b. Construction of temporary emergency access roads in previously disturbed soils to allow for passage of emergency vehicles.

c. Repairs to road slips and landslides that do not require grading of undisturbed soils on the up-hill side of the slip.

d. Re-establishment, armoring and/or upgrading of existing roadway ditches.

e. In-kind repair or replacement of traffic control devices such as traffic signs and signals, delineators, pavement markings, or traffic surveillance systems.

f. Installation and removal of temporary traffic control devices, including preformed concrete barriers and fencings.

g. In-kind repair or replacement of roadway safety elements such as barriers, guardrails, and impact-attenuation devices. In the case of guardrails, the addition of safety end treatments is permitted.

2. Airports

a. In-kind repair or replacement of existing runway surfaces and features (e.g., asphalt, concrete, gravel, and dirt) and associated air transportation safety components and systems (e.g., lighting bars, beacons, signage and weather sensors).

3. Rail Systems

a. In-kind repair or replacement of safety components.

b. In-kind repair or replacement of existing track system and passenger loading areas.

D. FEES AND SERVICES

1. Reimbursement of a subgrantee's insurance deductible, not to exceed $2,500. **IL Second**

Tier Allowances

A. GROUND DISTURBING ACTIVITIES AND SITE WORK, when proposed activities described below substantially conform to the original footprint and/or are performed in previously disturbed soils, including the area where the activity is staged.

1. Footings, Foundations, Retaining Walls, Slopes, and Slope Stabilization Systems

a. In-kind repair, replacement, and reinforcement of footings, foundations, retaining walls, slopes, and slope stabilization systems (e.g., gabion baskets, crib walls, soldier pile and lag walls) if related ground disturbing activities are within the boundary of previously disturbed soils.

b. Installation of perimeter drainage (e.g., French drains) when performed in previously disturbed soils.

2. Recreation and Landscaping

a. In-kind repairs or replacement, and minor upgrades to recreational facilities and features (e.g., playgrounds, campgrounds, fire pits, dump stations and utility hook-ups, swimming pools, athletic fields and signage, batting cages, basketball courts, swing sets, pathways, simple wooden/wire stream crossings).

b. In-kind repair, replacement, and minor upgrades to landscaping elements (e.g., fencing, free standing walls, paving, planters, irrigation systems, lighting elements, signs, flag poles, ramps, steps).

3. Piers, Docks, Boardwalks, Boat Ramps, and Dune Crossovers

   a. In-kind repair and replacement and minor upgrades to existing piers, docks, boardwalks, boat ramps and dune crossovers in areas of previously disturbed soils.

4. Cemeteries

   a. Removal of woody debris such as branches and limbs, from cemeteries, provided that heavy equipment and other machinery are not operated or staged on areas potentially containing human remains.

B. BUILDINGS AND STRUCTURES

1. Interior Work: Floors, Walls, Stairs, Ceilings and Trim

   a. In-kind repair and replacement of floors, walls, stairs, ceilings, and/or trim. The Allowance does not apply to decorative finishes, including murals, glazed paint, gold leaf, or ornamental plaster.

   b. Interior cleaning of surfaces using a weak solution of household bleach and water, mold remediation, or mold removal. The Allowance applies to interior finishes, including plaster and wallboard, provided the cleaning is restricted to damaged areas and does not affect adjacent materials.

   c. Non-destructive or concealed testing for hazardous materials (e.g., lead paint, asbestos) or for assessment of hidden damages.

2. Building Contents

   a. Repair or replacement of building contents including furniture, movable partitions, computers, cabinetry, supplies, and equipment, and any other moveable items which are not character-defining features of a historic property.

3. Utilities and Mechanical, Electrical, and Security Systems

   a. In-kind repair or replacement, or limited upgrading of interior utility systems, including mechanical (e.g., heating, ventilation, air conditioning), electrical, and plumbing systems. This Allowance does not provide for the installation of new exposed ductwork.

   b. Elevation of heating, ventilation, and air conditioning system (HVAC) and mechanical equipment as long as it is placed or located where it is not visible from the street.

   c. Installation or replacement of interior fire detection, fire suppression, or security alarm systems. The Allowance does not apply to surface-mounted wiring,

conduits, piping, etc., unless previously existing, provided that installation of the system hardware does not damage or cause the removal of character-defining architectural features and can be easily removed in the future.

d. Installation of communication and surveillance security systems, such as cameras, closed-circuit television, alarm systems, and public address systems, provided that installation of the system hardware does not damage or cause the removal of character-defining architectural features and can be easily removed in the future.

e. Installation of building access security devices, such as card readers, enhanced locks, and security scanners (e.g., metal detectors), provided the device does not damage or cause the removal of character-defining architectural features and can be removed in the future without impacts to significant architectural features.

4. Windows and Doors

a. In-kind repair of damaged or severely deteriorated windows and window frames, shutters, storm shutters, doors and door frames, and associated hardware, where profiles, elevations, details and materials match those of the originals.

b. In-kind replacement of window panes. Clear plate, double, laminated or triple insulating glazing can be used, provided it does not result in altering the existing window material, tint, form, muntin profiles, or number of divided lights. This Allowance does not apply to the replacement of intact decorative glass.

c. Replacement of exterior, utilitarian, non-character•-defining metal doors and frames leading into non-character-defining spaces with metal blast resistant doors and frames.

d. Installation of security bars over windows on rear elevations.

5. Exterior Walls, Cornices, Porches, and Foundations

a. In-kind repainting of surfaces, provided that destructive surface preparation treatments are not used, such as water blasting, sandblasting, power sanding and chemical cleaning.

b. In-kind repair of walls, porches, foundations, columns, cornices, siding, balustrades, stairs, dormers, brackets, trim, and their ancillary components, or in-kind replacement of severely deteriorated or missing or lost features, as long as the replacement pieces match the original in detail and material. Any ground disturbance will be limited to previously disturbed soils.

c. In-kind repair or replacement of signs or awnings.

d. Installation of temporary stabilization bracing or shoring, provided such work does not result in additional damage.

e. Anchoring of walls to floor systems, provided the anchors are embedded and concealed from exterior view.

f. In-kind repair of concrete and masonry walls, columns, parapets, chimneys, or cornices, or limited in-kind replacement of damaged components including comparable brick, and mortar that matches the color, strength, content, rake, and joint width.

g. Bracing and reinforcing of walls, chimneys and fireplaces, provided the bracing and reinforcing are either concealed from exterior view or reversible in the future.

h. Strengthening of foundations and the addition of foundation bolts, provided that visible new work is in-kind, including mortar that matches the color, content, strength, rake, and joint width where occurring.

i. Repairs to and in-kind replacement of elements of curtain wall assemblies or exterior cladding that is hung on the building structure, usually from floor to floor, and when the color, size, reflectivity, materials, and visual patterns are unaltered.

6. Roofing

a. Installation of scaffolding, polyethylene sheeting, or tarps, provided such work will not result in additional damage or irreversible alterations to character-defining features.

b. In-kind repair, replacement, or strengthening of roofing, rafters, fascia, soffits, gutters, verge boards, leader boxes, downspouts, or other damaged roof system components.

c. Repairs to flat roof cladding, including changes in roofing materials, where the repairs are not highly visible from the ground level.

7. Weatherproofing and Insulation

a. Caulking and weather-stripping to complement the color of adjacent surfaces or sealant materials.

b. In-kind repair or replacement of insulation systems, provided that existing interior plaster, woodwork, exterior siding, or exterior architectural detail is not altered.

8. Structural Retrofits

a. The installation of the following retrofits/upgrades, provided that such upgrades are not visible on the exterior: attic bracing, cross bracing on pier-and-post foundations; fasteners; collar ties; gussets; tie downs; strapping and anchoring of

mechanical, electrical, and plumbing equipment; concealed anchoring of furniture; installation of plywood diaphragms beneath first floor joists, above top floor ceiling rafters, and on roofs; and automatic gas shut-off valves.

b. Replacement, repair or installation of lightning rods.

9. Americans with Disabilities Act (ADA) Compliance

a. Installation of grab bars and other such minor interior modifications.

10. Safe Rooms

a. Installation of individual safe rooms within the property limits of a residence where the installation would occur within the existing building or structure or in previously disturbed soils.

11. Elevation, Demolition, and Reconstruction

a. Activities related to the elevation, demolition and/or reconstruction of buildings or structures less than 45 years of age so long as the proposed activities substantially conform to the original footprint and/or are performed in previously disturbed soils including any staging area, and the buildings or structures are not located within or adjacent to a National Register listed or eligible historic district.

C. TRANSPORTATION FACILITIES, when proposed activities substantially conform to the original footprint and/or are performed in previously disturbed soils, including the area where the activity is staged.

1. Roads and Roadways

a. Repair of roads to pre-disaster geometric design standards and conditions using in-kind materials, shoulders, medians, clearances, curbs, and side slopes. This Allowance permits minor improvement to meet current code and standards or hazard mitigation measures, such as those designed to harden exposed surfaces, including the application of gravel armoring to side slopes and ditches.

b. In kind repair to historic paving materials for roads and walkways.

c. In-kind repair or replacement, or minor upgrade of culvert systems and arches beneath roads or within associated drainage systems, including provision of headwalls, riprap and any modest increase in capacity for the purposes of hazard mitigation or to meet current codes and standards, provided that the work substantially conforms to the existing footprint. For stone or brick culverts or arches beneath roadways, this allowance only applies to in-kind repair.

d. In-kind repair or replacement of road lighting systems, including period lighting fixture styles.

e. In-kind repair or replacement of road appurtenances such as curbs, berms, fences, and sidewalks.

2. Bridges

a. Installation of a temporary (Bailey-type) bridge over an existing structure or at a previously disturbed location, such as a former bridge location, to allow passage of emergency vehicles.

b. In-kind repair or replacement of bridges and bridge components (e.g. abutments, wing walls, piers, decks, and fenders) in previously disturbed soils.

D. UTILITIES, COMMUNICATIONS SYSTEMS AND TOWERS, when proposed activities substantially conform to the original footprint and/or are performed in previously disturbed soils, including the area where the activity is staged.

1. General

a. In-kind repair or replacement, or minor upgrading, small scale realignment, and elevation of utilities and associated features and structures within previously disturbed soils of rights-of-way or utility corridors.

b. Installation of new utilities and associated features within existing rights-of-way.

c. Directional boring of new/replacement service line and related appurtenances involving boring or silt trenches within previously disturbed soils of rights-of-way or utility corridors.

d. In-kind repair or replacement, or minor upgrade of water towers provided activities take place within previously disturbed soils. Ground-level facilities may be added or expanded in previously disturbed areas. This Allowance does not apply to masonry water towers.

2. Generators and Utilities

a. In-kind repair or replacement, or minor upgrades, elevation, and/or installation of generators, HVAC systems, and similar equipment provided activities occur within previously disturbed soils and any roof-mounted equipment is not visible from the ground level.

3. Communication Equipment/Systems and Towers

a. Acquisition, installation, or operation of communication and security equipment/systems that use existing distribution systems, facilities, or existing infrastructure right-of-way.

b. The collocation of communication and security equipment on existing towers and buildings/structures less than 45 year in age, provided that the work does not increase existing tower height or footprint by more than 10% and occurs within previously disturbed soils.

c. Enhancement, repair or replacement of existing communication towers and antenna structures provided the work does not increase existing tower height or footprint by more than 10% and occurs within previously disturbed soils.

d. Installation of new temporary (not to exceed 12 months) communications towers and antenna structures provided that the work does not require modification of buildings/structures 45 years or• older and occurs within previously disturbed soils.

e. Installation of new communication towers, less than 200 feet tall, in previously developed urban complexes when the work does not require modification of buildings/structures 45 years or older, occurs within previously disturbed soil, and is not within 1,000 feet of the boundaries of a historic property.

E. WATER RESOURCE MANAGEMENT AND CONTROLS, when proposed activities substantially conform to the original footprint and/or are performed in previously disturbed soils, including the area where the activity is staged.

1. Canal Systems

a. In-kind repairs or replacement to canal systems and associated elements.

2. Breakwaters, Seawalls, Revetments, and Berms

a. In-kind repair or replacement of breakwaters, seawalls, and revetments, provided the work occurs in previously disturbed soils.

3. Dams, Levees, and Floodwalls

a. In-kind repair of dams, levees, floodwalls and related features, including spillways, tide gates, and fuse plugs, provided the work occurs in previously disturbed soils.

4. Fish Hatcheries

    a. In-kind repair or replacement of fish hatcheries and fish ladders.

5. Waste-Water Treatment Lagoon Systems

    a. In-kind repair or replacement, or minor upgrades of waste-water treatment lagoon systems.

Appendix C

Treatment Measures

When avoidance or minimization of adverse effects is not appropriate, the following Treatment Measures are suggested for the resolution of adverse effects:

If Undertakings may or will result in adverse effects, FEMA, the Grantee(s), subgrantee, SHPO, and participating Tribes(s) may develop a treatment measure plan that includes one or more of the following Treatment Measures, depending on the nature of historic properties affected and the severity of adverse effects. This Appendix may be amended in accordance with Stipulation IV.A.3. of this Agreement, Amendments.

A. Recordation

1. Digital Photography Package: Prior to project implementation, the designated responsible party shall oversee the successful delivery of a digital photography package prepared by staff or contractors meeting the Secretary's Professional Qualifications for Architectural History, History, Architecture, or Historic Architecture, as appropriate. The digital photography package will meet the standards cited in the NPS's *National Register of Historic Places Photographic Policy March 2010* or subsequent revisions (http://www.nps.gov/nr/publications/bulletins/photopolicy/index htm).

a. The digital photography package shall include a comprehensive collection of photographs of both interior and exterior views showing representative spaces and details of significant architectural features and typical building materials. Exterior photographs shall include full oblique and contextual images of each elevation. Exterior views shall be keyed to a site plan while interior views shall be keyed to a floor plan of the building/structure. The photographs shall be indexed according to the date photographed, site number, site name, site address, direction, frame number, subject matter and photographer's name recorded on the reverse side in pencil.

b. The digital photography package shall include printed color copies of the digital photographs (on appropriate paper, per the NPS *Photographic Policy),* a CD/DVD of the digital photographs, a completed state architectural inventory form, and a written site history of the historic property.

c. The designated responsible party shall submit the digital photography package to the SHPO and participating Tribe(s) for review and approval. Once approved by the SHPO and participating Tribe(s), the designated responsible party shall submit a copy of the approved documentation to a state or local historical society, archive, and/or library for permanent retention.

2 35mm Black and White Photography Package: Prior to project implementation, the designated responsible party shall oversee the successful delivery of a 35 mm black and white film photography package prepared by staff or contractors meeting the Professional Qualifications for Architectural History, History, Architecture, or Historic Architecture, as appropriate.

a. The 35 mm black and white film photography package shall include a comprehensive collection of photographs of both interior and exterior views showing representative spaces and details of significant architectural features and typical building materials. Exterior photographs shall include full oblique and contextual images of each elevation. Exterior views shall be keyed to a site plan while interior views shall be keyed to a floor plan of the building/structure. The photographs shall be indexed according to the date photographed, site number, site name, site address, direction, frame number, subject matter and photographer's name recorded on the reverse side in pencil.

b. The 35 min black and white film photography package shall include one (1) full set of 35min black and white film photographs printed on acid free paper, the corresponding 35mm film negatives in acid free sleeves, a completed state architectural inventory form, and a written site history of the historic property.

c. The designated responsible party shall submit the 35 mm black and white film photography package to the SHPO and/or participating Tribe(s) for review and approval. Once approved by the SHPO and/or participating Tribe(s), the designated responsible party shall submit a copy of the approved documentation to a state or local historical society, archive, and/or library for permanent retention.

3. Large Format Photography Package: Prior to project implementation, the designated responsible party shall oversee the successful delivery of a large format photography package prepared by staff or contractors meeting the Professional Qualifications for Architectural History, History, Architecture, or Historic Architecture, as appropriate.

a. The large format photography package shall include a comprehensive collection of photographs of both interior and exterior views showing representative spaces and details of significant architectural features and typical building materials. Exterior photographs shall include full oblique and contextual images of each elevation. Exterior views shall be keyed to a site plan while interior views shall be keyed to a floor plan of the building/structure. The photographs shall be indexed according to the date photographed, site number, site name, site address, direction, frame number, subject matter and photographer's name recorded on the reverse side in pencil.

b. The large format film photography package shall include one (1) full set of 4 x 5 or 5 x 7-inch photographs printed on acid free paper, the corresponding 4 x 5 or 5

x 7-inch negatives in acid free sleeves, a completed state architectural inventory form, and a written site history of the historic property.

c. The designated responsible party shall submit the large format film photography package to the SHPO and/or participating Tribe(s) for review and approval. Once approved by the SHPO and/or participating Tribe(s), the designated responsible party shall submit copies of the approved documentation to a state or local historical society, archive, and/or library for permanent retention.

B. Public Interpretation

Prior to project implementation, FEMA, the Grantee(s), and subgrantee shall work with the SHPO and/or participating Tribe(s) to design an educational interpretive plan. The plan may include signs, displays, educational pamphlets, websites, workshops and other similar mechanisms to educate the public on historic properties within the local community, state, or region. Once an interpretive plan has been agreed to by the parties, the SHPO and/or participating Tribes, the designated responsible party shall continue to consult throughout implementation of the plan until all agreed-upon actions have been completed by the designated responsible party.

C. Historical Context Statements and Narratives

Prior to project implementation, FEMA, the Grantee(s), and subgrantee shall work with the SHPO and participating Tribe(s) to determine the topic and framework of a historic context statement or narrative that the designated responsible party shall be responsible for completing. The statement or narrative may focus on an individual property, a historic district, a set of related properties, or relevant themes as identified in the statewide preservation plan. Once the topic of the historic context statement or narrative has been agreed to, the designated responsible party shall continue to coordinate with the SHPO and participating Tribe(s) through the drafting of the document and delivery of a final product. The designated responsible party shall use staff or contractors that meet the Professional Qualifications for the appropriate discipline.

D. Oral History Documentation

Prior to project implementation, FEMA, the Grantee(s), and subgrantee shall work with the SHPO and/or participating Tribe(s) to identify oral history documentation needs and agree upon a topic and list of interview candidates. Once the parameters of the oral history project have been agreed upon, the designated responsible party shall continue to coordinate with the SHPO and/or participating Tribe(s) through the data collection, drafting of the document, and delivery of a final product. The designated responsible party shall use staff or contractors that meet the Professional Qualifications for the appropriate discipline.

E. Historic Property Inventory

Prior to project implementation, FEMA, the Grantee(s), and subgrantee shall work with the SHPO and/or participating Tribe(s) to establish the appropriate level of effort to accomplish a historic property inventory. Efforts may be directed toward the resurvey of previously-designated historic properties and/or districts which have undergone change or lack sufficient documentation, or the survey of new historic properties and/or districts that lack formal designation. Once the boundaries of the survey area have been agreed upon, the designated responsible party shall continue to coordinate with the SHPO and/or participating Tribe(s) through the data collection process. The designated responsible party shall use SHPO and/or participating Tribe(s) standards for the survey of historic properties and SHPO and/or participating Tribe(s) forms as appropriate. The designated responsible party shall prepare a draft inventory report, according to SHPO and/or participating Tribe(s) templates and guidelines, and work with the SHPO and/or participating Tribes until a final property inventory is approved. The designated responsible party shall use staff or contractors that meet the Professional Qualifications for the appropriate discipline.

F. National Register and National Historic Landmark Nominations

Prior to project implementation, FEMA, the Grantee(s), and subgrantee shall work with the SHPO and/or participating Tribes to identify the individual properties that would benefit from a completed National Register or National Historic Landmark nomination form. Once the parties have agreed to a property, the designated responsible party shall continue to coordinate with the SHPO and/or participating Tribes through the drafting of the nomination form. The SHPO and/or participating Tribe(s) shall provide adequate guidance to the designated responsible party during the preparation of the nomination form, and shall formally submit the final nomination to the Keeper for inclusion in the National Register. The designated responsible party shall use staff or contractors that meet the Professional Qualifications for the appropriate discipline.

G. Geo-References of Historic Maps and Aerial Photographs

Prior to project implementation, FEMA, the Grantee(s), and subgrantee shall work with the SHPO and/or participating Tribe(s) to identify the historic maps and/or aerial photographs for scanning and geo-referencing. Once a list of maps and/or aerial photographs have been agreed upon, the designated responsible party shall continue to coordinate with the SHPO and/or participating Tribes through the scanning and geo-referencing process and shall submit drafts of paper maps and electronic files to the SHPO and/or participating Tribe(s) for review. The final deliverable produced by the designated responsible party shall include a paper copy of each scanned image, a geo-referenced copy of each scanned image, and the metadata relating to both the original creation of the paper maps and the digitization process.

H. Archaeological Sites: Archaeological Treatment Plan

1. In accordance with Stipulation II.C,6.a. of this Agreement, potential adverse effects to an archaeological property may be resolved through alternative mitigation measures to avoid or minimize adverse effects, or data recovery to recover important information that would have been otherwise lost as a result of an undertaking. FEMA staff or contractors that meet the Professional Qualifications for the appropriate discipline shall determine applicability of an archaeological treatment plan (ATP), and as applicable, the appropriate level of documentation.
   a. The ATP will provide detailed descriptions of protection measures for archaeological resources and resources of importance to Tribes or Tribal organizations because of cultural affinity. The ATP could include, but is not limited to the establishment of environmentally sensitive areas (ESAs), use of preconstruction archaeological excavation, preservation-in-place, avoidance, minimization, monitoring during construction where appropriate, procedures to be followed when unanticipated discoveries are encountered [see Stipulation III.B.], processes for revaluation and data recovery of discoveries, responsibilities and coordination with Tribes and Tribal organizations, NAGPRA compliance [Stipulation III.B.1.c.], and curation of recovered materials [Stipulation III.C.].

   b. The ATP will address historic properties adversely affected and set forth means to avoid, protect, or develop treatment measures to minimize the Undertaking's effects where FEMA, the SHPO, participating Tribe(s), and other consulting parties determine that adverse effects cannot be avoided. The ATP will conform to the principles of the ACHP's *Treatment of Archaeological Properties: A Handbook Pails I and II*, the *Secretary of the Interior's Guidelines for Archeology and Historic Preservation* (Federal Register, Vol. 48, September 29, 1983, pp. 44716-44742) and appropriate SHPO Guidelines. FEMA will take into consideration the concerns of the consulting parties in determining the measures to be implemented.

   c. Each ATP will include, but not be limited to:

      i. FEMA's intent to recover a reasonable sample of the intact archaeological deposits from National Register eligible archaeological sites that the agency determines, through the process set out in Stipulation III.B.1.c. of this Agreement, may be adversely affected by the implementation of the Undertaking;

      ii. Specify the research issues/questions to be addressed through the recovery of data and explain how data from the historic property will address those research issues/questions;

      iii. Specify methods to be used in fieldwork and analysis, and explain how these methods are relevant to the research issues/questions;

iv. Indicate how recovered materials and records will be curated, taking into account the expressed wishes of the participating Tribes;

v. Include a schedule for providing the participating Tribes with periodic updates on implementation of the data recovery plan;

vi. If applicable, include the curation agreement in accordance with applicable laws and regulations;

vii. Specify the manner in which human remains and grave-associated artifacts recovered during data recovery will be treated according to applicable laws and regulations, taking into account the expressed wishes of participating Tribes; and

viii. Clarify the public benefit that will be achieved from the ATP.

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL EMERGENCY MANAGEMENT AGENCY,
THE NEVADA STATE HISTORIC PRESERVATION OFFICER, AND
THE NEVADA DIVISION OF EMERGENCY MANAGEMENT

WHEREAS, the Department of Homeland Security's Federal Emergency Management Agency (FEMA) assists States, communities, and other eligible entities with disaster housing; hazard mitigation; prevention of and preparedness for emergencies and disasters; and the repair, restoration and replacement of public infrastructure (Programs), pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. §§ 5121-5206) (Stafford Act), the National Hood Insurance Act of 1968, as amended (42 U.S.C. § 4001, et seq.), and implementing regulations in Title 44 of the Code of Federal Regulations (44 CFR); and

WHEREAS, FEMA has determined that implementation of the Programs may affect properties in the State of Nevada listed in or eligible for the National Register of Historic Places (National Register) (historic properties), has consulted with the Nevada State Historic Preservation Officer (SHPO), and has notified and invited the Advisory Council on Historic Preservation (ACHP) to consult, pursuant to 36 CFR Part 800, the regulations implementing Sections 106 and 110(f) of the National Historic Preservation Act (16 U.S.C. 470f and 470h-2) (NHPA); and

WHEREAS, ACHP has declined to participate in the consultation for this Agreement, pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, FEMA has determined that implementation of the Programs may affect historic properties with religious and cultural significance to Federally recognized Tribes (Tribes), on or off Tribal lands, and FEMA may request that these Tribes participate in the terms of this Programmatic Agreement (Agreement) to help fulfill the requirements of Section 106; and

WHEREAS, with regard to such Tribal participation, any Tribal Historic Preservation Officer (THPO) who is signatory to this Agreement will be consulted in lieu of the SHPO on Tribal lands, thus the term "SHPO" will be understood to include any TI PO that is signatory to this Agreement, except with regard to termination of this Agreement (Stipulation XIII.); and

WHEREAS, as a result of a Presidentially declared Emergency or Disaster (Disaster), the State of Nevada will receive financial and technical assistance from FEMA, and in turn will provide assistance to qualified applicants to alleviate the effects of the Disaster, and as such the Nevada Division of Emergency Management (DEM) will be responsible for administering the Programs, has participated in this consultation, and has been invited to execute this Agreement; and

WHEREAS, the signatories agree that implementation of the Programs will be more effective if, pursuant to 36 CFR § 800.14(b), an Agreement is established to: specify procedures, roles, and responsibilities in the historic review process; eliminate further SHPO review of certain routine activities with little potential to adversely affect historic properties; and promote efficiency so that the effects of the Programs on historic properties are considered while delays to FEMA's delivery of disaster assistance are minimized;

NOW, THEREFORE, FEMA, the SHPO, and DEM agree that the Programs will be administered pursuant to the following Stipulations to satisfy FEMA's Section 106 responsibilities for all of its Undertakings, and effectively integrate historic preservation considerations with the needs of FEMA's Undertakings. FEMA will not fund any Undertaking until it is reviewed pursuant to this Agreement.

STIPULATIONS

To the extent of its legal authority and in coordination with the SHPO and DEM, FEMA will require that the following Stipulations be implemented:

I. LEAD AGENCY COORDINATION

A. FEMA, when determined to be the Lead Agency, will coordinate the Section 106 activities of any other Federal agencies that participate in an Undertaking related to FEMA Programs. FEMA will resolve any disputes among signatory or consulting parties to this Agreement, according to the terms of this Agreement.

B. FEMA may request that a Tribe become signatory to this Agreement through an Addendum. In this case, this Agreement would not be amended unless further changes were made. The execution of the Addendum, and the participation of the Tribe in the terms of this Agreement, will evidence that the Tribe has accepted the terms of this Agreement. A sample Tribal Addendum is attached as Appendix B.

II. APPLICABILITY

This Agreement applies to any of the referenced FEMA Programs for every open past, present, or future Disaster. If agreed to otherwise in writing by FEMA and the SHPO, this Agreement may be suspended for a specific Disaster.

III. GENERAL

A. Professional Qualifications:

1. FEMA's cultural resource staff, and any such State agency or consultant staff contracted by FEMA, will meet the Secretary of Interior's (Secretary's) *Professional Qualifications Standards (Qualifications)*, as determined by FEMA's Federal Preservation Officer (FPO) or designee, for their respective disciplines.

2. The signatories acknowledge that Tribes possess special expertise in assessing the National Register eligibility of properties with religious and cultural significance to them.

B. Time designations: All time designations will be in calendar days. If any party does not comment on a proposed action within time frames stipulated in this Agreement, FEMA may assume that party's concurrence with FEMA's determination, and proceed in accordance with this Agreement.

C. FEMA responsibilities:

1. May request Federal., State agency, applicant, or contract consultant staff who meet the Qualifications, as determined by FEMA's FPO or designee, to identify and evaluate historic properties on behalf of FEMA, as described in 36 CFR. § 800.4(b-c). FEMA will provide 100 percent funding for these delegated activities through standard procurement procedures (Form 40-1) under the Stafford Act.

2. Will review and make National Register eligibility determinations for properties identified through these delegated activities.

3. Will provide the SHPO with an annual report on this Agreement for the previous calendar year, on March 31st of each year that this Agreement is in effect. This report will summarize the actions taken to implement this Agreement, and recommend any actions or revisions to be considered during the next year. These parties will review this information to determine if amendments are necessary.

D. The SHPO, at its discretion, may:

1. Delegate any or all of its responsibilities under this Agreement to persons who are not currently members of the SHPO staff, but who may serve as SHPO representatives for decisions and actions required by this Agreement. The SHPO will consult with FEMA about the selection of any representatives, the scope of their responsibilities, and implementing procedures for their decisions and actions.

2. Delegate the responsibility for preparing documentation about effects of Undertakings on historic properties to a preservation consultant hired by an applicant, who meets the Qualifications. This will be a reimbursable expense for the applicant, subject to the cost-share provisions of the FEMA-State Agreement. The applicant will submit in writing the names and qualifications of potential consultants to the SHPO for approval. The SHPO will comment on the consultants within 5 days of receipt of this information.

E. DEM responsibilities:

DEM, with the assistance of FEMA and the SHPO, if requested, will ensure that all applicants are fully informed about their responsibilities as stipulated in this Agreement. This includes providing applicants with guidance about in kind repairs, pursuant to the Secretary's *Standards for the Treatment of Historic Properties 1995 (Standards),* and ensuring that applicants understand and acknowledge any additional stipulations placed on Undertakings as a result of Section 106 consultation or other terms of this Agreement. DEM will also ensure that all applicants understand that failure to comply with these terms will jeopardize Federal funding of an Undertaking.

F. ACHP responsibilities:

If the Nevada State Historic Preservation Office is an applicant for FEMA assistance, or if FEMA determines that SHPO review of an Undertaking may appear to be a conflict of interest, ACHP will review the Undertaking in lieu of the SHPO.

IV. INITIAL COORDINATION FOLLOWING DECLARATION OF A DISASTER

A. Upon declaration of a Disaster, FEMA will meet with the SHPO and DEM to establish points of contact and protocols for implementation of this Agreement. These parties will also consult to determine any need for DEM to employ or contract with staff who meet the *Qualifications,* to meet the requirements of this Agreement. The SHPO and DEM will attend a Disaster scoping meeting and a historic scoping meeting, if scheduled, where FEMA and DEM will provide guidance on program issues and processes. DEM and FEMA, as appropriate, will also present information about the Section 106 review process to all applicants, at the applicants' briefings and kickoff meetings. For the declared Disaster area, the SHPO will provide or make available to FEMA, in writing, or in electronic form clearly accessible by FEMA (as available):

1. All information about properties in the SHPO Architectural Inventory (AI) and the Nevada Cultural Resource Information System (NVCRIS). This information will include any eligibility determinations for these properties.
2. Any information that may identify areas with a high potential for archaeological resources, and areas where it is known that archaeological resources do not exist. However, the SHPO may determine that it does not have such information, or that the information is not useful in identifying such areas. In that event, FEMA may request and obtain such information, if available, from any other appropriate agency, such as the Harry Reid Center, at the University of Nevada, Las Vegas.

B. FEMA may obtain information about Traditional. Cultural Properties; properties with sacred, religious and cultural significance to Tribes; and knowledgeable contact persons (Tribal or otherwise) from the Nevada Indian Commission (NIC). If FEMA requests, the SHPO may advise FEMA about consultation with Tribes or other Native American groups or individuals; and will advise FEMA about evaluating properties of traditional, religious and cultural significance to the Tribes; and avoiding, minimizing, or mitigating effects to such properties.

C. Prior to implementation of the Programs, FEMA will, to the extent practicable:

1. Develop with and provide to the SHPO a list of National Register-eligible historic properties (standing structures) that have not retained integrity as a result of the disaster. This Agreement will apply only to historic properties that retain integrity, pursuant to 36 CFR Part 60. If FEMA and the SHPO do not agree on whether a property has retained integrity, through consultation not to exceed 14 days, FEMA may review any related Undertakings pursuant to Stipulations V. through or proceed to Stipulation XI.C.-I. (Dispute Resolution).

2. Consult with any other Federal agencies or Tribes with jurisdiction for Undertakings, to ensure compliance with applicable historic laws and regulations, and to mutually determine the lead Federal agency for specific Undertakings.

D. At the time of the Disaster scoping meeting(s), the SHPO will:

Develop with and make available to FEMA any available information about unevaluated properties that are not in the AI or NVCRIS, but may be historic properties. If the SHPO determines that it does not have such information, FEMA may request and obtain such information, if available, from any other appropriate agency;

2. Identify SHPO staff or consultants who may assist FEMA with its Section 106 responsibilities, and identify any specific activities that the SHPO may be able to perform at FEMA's request; and

3. if FEMA requests, may assist in consulting with the NIC, and otherwise, to identify Tribes, individuals, or organizations with jurisdiction or a demonstrated interest in Undertakings, historic properties, or properties of religious and cultural significance in the Disaster area. FEMA will contact these interested parties to inform them of this Agreement and to request information on damaged historic properties.

V. EXPEDITED PROJECT REVIEW FOR EMERGENCIES

A. Immediate rescue and salvage operations conducted to preserve life and property are exempt from the provisions of Section 106 [36 CFR § 800.12(d)].

B. As a result of or in anticipation of a Disaster, FEMA may be requested to perform or fund emergency protective measures, in response to an immediate threat to human health and safety or improved property, that may adversely affect historic properties, or properties listed in the Nevada State Register of Historic Places. For any Undertakings that the Federal Coordinating Officer (FCO) determines are of an emergency nature, FEMA may conduct an expedited review:

1. The expedited review period will begin when FEMA determines that an emergency action is required, and will remain in effect until the review is complete, but for not more than 30 days.

2. The FCO or designee will certify in writing to the FPO or designee a potential need for FEMA to conduct an expedited review for individual Undertakings. The FPO or designee may then certify this need in writing to the SHPO. Should FEMA fmd it necessary to extend the expedited review period beyond 30 days, FEMA will notify the SHPO in writing, and extend the review period in 30-day increments.

C. If the expedited review procedures apply, FEMA may fund an emergency action after completing the following review:

1. FEMA will provide the SHPO with available information about the condition and historical status of the property, the proposed action, and prudent and feasible measures that would take the adverse effect into account, requesting the SHPO's comments. FEMA may provide this information in writing, or through telephone conversations, electronic media, or meetings, at its discretion. The SHPO may provide comments to FEMA within 3 days of receipt of the information, unless FEMA determines the nature of the emergency action warrants a shorter time period.

2. Should the SHPO not comment within 3 days, FEMA may fund the action based on available information.

3. If FEMA objects to any SHPO comments, or if the SHPO objects to FEMA's proposal to conduct an expedited review, to the documentation provided, or to proposed treatment measures, FEMA will consult with the SHPO and attempt to resolve the dispute, within 3 days of receipt of the objection. If the dispute is not resolved, FEMA will request ACHP's advice in accordance with 36 CFR § 800.2(b)(2). ACHY will advise FEMA within 3 days of receipt of the request, unless FEMA determines the nature of the emergency action warrants a shorter time period.

VI. PROGRAMMATIC ALLOWANCES

A. FEMA will determine if the actions of an Undertaking conform to the Programmatic Allowances (Allowances) in Appendix A. If so, FEMA will document this determination in the project file and may fund the Undertaking.

B. For all other activities, FEMA will conduct Section 106 review pursuant to Stipulation V. or VII.

VII. STANDARD PROJECT REVIEW

Except as described in Stipulation VI., FEMA will conduct the standard project review for all non-emergency Undertakings:

A. Area of Potential Effects (APE): For standing structures, the APE will be the individual facility [as defined in 44 CFR § 206.201(c)] when a proposed Undertaking is limited to the repair or rehabilitation of the facility's interior and/or exterior. FEMA will determine the APE, and may consult with the SHPO, for all other Undertakings, including APEs for ground disturbing activities.

B. If FEMA determines that there is a reasonable potential for archeological properties to be within the APE, FEMA will also determine the level of effort necessary to identify and define the limits of these properties.

C. FEMA will identify and evaluate properties, in consultation with the SHPO, to determine if they are listed in or eligible for the National Register. If FEMA does not identify any historic properties, or determines that an Undertaking avoids archeological historic properties (both directly and indirectly) or character-defining features of historic standing structures, FEMA will make a documented determination of "no historic properties affected" as described in 36 CFR §

800.4(d)(1). Unless the SHPO or any other consulting party objects within 14 days of receipt of this documented determination, FEMA will complete the review and may fund the Undertaking. On a case-by-case basis, the SHPO may be allowed more than 14 days to review the determination after consulting with FEMA. This option also applies to the timeframe in Stipulations VII.D.1.a and VIII.A.3. If the SHPO or any other consulting party objects to the determination, FEMA may request ACHP review, as described in 36 CFR § 800.4(d)(1)(ii), or will proceed as follows.

D. If FEMA determines that an Undertaking may affect historic properties, FEMA will apply the criteria of adverse effect, described in 36 CFR § 800.5(a)(1), or determine whether the Undertaking meets the *Standards*, or any other applicable Secretary standards or guidelines.

I. FOR STANDING STRUCTURES:

a. If FEMA, in consultation with the SHPO, determines that the Undertaking does not meet the adverse effect criteria, or that it meets the applicable *Standards*, FEMA will make .a determination of "no adverse effect," as described in 36 CFR § 800.5(b), notify the SHPO and any other consulting party, and provide project documentation described in 36 CFR § 800.11(e). Unless the SHPO or any other consulting party objects within 14 days of receipt of this documented determination, FEMA will complete the review and may fund the Undertaking.

b. If the SHPO or any other consulting party objects to the "no adverse effect" determination, FEMA will require the applicant to revise the scope of work, in consultation with the objecting party, to clearly conform to the applicable *Standards.* FEMA will also review the revised scope of work for funding eligibility. If the applicant revises the scope of work accordingly, FEMA will notify the SHPO and any other consulting party, complete the review, affirm its original determination, and may fund the Undertaking.

c. If the objection is not resolved through revision of the Undertaking as described above, FEMA may proceed in accordance with 36 CFR § 800.5(c)(2-3), or will initiate adverse effect consultation pursuant to Stipulation VIII.

2. FOR ARCHEOLOGICAL PROPERTIES:

If the SHPO or any other consulting party objects to FEMA' s "no adverse effect" determination, or to its determination that identified historic properties will be avoided (both directly and indirectly) through project redesign, procedures, or requirements agreed upon among all consulting parties, FEMA may request ACIIP review under 36 CFR §§ 800.4(d)(1) or 800.5(c)(3), or will initiate adverse effect consultation pursuant to Stipulation VIII.

VIII. RESOLUTION OF ADVERSE EFFECTS ON HISTORIC PROPERTIES

A. If FEMA determines that an Undertaking will adversely affect a historic property, it will also determine whether the effects of the Undertaking will be resolved with a Memorandum of Agreement (MOA), in accordance with 36 CFR § 800.6(b), or with a Secondary Programmatic

Agreement (Secondary Agreement). FEMA will notify the SHPO and any other consulting party of these determinations, and provide documentation described in 36 CFR § 800.11(e).

1. Memorandum of Agreement: FEMA may develop an MOA in accordance with 36 CFR § 800.6(e) to stipulate measures to minimize or mitigate adverse effects on historic properties. The MOA may include feasible measures that may serve an equal or greater public benefit than recordation or archeological data recovery, while promoting the preservation of historic properties. FEMA may develop a list of such measures in consultation with any consulting parties. These measures may include, but are not limited to: preservation planning, interpretive programs, mitigation banking, technical preservation studies and experiments, or development of a historic properties database using Geographic Information Systems.

2. Secondary Programmatic Agreement: FEMA, the SHPO, DEM, and any other consulting party may develop a Secondary Agreement to identify programmatic conditions or treatment measures for multiple similar Undertakings by an applicant.

3. Should FEMA and the SHPO agree that an Undertaking may adversely affect a historic property, but that the Undertaking substantially complies with the applicable *Standards,* these parties may also agree that conditions or measures are not necessary, and that an MOA or Secondary Agreement will not be developed. FEMA will confirm this agreement in writing with the SHPO and any other consulting party. Unless any of these parties objects within 14 days of receipt, FEMA will complete the review and may fund the Undertaking. Should FEMA and the SHPO not agree as described above, FEMA will proceed in accordance with Subsection 1. or 2. of this Stipulation, rather than with Stipulation XI.

B. 13. FEMA will involve the public in the resolution of adverse effects in accordance with 36 CFR § 800.6(a)(4).

C. C. Should FEMA determine that an Undertaking may adversely affect a National Historic Landmark (NHL), it will also notify the Secretary (through the NIIL Program Manager at the National Park Service Pacific Great Basin Support Office in Oakland, California) and invite the Secretary to participate in consultation. When ACHP participates in consultation related to an NHL, it will report the results to the FEMA Director and the Secretary.

IX. CHANGES TO AN APPROVED SCOPE OF WORK

DEM will notify FEMA as soon as practicable of any proposed change to the approved scope of work for an Undertaking involving a historic property. FEMA may authorize the applicant to proceed with the change if it meets an Allowance, or if, for a standing structure, FEMA and the SHPO agree that the change conforms to the *Standards.* If FEMA and the SHPO determine that the change cannot be modified to conform to the *Standards,* FEMA will initiate adverse effect consultation pursuant to Stipulation VIII.

X. UNEXPECTED DISCOVERIES

A. DEM will notify FEMA as soon as practicable if it appears that an Undertaking will affect a previously unidentified property that may be historic, or affect a known historic property in an unanticipated manner. DEM will require the applicant to stop construction activities in the vicinity of the discovery, and take all reasonable measures to avoid or minimize harm to the property until FEMA concludes consultation with the SHPO. In the case of human remains, DEM will also require the applicant to immediately notify the local law enforcement office and the county coroner/medical examiner. If the coroner/ examiner determines that human remains on non-Federal land are or may be of Native American origin, the discovery will be treated in accordance with Nevada Revised Statute 383. Such human remains on Federal land will be treated in accordance with the Native American Grave Protection and Repatriation Act.

B. FEMA will consult with the SHPO as soon as practicable to develop actions to take into account the effects of the Undertaking. FEMA will notify the SBPO of any time constraints, and these parties will mutually agree upon time frames for this consultation. DEM and the applicant may also participate in this consultation. FEMA will then provide the SHPO with written recommendations that take into account the effects of the Undertaking. If the SHPO does not object to FEMA's recommendations within an agreed upon time frame, FEMA will require the applicant to modify the scope of work accordingly.

XI. DISPUTE RESOLUTION

A. Should the SHPO, DEM, or any other consulting party (including consulting parties participating in the review of specific Undertakings subject to this Agreement) object in writing within time frames established by this Agreement to any plans, specifications, determinations, or other actions subject to review pursuant to this Agreement, FEMA will consult with that party for not more than 21 days to resolve the objection. Should FEMA object in writing within established time frames, FEMA will consult with these other parties, as appropriate, for not more than 21 days to resolve the objection.

B. If the objection is resolved within 21 days, FEMA may proceed with the disputed action in accordance with the resolution.

C. If FEMA determines within 21 days that the objection cannot be resolved, FEMA will forward to ACHP all, documentation relevant to the objection, including FEMA's proposed resolution. Within 30 days of receipt, ACHP will:

1. Concur in FEMA's proposed resolution, whereupon FEMA will respond to the objection accordingly; or

2. Provide FEMA with recommendations, which FEMA will take into account in reaching a final decision regarding the objection; or

3. Notify FEMA that the objection will be referred for comment in accordance with 36 CFR § 800.7(a)(4), and proceed to do so. FEMA will take the resulting comment into account in accordance with 36 CFR § 800.7(c)(4).

D. Should ACHP not respond within 30 days, FEMA may assume ACHP's concurrence in FEMA's proposed resolution.

E. FEMA will take into account any ACHP recommendations or comments, and any comments from the other signatories or consulting parties, in reaching a final decision regarding the objection. The signatories will continue to implement all other terms of this Agreement, that are not subject to objection.

F. FEMA will provide the signatories with its final written decision regarding any objection resolved pursuant to this Stipulation.

G. FEMA may authorize any disputed action to proceed, after resolving the related objection pursuant to this Stipulation.

H. At any time while this Agreement is in effect, should a member of the public object in writing to implementation of its terms, FEMA will notify the other signatories in writing and take the objection into consideration. FEMA will consult with the objecting party and, if that party so requests, the other signatories, for not more than 21 days. In reaching its decision regarding the objection, FEMA will take into consideration all comments from these parties. Within 14 days after closure of this consultation period, FEMA will provide the other parties with its written decision. FEMA's decision will be final.

I. Any dispute regarding National Register eligibility that is not resolved pursuant to this Stipulation will be resolved in accordance with 36CFR § 800.4(c)(2).

XII. ANTICIPATORY ACTIONS

A. FEMA will not grant assistance to an applicant who, with intent to avoid the requirements of this Agreement or Section 106 of the NHPA, has significantly adversely affected a historic property to which the assistance would relate, or having legal power to prevent it, allowed such significant adverse effect to occur. After consultation with ACHP, FEMA may determine that circumstances justify granting such assistance despite an adverse effect created or permitted by the applicant, and will complete consultation for the Undertaking pursuant to Stipulation VIII.

B. DEM will routinely advise its applicants in writing that they may not initiate construction on projects for which they are requesting Federal funds prior to compliance with this Agreement. DEM will also routinely advise its applicants that they will jeopardize Federal funding if such construction is initiated.

XIII. DURATION, AMENDMENTS, AND TERMINATION

A. Duration: Unless terminated pursuant to Stipulation XIII.C., this Agreement will remain in effect for a specific Disaster until FEMA, in consultation with all other signatories, determines that this Agreement has been fulfilled in a satisfactory manner. Upon such determination, unless amended otherwise, this Agreement will terminate for that Disaster, but will continue for previous or future Disasters. FEMA will provide all other signatories with written notice of its determination and of such termination. Unless amended otherwise, this Agreement will expire on December 31, 2014.

B. Amendments: Any signatory may propose that this Agreement be amended, whereupon the signatories will consult for not more than 60 days to consider the amendment. The amendment process will comply with 36 CFR §§ 800.6(c)(1) and (7). This Agreement may be amended only upon the written agreement of the signatories. If not amended, this Agreement may be terminated in accordance with Stipulation XIII.C. Appendix A, Section B, may be amended in writing by FEMA and the SHPO without amending the Agreement proper.

C. Termination: Any signatory, except DEM or a THPO, may terminate this Agreement by providing a 30-day written notice to the other signatories, provided they consult during this period to seek amendments or other actions that would prevent termination. A THPO may terminate its Addendum to this Agreement through this same process. Should the signatories agree on an alternative to termination, they will proceed in accordance with that agreement. Should consultation fail, the signatory will promptly notify the other signatories in writing of termination. Termination of this Agreement will require compliance with 36 CFR Part 800. This Agreement may be terminated without further consultation by the execution of a subsequent Agreement that explicitly terminates or supersedes it, or by implementation of Program Alternatives, pursuant to 36 CFR § 800.14.

XIV. EXECUTION OF THIS PROGRAMMATIC AGREEMENT

A. This Agreement takes effect on the date of receipt by ACHP.

B. Any FEMA Programs authorized by the United States Congress in the future may be included in this Agreement without its amendment. At FEMA's discretion, any change in the FEMA name, Programs, or organizational structure will not affect this Agreement.

EXECUTION AND IMPLEMENTATION of this Programmatic Agreement evidences that FEMA has afforded ACHP a reasonable opportunity to comment on FEMA's administration of all referenced Programs pursuant to the Stafford Act and the National Flood Insurance Act, and also that FEMA has satisfied its Section 106 responsibilities for all individual Undertakings of the Programs.

DEPARTMENT OF HOMELAND SECURITY

FEDERAL EMERGENCY MANAGEMENT AGENCY

By: _____ Date: 7/12/2005
Karen E. Armes, Acting Regional Director, Region IX

By: _____ Date: 07/12/05
Alessandro Amaglio, Environmental Officer, Region IX

NEVADA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 5-20-05
Ronald M. James, State Historic Preservation Officer

NEVADA DIVISION OF EMERGENCY MANAGEMENT

By: _____ Date: 6/25/05
Frank Siracusa, Director

APPENDIX A: PROGRAMMATIC ALLOWANCES

I. The following Programs and activities will not require review by the SHPO pursuant to Stipulation V. or VII.:

A. Providing Federal assistance to individuals and households pursuant to Section 411 of the Stafford Act, Individual and Family Grant Programs, as repair assistance is provided only for in kind repairs to pre-disaster conditions. This Allowance does not apply to ground disturbing and construction activities related to temporary housing;

B. Providing Federal assistance pursuant to Section 422 of the Stafford Act, Simplified Procedures, by restoring a facility to its pre-disaster condition, using in kind materials; and

C. Providing Federal funds for acquiring properties in buyout projects. DEM will ensure that each applicant agrees to secure its property from physical alteration, illegal entry, and damage until any applicable requirements of this Agreement are fulfilled. The applicant community will agree to these terms as a condition of its acquisition grant before FEMA will release any related funding.

II. The following activities will not require review by the SHPO pursuant to Stipulation V. or VB. This list may be revised without amending this Agreement, with a letter concurred by FEMA and the SHPO.

A. GROUND DISTURBING ACTIVITIES AND SITE WORK

1. Ground disturbing activities related to the repair, in-place replacement, or hardening of:

   a. footings, foundations, retaining walls, other earth retaining or slope stabilization systems (such as gabion baskets), and utilities (such as sewer, water, storm drain, electrical, gas, communication, and leach lines, and septic tanks), and

   b. culvert systems within rivers, streams, or drainage ways, when the work is performed substantially to pre-disaster conditions, or with a modest increase in size or capacity, and the excavation does not disturb native soil.

   If the repaired or replaced items are at least 50 years old, this Allowance applies only when the work is performed in kind to exactly match existing materials and form.

2. Installation of utilities within existing rights-of-way, but not under improved roads or roadways, provided the affected portion of the right-of-way was previously surveyed for cultural resources and does not contain historic properties.

3. Repair or replacement of driveways, parking lots, and walkways.

4. Repair or replacement of fencing and freestanding exterior walls, when performed in kind to exactly match existing materials and form.

5. Repair or replacement of metal utilitarian structures, including exposed major pipelines and pump houses, when performed in kind, or to match the pre-disaster size and configuration with (superior functioning) modern materials. Any finish on modern materials must be compatible with the site and context. Bridges, water towers, and antenna towers are not considered metal utilitarian structures for the purposes of this Allowance.

6. Installation of temporary structures for uses such as classrooms or offices. This Allowance does not apply to ground disturbing activities, or structures installed in historic districts.

7. Installation of scaffolding, temporary barriers such as chain link fences, polyethylene sheeting, or tarps.

8. Repair or replacement of hardscaping and related utilities, including paving, planters, trellises, irrigation, and lighting, when performed in kind to match existing materials and form.

9. Repair or replacement, and upgrades to applicable codes and standards, of piers, docks, boardwalks, boat ramps, and dune crossovers, within existing footprints. This Allowance applies to properties that are at least 50 years old only when the work is performed in kind to exactly match existing materials and form.

10. Debris collection from public rights-of-way, transportation, and disposal in existing licensed solid waste facilities. This Allowance does not include establishment or expansion of debris staging or disposal areas.

11. Sediment removal from man-made drainage facilities, including retention/detention basins, ponds, ditches, and canals, when the facility is restored to its pre-disaster condition, and the sediment is used to repair eroded banks, or disposed of at an existing licensed or permitted spoil site.

12. Dewatering flooded developed areas.

B. BUILDINGS

1. Interior Floors, Walls, Ceilings and Stairs

   a. Interior rehabilitation projects limited to repairing, replacing, retaining, preserving, protecting, and maintaining in kind materials and features, consistent with the Secretary's *Standards*.

   b. Repair of interior floors, walls, and ceilings to exactly match existing surfaces, including plaster, drywall, and cracks up to one inch wide. Any repair materials will match the color and workmanship of the existing materials. The repairs must be restricted to the damaged area, and care must be taken to avoid adjacent areas. This Allowance does not apply to

decorative plaster trim or other finishes that contribute to the architectural significance of the property.

c. Repair or replacement of suspended or glued ceiling tiles.

d. Installation of grab bars, and other minor interior modifications for handicapped accessibility.

e. Non-destructive, concealed, or concealable testing for hazardous materials (lead paint, asbestos, etc.), or for assessment of hidden damages.

2. Utility and Mechanical Systems

a. Minor electrical and plumbing work within buildings, limited to repairing, upgrading, elevation, or in kind replacement, except that fixtures that are at least 50 years old will be repaired when possible.

b. Repair, replacement, upgrade, or installation of fire detection and suppression, security alarm, and HVAC systems, provided they do not affect the exterior of a building or require installation of new duct work or surface mounted wiring throughout the interior. Fixtures that are at least 50 years old will be repaired when possible.

3. Windows and Doors

a. Repair or replacement of damaged or deteriorated windows and doors, when performed in kind to exactly match existing materials and form.

b. Replacement of window panes in kind or with clear double or triple glazing, provided the work does not alter the existing window materials and form. This Allowance does not apply to archaic or decorative glass. Glazing that is at least 50 years old may be treated with clear window films only.

c. Door and window hardware that is at least 50 years old will be repaired when possible.

4. Exterior Walls, Cornices, Porches and Foundations

a. Repainting of surfaces, provided that destructive preparation treatments, including but not limited to, waterblasting, sandblasting, and chemical cleaning, are not used.

b. Repair or partial replacement of exterior siding, cornices, porches, balustrades, stairs, or trim when performed in kind to exactly match existing materials and form.

c. Repair or replacement of signs or awnings to closely match existing materials and form.

d. Temporary bracing or shoring for stabilization.

e. Anchoring of masonry walls to floor systems, provided the anchors are embedded and concealed from exterior view, such as in the Hilti systems.

1) Repair or reconstruction of parapets and chimneys to exactly match all existing materials and visual features. Bracing and reinforcing of fireplaces and chimneys, provided the bracing and reinforcing are either concealed from exterior view or removable in the future.
2) Stabilization of foundations and the addition of foundation bolts, provided that visible masonry foundation mortars match the color, strength, and joint tooling of any foundation mortars that are at least 50 years old.

5. Roofing

Repair, replacement, or strengthening of roofing, gutters, and downspouts, when performed in kind to exactly match existing materials and form. However, cement asbestos shingles may be replaced with asphalt shingles, and untreated wood shingles may be replaced with fire resistant wood shingles.

6. Weatherproofing and Insulation

a. Caulking and weather-stripping with compatibly colored materials.

b. Replacement or installation of insulation with an adequate vapor retarder, provided that decorative interior plaster, woodwork, or exterior siding is not altered. This Allowance does not apply to exterior insulation finishing systems (EIFS), urea formaldehyde foam insulation, or any other thermal insulation with water in its chemical composition, when installed within wall cavities or other spaces that are not vented.

7. Seismic Upgrades

Installation of the following seismic upgrades, provided they are not visible on the exterior or within character defining interiors that are at least 50 years old: cross bracing on pier and post foundations; metal fasteners; collar ties; gussets; tie downs; strapping and anchoring of mechanical, electrical, and plumbing equipment; anchoring of furniture; plywood diaphragms beneath first floor joists, above top floor ceiling rafters, and on roofs; and automatic gas shut off valves.

C. ROADS AND ROADWAYS

1. Repair of a road to pre-disaster geometric design standards and conditions, with in kind materials, number and width of lanes, shoulders, medians, curvatures, grades, clearances, and side slopes.

2. Repair of road composition with in kind surface materials to maintain pre-disaster size, traffic capacity, and load classification of motor vehicles, such as reshaping and compacting roadbed soil, or repairing asphaltic or Portland cement concrete pavement. This Allowance does not apply to brick or stone paving, or to regrading of native materials to reconstruct the roadbed.

3. Repair of traffic control devices such as signs, signals, delineators, pavement markings, and ramp and traffic surveillance systems.

4. Repair of road lighting with in kind systems.

5. Repair of other road appurtenances in kind, such as curbs, berms, and sidewalks, except for brick sidewalks.

6. Repair of roadway safety elements in kind, such as barriers, guardrails, and impact-attenuation devices.

APPENDIX B
[FEDERALLY RECOGNIZED TRIBES]

ADDENDUM TO THE PROGRAMMATIC AGREEMENT AMONG THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THE NEVADA STATE HISTORIC PRESERVATION OFFICER, AND THE NEVADA DIVISION OF EMERGENCY MANAGEMENT

WHEREAS, the Department of Homeland Security's Federal Emergency Management Agency (FEMA) assists communities and other eligible entities with disaster housing; hazard mitigation; prevention of and preparedness for emergencies and disasters; and the repair, restoration and replacement of public infrastructure (Programs) pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. §§ 5121-5206) (Stafford Act), the National Flood Insurance Act of 1968, as amended (42 U.S.C. § 4001 et seq.), and their implementing regulations in Title 44 of the Code of Federal Regulations (44 CFR); and

WHEREAS, FEMA, the Nevada State Historic Preservation Officer (SHPO), and the Nevada Division of Emergency Management have recognized that the Programs may be implemented on lands under the jurisdiction of the _____ Indian Tribe (Tribe), which did not participate in the development of this Programmatic Agreement (Agreement); and

WHEREAS, FEMA has determined that certain Undertakings may affect properties with religious and cultural significance to the Tribe, that are listed in or eligible for the National Register of Historic Places (historic properties), on or off Tribal lands, and has consulted with the Tribe and its Tribal Historic Preservation Officer (THPO) pursuant to 36 CFR § 800.14(6)(3) of the regulations implementing Section 106 of the National Historic Preservation Act (NEPA);

NOW, THEREFORE, FEMA has requested that the _____ Tribe execute this Addendum to facilitate the Section 106 review of Undertakings that may directly or indirectly affect Tribal historic properties.

STIPULATIONS

FEMA will require that the following Stipulations be implemented:

[OPTION 1: The THPO has not assumed SHPO responsibilities pursuant to § 101(d)(2) of the NHPA]

1. FEMA will consult with the _____ THPO in addition to the SHPO, pursuant to this Agreement, for all Undertakings that may affect historic properties, on or off Tribal lands, with religious and cultural significance to the _____ Tribe. The THPO will participate in the review of all such Undertakings in accordance with this Agreement. All references to the term "SHPO" in this Agreement are understood to include both the SHPO and the THPO for review of these Undertakings.

2. FEMA will require any other Federal agencies participating in the Undertaking to consult with the THPO in addition to the SHPO, in accordance with this Agreement and Addendum.

3. This Addendum takes effect on the last date of signature by FEMA, [any other participating Federal agency], and the THPO.

[OPTION 2: The THPO has assumed SHPO responsibilities pursuant to § 101(d)(2) of the NHPA]

1. FEMA recognizes that the _____ Tribe has assumed the Section 106 responsibilities of the SHPO on Tribal lands, pursuant to § 101(d)(2) of the NHPA, and FEMA will consult with the ____ THPO pursuant to this Agreement, in lieu of the SHPO, for all Undertakings that may affect historic properties on Tribal lands, with religious and cultural significance to the Tribe. The THPO will participate in the review of all such Undertakings in accordance with this Agreement. All references to the term "SHPO" in this Agreement are understood to refer only to the THPO for review of these Undertakings. All references to the term "SHPO" are understood to include both the SHPO and the THPO for review of such Undertakings off Tribal lands, unless the SHPO elects to not participate in such review.

2. FEMA will require any other Federal agencies participating in the Undertaking to consult with the THPO in accordance with this Agreement and Addendum.

3. The signatories recognize that the SHPO will participate as a consulting party pursuant to this Agreement if an Undertaking on Tribal lands affects historic properties off Tribal lands. The SHPO may also participate if requested in accordance with 36 CFR § 800.3(c)(1).

4. This Addendum takes effect on the last date of signature by FEMA, [any other participating Federal, agency], and the THPO.

SIGNATORY PARTIES:

FEMA, [any OTHER FEDERAL AGENCY], and the THPO

Appendix C
List of Typical Best Management Practices

During construction, Best Management Practices (BMPs) are normally employed to reduce potential adverse effects to resource areas from construction and operation of proposed projects. BMPs are outlined below for resource areas where impact may occur due to project activities. BMPs for resource areas like socioeconomics and public safety, land use and planning and visual resources are not outlined, as construction and operation measures to protect those resource areas vary by jurisdiction and state/local regulations. Further, overlap between resource areas BMPs exists. This list represents sample general construction BMPs; project specific BMPs should be implemented on a case by case basis. The table below outlines general construction BMPs.

Table 1 – General Construction BMPs

General Principles	• Fit grading to the surrounding terrain. Time grading operations to minimize soil exposure. • Retain existing vegetation whenever feasible. Vegetate and mulch or otherwise stabilize disturbed areas. • Direct runoff away from disturbed areas. Minimize the length and steepness of slopes. • Keep runoff velocities low. Prepare drainage ways and outlets to handle concentrated runoff until permanent drainage • structures are constructed. Trap sediment on site. • Inspect and maintain control measures frequently. • Do not dispose of plant material in a creek or drainage facility or leave it in a roadway where it can clog storm drain inlets. • Avoid disposal of plant material in trash dumpsters or mixing it with other wastes. • Compost plant material or take it to a landfill or other facility that composts yard waste (check with the local planning or building department for more information).
Structural Control Measures	• Where possible maintain runoff water within its natural course and direction of flow. • Design and maintain access roads to prevent ponding and damage from water flow. • Limit cut and fill slopes to an inclination of 2:1 or flatter, and include benching to reduce slope length on longer slopes. • Direct concentrated flow to stabilized channels and drains. • Roughen slope surfaces to slow down flow velocities and enhance water infiltration, which in turn will enhance vegetation establishment • Divert stormwater away from denuded areas and use properly installed temporary berms, earth dikes, silt fences, sediment traps, inlet protection, and sediment basins to limit the discharge of sediment and pollutants from the site.
Stormwater Management Controls	• Wherever possible, stormwater runoff from undeveloped areas should be kept separate from runoff from developed areas, and should be retained in natural conveyances or routed through properly lined drainage conveyances. • Discharge locations should be provided with appropriate energy dissipation to prevent scour.

Geology and Soils

The following BMPs for geology and soils were developed using local and state guidelines. The BMPs are geared towards preventing soil erosion. BMPs for geological hazards must be developed in accordance with federal, state and local building codes and project area specific geological conditions.

1. Plan the development to fit the topography, soils, drainage pattern and natural vegetation of the site.
2. Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure.
3. Phase grading operations to reduce disturbed areas and time of exposure.
4. Avoid excavation and grading during wet weather.
5. Use berms and drainage ditches to divert runoff around exposed areas. Place diversion ditches across the top of cut slopes.
6. Plant vegetation on exposed slopes. Where replanting is not feasible, use erosion control blankets (e.g., jute or straw matting, glass fiber or excelsior matting, mulch netting).
7. Consider slope terracing with cross drains to increase soil stability.
8. Cover stockpiled soil and landscaping materials with secured plastic sheeting and divert runoff around them.
9. As a back-up measure, protect drainage courses, creeks, or catch basins with fiber rolls, silt fences, sand/gravel bags and/or temporary drainage swales.
10. Once grading is completed, stabilize the disturbed areas using permanent vegetation as soon as possible. Use temporary erosion controls until vegetation is established.
11. Conduct routine inspections of erosion control measures especially before and immediately after rainstorms, and repair if necessary.

Air Quality and Greenhouse Gas Emissions

The following BMPs are extracted from state sources and they represent general construction BMPs for minimizing air quality and greenhouse gas emissions from project construction. The following BMPs can also be implemented to reduce project impacts on Climate Change.

1. All exposed unpaved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes.
7. Clear signage shall be provided for construction workers at all access points.

8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
9. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
10. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
11. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
12. Minimizing the idling time of diesel powered construction equipment to two minutes.
13. Use low Volatile Organic Compound (VOC) (i.e., ROG) coatings beyond the local requirements.
14. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
15. Monitor dust-generating activities and implement appropriate measures for maximum dust control.

Water Resources

The following BMPs are extracted from sources such as the US Fish and Wildlife Service (USFWS) and Regional Water Quality Boards (RWQCB). These BMPs could be implemented when working near waters of the US or wetlands.

1. No work within 50 feet of a wetland or waterbody.
2. For work between 50 and 200 feet of a wetland or waterbody:
    - Herbicides would be restricted to glyphosate-based herbicides that are approved by the EPA for use around water (e.g., Rodeo).
    - Hand tools (chainsaws, brush cutters, and other hand tools) would be used to create a gradation of vegetation density by removing approximately 50 percent of the vegetation farthest from wetlands and perennial waterbodies, and 33 percent of the vegetation at closer distances to wetlands and perennial waterbodies.
    - No equipment fueling would occur.
3. Never wash down pavement or surfaces where materials have spilled. Use dry cleanup methods whenever possible.
4. Protect all storm drain inlets using filter fabric cloth or other best management practices to prevent sediments from entering the storm drainage system during construction activities.
5. Keep materials out of the rain — prevent runoff pollution at the source. Schedule clearing or heavy earth moving activities for periods of dry weather. Cover exposed piles of soil, construction materials and wastes with plastic sheeting or temporary roofs. Before it rains, sweep and remove materials from surfaces that drain to storm drains, creeks, or channels.

6. Prior to construction, wetlands located in the project area will be fenced off using ESA fencing. The fencing will be placed 5 feet away from each wetland feature.
7. Appropriate erosion control measures will be used to reduce siltation and runoff of contaminants into wetlands and adjacent, ponds, streams, or riparian woodland/scrub. The contractor will not be allowed to stockpile brush, loose soils, or other debris material on stream banks.
8. Native plant species should be used in erosion control or revegetation seed mix. Any hydroseed mulch used for revegetation must also be certified weed-free. Dry-farmed straw will not be used, and certified weed-free straw will be required where erosion control straw is to be used. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion-control measures will be placed between water or wetland and the outer edge of the project site.
9. All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entry into the project area. Equipment will be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.
10. Vehicles and equipment will be parked on pavement, existing roads, or specified staging areas.
11. Trash generated by covered activities should be promptly and properly removed from the site.
12. Equipment storage, fueling, and staging areas will be sited on disturbed areas or on non-sensitive nonnative grassland land cover types, when these sites are available, to minimize risk of direct discharge into riparian areas or other sensitive land cover types.
13. All temporarily disturbed areas, such as staging areas, will be returned to pre-project or ecologically improved conditions as required by responsible agencies.
14. Do not over-apply pesticides or fertilizers and follow manufacturer's instructions for mixing and applying materials.
15. Dispose of all wastes properly. Materials that cannot be reused or recycled must be taken to an appropriate landfill or may require disposal as hazardous waste. Never throw debris into channels, creeks or into wetland areas. Never store or leave debris in the street or near a creek where it may contact runoff.

Biological Resources

These BMPs have been extracted from USFWS and should be applied when working in areas that have been identified to contain Special Status Species and migratory birds.

Special Status Species

1. Construction should generally occur during the dry season (April 15 to October 15).
2. No more than two days prior to the start of ground disturbing activities, focused preconstruction surveys for Special Status Species will be completed by a USFWS-approved biologist in all suitable upland dispersal habitat areas, if Special Status Species have been previously identified in the area. If Special Status Species are found during focused preconstruction surveys, the USFWS will be contacted within one working day, and a suitable protocol shall be approved by USFWS for relocation.

3. Exclusion fencing such as Ertec E-fenceTM or an equivalent will be installed around Special Status species habitat prior to any construction during the dry season (April 1 through October 15), when Special Status Species are not actively dispersing or foraging. The fencing will remain in place until all project activities in the vicinity of suitable upland dispersal habitat are completed.
4. To prevent Special Status Species from becoming entangled or trapped in erosion control materials, plastic monofilament netting (erosion control matting) or similar material will not be used for erosion control. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
5. Prior to any construction where Special Status Species have been detected a USFWS-qualified biologist will conduct an education program for construction personnel. At a minimum, the training will include a description of Special Status Species and their habitats; the potential occurrence of these species in the project area; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries in which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and project personnel entering the project area. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all of the avoidance and minimization measures for the Special Status Species.
6. All construction-related trenches and holes in the ground will be covered at the end of each work day to prevent entrapment of Special Status Species. A USFWS-approved biologist will survey the holes at the beginning of each work day to check for trapped Special Status Species. If a Special Status Species is observed, the USFWS-approved biologist will capture and relocate them to a suitable area outside the project area.
7. All organic matter should be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with ponds, wetlands, or potentially contaminated sediments. Items should be washed with a 5 percent bleach solution and rinsed with clean water before leaving each study site. Used cleaning materials (liquids, etc.) should be disposed of safely, and if necessary, taken off site for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.
8. Implement measures to minimize the spread of disease and non-native species based on current Wildlife Agency protocols and other best available science.

Migratory Birds BMPs

Raptors

1. Preconstruction surveys for raptors, other special-status birds, and appropriate nesting habitat will be conducted within 50 feet of the construction area no more than three days prior to ground disturbing activities. If an active nest is found, the state agency (ex. CDFW) will be consulted to determine the appropriate buffer area to be established around the nesting site and the type of buffer to be used, which typically is ESA fencing. If establishment of a buffer is not feasible, the appropriate agency will be contacted for further avoidance and minimization guidelines.
2. A qualified biologist will conduct weekly monitoring during construction, to evaluate the identified nest for potential disturbances associated with construction activities. Construction within the buffer is prohibited until the qualified biologist determines the nest is no longer active.

3. If an active nest is found after construction begins, construction activities in the vicinity of the nest will stop until a qualified biologist has evaluated the nest and established the appropriate buffer around the nest. If establishment of the buffer is not feasible, the appropriate agency will be contacted for further avoidance and minimization guidelines.

Migratory Birds

The measures below would be implemented for construction work during the nesting season (February 15 through August 31).

1. A qualified biologist will conduct preconstruction surveys for nesting migratory birds in the project area no more than three days prior to the start of ground disturbing activities. If preconstruction surveys indicate the presence of any migratory bird nests where activities would directly result in bird injury or death, a buffer zone of 50 feet will be placed around the nest.
2. Buffers will be established around active migratory bird nests where project activities would directly result in bird injury or death. The size of the buffer may vary for different species and will be determined in coordination with the responsible agency. A qualified biologist will delineate the buffer using ESA fencing, pin flags, and/or yellow caution tape.
3. Buffer zones will be maintained around all active nest sites until the young have fledged and are foraging independently. In the event that an active nest is found after the completion of preconstruction surveys and after construction begins, all construction activities within a 50-foot radius will be stopped until a qualified biologist has evaluated the nest and erected the appropriate buffer around it.
4. If an active nest is found in an area after construction begins, construction activities in the vicinity of the nest will stop until a qualified biologist has evaluated the nest and established the appropriate buffer around the nest. If establishment of the buffer is not feasible, the responsible agency will be contacted for further avoidance and minimization guidelines.

Historic Properties

The following BMPs were developed to be used if cultural resources are present. Further BMPs must be developed based on Federal and State guidelines.

Prehistoric or Historic Subsurface Resources: In the event that any prehistoric or historic subsurface cultural resources, as defined by the responsible agency, are discovered during ground disturbing activities all work within 50 feet of the resources should be halted and the project applicant should consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the proponent and the qualified archaeologist would meet to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards.

Unanticipated Paleontological Resources: The project proponent shall notify a qualified paleontologist of unanticipated discoveries, made by either the cultural resources monitor or construction personnel and subsequently document the discovery as needed. In the event of an

unanticipated discovery of a breas, true, and/or trace fossil during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by a qualified paleontologist. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find.

Discovery of Human Remains: In the unlikely event of the discovery of human remains, the following BMPs can be implemented as follows:

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
2. The Coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and
3. If the coroner determines the remains to be Native American:
    - The coroner shall contact the responsible agency within 24 hours.
    - The responsible shall identify the person or persons it believes to be the most likely descended from the deceased Native American.

The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods.

Transportation

The following BMPs were developed based on state and local jurisdictions guidelines. Further BMPs must be developed depending on local jurisdiction traffic control requirements.

1. When possible construction crews would travel outside of peak hour traffic times, therefore minimizing peak traffic times impacts.
2. All vehicles related to project constructions, including contractor vehicles and trucks, would use designated Truck Routes, where those are available.
3. Detour signs shall be used when necessary for vehicles, bicycle and pedestrian ways.
4. All detour signs during construction would be designed to meet the responsible agency standards.
5. A Traffic Control Plan shall be implemented if the project is expected to require road closures.

Noise

The following BMPs for noise have been developed by surveying a variety of local noise guidelines, as there are no state or federal guidelines regarding acceptable noise limits. Noise BMPs will vary based on local noise ordinances and land uses surrounding the project area.

1. Provide advance notification to surrounding land uses disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period.
2. Noise-generating construction activities, including truck traffic coming to and from the site for any purpose, shall be limited to the hours of 7:00 a.m. to 7:00 p.m. during

weekdays and 8:00 a.m. to 5:00 p.m. on Saturday and Sunday, or as specified in the Noise Ordinance of the local municipality.

3. All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
4. Contractor shall be responsible for maintaining equipment in best possible working condition.
5. Mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receivers.
6. Locate construction equipment as far as possible from nearby noise-sensitive receptors.
7. The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only. No project-related public address or music system shall be audible at any adjacent noise-sensitive receptor.
8. The contractor shall notify adjacent property owner, property managers, and business owners of adjacent parcels of the construction schedule in writing and in advance of the work. The notification shall include the name and phone number of a project representative or site supervisor.
9. The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Owner shall be established prior to construction commencement that shall allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

Hazardous Materials

The following BMPs were developed using state guidelines as well as a variety of local jurisdiction guidelines. The BMPs apply to handling of regular hazardous substances as well as the discovery of unknown or undocumented contamination.

1. Vehicles and equipment would be inspected and approved before use to ensure that they will not leak hazardous materials such as oil, hydraulic fluid, or fuel.
2. Fueling would take place in designated staging areas, outside native vegetation or wetlands.
3. The contractor would have emergency cleanup gear for spills (spill containment and absorption materials) and fire-suppression equipment available onsite at all times. The gear and equipment would be inspected before treatment begins.
4. Leaks, drips, and other spills would be cleaned up immediately to avoid soil or groundwater contamination. Cleanup of a spill on soil would include removing the contaminated soil using the emergency spill cleanup gear. Contaminated soil and disposable gear used to clean up a hazardous materials spill would be properly disposed of following State and Federal hazardous material disposal regulations.
5. Major vehicle maintenance and washing would be done offsite.
6. Spent fluids including motor oil and radiator coolant and used vehicle batteries would be collected, stored, and recycled as hazardous waste offsite.
7. Spilled dry materials would be swept up immediately.

Unknown and Undocumented Contamination

If hazardous materials are encountered during construction or accidentally released as a result of construction activities the following procedures shall be implemented:

1. Work shall stop in the vicinity of any discovered contamination or release.
2. The scope and immediacy of the problem shall be identified.
3. Coordination with the responsible agencies shall take place.
4. The necessary investigation and remediation activities shall be conducted to resolve the situation before continuing construction work.

The following measures shall be implemented if unknown or undocumented contamination is discovered during construction to avoid potentially significant impacts to hydrology and water resources in the project area.

Appendix D
Listing of National Historic Landmarks in Arizona, California, and Nevada

NATIONAL HISTORIC LANDMARKS SURVEY

NATIONAL PARK SERVICE
1849 C Street, N.W. Room NC-400
Washington, DC 20240

LISTING OF NATIONAL HISTORIC LANDMARKS BY STATE

NEVADA (8)

FORT CHURCHILL.....11/05/61
LYON COUNTY, NEVADA

FORT RUBY.....11/05/61
WHITE PINE COUNTY, NEVADA

HOOVER DAM (*Also in Arizona*).....08/20/85
CLARK COUNTY, NEVADA and MOHAVE COUNTY, ARIZONA

LEONARD ROCKSHELTER.....01/20/61
PERSHING COUNTY, NEVADA

MCKEEN MOTOR CAR #70 (VIRGINIA & TRUCKEE RAILWAY MOTOR CAR #22).....10/16/12
CARSON CITY, NEVADA

NEVADA NORTHERN RAILWAY, EAST ELY YARDS.....09/20/06
ELY, WHITE PINE COUNTY, NEVADA

NEWLANDS, FRANCIS G., HOME.....05/23/63
RENO, WASHOE COUNTY, NEVADA

VIRGINIA CITY HISTORIC DISTRICT.....07/04/61
VIRGINIA CITY, STOREY COUNTY, NEVADA

APPENDIX

The numerous designations within the National Park System sometime confuse visitors. The names are created in the Congressional legislation authorizing the sites or by the president, who proclaims "national monuments" under the Antiquities Act of 1906. Many names are descriptive -- lakeshores, seashores, battlefields --but others cannot be neatly categorized because of the diversity of resources within them. In 1970, Congress elaborated on the 1916 National Park Service Organic Act, saying all units of the system have equal legal standing in a national system.

National Park [NP]
These are generally large natural places having a wide variety of attributes, at times including significant historic assets. Hunting, mining and consumptive activities are not authorized.

National Monument [NM]
The Antiquities Act of 1906 authorized the President to declare by public proclamation landmarks, structures, and other objects of historic or scientific interest situated on lands owned or controlled by the government to be national monuments.

National Historic Site [NHS]
Usually, a national historic site contains a single historical feature that was directly associated with its subject. Derived from the Historic Sites Act of 1935, a number of historic sites were established by secretaries of the Interior, but most have been authorized by acts of Congress.

National Historic Park [NHP]
This designation generally applies to historic parks that extend beyond single properties or buildings.

National Memorial [NMem]
A national memorial is commemorative of a historic person or episode; it need not occupy a site historically connected with its subject.

National Battlefield [NB]
This general title includes national battlefield, national battlefield park, national battlefield site, and national military park. In 1958, an NPS committee recommended national battlefield as the single title for all such park lands.

Other Designations [OD]
Some units of the National Park System bear unique titles or combinations of titles, like the White House.

NATIONAL HISTORIC LANDMARKS PROGRAM

NATIONAL PARK SERVICE
1849 C Street, N.W. (2280)
Washington, DC 20240

LISTING OF NATIONAL HISTORIC LANDMARKS BY STATE

CALIFORNIA (144)

ABBEY, THE, JOAQUIN MILLER HOME....12/29/62
OAKLAND, ALAMEDA COUNTY, CALIFORNIA

AHWAHNEE, THE....05/28/87
MARIPOSA COUNTY, CALIFORNIA

ALCATRAZ ISLAND....01/17/86
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

ALMA (Scow Schooner)....06/07/88
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

ANGELUS TEMPLE....04/27/92
LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA

ANZA, JUAN DE, HOUSE....04/15/70
SAN JUAN BAUTISTA, SAN BENITO COUNTY, CALIFORNIA

AQUATIC PARK....05/28/87
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

ASILOMAR CONFERENCE GROUNDS....02/27/87
PACIFIC GROVE, MONTEREY COUNTY, CALIFORNIA

BALBOA PARK....12/22/77
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA

BALCLUTHA (Square-rigger)....02/04/85
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

BALDWIN HILLS VILLAGE....01/03/01
LOS ANGELES. LOS ANGELES COUNTY, CALIFORNIA

BANCROFT, HUBERT H., RANCH HOUSE....12/29/62
SPRING VALLEY, SAN DIEGO COUNTY, CALIFORNIA

BANK OF ITALY BUILDING....06/02/78
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

BARNSDALL, ALINE, COMPLEX (HOLLYHOCK HOUSE)....03/29/07
LOS ANGELES, CALIFORNIA

BERKELEY (Ferry)....12/14/90
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA

BIG FOUR HOUSE....07/04/61
SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA

BODIE HISTORIC DISTRICT....07/04/61
BODIE, MONO COUNTY, CALIFORNIA

BORAX LAKE SITE....09/20/06
CLEAR LAKE, LAKE COUNTY, CALIFORNIA

BRADBURY BUILDING....05/05/77
LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA

BURBANK, LUTHER, HOUSE AND GARDEN....06/19/64
SANTA ROSA, SONOMA COUNTY, CALIFORNIA

C.A. THAYER (Schooner)....11/13/66
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

CARMEL MISSION....10/09/60
CARMEL, MONTEREY COUNTY, CALIFORNIA

CARRIZO PLAIN ARCHEOLOGICAL DISTRICT....03/02/12
SAN LUIS OBISPO COUNTY, CALIFORNIA

CASTRO, JOSE, HOUSE....05/15/70
SAN JAUN BAUTISTA, SAN BENITO COUNTY, CALIFORNIA

CITY OF OAKLAND (USS *Hoga*) (Tug) **RELOCATED TO ARKANSAS**....06/30/89
SUISUN BAY, BENICIA, SOLANO COUNTY, CALIFORNIA

COLOMA....07/04/61
EL DORADO COUNTY, CALIFORNIA

COLUMBIA HISTORIC DISTRICT....07/04/61
TUOLUMNE COUNTY, CALIFORNIA

COMMANDER'S HOUSE, FORT ROSS....05/15/70
SONOMA COUNTY, CALIFORNIA

COSO ROCK ART DISTRICT 07/19/64
INYO COUNTY, CALIFORNIA
DONNER CAMP SITES 01/20/61
NEVADA COUNTY, CALIFORNIA
DRAKES BAY HISTORIC AND ARCHEOLGICAL DISTRICT 10/16/12
MARIN COUNTY, CALIFORNIA
EAMES HOUSE (CASE STUDY HOUSE # 8) 09/20/06
PACIFIC PALISADES, LOS ANGELES COUNTY, CALIFORNIA
ELMSHAVEN (Ellen White House) 11/04/93
ST. HELENA, NAPA COUNTY, CALIFORNIA
ESTUDILLO HOUSE 04/15/70
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA
EUREKA (Double-ended Ferry) 02/04/85
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
FIR (USCGC) 04/27/92
SUISON BAY,BENICIA, SOLANO COUNTY, CALIFORNIA
FIRST CHURCH OF CHRIST, SCIENTIST 12/22/77
BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FIRST PACIFIC COAST SALMON CANNERY SITE **WITHDRAWAL OF DESIGNATION 07/14/2004** 04/06/64
BRODERICK, YOLO COUNTY, CALIFORNIA
FLOOD, JAMES C., MANSION 11/13/66
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
FOLSOM POWERHOUSE 05/29/81
FOLSOM, SACRAMENTO COUNTY, CALIFORNIA
FORT ROSS 11/05/61
SONOMA COUNTY, CALIFORNIA
FRESNO SANITARY LANDFILL 08/07/01
FRESNO, CALIFORNIA
GAMBLE, DAVID B., HOUSE 12/22/77
PASADENA, LOS ANGELES COUNTY, CALIFORNIA
GONZALEZ HOUSE 04/15/70
SANTA BARBARA, SANTA BARBARA COUNTY, CALIFORNIA
GUAJOME RANCH HOUSE 04/15/70
SAN DIEGO COUNTY, CALIFORNIA
GUNTHER ISLAND SITE 67 ..... 07/19/64
HUMBOLDT COUNTY, CALIFORNIA
HALE SOLAR OBSERVATORY 12/20/89
PASADENA, LOS ANGELES COUNTY, CALIFORNIA
HANNA-HONEYCOMB HOUSE 06/29/89
STANFORD, SANTA CLARA COUNTY, CALIFORNIA
HARADA HOUSE 12/14/90
RIVERSIDE, RIVERSIDE COUNTY, CALIFORNIA
HEARST SAN SIMEON ESTATE 05/11/76
SAN SIMEON, SAN LUIS OBSISPO COUNTY, CALIFORNIA
HERCULES (Tug) 01/17/86
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
HOOVER, LOU HENRY AND HERBERT, HOUSE 02/04/85
PALO ALTO, SANTA CLARA COUNTY, CALIFORNIA
HORNET (CVS-12) (USS) 12/04/91
ALAMEDA POINT, ALAMEDA COUNTY, CALIFORNIA
HOTEL DEL CORONADO 05/05/77
CORONADO, SAN DIEGO COUNTY, CALIFORNIA
HUBBLE, EDWIN, HOUSE 12/08/76
SAN MARINO, LOS ANGELES COUNTY, CALIFORNIA
JEREMIAH O'BRIEN (Liberty Ship) 01/14/86
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
KNIGHT'S FERRY BRIDGE 10/16/12
STANISLAUS COUNTY, CALIFORNIA
LA PURISIMA MISSION 04/15/70
SANTA BARBARA COUNTY, CALIFORNIA
LAKE MERRITT WILD DUCK REFUGE 05/23/63
OAKLAND, ALAMEDA COUNTY, CALIFORNIA
LANE VICTORY (Victory Ship) 12/14/90
SAN PEDRO, LOS ANGELES COUNTY, CALIFORNIA
LARKIN HOUSE 12/19/60
MONTEREY, MONTEREY COUNTY, CALIFORNIA
LAS FLORES ADOBE 10/18/68
SAN DIEGO COUNTY, CALIFORNIA

LE CONTE MEMORIAL LODGE 05/28/87
YOSEMITE VALLEY, MARIPOSA COUNTY, CALIFORNIA
LIGHTSHIP *WAL-605,* "RELIEF" 12/20/89
OAKLAND, ALAMEDA COUNTY, CALIFORNIA
LITTLE TOKYO HISTORIC DISTRICT 06/12/95
LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA
LOCKE HISTORIC DISTRICT 12/14/90
LOCKE, SACRAMENTO COUNTY, CALIFORNIA
LONDON, JACK, RANCH 12/29/62
SONOMA COUNTY, CALIFORNIA
LOS ALAMOS RANCH HOUSE 04/15/70
SANTA BARBARA COUNTY, CALIFORNIA
LOS ANGELES MEMORIAL COLISEUM 07/27/84
LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA
LOS CERRITOS RANCH HOUSE 04/15/70
LONG BEACH, LOS ANGELES COUNTY, CALIFORNIA
LOWER KLAMATH NATIONAL WILDLIFE REFUGE (*Also in Oregon*) 01/12/65
SISKIYOU COUNTY, CALIFORNIA and KLAMATH COUNTY, OREGON
MANZANAR WAR RELOCATION CENTER 02/04/85
INYO COUNTY, CALIFORNIA
MARE ISLAND NAVAL SHIPYARD 05/15/75
VALLEJO, SOLANA COUNTY, CALIFORNIA
MARIN COUNTY CIVIC CENTER 07/17/91
SAN RAPHAEL, MARIN COUNTY, CALIFORNIA
MENDOCINO WOODLANDS RECREATIONAL DEMOSTRATION AREA 09/25/97
MENDOCINO COUNTY, CALIFORNIA
MISSION BEACH ROLLER COASTER 02/27/87
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA
MISSION INN 05/05/77
RIVERSIDE, RIVERSIDE COUNTY, CALIFORNIA
MISSION SAN MIGUEL ARCÁNGEL 03/20/06
SAN MIGUEL, SAN LUIS OBISPO COUNTY, CALIFORNIA
MISSION SANTA INÈS 01/20/99
SOLVANG, SANTA BARBARA COUNTY, CALIFORNIA
MODJESKA HOUSE 12/14/90
MODJESKA, ORANGE COUNTY, CALIFORNIA
MONTEREY OLD TOWN HISTORIC DISTRICT 04/15/70
MONTEREY, MONTEREY COUNTY, CALIFORNIA
MUIR, JOHN, HOUSE 12/29/62
MARTINEZ, CONTRA COSTA COUNTY, CALIFORNIA
NEW ALMADEN 07/04/61
SANTA CLARA COUNTY, CALIFORNIA
NIXON, RICHARD M., BIRTHPLACE 05/31/73
YORBA LINDA, ORANGE COUNTY, CALIFORNIA
NORRIS, FRANK, CABIN 12/29/62
SANTA CLARA COUNTY, CALIFORNIA
NUESTRA SEÑORA REINA DE LA PAZ 10/08/12
KERN COUNTY, CALIFORNIA
OAK GROVE BUTTERFIELD STAGE STATION 11/05/61
SAN DIEGO COUNTY, CALIFORNIA
OLD CUSTOM HOUSE 12/19/60
MONTEREY, MONTEREY COUNTY, CALIFORNIA
OLD MISSION DAM 05/21/63
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA
OLD SACRAMENTO HISTORIC DISTRICT 01/12/65
SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA
OLD SCRIPPS BUILDING 05/20/82
LA JOLLA, SAN DIEGO COUNTY, CALIFORNIA
OLD UNITED STATES MINT 07/04/61
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
PAMPANITO (USS) 01/14/86
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
PARAMOUNT THEATRE 05/05/77
OAKLAND, ALAMEDA COUNTY, CALIFORNIA
PARSONS MEMORIAL LODGE 05/28/87
TUOLUMNE MEADOWS, TUOLUMNE COUNTY, CALIFORNIA
PETALUMA ADOBE 04/15/70
SONOMA COUNTY, CALIFORNIA

PIONEER DEEP SPACE STATION 10/03/85
FORT IRWIN, SAN BERNARDINO COUNTY, CALIFORNIA
POINT REYES LIFEBOAT STATION 12/20/89
POINT REYES, MARIN COUNTY, CALIFORNIA
PONY EXPRESS TERMINAL 07/04/61
SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA
POTOMAC (Presidential Yacht) 12/14/90
OAKLAND, ALAMEDA COUNTY, CALIFORNIA
PRESIDIO OF SAN FRANCISCO 06/13/62
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
RALPH J. SCOTT (Fireboat) 06/30/89
SAN PEDRO, LOS ANGELES COUNTY, CALIFORNIA
RALSTON, WILLIAM C., HOME 11/13/66
BELMONT, SAN MATEO COUNTY, CALIFORNIA
RANCHO CAMULOS 02/16/00
PIRU, VENTURA COUNTY, CALIFORNIA
RANGER'S CLUB 05/28/87
YOSEMITE VALLEY, MARIPOSA COUNTY, CALIFORNIA
ROGERS DRY LAKE 10/03/85
KERN AND SAN BERNARDINO COUNTIES, CALIFORNIA
ROOM 307, GILMAN HALL, UNIVERSITY OF CALIFORNIA 12/21/65
BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ROSE BOWL 02/27/87
PASADENA, LOS ANGELES COUNTY, CALIFORNIA
ROYAL PRESIDIO CHAPEL 10/09/60
MONTEREY, MONTEREY COUNTY, CALIFORNIA
SAN DIEGO MISSION CHURCH 04/15/70
SAN DIEGO COUNTY, CALIFORNIA
SAN DIEGO PRESIDIO 10/09/60
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA
SAN FRANCISCO BAY DISCOVERY SITE 05/23/68
SAN MATEO COUNTY, CALIFORNIA
SAN FRANCISCO CABLE CARS 01/29/64
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
SAN FRANCISCO CIVIC CENTER 02/27/87
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
SAN FRANCISCO PORT OF EMBARKATION, U.S. ARMY 02/04/85
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
SAN JUAN BAUTISTA PLAZA HISTORIC DISTRICT 04/15/70
SAN JUAN BAUTISTA, SAN BENITO COUNTY, CALIFORNIA
SAN LUIS REY MISSION CHURCH 04/15/70
SAN DIEGO COUNTY, CALIFORNIA
SANTA BARBARA COUNTY COURTHOUSE 04/05/05
SANTA BARBARA, SANTA BARBARA COUNTY, CALIFORNIA
SANTA BARBARA MISSION 10/09/60
SANTA BARBARA, SANTA BARBARA COUNTY, CALIFORNIA
SANTA CRUZ LOOFF CAROUSEL & ROLLER COASTER 02/27/87
SANTA CRUZ, SANTA CRUZ COUNTY, CALIFORNIA
SANTA MONICA LOOFF HIPPODROME 02/27/87
SANTA MONICA, LOS ANGELES COUNTY, CALIFORNIA
SINCLAIR, UPTON, HOUSE 11/11/71
MONROVIA, LOS ANGELES COUNTY, CALIFORNIA
SONOMA PLAZA 12/19/60
SONOMA, SONOMA COUNTY, CALIFORNIA
SPACE FLIGHT OPERATIONS FACILITY 10/03/85
PASADENA, LOS ANGELES COUNTY, CALIFORNIA
SPACE LAUNCH COMPLEX 10 ..... 06/23/86
LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA
STANFORD, LELAND, HOUSE 05/28/87
SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA
STAR OF INDIA (Bark) 11/13/66
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA
STEEDMAN ESTATE (CASA DEL HERRERO) 01/16/09
SANTA BARBARA, SANTA BARBARA COUNTY, CALIFORNIA
SUTTER'S FORT 01/20/61
SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA
SWEDENBORGIAN CHURCH 08/18/04
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA

TAO HOUSE 07/17/71
CONTRA COSTA COUNTY, CALIFORNIA
THE FORTY ACRES 10/06/08
DELANO, KERN COUNTY, CALIFORNIA
TULE LAKE SEGREGATION CENTER 02/17/06
NEWELL, MODOC COUNTY, CALIFORNIA
TWENTY-FIVE-FOOT SPACE SIMULATOR 10/03/85
PASADENA, LOS ANGELES COUNTY, CALIFORNIA
UNITARY PLAN WIND TUNNEL 10/03/85
MOFFETT FIELD, SANTA CLARA COUNTY, CALIFORNIA
UNITED STATES IMMIGRATION STATION, ANGEL ISLAND 12/09/97
TIBURON VICINITY, MARIN COUNTY, CALIFORNIA
UNITED STATES POST OFFICE AND COURT HOUSE (COURT HOUSE FOR THE CENTRAL DISTIRCT OF CALIFORNIA) 10/16/12
LOS ANGLES, CALIFORNIA
U.S. POST OFFICE AND COURT HOUSE (JAMES R. BROWNING U.S. COURT OF APPEALS) 10/16/12
SAN FRANCISCO, CALIFORNIA
USS *Hoga* (*CITY OF OAKLAND*) (Tug) 06/30/89
SUISUN BAY, BENICIA, SOLANO COUNTY, CALIFORNIA
WALKER PASS 07/04/61
KERN COUNTY, CALIFORNIA
WAPAMA (Steam Schooner) 04/20/84
SAN FRANCISCO, SAN FRANCISCO COUNTY, CALIFORNIA
WARNER'S RANCH 01/20/61
SAN DIEGO COUNTY, CALIFORNIA
WATTS TOWERS 12/14/90
LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA
WAWONA HOTEL AND THOMAS HILL STUDIO 05/28/87
WAWONA, MARIPOSA COUNTY, CALIFORNIA
WELL NO. 4, PICO CANYON OIL FIELD 11/13/66
LOS ANGELES COUNTY, CALIFORNIA
YUMA CROSSING AND ASSOCIATED SITES (*Also in Arizona*) 11/13/66
WINTERHAVEN, IMPERIAL COUNTY, CALIFORNIA, and YUMA, YUMA COUNTY, ARIZONA

APPENDIX A

PROPERTIES DETERMINED ELIGIBLE FOR NATIONAL HISTORIC LANDMARK DESIGNATION BY THE SECRETARY OF THE INTERIOR

CALIFORNIA

SADDLE ROCK RANCH PICTOGRAPH SITE 3/16/90
MALIBU, LOS ANGELES COUNTY, CALIFORNIA

APPENDIX B

The numerous designations within the National Park System sometime confuse visitors. The names are created in the Congressional legislation authorizing the sites or by the president, who proclaims "national monuments" under the Antiquities Act of 1906. Many names are descriptive -- lakeshores, seashores, battlefields --but others cannot be neatly categorized because of the diversity of resources within them. In 1970, Congress elaborated on the 1916 National Park Service Organic Act, saying all units of the system have equal legal standing in a national system.

National Park [NP]

These are generally large natural places having a wide variety of attributes, at times including significant historic assets. Hunting, mining and consumptive activities are not authorized.

National Monument [NM]

The Antiquities Act of 1906 authorized the President to declare by public proclamation landmarks, structures, and other objects of historic or scientific interest situated on lands owned or controlled by the government to be national monuments.

National Historic Site [NHS]
Usually, a national historic site contains a single historical feature that was directly associated with its subject. Derived from the Historic Sites Act of 1935, a number of historic sites were established by secretaries of the Interior, but most have been authorized by acts of Congress.

National Historic Park [NHP]
This designation generally applies to historic parks that extend beyond single properties or buildings.

National Memorial [NMem]
A national memorial is commemorative of a historic person or episode; it need not occupy a site historically connected with its subject.

National Battlefield [NB]
This general title includes national battlefield, national battlefield park, national battlefield site, and national military park. In 1958, an NPS committee recommended national battlefield as the single title for all such park lands.

Other Designations [OD]
Some units of the National Park System bear unique titles or combinations of titles, like the White House.

APPENDIX C

NATIONAL PARK SYSTEM UNITS AUTOMATICALLY LISTED IN THE NATIONAL REGISTER

INTERNATIONAL HISTORIC SITE	[IHS]
NATIONAL BATTLEFIELD	[NB]
NATIONAL BATTLEFIELD PARK	[NBP]
NATIONAL BATTLEFIELD SITE	[NBS]
NATIONAL HISTORIC SITES	[NHS]
NATIONAL HISTORICAL PARK	[NHP]
NATIONAL MEMORIAL	[NMEM]
NATIONAL MILITARY PARK	[NMP]
NATIONAL MONUMENT	[NM]

CALIFORNIA
CABRILLO NM
EUGENE O'NEILL NHS
FORT POINT NHS
JOHN MUIR NHS
MANZANAR NHS
ROSIE THE RIVETER- WORLD WAR II HOMEFRONT NHP
SAN FRANCISCO MARITIME NHP

NATIONAL HISTORIC LANDMARKS SURVEY

NATIONAL PARK SERVICE
1849 C Street, N.W. Room NC-400
Washington, DC 20240

LISTING OF NATIONAL HISTORIC LANDMARKS BY STATE

ARIZONA (45)

1956 GRAND CANYON TWA-UNITED AIRLINES AVIATION ACCIDENT SITE....04/22/14
GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

AIR FORCE FACILITY MISSILE SITE 8 (Titan II ICBM Site 571-7)....04/19/94
GREEN VALLEY, PIMA COUNTY, ARIZONA

AWATOVI RUINS....07/19/64
NAVAJO COUNTY, ARIZONA

CASA MALPAIS SITE....07/19/64
APACHE COUNTY, ARIZONA

COLTER, MARY JANE, BUILDINGS....05/28/87
COCONINO COUNTY, ARIZONA

DESERT LABORATORY....12/21/65
PIMA COUNTY, ARIZONA

DOUBLE ADOBE SITE....01/20/61
COCHISE COUNTY, ARIZONA

EL TOVAR....05/28/87
SOUTH RIM, GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

FORT APACHE AND THEODORE ROOSEVELT SCHOOL....03/02/12
FORT APACHE, NAVAJO COUNTY, ARIZONA

FORT BOWIE AND APACHE PASS....12/19/60
COCHISE COUNTY, ARIZONA

FORT HUACHUCA....05/11/76
FORT HUACHUCA, COCHISE COUNTY, ARIZONA

GATLIN SITE....07/19/64
MARICOPA COUNTY, ARIZONA

GRAND CANYON DEPOT....05/28/87
SOUTH RIM, GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

GRAND CANYON LODGE....05/28/87
NORTH RIM, GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

GRAND CANYON PARK OPERATIONS BUILDING....05/28/87
SOUTH RIM, GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

GRAND CANYON POWER HOUSE....05/28/87
SOUTH RIM, GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

GRAND CANYON VILLAGE....02/18/97
SOUTH RIM, GRAND CANYON NATIONAL PARK, COCONINO COUNTY, ARIZONA

HOOVER DAM (*Also in Nevada*)....08/20/85
MOHAVE COUNTY, ARIZONA, and CLARK COUNTY, NEVADA

HUBBELL TRADING POST....12/12/60
GANADO, APACHE COUNTY, ARIZONA

JEROME HISTORIC DISTRICT....11/13/66
JEROME, YAVAPAI COUNTY, ARIZONA

KINISHBA RUINS....07/19/64
GILA COUNTY, ARIZONA

LEHNER MAMMOTH-KILL SITE....05/28/67
COCHISE COUNTY, ARIZONA

LOWELL OBSERVATORY....12/21/65
COCONINO COUNTY, ARIZONA

MERRIAM, C. HART, BASE CAMP SITE....12/21/65
LITTLE SPRINGS, COCONINO COUNTY, ARIZONA

MISSION LOS SANTOS ANGELES DE GUEVAVI....06/21/90
SANTA CRUZ COUNTY, ARIZONA

MURRAY SPRINGS CLOVIS SITE....10/16/12
COCHISE COUNTY, ARIZONA

NAVAJO NATION COUNCIL CHAMBER....08/18/04
WINDOW ROCK, APACHE COUNTY, ARIZONA

OLD ORAIBI....07/19/64
NAVAJO COUNTY, ARIZONA

PAINTED DESERT INN 05/28/87
NAVAJO COUNTY, ARIZONA
PHELPS DODGE GENERAL OFFICE BUILDING 05/04/83
BISBEE, COCHISE COUNTY, ARIZONA
POINT OF PINES SITES 07/19/64
GRAHAM COUNTY, ARIZONA
POSTON ELEMENTARY SCHOOL, UNIT 1, COLORADO RIVER RELOCATION CENTER 10/16/12
LA PAZ COUNTY, ARIZONA
PUEBLO GRANDE RUIN AND IRRIGATION SITES 07/19/64
PHOENIX, MARICOPA COUNTY, ARIZONA
SAGE MEMORIAL HOSPITAL SCHOOL OF NURSING, GANADO MISSION 01/16/09
GANADO, APACHE COUNTY, ARIZONA
SAN BERNARDINO RANCH 07/19/64
COCHISE COUNTY, ARIZONA
SAN CAYETANO DE CALABAZAS 12/14/90
SANTA CRUZ COUNTY, ARIZONA
SAN XAVIER DEL BAC MISSION 10/09/60
PIMA COUNTY, ARIZONA
SIERRA BONITA RANCH 07/19/64
COCHISE AND GRAHAM COUNTIES, ARIZONA
SNAKETOWN 04/29/64
PINAL COUNTY, ARIZONA
TALIESIN WEST 05/20/82
MARICOPA COUNTY, ARIZONA
TOMBSTONE HISTORIC DISTRICT 07/04/61
TOMBSTONE, COCHISE COUNTY, ARIZONA
TUMACACORI MUSEUM 05/28/87
TUMACACORI, SANTA CRUZ COUNTY, ARIZONA
VENTANA CAVE 01/20/64
PIMA COUNTY, ARIZONA
WINONA SITE 07/19/64
COCONINO COUNTY, ARIZONA
YUMA CROSSING AND ASSOCIATED SITES (*Also in California*) 11/13/66
YUMA, YUMA COUNTY, ARIZONA, and WINTERHAVEN, IMPERIAL COUNTY, CALIFORNIA

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NATIONAL BATTLEFIELD SITE	[NBS]
NATIONAL HISTORIC SITES	[NHS]
NATIONAL HISTORICAL PARK	[NHP]
NATIONAL MEMORIAL	[NMEM]
NATIONAL MILITARY PARK	[NMP]
NATIONAL MONUMENT	[NM]

ARIZONA
CANYON DE CHELLY NM
CASA GRANDE RUINS NM
CORONADO NMEM
FORT BOWIE NHS
HOHOKAM PIMA NM
HUBBELL TRADING POST NHS
MONTEZUMA CASTLE NM
NAVAJO NM
PIPE SPRING NM
TONTO NM
TUMACACORI NHP
TUZIGOOT NM
WALNUT CANYON NM
WUPATKI NM

Appendix E
List of Agencies to Receive Copies of Draft and Final Programmatic Environmental Assessments

Federal Agencies

Nancy Sutley, Chair
Council on Environmental Quality
722 Jackson Place, NW
Washington, DC 20503

Michael L. Connor, Commissioner
Bureau of Reclamation
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240

Alexandra Pitts, Deputy Regional Director-
Region 8
U.S. Fish and Wildlife Service
Federal Building
2800 Cottage Way, Room W-2606
Sacramento, California 95825-1846

Benjamin Tuggle, Regional Director
Region 2
U.S. Fish & Wildlife Service
P.O. Box 1306
Albuquerque, NM 87103-1306

Rod McInnis, Regional Administrator
National Marine Fisheries Service
Southwest Region
501 West Ocean Blvd., Suite 4200
Long Beach, CA 90802-4213

Michael S. Jewell
Chief, Regulatory Branch
Sacramento District
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, CA 95814

David J. Castanon
Chief, Regulatory Branch
Los Angeles District
U.S. Army Corps of Engineers
911 Wilshire Boulevard, 11th Floor
Los Angeles, CA 90017

Jane Hicks
Chief, Regulatory Branch
San Francisco District
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, CA 94103

Jared Blumenfeld
Regional Administrator
U.S. EPA Region 9
75 Hawthorne Street
San Francisco, CA, 94105

State Agencies

Arizona

Wendy Smith-Reeve
Director
Arizona Division of Emergency Management
5636 E. McDowell Road
Phoenix, Arizona 85008-3495

James Garrison
State Historic Preservation Officer
SHPO Administrative Assistant
Arizona State Parks
1300 W. Washington Street
Phoenix, AZ 85007

California

Mark S. Ghilarducci,
Secretary CALEMA
California Governor's Office of Emergency Services
3650 Schriever Avenue
Mather, California 95655

Carol Roland-Nawi, Ph.D
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 942896
Sacramento, California 94296

State Clearinghouse
Governor’s Office of Planning and Research
P.O. Box 3044
Sacramento, CA 95812-3044

Nevada

Chris Smith
Chief
Nevada Division of Emergency Management
2478 Fairview Dr
Carson City, Nevada 89701

Rebecca L. Palmer,
Acting State Historic Preservation Officer
Nevada State Historic Preservation Office
901 S. Stewart Street, Suite 5004
Carson City, NV 89701-4285

Skip Canfield
Nevada Division of State Lands
901 S. Stewart St, Ste 5003
Carson City, NV 89701-5246