Draft Programmatic Environmental Assessment

IPAWS Construction Project

April 2010

Federal Emergency Management Agency
Department of Homeland Security
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Washington, DC 20472

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Figures

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List of Acronyms

ACHP	Advisory Council on Historic Preservation
AGL	above ground level
APE	Area of Potential Effect
AQCR	air quality control region
ASD	acceptable separation distance
AST	Aboveground Storage Tank
BA	Biological Assessment
BMP	best management practice
CAA	Clean Air Act
CATEX	categorical exclusion
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resource System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
DHS	Department of Homeland Security
EA	Environmental Assessment
EHP	Environmental and Historic Preservation
EHS	Extremely Hazardous Substance
EIS	Environmental Impact Statement
EO	Executive Order
EPCRA	Emergency Planning and Community Right to Know Act
ESA	Endangered Species Act
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GCR	General Conformity Rule
HUD	Department of Housing and Urban Development
Hz	hertz
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NEHRP	National Earthquake Hazard Reduction Program
NEPA	National Environmental Policy Act of 1969
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Asssociation
NHPA	National Historic Preservation Act

NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service of the U.S. Department of Interior
NRCS	Natural Resources Conservation Service
NWP	Nationwide Permits
O_3	ozone
PA	Programmatic Agreement
Pb	lead
PEA	Programmatic Environmental Assessment
PM_{10}	particulate matter equal to or less than 10 micrometers in aerodynamic diameter
$PM_{2.5}$	particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Considerations
SDWA	Safe Drinking Water Act
SEA	Site-specific Environmental Assessment
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
TIP	Tribal Implementation Plan
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
VSAT	Very Small Aperture Terminal

Section One Program Background

The Emergency Broadcast System (EBS) was established in 1963 to replace the nation's first alert and warning system called CONELRAD. The EBS allowed the President or State and local officials to send out alerts while radio stations continued to operate on their assigned frequencies. In 1979 the President transferred the responsibility of maintaining the EBS from the Department of Commerce to FEMA through Executive Order 12127.

In 1990 the Primary Entry Point Advisory Committee (PEPAC) was established by FEMA to help manage thirty-four (34) EBS Primary Entry Point (PEP) stations across the U.S. In 1994 the Emergency Alert System (EAS) was initiated and replaced the EBS by 1997. Other warning systems were developed throughout the Federal government such as National Warning System, the Digital EAS program with the Association of Public Television Stations, the Web Alert and Relay Network (WARN) pilot, and the Geo-Targeted Alerting System (GTAS) with NOAA.

The September 15, 1995 Presidential Memorandum to the Director of FEMA, regarding the Emergency Alert System (EAS) Statement of Requirements, requires FEMA to:

i. Act as the White House Military Office's Executive Agent for the development, operations, and maintenance of the national-level EAS;
ii. Bring the Primary Entry Point (PEP) system up to full operational capability and ensure compatibility with the state and local EAS.
iii. Phase out dedicated circuitry and associated equipment of the Emergency Action Notification (EAN) network and incorporate the network nodes into the national-level EAS as required.
iv. Prepare guidance concerning the definition and use of Priority Four, and enhance procedures to disseminate National Emergency Information Programming.
v. Conduct tests and exercises.
vi. Ensure the national-level EAS keeps pace with emerging technologies through the use of low-cost innovative techniques.

After the terrorist attacks of September 11, 2001 and the devastating aftermath of Hurricane Katrina, a paradigm shift occurred in how Homeland Security is perceived and, especially, how alert and warning is handled. The traditional approach using only television, radio, and outdoor alarms no longer suffices. A multi-pathway, multi-media approach to keeping the public informed in a timely fashion has been adapted. The Integrated Public Alert and Warning (IPAWS) program was initiated in 2004 and established in 2006 according to the direction within the Hurricane Katrina Lessons Learned Report.

On June 26, 2006 the President issued Executive Order (EO) 13407 requiring "an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well being." The Integrated Public Alert and Warning (IPAWS) Program Management Office (PMO) was established in 2007 to execute the policy established in EO 13407. IPAWS will:

i. Inventory, evaluate, and assess the capabilities and integration with the public alert and warning system of federal, state, territorial, tribal and local public alert

and warning resources.

ii. Establish or adopt, as appropriate, common alerting and warning protocols, standards, terminology and operating procedures for the public alert and warning system to enable interoperability and the secure delivery of coordinated messages to the American people through as many communication pathways as practicable, taking account of Federal Communications Commission rules as provided by law.

iii. Ensure the capability to adapt the distribution and content of communications on the basis of geographic location, risks or personal user preferences, as appropriate.

iv. Include in the public alert and warning system the capability to alert and warn all Americans, including those with disabilities and those without an understanding of the English language.

v. Through cooperation with the owners and operators of communication facilities, maintain, protect, and, if necessary, restore communications facilities and capabilities necessary for the public alert and warning system.

vi. Ensure the conduct of training, tests and exercises for the public alert and warning system.

vii. Ensure the conduct of public education efforts so that state, territorial, tribal and local governments; the private sector and the American people understand the functions of the public alert and warning system and how to access, use and respond to information from the public alert and warning system.

viii. Consult, coordinate and cooperate with the private sector, including communications media organizations, and federal, state, territorial, tribal and local governmental authorities, including emergency response providers, as appropriate.

ix. Administer the Emergency Alert System (EAS) as a critical component of the public alert and warning system

x. Ensure that under all conditions the President of the United States can alert and warn the American people.

The IPAWS Program goal is to identify, develop, and/or adopt appropriate standards to enable implementation of interoperable public alert and warning systems, to identify technologies and standards that improve security, reliability, addressability, accessibility, interoperability, coverage, and resilience of the public alert and warning systems, and to integrate these capabilities via a common IPAWS Aggregator.

The IPAWS Program is organized in to several major concurrent and incremental projects that in coordination and partnership with other federal, state, and local stakeholders integrate and improve all aspects of public alert and warning. The three components of the IPAWS architecture are:

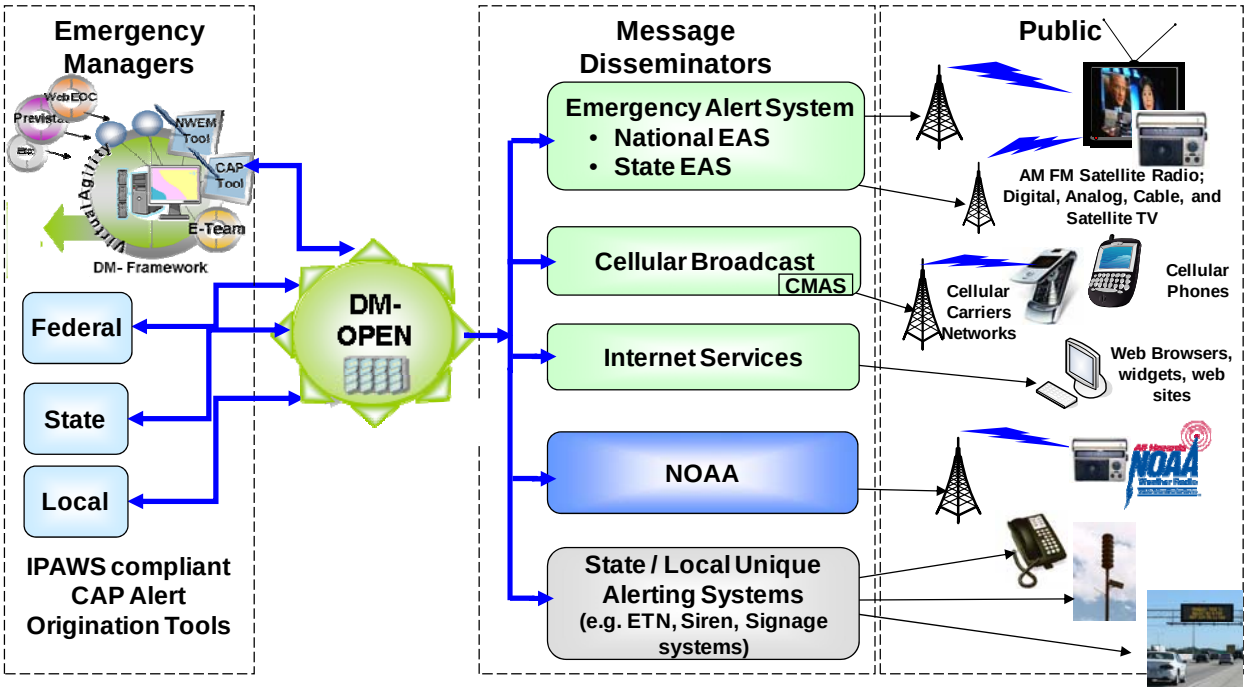
i. Implementation of Standards and the Common Alerting Protocol facilitating integration of Federal/State/Local alert and warning systems.

ii. Provision of Geo-targeted broadcast alerts to multiple media devices and creation of a gateway and aggregator infrastructure. The major IPAWS projects serving this component are IPAWS Aggregator which leverages the FEMA DM OPEN and DAIP Programs, coordination efforts with NOAA and special studies.

iii. Expansion of direct coverage to 90% of the US population to include additional redundant transmission paths to PEP stations, and digital CAP based alert message distribution. This effort is being accomplished under the EAS PEP Modernization and Expansion Project.

The IPAWS objective to provide timely alert and warning to the American people in the preservation of life and property will require that DHS work in coordination with other Federal, state, territorial, tribal, and local (FSTTL) stakeholders, as well as the private sector, to provide a coordinated, consistent alert system capable of reaching more people (to include those with disabilities and those who do not have an understanding of the English language). The system will function at all times, over more communications channels, and in all locations throughout the United States. Figure 1 illustrates an operational view of the public alert and warning system.

Figure 1-1: Public Alert and Warning System



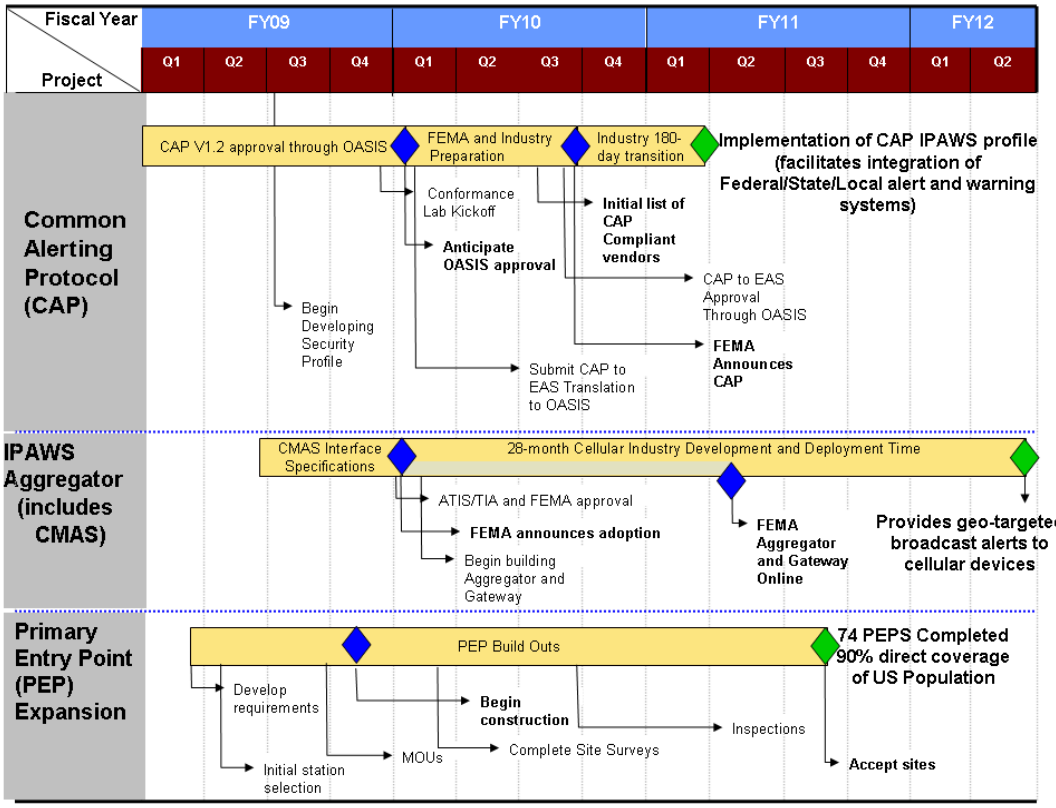
The Emergency Alert System component of the IPAWS Message Disseminators depicted in Figure 1 above includes the Primary Entry Point (PEP) system. This system is a nationwide network of broadcast stations and other entities and components connected with government activation points. It is used to distribute the Emergency Action Notification (EAN), Emergency Alert Termination (EAT), and EAS national test messages, and other EAS messages to people during times of crisis. The EAS PEP modernization effort is a critical component of IPAWS that will strengthen and improve the EAS by expanding the current stations, improving maintenance, redundancy and survivability to selected broadcast stations. The PEP system capability is required to be "an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well being."

From 2009-2012, the IPAWS PMO will expand the number of participating PEP stations incrementally each year for a total of at least 74 stations. The US Army Corps of Engineers (USACE) will be responsible for at least 32 of the new stations and the Primary Entry Point Advisory Council (PEPAC) will construct 6 stations under existing program grants. Initial expansion will address known gaps in population coverage. The end goal is to maximize coverage of the United States population to at least 90%. The IPAWS program will continue to integrate or replace existing EAS paths with new communications pathways in a systems approach to broaden the diversity of broadcast mediums able to directly receive a national message and to increase the types of communications pathways providing delivery of alert and warning messages to the American people.

The project includes selection and recommendation of broadcast facilities and the establishment of a business relationship with the USACE through an Inter Agency Agreement (IAA), a Memorandum of Understanding (MOU) with the PEPAC and an Equipment Loan Agreement (ELA) with station owners establishing the specific work to be performed at each location. This body of work is inclusive of technical assistance, design services, construction of modular facilities, back-up power systems including fuel storage, shelter systems, and installation of protected communications systems and program origination equipment.

PEP stations are expected to remain operational for an extended period following an event without additional external support or provisions. Broadcast station operation requires more than power and a functioning transmitter and antenna system. Operating broadcast stations require some sort of program material to broadcast. An event with sufficient impact to require a transmitting facility to operate for two months on generator power alone will most likely have a severe negative impact on any remotely located studio facilities. The PEP program makes arrangements to deliver national emergency messages to PEP transmitting facilities but only for the relatively short time that the President is addressing the nation. In the event of a disaster of national proportions there will need to be state, regional, and local response and recovery information transmitted as well. Some personnel, familiar with the transmitting facility will need to be available on-site or in close proximity to support state, territorial, tribal and local emergency programming. Program origination equipment and operational space supported by generator power is also required to be in close proximity to the transmitting facility.
The IPAWS architecture can be decomposed into three primary, integrated components, the Common Alerting Protocol (CAP), the IPAWS Aggregator, and Primary Entry Point (PEP) Expansion. The expansion of PEP stations is estimated to be completed by Q4 FY11.

Figure 1-2: IPAWS Capability Timeline



Section Two Use of this Programmatic Environmental Assessment

The National Environmental Policy Act of 1969, 42 U.S.C. § 4321 *et seq.*, (NEPA) mandates that Federal agencies take into account the effects of their actions, including programs, regulations, policies, and grant-funded specific projects, on the quality of the human environment. The Council on Environmental Quality (CEQ) has established NEPA Implementing Regulations at 40 Code of Federal Regulations (CFR) 1500 *et seq.* for meeting these requirements, and each Federal agency has developed its own implementing procedures specific to its mission. FEMA's procedures are found at 44 CFR Part 10. They contain a list of actions, referred to as Categorical Exclusions (CATEX), that typically do not individually or cumulatively have significant impacts on the human environment. An action that would normally qualify for a CATEX may have extraordinary circumstances that disqualify it from the CATEXs applicability. FEMA's list of extraordinary circumstances can be found at 44 CFR 10.8(d)(3). Actions that are not covered by a CATEX or actions covered by a CATEX that have unresolved extraordinary circumstances require the preparation of an Environmental Assessment (EA) under NEPA to determine the nature and extent of impacts of the action and determine whether the action has significant impacts on the quality of the human environment. An Environmental Impact Statement (EIS) is required when an action will have a significant impact on the quality of the human environment.

The CEQ regulations at 40 CFR §§ 1500.4(i), 1502.4 and 1502.20 encourage the development of program-level NEPA environmental documents and tiering for eliminating repetitive discussions and to focus on the issues specific to the subsequent action. FEMA has developed this Programmatic Environmental Assessment (PEA) under this CEQ authority.

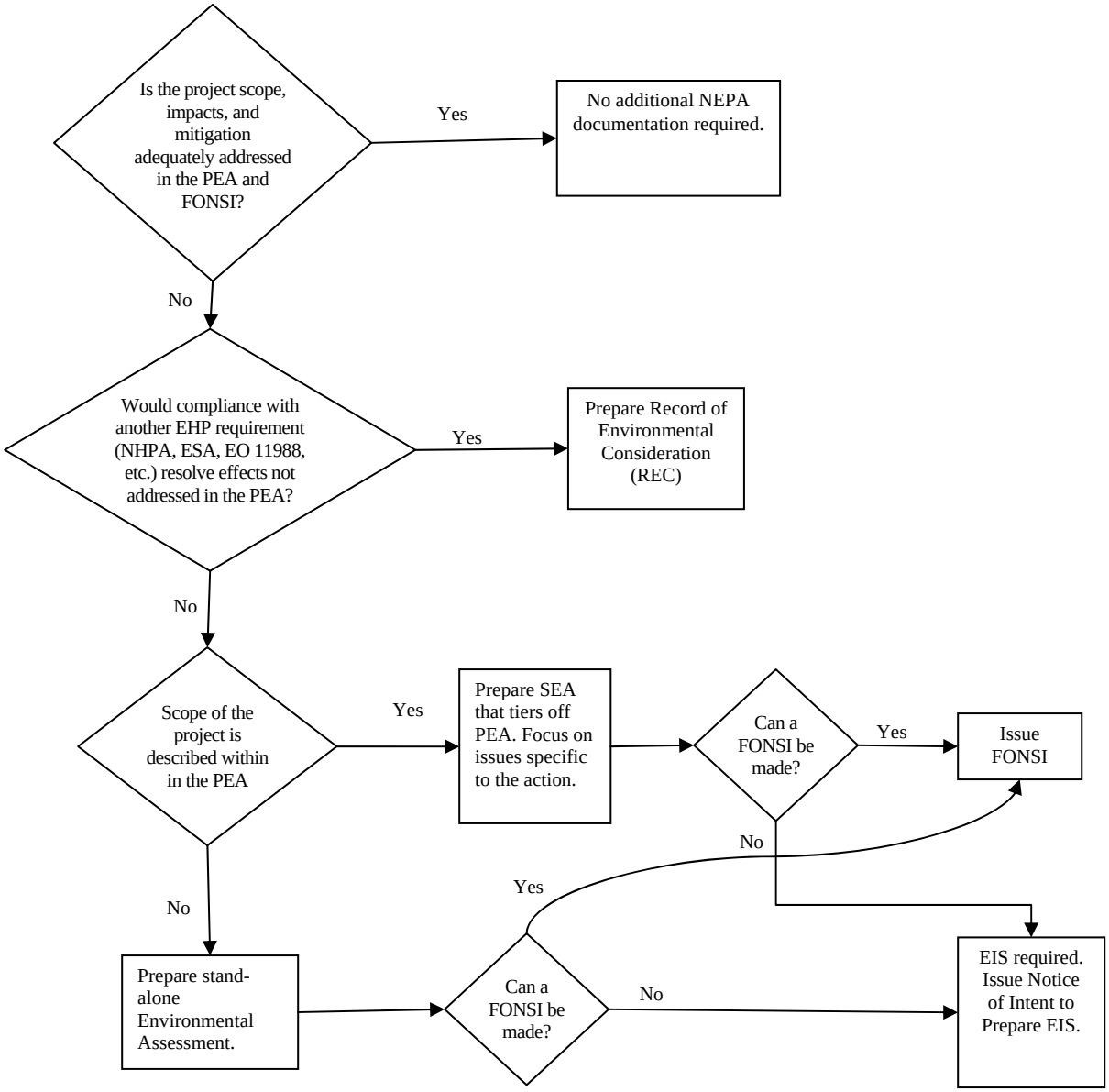
This PEA will also facilitate FEMA's compliance with other environmental and historic preservation requirements by providing a framework to address the impacts of actions typically funded to aid in national preparedness. FEMA coordinates and integrates to the maximum extent possible the review and compliance process required under similar requirements such as the Section 106 of the National Historic Preservation Act (NHPA), Section 7 of the Endangered Species Act (ESA), the eight step process of the Executive Order 11988 and 11990, and others. This PEA provides a framework on how FEMA integrates these requirements with NEPA.

Finally, the PEA provides the public and decision-makers with the information required to understand and evaluate the potential environmental consequences of these national preparedness actions. This PEA meets the NEPA goals of impact identification and disclosure and addresses the need to streamline the NEPA review process in the interest of national preparedness.

If the project meets the scope, impacts and mitigation covered in this PEA, then no further NEPA documentation will be required. If the scope is covered but additional coordination is required under another environmental planning requirement such as Section 106 of NHPA or Section 7 of ESA then FEMA will meet the environmental requirement and document through a Record of Environmental Considerations. If the scope is not covered or the site-specific impacts are not reflected in this PEA or there are questions regarding the significance of the site-specific impacts then FEMA will tier a Site-specific EA of this PEA with the information and provide a 15-day

comment period to determine whether a Finding of No Significant Impact (FONSI) can be issued or whether an Environmental Impact State is required.

Figure 2-3: Use of PEA in FEMA's Review



Section Three Purpose and Need

3.1 Purpose

Section 202 of the Robert T. Stafford Relief and Emergency Assistance Act, 42 U.S.C. § 5121 et seq., authorizes FEMA to enter into agreements with the officers or agents of any private or commercial communications systems who volunteer the use of their systems for the purpose of providing warning to governmental authorities and the civil population endangered by disasters. The Hurricane Katrina Lessons Learned Report identified the need for an integrated public alert and warning system in coordination with all relevant departments and agencies. Recently the President issued Executive Order (EO) 13407: Public Alert and Warning System (June 2006) to establish an effective, reliable, integrated, flexible and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well-being. The DHS, in coordination with other Departments and Agencies, will implement this integrated public alert and warning system policy and has directed FEMA to lead the EO implementation and support efforts.

3.2 Need

The Nation needs radio stations that have robust and survivable power generation, fuel storage and other provisions deemed necessary to operate and maintain their transmitter facilities for an extended period without the availability of commercial power. This PEP station network is central to the EO 13407 requirement for the establishment of an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well being.

Section Four Alternatives

4.1 Alternative 1: No Action

FEMA has included a No Action Alternative to provide a benchmark against which the proposed alternative may be evaluated. Under the No Action Alternative, FEMA would not implement the IPAWS activities and would not ensure that selected radio stations across the country operate and maintain their transmitter facilities for an extended period without the availability of commercial power. It is assumed that the proposed program or project would not be implemented by the State, Territory, local, or Tribal government or private entity due to lack of Federal commitment.

4.2 Alternative 2: Facility Upgrades and Minor Construction in Previously Disturbed Areas

Under this alternative FEMA would upgrade selected radio stations to ensure that their transmission capabilities are maintained for an extended period without the availability of commercial power in an event of man-made or natural disaster. Work may involve the removal of underground fuel storage tanks (UST) and above ground fuel storage tanks (AST) if the UST/AST was a government fuel tank installed during previous programs and requires replacement. Removal and replacement of existing backup generators on sites where the existing generator is not reliable may also be required as well as upgrade of existing Automatic Transfer Switch (ATS) on sites where no bypass isolation is present, upgrade of TVSS (suppression system) where not present or adequate and replacement of existing ATS and TVSS if required. Work may also involve the establishment of modular systems and connection of the modular systems with existing power panels in building for standby power.

The activity may also involve providing a new low power, secondary transmitter system with backup power and supporting fuel storage. This consists of ground disturbance and construction related work associated with the creating foundations and the placement of a pre-cast concrete module with 35 KW generator system (approximate size of 10 ft. x 14 ft.), creating foundations and the placement of another pre-cast concrete shelter module with backup transmitter equipment (approximate size is 10 ft. x 16 ft.), placement of a fully compliant double walled above ground fuel storage tank and distribution (fuel storage will range in size from 4,000 gal. to 10,000 gal.), trenching for underground utilities for commercial power (electrical and RF radio cables) from existing building underground (24 in. deep trench), concrete pad for Very Small Aperture Terminal (VSAT), when needed or the addition of a small antenna (less than 3 meters tall) to the structure for VSAT capabilities, providing security fencing around the facility (with posts going 24 in. deep), and providing geotech fabric and gravel inside of the fence around the new modular facilities.

The expected size of the total fenced compound with the new modules and fuel storage is about 40 ft. x 50 ft. Some sites the layout may change based on local topography but overall coverage is about the same. Foundations, site utilities and fencing will be installed in a phased approach. Foundation depth for the modules and fuel tank are expected to be between 12 in. – 24 in. depending on local frost lines and codes. Project will meet with applicable storm water prevention requirements (SWPPP) and other environmental management compliance requirements (e.g. SPCC plans, etc.).

This alternative involves minor construction in previously disturbed areas. The action would take place within the lot where the transmitter facility is located but may occur outside the boundaries of the facility.

4.3 Alternative 3: Facility Upgrades and Minor Construction in Undisturbed Areas

This alternative is similar in scope to Alternative 2 but actions construction, including ground disturbing work, would occur in previously undisturbed portions of the lot where the transmitter facility is located. Work in these areas would involve removal of vegetation including removal of trees, trenching, excavation, placement of fences (including driving of fence poles in the ground), and displacement of permeable surfaces by the pre-cast concrete modules.

Summary of Impacts

Area of Evaluation	Alternative 1: No Action	Alternative 2: Facility upgrades and minor construction in previously disturbed areas	Alternative 3: Facility upgrades and minor construction in undisturbed areas
Land Use	No effect	No effect.	Minor impacts on land cover due to the change from vegetated and permeable surfaces to developed and impermeable surfaces.
Geology, Soils, and Seismicity	No effect	Moderate impacts for projects not located in areas susceptible to seismic, volcanic, tsunamis, landslide or mudslide activity, structural instability, excessive erodibility or steep slopes. Negligible impacts on soil.	Moderate impacts for projects not located in areas susceptible to seismic, volcanic, tsunamis, landslide or mudslide activity, structural instability, excessive erodibility or steep slopes. Minor impacts on soil.
Water Quality and Resources	No effect	Negligible impacts on water quality and resources.	Minor impacts on water quality and resources due to the permanent removal of vegetation.
Floodplains	No effect	Minor impacts on the floodplain. Moderate impacts on the facility if located within the 500 year floodplain. Impacts from and to floodplains will be minimized in accordance with requirements in 44 CFR Part 9.	Minor impacts on the floodplain. Moderate impacts on the facility if located within the 500 year floodplain. Impacts from and to floodplains will be minimized in accordance with requirements in 44 CFR Part 9.
Wetlands	No effect	Minor temporary impacts on wetlands. Impacts on wetlands will be minimized in accordance with requirements in 44 CFR Part 9.	Minor to moderate impacts on wetlands if actions are taken near or within wetlands. Impacts on wetlands will be minimized in accordance with requirements in 44 CFR Part 9.
Biological Resources	No effect	Negligible impacts on vegetation, fish and wildlife, listed species or critical habitat.	Minor to moderate impacts on vegetation, fish and wildlife, listed species or critical habitat. FEMA would minimize impacts to floodplains and wetlands and biological resources dependent on these environments.
Human Health and Safety	Moderate impacts.	Minor adverse impacts. FEMA would avoid stations that are contaminated and require remediation. Facilities will have SPCC plans and AST will be located at acceptable separation distance from places people gather or woody	Minor adverse impacts. FEMA would avoid stations that are contaminated and require remediation. Facilities will have SPCC plans and AST will be located at acceptable separation distance from places people gather or woody

Area of Evaluation	Alternative 1: No Action	Alternative 2: Facility upgrades and minor construction in previously disturbed areas	Alternative 3: Facility upgrades and minor construction in undisturbed areas
		structures or vegetation.	structures or vegetation.
Low-income and minority populations	Moderate impacts.	Negligible impacts.	Negligible impacts.
Historic Properties	No effect	Some actions may be exempted from Section 106 under FCC Nationwide Programmatic Agreement. Minor to moderate impacts when undertakings adversely affect historic properties.	Some actions may be exempted from Section 106 under FCC Nationwide Programmatic Agreement. Minor to moderate impacts when undertakings adversely affect historic properties.
Air Quality	No effect	Minor adverse impacts.	Minor adverse impacts.
Noise	No effect	Minor adverse effects.	Minor adverse effects.

Section Five Affected Environment and Impact Evaluation

This section combines the baseline conditions and environmental impacts of the various alternatives. Due to the nationwide programmatic approach of this analysis FEMA is providing a regulatory background and other special considerations for a particular area of concern as opposed to a description of the current conditions of the Nation's environmental resources. In the impacts analysis for the alternatives FEMA provides a description of the impacts of the action based on the following scale:

- No effect – no discernible effect is expected.
- Negligible effect – the effect is so small that it cannot be measured in meaningful way.
- Minor effect – the effect is measurable but would be minor.
- Moderate effect – the effect is measurable and may require mitigation to be adequately addressed.
- Significant impact – the effects meets the criteria for significance as defined in the Council on Environmental Quality's NEPA implementation regulations in 40 C.F.R. 1508.27.

Table 5-1 shows FEMA's criteria for determining whether significant impacts will be triggered under this program and alternatives.

Table 5-1. Criteria for determining significance for IPAWS and in this PEA

Area of Evaluation	No Significant Effect	Significant Effect
Land Use	Impacts to land use would not be measurable or would be measurable or perceptible, but would be limited to a relatively small change in land use that is still consistent with surrounding or planned land uses. The proposed action and alternatives would be consistent with respective State Coastal Zone Management plans, CBRA and FPPA. or Mitigation measures are used to reduce the level of impacts below the level of significance.	The proposed action will significantly change the surrounding land uses in the short- and long-term. or The proposed action and alternatives would not be consistent with the surrounding land use and the local land use agency requires a special land use permit or waiver. or The proposed action and alternatives would not be consistent State Coastal Zone Management plans or CBRA or The proposed action and alternatives would cause significant impacts to prime and unique farmland.
Geology, Soils, and Seismicity	Impacts to geology, soils, and seismicity as a result of the proposed action or alternatives would not be detectable or detectable and steps are taken in order to minimize adverse impacts. Projects proposed in areas characterized by susceptibility to seismic, volcanic, tsunamis, landslide or mudslide activity, structural instability, excessive erodibility, or steep slopes are mitigated. or Mitigation measures are used to reduce the level of impacts below the level of significance.	Impacts on geology, soils, and seismicity as a result of the proposed action or alternatives would be readily apparent and result in a change to the character of the resource over a relatively wide area. Or Projects proposed in areas characterized by susceptibility to seismic, volcanic, tsunamis, landslide or mudslide activity, structural instability, excessive erodibility, or steep slopes are not mitigated.
Water Quality and Resources	Impacts (chemical, physical, or biological effects) resulting from the proposed action or alternatives would be either not detectable, or detectable, but at or below water quality standards or criteria. Alterations in water quality and hydrologic conditions relative to historical baseline may occur, however, only on a localized and	Impacts (chemical, physical, or biological effects) resulting from the proposed action or alternatives would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be locally, slightly and singularly,

Area of Evaluation	No Significant Effect	Significant Effect
	short-term basis. or Mitigation measures are used to reduce the level of impacts below the level of significance.	exceeded on either a short-term or prolonged basis.
Floodplains	Activities are not in the floodplain. Or Adverse effects to or from the 100-year floodplain for non-critical actions or adverse effects to or from the 500-year floodplain for critical actions are present. Adverse effects are minimized in accordance with FEMA's minimization standards in 44 CFR 9.11. Or Mitigation measures are used to reduce the level of impacts below the level of significance.	Adverse effects to or from the 100-year floodplain for non-critical actions or adverse effects to or from the 500-year floodplain for critical actions are present. Adverse effects are not minimized in accordance with FEMA's minimization standards in 44 CFR 9.11.
Wetlands	Actions are not taken in wetlands. or Adverse effects from the project to wetlands will occur but effects are minimized in accordance with FEMA's minimization standards in 44 CFR 9.11. Water quality and hydrologic changes resulting from such development would either be not detectable, or detectable, but at or below water quality standards or criteria. Alterations in water quality and hydrologic conditions relative to historical baseline may occur as a result of wetland loss. For jurisdictional wetlands FEMA will notify the USACE and obtain any required permits prior to the initiation of work. or Mitigation measures are used to reduce the level of impacts below the level of significance.	Adverse effects from the project to wetlands will occur. Adverse effects are not minimized in accordance with FEMA's minimization standards in 44 CFR 9.11. Impacts to water quality and hydrology would be detectable and would be frequently altered from the historical baseline or desired water quality conditions. The USACE determines that an EIS is required before an Individual Permit may be issued for jurisdictional wetlands.
Biological Resources	Impacts to native species, their habitats, or the natural processes sustaining them from the proposed action or alternatives would be detectable, but would not be expected to be outside the natural range	Impacts from the proposed action or alternatives on native species, their habitats, or the natural processes sustaining them would be detectable, and would be expected to be outside the natural range of

Area of Evaluation	No Significant Effect	Significant Effect
	of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species. Or Effects on listed species or designated critical habitat are insignificant, discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or beneficial. During consultation, FWS or NMFS provides written concurrence of "not likely to adversely affect." or Mitigation measures are used to reduce the level of impacts below the level of significance.	variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species. Or A determination is issued that the action will jeopardize the continued existence of a species or adversely modify critical habitat and the agency will proceed with the action. Or There will be take of a migratory bird without the appropriate permit by FWS.
Human Health and Safety	Hazardous or toxic materials and/or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no short- or long-term adverse impacts to public safety and homeland security preparedness. or Mitigation measures are used to reduce the level of impacts below the level of significance.	A net increase in the amount of hazardous or toxic materials and/or wastes to be handled, stored, used, or disposed of, resulting in unacceptable risk, exceedence of available waste disposal capacity, or probable regulatory violation(s). Site contamination conditions could preclude development of sites for the proposed use. Public safety and homeland security preparedness would be compromised and vulnerabilities would increase.
Low-income and minority populations	There would be no disproportionately high and adverse environmental or health effects to low-income and/or minority populations, or any disproportionate effects would be mitigated. or Mitigation measures are used to reduce the level of impacts below the level of significance.	There would be unmitigated disproportionately high and adverse environmental and health impacts to low-income populations, minority populations.
Historic	No historic properties are affected.	The integrity of an NRHP eligible or listed property would be diminished or destroyed and effects would not be mitigated below

Area of Evaluation	No Significant Effect	Significant Effect
Properties	or The historic characteristics or setting of an NRHP eligible or listed property are altered, or have the potential to be altered, but the resource retains its integrity. or Mitigation measures are used to reduce the level of impacts below the level of significance.	the level of significance.
Air Quality	Emissions from the proposed action or alternatives for NAAQS in nonattainment and maintenance areas would be less than excedence levels as defined in Table 3.3. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Or Mitigation measures are used to reduce the level of impacts below the level of significance.	Emissions from the proposed action or alternatives for NAAQS would be greater than the exceedance levels for nonattainment and maintenance areas. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS.
Noise	Noise levels resulting from the proposed action or alternatives would exceed natural sounds, as described under no effect, but would not exceed typical noise levels from construction equipment or generators. Noise generated by construction and operation of the facility would be temporary or short-term in nature. Or Mitigation measures are used to reduce the level of impacts below the level of significance.	Noise levels would exceed typical noise levels from construction equipment and generators on a permanent basis or for a prolonged period of time.

5.1 Land Use

5.1.1 Regulatory Framework

Land use is the way in which, and the purposes for which, people utilize the land and its resources. Land use planning varies depending on land ownership and jurisdictional boundaries. Land use within and in the immediate vicinity of urban areas is generally guided by comprehensive plans that specify the allowable types and locations of present and future land use. In most cases, that comprehensive plan is developed through a public participation process and approved by publicly-elected officials to capture local values and attitudes toward planning and future development. Zoning ordinances and regulations vary throughout the U.S. and are primarily set at the regional, city, county, or local level.

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

The Federal Consistency provision, contained in Section 307 of the CZMA, allows affected states to review Federal activities to ensure that they are consistent with the state's coastal zone management program. This provision also applies to non-Federal programs and activities that use Federal funding and that require Federal authorization. Any activities that may have an effect on any land or water use or on any natural resources in the coastal zone must conform to the enforceable policies of the approved state coastal zone management program. NOAA's regulations in 15 CFR 930 provide the procedures for arriving or obtaining a consistency determination.

The Coastal Barrier Resources Act (CBRA) of 1982 (16 U.S.C. § 3501 *et seq*.), administered by the U.S. Fish and Wildlife Service (FWS), was enacted to protect sensitive and vulnerable barrier islands found along the U.S. Atlantic, Gulf, and Great Lakes coastlines. The CBRA established the Coastal Barrier Resources System (CBRS), which is composed of undeveloped coastal barrier islands, including those in the Great Lakes. With limited exceptions, areas contained within a CBRS are ineligible for direct or indirect Federal funds that might support or promote coastal development, thereby discouraging development in coastal areas.

Prime and unique farmlands and farmlands of state and local importance are protected under the Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 4201 *et seq*.). Prime farmland is characterized as land with the best physical and chemical characteristics for the production of food, feed, forage, fiber and oilseed crops. Prime farmland is either used for food or fiber crops or is available for those crops; it is not urban, built-up land, or water areas. Unique farmland is defined as land that is used for the production of certain high-value crops, such as citrus, tree nuts, olives, and fruits. The FPPA requires Federal agencies to examine the potentially adverse effects to these resources before approving any action that would irreversibly convert farmland to non-agricultural uses. This examination is done in consultation with the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS), who uses a land evaluation and site assessment system to complete a Farmland Conversion Impact Rating Form (Form AD-1006). Federal regulations at 7 CFR 658 describe the process for this analysis.

5.1.2 Impact Evaluation

5.1.2.1 Alternative 1: No Action

No effects are expected under the no action alternative for land use.

5.1.2.1 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

No effects are expected on land use because these actions occur on sites that already have transmitters in place and have been dedicated for these purposes. Projects will be consistent with CZMA and enforceable policies of the approved coastal zone management plans because the actions, including minor construction, will occur in previously developed areas. FEMA will not undertake activities in CBRS units. Actions under this alternative are not expected to convert prime and unique farmland because land would be already developed.

5.1.2.1 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

Actions under this alternative will not alter the zoning or land use for the lot. These activities are in support of the transmitter sites that are already in place. However, the land cover may change from vegetated (including woody vegetation) to developed and from permeable surfaces to impermeable surfaces. This alternative will have permanent minor adverse impacts on land use because the amount of land cover to be impacted is relatively small.

FEMA is prohibited from providing assistance for new construction activities in CBRS units. Some activities may be located within a State's designated coastal zone. FEMA will make a consistency determination when the propose project occurs within a State's designated coastal zone and affects coastal uses identified in the approved coastal management plan such as presence of wetlands.

The majority of actions under this alternative will be less than an acre and in non-agricultural lands. Therefore, the action does not have the potential to affect prime and unique farmland. This would fall outside the applicability of the FPPA and its regulation as it would be construction of

minor new ancillary structures such as garages and sheds. *See* 7 C.F.R. § 658.3(c). If a proposed new construction project will convert more than 1 acre of prime and unique farmland to non-agricultural use, FEMA will conduct the required assessment (Form AD-1006) and consult with NRCS when necessary. If the Form AD-1006 indicates that the proposed project will score more than 160 points, then FEMA will document this finding in either a REC or a site-specific SEA, depending on the nature and magnitude of the potential impacts.

5.2 Geology, Soils and Seismicity

5.2.1 Regulatory Framework

The geology of an area refers specifically to the surface and near-surface materials of the earth and to how those materials were formed. These resources are typically described in terms of regional or local geology, including mineral resources, earth materials, soil resources, and topography.

Descriptions of these resource areas include bedrock or sediment type and structure, unique geologic features, depositional or erosional environment, and age or history. Mineral resources include usable geological materials that have some economic or academic value. Soil is the unconsolidated loose covering of broken rock particles and decaying organic matter overlying the bedrock or parent material. Soils are typically described by their complex type, slope, and physical characteristics. Topography consists of the geomorphic characteristics of the land or sea floor surface, including the change in vertical elevation of the earth's surface across a given area, the relationship with adjacent land features, and geographic location (USCG 2006).

Soil characteristics within an area depend on the parent material located in that area. Soil characteristics vary across the U.S. and its territories. Areas with similar soils are grouped and labeled as soil series because of their similar origins and chemical and physical properties, which cause the soils to perform similarly for land use purposes.

The geological makeup of the United States is broken down into physiographic divisions, as established by the U.S. Geological Survey (USGS). Physiographic divisions are broad-scale regions established by common terrain texture, rock type, and geologic structure and history. Geologic, topographic, and soil characteristics may impose limitations on potential uses for a particular site. Areas characterized by susceptibility to flooding, seismic or volcanic activity, tsunamis, landslides, mudslides, structural instability, excessive erodibility, or steep slopes may entirely preclude the implementation of a proposed project at a particular location, or may require the use of certain engineering technologies or require consultation with State or Federal agencies before the proposed project may proceed.

Executive Order 12699 – Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction establishes responsibilities regarding the seismic-related safety of buildings owned, leased or funded by Federal agencies. Under this EO, each Federal agency responsible for the design and construction of a Federal or federally-funded 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 model building codes (such as the 2006 International Building Code/International Residential Code) 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 2000 (NEHRP 2000). The EO applies to all building projects for which detailed plans and specifications were initiated subsequent to its issuance. A building means any structure, fully or partially enclosed, used or intended for sheltering persons or property.

The purposes of these requirements are to:

- Reduce the risks to persons who would be affected by the failure during an earthquake of buildings owned by the Federal government, leased for Federal uses, or purchased or constructed with Federal assistance;

- Improve the capability of essential Federal buildings to function during and after an earthquake;

- Reduce earthquake-related losses to public buildings in a cost-effective manner.

5.2.2 Impact Evaluation

5.2.2.1 Alternative 1: No Action

No effects from geology, soils, and seismicity are expected on the project under the no action alternative.

5.2.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Actions under this alternative in areas characterized by susceptibility to seismic, volcanic, tsunamis, landslide or mudslide activity, structural instability, excessive erodibility, or steep slopes may result in moderate impacts from geology to these actions. These activities may require the use of certain engineering technologies or require consultation with State or Federal agencies before the project may proceed. All structures in areas of seismic risk that are covered by this PEA must be designed and constructed in accordance with appropriate seismic design and construction standards, which are promulgated through NEHRP. Therefore, the constructed buildings will represent a low seismic hazard to people and equipment housed in the building during a seismic event.

In addition, minor construction activities in previously disturbed areas may result in negligible temporary effects on soils. Inadequate stabilization of the site may produce uncontrolled erosion that may result in the loss of topsoil, reduction of infiltration capacity, alteration of elements of the natural hydrology of the land, and adverse impacts to nearby habitat. (USEPA 2007). Land disturbance associated with this activity is expected to be less than one (1) acre. The impact associated with this activity would be minor but FEMA will follow the general mitigation

measures for ground disturbance activities in Section 7.2 as a measure to further reduce the impacts on soil. FEMA will require a site-specific SEA or stand-alone EA for those projects under this project type that warrant more than one (1) acre of ground disturbance.

5.2.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

This alternative would have similar effects as those described under Alternative 2. In addition, the construction in

5.3 Water Quality and Resources

5.3.1 Regulatory Framework

Water quality and resources refer to the occurrence, availability and physical, chemical, and biological characteristics of surface water and groundwater, including hydrologic properties and water quality for aquatic plant and animal communities and public water supplies. Water bodies include aquifers, springs, streams, river, lakes, reservoirs, estuaries, and near shore and offshore marine waters. Water quality encompasses the level of pollutants that affect the suitability of water for a given use. Water use classifications generally include public water supply, recreation, propagation of fish and other aquatic life, agricultural use, and industrial use. Water quality and resources are protected and regulated by many Federal statutes and EOs, as well as State and local regulations and directives. Surface, ground, and coastal waters are protected from pollution originating from point sources such as sewage treatment plant discharge and industrial discharges, and from non-point sources such as runoff from urban paved areas, mines, and livestock operations. Statutes, laws, and EOs governing water resources are listed below. Wetlands and floodplains will be described separately in the following sections.

- **Federal Water Pollution Control Act of 1972 (better known as Clean Water Act (CWA)) (33 U.S.C. § 1251 *et seq.*):** This Act regulates water quality of all discharges into "waters of the United States." The CWA also establishes the National Pollutant Discharge Elimination System (NPDES) under Section 402, permits for dredged or fill material under Section 404, and state water quality certification requirements under Section 401. The NPDES Permit Program regulates wastewater discharges from point sources. A NPDES Stormwater General Construction Permit is required before construction modification activities commence at a site where more than 1 acre of land will be disturbed. Construction activity that includes "routine maintenance to maintain original lie and grade, hydraulic capacity, or original purpose of the facility" is specifically excluded.

- **Section 404 of the CWA:** The U.S. Army Corps of Engineers (USACE) is responsible for regulating the disposal of dredged and fill materials under Section 404 of the CWA. Certain waters of the United States are considered "special aquatic sites" under the CWA because they are generally recognized as having 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. Section 404

permits are discussed in more detail under wetlands in Section 4.5 of this PEA. 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.

- **Safe Drinking Water Act (SDWA) of 1974 (42 U.S.C. § 300f *et seq*.):** The U.S. Environmental Protection Agency (USEPA) regulates primary drinking water supplies under the SDWA. These regulations were established to protect public health and prescribe requirements for State programs to implement the public water supply supervisor program and underground injection control program under the authority of SDWA.

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

- **Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S.C. § 401 *et seq*.):** This Act requires authorization from the USACE for construction activities in or near any navigable water of the United States.

- **Wild and Scenic Rivers Act (WSRA) of 1968 (16 U.S.C. § 1271 *et seq*.):** This Act preserves selected rivers in a free-flowing condition and protects their local environments.

- **Oil Pollution Prevention Act (OPA) of 1990 (33 U.S.C. § 2701 *et seq*.):** This Act requires facilities with aboveground storage capacity of more than 1,320 gallons or completely buried capacity of more than 42,000 to develop, amend, and implement Spill Prevention, Control, and Countermeasure (SPCC) plans to address the potential discharge of oil into waters of the United States.

5.3.2 Impacts Evaluation

5.3.2.1 Alternative 1: No Action

No effects on water quality and resources are expected from the no action alternative.

5.3.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Minor construction activities may result in negligible temporary effects on water quality and resources. Land disturbance associated with this activity is expected to be less than one (1) acre. The impact associated with this activity would be negligible because FEMA will follow the general mitigation measures for ground disturbance activities in Section 7.2 as a measure to

further reduce the impacts on water quality and resources. FEMA will require a site-specific SEA or stand-alone EA for those projects under this project type that warrant more than one (1) acre of ground disturbance. In addition, FEMA will be required to obtain coverage under the SWPPP requirements for construction actions of more than 1 acre.

FEMA will require the development, maintenance, and implementation of SPCC plans if the addition of the AST's would increase the aboveground fuel or oil storage capacity for the facility to 1,320 gallons or more.

5.3.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

Some actions may involve removal of vegetation including woody vegetation. Inadequate stabilization of the site may produce uncontrolled erosion that may result in the loss of topsoil, reduction of infiltration capacity, alteration of elements of the natural hydrology of the land, and adverse impacts to nearby habitat. (USEPA 2007). This may result in minor impacts to water quality and resources. Although the impact will not be significant FEMA will follow the general mitigation measures for ground disturbance activities in Section 7.2 as a measure to further reduce the impacts on water quality and resources. FEMA will require a site-specific SEA or stand-alone EA for those projects under this project type that warrant more than one (1) acre of ground disturbance. In addition, FEMA will be required to obtain coverage under the SWPPP requirements for construction actions of more than 1 acre.

FEMA will require the development, maintenance, and implementation of SPCC plans if the addition of the AST's would increase the aboveground fuel or oil storage capacity for the facility to 1,320 gallons or more.

5.4 Floodplains

5.4.1 Regulatory Framework

Floodplains are the lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year. Floodplains perform a variety of essential functions including floodwater conveyance and storage, groundwater recharge, wave attenuation, streambank erosion, reduction in sedimentation rates, water quality maintenance, and support of highly productive ecosystems.

Most floodplains are adjacent to streams, lakes, or oceans. Beaches and small river valleys are usually easily recognizable as floodplains, but less obvious floodplains occur in dry washes and on alluvial fans in arid parts of the western United States, around prairie potholes, in areas subject to high groundwater levels, and in low lying areas where water may accumulate. Sheet flooding and ponding occur in areas where there is no clearly defined channel and the path of flooding is unpredictable.

FEMA is charged with the implementation of the National Flood Insurance Act (NFIA) as amended. The NFIA creates the National Flood Insurance Program (NFIP), makes flood

insurance available for structures within communities participating in the NFIP, and requires the acquisition of flood insurance for structures in special flood hazard areas as a pre-condition of receiving Federal assistance. As part of its implementation of the NFIP FEMA identifies special flood hazard areas in Flood Insurance Rate Maps (FIRMs) and requires communities to adopt local floodplain ordinances that meet, at a minimum, FEMA's floodplain management criteria in 44 CFR 60 *et seq*.

Executive Order 11988 – Floodplain Management was issued in 1977 to eliminate the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative for locating a project outside of the floodplain. EO 11988 applies to federally-funded projects and directs agencies to consider alternatives to siting projects within a floodplain. FEMA's regulations in 44 CFR Part 9 implement EO 11988 for the agency. These regulations require FEMA to engage in an 8-step decisionmaking process before undertaking an action within the floodplain or that would be affected by the floodplain. These steps involve: (1) determination that the action is in the floodplain, would affect the 100-year floodplain, or would indirectly support development in the floodplain; (2) early public notice; (3) identification and evaluation of alternatives to locating in the floodplain; (4) identification of the impacts of the proposed action; (5) selection of minimization, restoration and preservation measures; (6) reevaluation of alternatives; (7) publication of findings and public explanation; and (8) implementation of the action. For critical actions such as emergency operation centers, communication towers, hazardous waste facilities, hospitals, or utility plants FEMA must identify practicable alternatives outside the 500-year floodplain. If no practicable alternatives exist to constructing a facility and/or supporting features, outside the floodplain, then FEMA must minimize potential harm to or from the floodplain. FEMA's procedures contain particular restrictions and minimization requirements for actions that will be located in the coastal high hazard area (CHHA, typically depicted as V-zones in FEMA's FIRMs) or in the regulatory floodway.

5.4.2 Impacts Evaluation

5.4.2.1 Alternative 1: No Action

No effects on or from floodplains are expected from the no action alternative.

5.4.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Under 44 CFR Part 9, FEMA is required to avoid activities in a floodplain unless it is the only practicable alternative. When a proposed project is the only practicable alternative, FEMA is required to minimize the impacts to the floodplain and the impacts from floods to the facility. Minimization techniques apply to the location of structures, equipment and building contents in floodplain areas. This could include elevating supporting structures and equipment such as equipment buildings and generators above the base flood elevation. Minimization techniques may include floodproofing structures or facilities. IPAWS is a critical action under this analysis because the risk of flooding might be too great and defeat the purpose of the initiative in

maintaining transmission capabilities in the event of a flood. In such cases, the standard to be used for avoidance, elevation, or floodproofing is the 500-year base flood elevation. Placement of the facility in the 100 year floodplain or 500 year floodplain would result in moderate impacts to and from the floodplain.

FEMA regulations at 44 CFR 9.11(d) prohibit the agency from funding new construction, including replacement, in coastal high hazard areas (CHHA) or in floodways unless they are functionally dependent uses or facilitate open space use. They also prohibit substantial improvements in the floodway. FEMA defines substantial improvements as any repair, reconstruction or other improvement of a structure or facility the costs of which equals or exceeds 50% of the market value of the structure.

FEMA will avoid the selection of sites in the 500 year floodplain. If this cannot be avoided FEMA will follow the 8-step decisionmaking process and minimization measures for all proposed activities under this alternative in a floodplain through either a REC or a site-specific SEA, depending on the nature of the potential impacts to and from the floodplain. AST will be elevated to the 500 year base flood elevation in compliance with 44 C.F.R. Part 9 minimization requirements.

5.4.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

This alternative will have similar effects as those described under Alternative 2.

5.5 Wetlands

5.5.1 Regulatory Framework

Wetlands are areas which are inundated or saturated by surface or ground water with a frequency sufficient to support, or that under normal hydrological conditions does or would support, a prevalence of vegetation or aquatic life typically adapted for these soil conditions. Examples of wetlands include swamps, marshes, estuaries, bogs, beaches, wet meadows, sloughs, mud flats, among others.

Wetlands have important ecological functions and are biologically diverse. They assimilate nutrients in surrounding surface waters, remove suspended solids and pollutants from stormwater, and protect shorelines from wind and wave action and storm-generated forces. Actions that would impact wetlands would require review under several regulatory programs. These programs are listed below.

- **Section 404 of the CWA:** Formal legal protection of jurisdictional wetlands is promulgated through Section 404 of the CWA. A dredge and fill permit for activities in waters of the United States including wetlands from the USACE is required if an action has the potential to adversely affect jurisdictional wetlands. There are several Nationwide Permits (NWP) for activities in waters of the U.S. that may cover specific aspects of the development of the proposed activities. For example, NWP 3 (Maintenance) may apply to activities related to

the repair, rehabilitation, or replacement of an existing structure; NWP 12 (Utility Line Activities) or NWP 14 (Linear Transportation Projects) may apply to the construction of utility lines and access roads for new facilities; NWP 18 (Minor Discharges) or NWP 19 (Minor Dredging) may apply to many sites where water impacts are minimal; and NWP 39 (Commercial and Institutional Developments) may apply to actions involving the expansion or construction of security facilities. The NWP program has numerous guidelines and conditions that must be met for an activity to qualify for a permit. NWPs are subject to review by the States under Section 401 of the CWA, as are all aspects of the USACE permitting program. Various USACE Districts also have Regional General Permits that function similarly to NWPs; however, Regional General Permits are typically more specific in the types of actions that they cover and typically necessitate more stringent conditions and reporting requirements. If none of the NWPs apply to the proposed activity and no applicable Regional General Permit exists, then FEMA may have to acquire an Individual Permit from the USACE.

- **Section 401 of the CWA:** Each State has an opportunity to establish specific criteria for water quality protection under this section of this Act. These provisions must be satisfied prior to issuance of permits under Sections 402 and 404 of the CWA.

- **Executive Order 11990 – Protection of Wetlands:** This EO, issued in 1977, requires that all federally funded, permitted, or sponsored projects affecting wetlands demonstrate that there are no practicable alternatives, and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

FEMA's implementation of EO 11990 is described in 44 CFR Part 9 and involves an 8-step decision-making process similar to that described for EO 11988. This process ensures that proposed activities are consistent with EO 11990 and is also used to evaluate the potential effects of an action on wetlands. Projects affecting wetland areas may require site-specific surveys and evaluation as well as consultation with a Federal or State agency to develop appropriate mitigation measures.

5.5.2 Impacts Evaluation

5.5.2.1 Alternative 1: No Action

No effects on wetlands are expected from the no action alternative.

5.5.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

This alternative could result in minor temporary and indirect impacts on wetlands in some situations where a site is close to a wetlands area. Inadequate stabilization of the site may produce uncontrolled erosion that may result in the loss of topsoil, reduction of infiltration capacity, alteration of elements of the natural hydrology of the land, and adverse impacts to nearby habitat. Although the impact will not be significant FEMA's contractor will follow the

general mitigation measures for ground disturbance activities in Section 7.2 as a measure to further reduce the impacts on water quality and resources.

5.5.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

Minor construction actions under this alternative could result in minor to moderate impacts on wetlands if they are taken within or near wetlands. Potential indirect impacts include uncontrolled stormwater pollution, erosion and sedimentation from the project that may adversely affect nearby wetlands. In addition, these activities may involve direct impacts such as conversion of nearby wetlands as the result of the expansion of facilities. Under 44 CFR Part 9, FEMA is required to engage in an 8-step decisionmaking process for proposed projects that may have adverse impacts on wetlands, which includes the use of minimization techniques when the proposed project affecting the wetland is the only practicable alternative. Minimization measures include avoidance techniques such as establishing wetland buffer zones, following the general mitigation measures for ground disturbing activities as laid out in Section 7.2, and compensation measures such as wetland mitigation and banking.

In addition to FEMA's responsibility under 44 CFR Part 9, a CWA Section 404 permit prior to the initiation of the project may be needed if the action will affect wetlands that are considered waters of the U.S. by the USACE. If the project cannot be located or designed to avoid impacts to the wetland, then FEMA will document the 8-step decisionmaking process and minimization measures in either a REC or a site-specific SEA, depending on the nature and magnitude of the potential impacts to the wetlands. In addition, FEMA will work with USACE to determine what CWA permits /certifications are needed before initiating any work involving ground disturbance in jurisdictional wetlands.

5.6 Biological Resources

5.6.1 Regulatory Framework

Biological resources include animals, plants, and their habitats. In general, biological resources can include native and introduced plants that comprise the various habitats, animals present in such habitats, and natural areas that help support these plant and wildlife populations. Protected or sensitive biological resources include plant and animal species listed as threatened or endangered by FWS, National Marine Fisheries Service (NMFS), or a State.

Vegetation
Vegetation can be characterized as tundra, forest (coniferous and broadleaf/mixed), grasslands and savannas, and desert. The potential for an area to provide and be used as wildlife habitat is based on several factors, including topography, vegetative cover and type, water availability, aerial extent, connectedness, and interferences attributable to human activity.

Terrestrial Wildlife and Aquatic Resources
Terrestrial wildlife species distribution and abundance are heavily influenced by available habitat. Available habitat and vegetative communities vary significantly across the U.S. and its

territories even within short distances. Site-specific information is needed to determine project-specific impacts on wildlife species. Therefore, the focus of the baseline discussion is on compliance with existing laws and EOs regarding terrestrial wildlife.
In general, aquatic resources that could be affected by project activities are limited to water bodies located down gradient of a project site. Waterside structures also have potential to directly affect a water body through the placement of pilings, docks, etc. Both the distribution and abundance of aquatic species can be influenced by factors such as water quality (including temperature), land use practices within the watershed, and the presence of other aquatic species, especially non-native exotic species. Again, because potential project sites are located across the U.S. and its territories, providing baseline information for all aquatic ecosystems that could be located down gradient of project sites is beyond the scope of this PEA.

Examples of laws and EOs governing terrestrial wildlife and aquatic species are listed below.

- **Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 *et seq*.):** This Act prohibits any actions that may harm or jeopardize the continued existence of any threatened or endangered species, or critical habitat. This is discussed in greater detail below.

- **Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. § 668 *et seq*.):** This Act prohibits the taking or possession of and commerce in bald eagle and golden eagles with limited exceptions.

- **Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. § 703 *et seq*.):**The Migratory Bird Treaty Act makes it unlawful for any individual to take, possess, buy, sell, purchase, or barter any migratory bird, including feathers or other parts, nests, eggs, or products, except as allowed by implementation regulations. It has been extended to include almost all birds that have the ability to seasonally relocate within various part of the U.S. A list of migratory birds can be found in 50 CFR Part 10.13 and at http://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/mbtandx.html.

- **Executive Order 12186 – Responsibilities of Federal Agencies to Protect Migratory Birds:** EO 13186 directs Federal agencies whose activities have or are likely to have a measurable, negative effect on migratory bird populations to develop and implement a Memorandum of Understanding (MOU) with FWS that will promote the conservation of migratory birds. Activities subject to the E.O. 12186 may include implementation of agency programs.

- **EO 13112 – Invasive Species:** EO 13112 was created to prevent the introduction of invasive species and to provide for their control. Under this EO Federal agencies can not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species in the U.S.

The regulatory environment is an important consideration in reviewing the potential adverse impacts of activities proposed. The applicability of these requirements changes based on site-specific circumstances; project scope; Federal, State, and local government programs; level of Federal involvement; proximity of the biological resource(s) to a proposed project area; and land

ownership. Developing an accurate portrayal of the regulatory environment affecting each proposed action is therefore essential in evaluating requirements for biological resource protection. Site-specific evaluation and a full understanding of the Federal, State, and local requirements are necessary.

Listed Species, Critical Habitat and Special-Status Species

Activities by humans, such as over-harvesting, spreading of invasive exotic species, uncontrolled development resulting in the destruction of habitat, and the release of contaminants into the air, water, and soil, have resulted in significant reductions in the abundance and distribution of native species with numerous species nearing extinction or becoming extinct. Regulatory programs, both Federal and State, have been enacted in an attempt to prevent extinction of threatened and endangered species. Threatened and endangered species are broadly distributed throughout the U.S. and its territories. There are over 1,300 federally listed threatened and endangered species. Identifying and discussing each, as well as their habitat requirements, is beyond the scope of this PEA.

The ESA requires Federal agencies to conserve those plants and animal species that have been listed as endangered and threatened species by the FWS or NMFS and critical habitats designated by these agencies. It defines an endangered species as any species in danger of extinction throughout all or a significant area of its range and a threatened species as any species likely to become endangered in the near future. It also defines critical habitat as those geographical areas that contain physical or biological features that are essential to the conservation of the species. Under Section 7 of the ESA, Federal agencies, in consultation with FWS or NMFS, must insure their actions are not likely to jeopardize the continued existence of any endangered or threatened species (i.e., a listed species) or result in the destruction or adverse modification of critical habitat.

FWS and NMFS are responsible for compiling the lists of threatened and endangered species. If a Proposed Action is likely to adversely affect a listed species or critical habitat, the Federal agency must prepare a Biological Assessment (BA) and initiate a formal consultation with FWS or NMFS. After reviewing the BA, FWS or NMFS prepares a Biological Opinion stating whether the Proposed Action is likely to jeopardize the continued existence of a listed species or cause the destruction or adverse modification of critical habitat. If this is the case, the Biological Opinion will provide the Federal agency with Reasonable Prudent Alternatives that, if adopted, would avoid a jeopardy or adverse modification determination. The purpose of the consultation process is to ensure avoidance and minimization of potential adverse impacts on a listed species or critical habitats. Formal consultation is not required if the Federal agency determines that the action would have no effect on endangered or threatened species or designated critical habitat. Formal consultation is also not needed if the Federal agencies agree that the Proposed Action is not likely to adversely affect listed species. In addition, the ESA prohibits all persons subject to U.S. jurisdiction, including Federal agencies, from, among other things, “taking” endangered or threatened species. The “taking” prohibition includes any harm or harassment and applies in the United States and on the high seas.

Many States have designated special status species and provide some level of legal protection for these species. The special status species frequently overlap with those listed under the Federal ESA. However, species lists developed by the States frequently are more inclusive.

5.6.2 Impacts Evaluation

5.6.2.1 Alternative 1: No Action

No effects on vegetation, fish and wildlife, endangered or threatened species or critical habitat are expected from the no action alternative.

5.6.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Actions under this alternative would have negligible impacts on vegetation, fish and wildlife, endangered or threatened species, and critical habitat because they would occur in areas already developed where the presence of these resources is unlikely.

5.6.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

Actions under this alternative have the potential to cause minor to moderate impacts on vegetation, fish and wildlife, endangered or threatened species, and critical habitat. Areas that have been disturbed by the removal of the existing vegetation are much more susceptible to water erosion during major precipitation events and to wind erosion during dry and windy weather conditions. Both types of erosion can cause adverse impacts on vegetation located down gradient or down wind, and on fish and wildlife resources located in off-site areas.
If the project area is determined to contain or be located near a sensitive vegetation community, FEMA will document its impact analysis through an REC or site-specific SEA, depending on the nature and magnitude of the potential impacts.

If an activity involves work in a forested area or special status area such as a floodplain, wetland, forest or wildlife refuge, the project may have adverse effects on wildlife such as displacement or loss of foraging habitat for common small mammals or birds or fragmentation of habitat. FEMA will ensure the appropriate coordination with Federal, State, Territory, or Tribal agency and obtain any special land use permits or licenses in these areas.
Projects within floodplains or affecting floodplains or wetlands may have adverse impacts to aquatic wildlife, their habitat, and other species that depend on the floodplain at some point in their lifecycle. FEMA would avoid taking actions within or affecting floodplains or wetlands. If undertaking the project within the floodplain or wetland is the only practicable alternative, then FEMA will document the 8-step decisionmaking process and minimization measures through either a REC or a site-specific SEA, depending on the nature and magnitude of the potential impacts.

Activities involving minor construction beyond previously disturbed areas have the potential to affect listed species or special species habitat. These activities may result in the displacement or fragmentation of habitat for these species. However, FEMA will not be able to determine whether the impacts of the specific activity to the listed species, critical habitat or special status species are significant without an appropriate site-specific evaluation and consultation with FWS or NMFS. If consultation results in a No Effect or Not Likely to Adversely Affect (NLAA)

determination, then the activity would not have significant impacts on these resources and no additional NEPA review would be required. If the consultation results in the initiation of formal consultation, then FEMA will enter into the formal ESA Section 7 consultation and document the results in a site-specific SEA.

Land disturbance associated with this activity is expected to be less than one (1) acre. Although the impacts of the action will not be significant FEMA will follow the general mitigation measures for ground disturbance activities in Section 7.2 to further reduce the impacts of its activities on these resources. FEMA will require a site-specific SEA or stand-alone EA for those projects under this project type that warrant more than one (1) acre of ground disturbance.

5.7 Human Health and Safety

5.7.1 Regulatory Framework

Hazardous substances are defined as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health and the environment. Improper management and disposal of hazardous substances can lead to contamination of groundwater and surface water, including drinking water supplies, and soils. The primary Federal laws for the management and disposal of hazardous substances are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. § 9601 *et seq*.), the Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. § 6901 *et seq*.) and the Oil Pollution Act (OPA) of 1990 (33 U.S.C. § 2701 *et seq*.). RCRA establishes national goals to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. RCRA outlines duties and responsibilities for hazardous waste generators, transporters, storers, treaters, and disposers of hazardous waste. RCRA requires the regulation of underground storage tanks (UST), imposing structural integrity and management practice requirements.

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

Evaluations of hazardous substances and wastes must consider whether any hazardous material will be generated by the proposed activity and whether a hazardous material already exists at the site or in the general vicinity of the site. Existing hazardous materials and waste concerns could impact future use of a site.

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 (42 U.S.C. § 11001 *et seq*.) establishes requirements for Federal, State, and local governments, Indian Tribes, and industry regarding emergency planning and "community right-to-know" reporting on hazardous and toxic chemicals. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment. Under EPCRA, local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHSs) on site in quantities greater than corresponding Threshold Planning Quantities must cooperate in emergency plan preparation.

Additionally, facilities must immediately report accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities defined in CERCLA to State and local officials. This information must be made available to the public. Facilities manufacturing, processing, or storing designated hazardous chemicals must make Material Safety Data Sheets (MSDSs) describing the properties and health effects of these chemicals available to State and local officials and local fire departments. Facilities must also report, to State and local officials and local fire departments, inventories of all onsite chemicals for which MSDSs exist. This information must be made available to the public. Facilities must complete and submit a Toxic Chemical Release Inventory Form annually for each of the more than 600 Toxic Release Inventory chemicals that are manufactured or otherwise used above the applicable threshold quantities.

The Small Business Liability Relief and Revitalization Act (the Brownfield Amendments) clarified CERCLA liability provisions for potential property owners. If the potential property owners meet the specific provisions of the act, including an adequate inquiry on past uses of the property, the landowner will be able to assert the innocent landowner defense, contiguous property exemption, and bona fide prospective purchaser exemption to CERCLA liability. The USEPA has published the final "all appropriate inquiries" rule (40 C.F.R. 312.10) that establishes the criteria for conducting Environmental Site Assessments on properties considered for acquisition.

Accidents involving chemicals and petrochemicals can result in explosions, fires, or both. Thermal radiation can be absorbed by the surroundings causing severe burn injuries or death, and the ignition of combustible structures or elements such as wooden structures and trees that may be at some distance from the actual fire. Wooden building and trees exposed to thermal radiation flux levelers of approximately 10,000 BTU/ft2 hr would ignite in approximately 15 to 20 minutes. Human exposure to thermal radiation levels of 1,500 BTU/ft2 causes intolerable pain after 15 seconds. Blast overpressure from an explosion that is more than 0.5 psi can cause injuries to people and major damage to buildings. Through its regulations in 24 C.F.R. Part 51 HUD has established acceptable separation distance (ASD) standards for the location of HUD assisted projects involving structures where people would gather and their distance to flammable or explosive hazards. HUD has established 10,000 BTU/ft2 hr as the thermal radiation standard for buildings. It has also established a standard for unprotected outdoor areas where people congregate at 450 BTU/ft2 hr because at this exposure standard there would be limited detrimental effects on people. In addition HUD has adopted a standard level for blast

overpressure of 0.5 psi. At this level people will probably not be injured and no major damage would result to buildings.

The National Fire Protection Association (NFPA) has developed and published more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks. Some of these standards may be applicable to these actions such as NFPA 30, 70B, 110, 111, and 395.

5.7.2 Impacts Evaluation

5.7.2.1 Alternative 1: No Action

The no action alternative would have moderate effects on human health and safety. Under this alternative FEMA would not be able to ensure that selected transmitter facilities across the Nation operate during natural or man-made disasters, including catastrophic events. Some communities and populated areas across the country will not receive public safety and status information regarding the incident affecting them. FEMA would not be supporting the implementation of E.O. 13407 and implementing Section 202 of the Stafford Act to the detriment of the Nation.

5.7.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Proposed minor construction projects are expected to have a beneficial impact on human health and safety throughout the U.S. and its territories. The transmitter facilities' updates and construction measures would ensure that communities and populated areas across the nation are able to receive public safety and status information regarding the incident affecting them. These facilities will be able to operate up to 60 days in the event of general power black outs. FEMA will conduct a phase I environmental site assessment to determine the presence of hazardous materials or substance within the facilities or any history of discharges of hazardous substances from the facilities. This evaluation will be done in compliance with EPA's "all appropriate inquiries" rule. The information gathered will be used by FEMA to determine if the selected transmitter facility should be used for the program and to limit FEMA's liability regarding the release of hazardous substances prior to FEMA's involvement. FEMA will not use facilities that require phase III environmental site assessments to remediate a contaminated site.

Activities related to this alternative will include the removal and proper disposal of hazardous substances including removal of underground storage tanks and their content, removal of contaminated soil, removal of lead paint, and removal of asbestos containing materials, wherever appropriate. These materials will be disposed of according to Federal and State regulations.

ASTs will be located within berms to limit runoff and infiltration should a spill or leak occur. FEMA and the property owner will ensure that an SPCC plan is in place to address any spills of fuels or oil-based substances from the ASTs.

FEMA will locate ASTs at an appropriate separation distance from places where people gather including schools, homes, parks, religious facilities, and other similar facilities, and will locate them at an appropriate separation distance from wood structures and vegetation. To determine the appropriate separation distance FEMA will adhere to HUD's guidance "Siting of HUD-Assisted Projects near Hazardous Facilities (HUD -1060-CPD, Sept. 1996), incorporated in this PEA by reference. FEMA will use these standards and HUD tools and guidelines in http://www.hud.gov/offices/cpd/environment/training/guidebooks/hazfacilities/ and http://www.hud.gov/offices/cpd/environment/asdcalculator.cfm.
These measures will ensure that the impacts of its actions on human health and safety are minor.

FEMA also requires that these facilities adhere to NFPA codes and standards that govern tanks as well as applicable state and local requirements. Tanks will meet the NFPA 30 standard.

5.7.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

This alternative will have the same beneficial and minor adverse impacts on human health and safety as described in Alternative 2.

5.8 Minority and Low Income Populations

5.8.1 Regulatory Framework

Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority and Low-Income Populations requires Federal agencies to identify and correct its programs, policies, and activities that have disproportionately high and adverse human health or environmental effects on minority or low-income populations. The EO also tasks Federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible. The general purposes of EO 12898 are as follows:

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

Potential environmental justice impacts are evaluated by analyzing the socioeconomic makeup of the community where a project is proposed to be located. Some general category descriptions help define and weigh Federal action impacts on socioeconomic resources and environmental justice include economic characteristics such as low-income areas, housing characteristics such as medium- to high-density residential areas and rural areas, and demographic characteristics such as areas with a high percentage of minorities.

Low-income or poverty areas are defined using the statistical poverty threshold from the U.S. Census Bureau (USCB), which is based on income and family size. The USCB defines a poverty area as a census tract in which 20 percent or more of its residents are below the poverty threshold and an extreme poverty area as one in which 40 percent or more are below the poverty level. The 2007 poverty threshold for a family of four with two children under the age of 18 was $21,027 (USCB 2008).

Minority populations include persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. (CEQ 1997). A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. In addition, a minority population also exists if there is more than one minority group present and the minority percentage, when calculated by aggregating all minority persons, meets one of the above thresholds.

If a proposed project will cause disproportionate high and adverse impacts on low-income or minority populations, mitigation measures will be required.

5.8.1 Impacts Evaluation

5.8.1.1 Alternative 1: No Action

The no action alternative may have disproportionate high and adverse effects on low-income or minority populations. Under this alternative FEMA would not be able to ensure that selected transmitter facilities across the Nation operate during natural or man-made disasters, including catastrophic events. Minority and low-income populations would not receive the public safety and status information regarding the incident affecting them to their detriment. Low-income populations may rely more on radio transmission than other sources of information and communication available to the community such as Internet or television.

5.8.1.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Proposed minor construction projects are expected to have a beneficial impact on minority and low-income populations. The transmitter facilities' updates and construction measures would ensure that communities and populated areas across the nation are able to receive public safety and status information regarding the incident affecting them. These facilities will be able to operate up to 60 days in the event of general power black outs.

Minor construction actions would have negligible adverse impacts on minority and low-income populations. As discussed in Section 5.7.1.2, FEMA will locate ASTs at an appropriate separation distance from places where people gather including schools, homes, parks, religious facilities, and other similar facilities.

5.8.1.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

This alternative will have the same beneficial and negligible adverse impacts on minority and low-income populations as described in Alternative 2.

5.9 Historic Properties

5.9.1 Regulatory Framework

Historic properties are prehistoric or historic districts, sites, buildings, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP), maintained by the Department of the Interior, National Park Service (NPS). More than 80,000 properties are listed in the NRHP. Almost every county in the U.S. has at least one place listed in the NRHP.

Properties may be eligible for listing in the NRHP if they possess significance at the national, tribal, state or territory, or local level in American history, architecture, archeology, engineering, or culture. In order for a property to be considered historic, it must meet basic criteria and retain the historic integrity of those features necessary to convey their significance. To convey integrity, historic properties will always possess several, and usually most, of the following seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. The passage of time may require re-evaluation of historic properties to reaffirm the original National Register status.

Section 106 of the NHPA of 1966 (16 U.S.C § 470 *et seq*.) directs the Federal Government to consider the effects of its undertakings on historic properties through a four-step decision-making and compliance process. It is noteworthy that the law does not mandate preservation of historic properties; rather, it mandates that Federal agencies follow the decision-making process. The four steps of the Section 106 compliance process are as follows:

1. **Initiate the Section 106 Process.** FEMA determines whether an undertaking exists, engages the appropriate State Historic Preservation Office (SHPO) or Tribal Historic Preservation Office (THPO), and identifies potential consulting parties.

2. **Identify historic properties.** FEMA, in consultation with the SHPO/THPO, determines the Area of Potential Effects (APE) for the undertaking and reviews existing information on historic properties within the APE. The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The APE is determined by the scope of the project, the characteristics of the project area (e.g. topography, building density, land use), and the type of historic property being considered, and may be different for different kinds of effects caused by the undertaking. Once the APE is established, FEMA gathers information from the SHPO/THPO, Indian tribes and Native Hawaiian organizations, 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.

3. **Assess adverse effects of undertaking on historic properties.** If FEMA's assessment determines no historic properties or no adverse effect to eligible historic properties, the SHPO/THPO and other consulting parties are informed, and the compliance process ends at this step. If the assessment determines actual or potential adverse effects to eligible historic properties, the SHPO/THPO and other consulting parties are notified through a letter and supporting documentation. Federal agencies must consider possible direct, indirect, and cumulative effects on historic properties. Direct effects include physical impacts, while indirect effects may include visual, atmospheric, and audible impacts on historic properties.

4. **Resolve adverse effects to historic properties.** As stipulated in 36 CFR § 800.6, the Federal agency must resolve adverse effects by seeking ways to avoid, minimize, or mitigate the undertaking's adverse effect through consultation with the SHPO/THPO and Advisory Council on Historic Preservation (ACHP). If avoiding or minimizing the adverse effect through re-design or other alternative means is not possible, the Federal agency, the SHPO/THPO, the ACHP, and other appropriate consulting parties may enter into a Memorandum of Agreement that outlines appropriate measures to mitigate adverse effects to historic properties. In cases where the Federal agency and the other consulting parties fail to agree on appropriate mitigation measures, the Federal agency or the other consulting parties may terminate consultation, in which case the ACHP issues a final comment. The Federal agency must take these comments into consideration before notifying ACHP of its final decision, after which the project may proceed.

Because of the broad scope and location of the proposed projects in this PEA, the presence of historic properties within the APE of some of the proposed projects is highly likely. Once an APE is established for a particular undertaking, background research with the SHPO/THPO, Indian tribes, local libraries, government offices, historical societies, and others as necessary, can provide information on previously-identified historic properties. Research may also provide an understanding of the historic context for a project area, which will further assist in identifying resources and evaluating whether they may meet one or more of the NRHP criteria. Fieldwork could also be required to identify historic properties.

A higher standard is applicable to Federal agencies when their actions may affect historic properties that are designated as National Historic Landmarks (NHLs). Federal agencies must, to the maximum extent possible, minimize harm to NHLs directly and adversely affected by their undertakings prior to their approval. 16 U.S.C. § 470h-2(f). In addition Federal agencies must notify and formally invite the Secretary of Interior to the consultation process, and invite the ACHP to participate in the consultation process to resolve adverse effects.

FEMA will always conduct the Section 106 process described above to properly identify all historic properties and address adverse effects of its undertakings to historic properties. It is FEMA's practice to complete this process before completing the NEPA determination to ensure that impacts to historic properties have been taken into account in the NEPA process.

Section106 Programmatic Agreements
FEMA has entered into State-specific Programmatic Agreements (PAs) with various State Historic Preservation Offices around the country. These State-specific PAs provide streamlined procedures for FEMA undertakings related to its disaster response and recovery missions. They also include programmatic allowances that exclude certain FEMA undertakings from the Section 106 consultation process.

The FCC has entered into two Nationwide Programmatic Agreements (PA) that exclude some undertakings associated with the construction of communication towers from the Section 106 review process and streamlines the Section 106 consultation process for those undertakings not excluded. The PAs are titled *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission* (September 2004), and *Nationwide Programmatic Agreement for the Co-location of Wireless Antennas* (March 2001). On October 23, 2009 the ACHP issued a Program Comment to the two FCC Nationwide PAs establishing that FEMA would not need to comply with Section 106 for communication facilities construction or modification that have undergone or would undergo Section 106 review, or that are exempt from Section 106 review, by the FCC under the two Nationwide Programmatic Agreements. This Program Comment became effective November 3rd, 2009 and will be available until September 30, 2015.

Stipulation III.A. of the *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission* exempts the enhancement of a tower and associated excavation that does not involve collocation and does not substantially increase the size of the existing tower. Stipulation III.E. exempts the construction of a facility in or within 50 feet of the outer boundary of a right-of-way designated by a Federal, State, local, or Tribal government for the location of communication towers or above-ground utility transmission or distribution lines and associated structures and equipment provided that it would not constitute a substantial increase in size and the facility would not be located within the boundaries of a Historic Property. This stipulation requires the use of the Tower Construction Notification System. An increase in size means installing more than one new equipment shelter or adding an appurtenance to the body of the existing building that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance.

The FCC has also developed a voluntary electronic Tower Construction Notification System (TCNS) that allows proponents of new towers to provide notice of their proposal to participating Indian tribes and Native Hawaiian Organizations. The TCNS facilitates the identification of, and appropriate initial contact with, Indian tribes and NHOs that may attach religious and cultural significance to historic properties within the geographic area of the proposed undertaking. Once notified, Indian tribes and NHOs have the option of responding to applicants through the TCNS. The FCC retains the responsibility to engage in government-to-government consultation with the interested tribe or NHO.

5.9.2 Impact Evaluation

5.9.2.1 Alternative 1: No Action

The no action alternative would have no effect on historic properties.

5.9.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

In general, upgrades and minor construction within the footprint of facilities that are not considered historically significant and are not located within or near an historic district or landscape would have no effects on historic properties or their viewshed. Upgrades and minor construction that affect historic properties may have minor to moderate impacts to these resources. Proposed activities under this alternative that could have adverse effects on historic properties include facilities' modifications, ground disturbance, and the placement of new facilities or structures within the APE of an identified historic property. Types of adverse effects may include alteration of historic defining features or components, displacement or relocation of a historic property, and viewshed impacts.

Activities involving ground disturbance have the potential to affect archeological resources. The presence of modern structures or facilities does not mean that no archaeological resources exist or that they have already been destroyed. Examples of ground disturbing activities include topsoil removal, excavation of trenches, excavation along existing foundation walls (whether on an historic or modern building), and/or enlargement of existing structures or facilities. While existing structures may have disturbed potential archaeological deposits at the time of construction, intact resources may have been left undisturbed. In addition, existing historic structures may have archaeological components and any landscaping or other activities that disturb the ground could affect potential archaeological deposits. Geographical location and expected site types dictate whether a proposed project will affect archaeological resources. Proposed projects located in areas with moderate to high potential for archeological findings would trigger Section 106 consultation with the SHPO/THPO and the resolution of adverse effects by avoidance, minimization or mitigation. FEMA will use the TCNS to provide notice of their proposal to participating Indian tribes and Native Hawaiian Organizations. If an Indian tribe or Native Hawaiian Organization request to participate in the process, FEMA will then to engage in government-to-government consultation with the interested tribe or NHO.

If the project meets stipulation III.A or III.E. of the *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission* then there will be no significant impact to historic properties and no further NEPA review would be required to address impacts to historic properties under this PEA. If the project does not meet this exemption, then FEMA will consult with the SHPO/THPO, tribes and other sources to determine if the proposed project has the potential to adversely affect historic properties. FEMA will follow State-wide Programmatic Agreements when available or the traditional Section 106 consultation process. If the Section 106 process ends in a finding of no adverse effects on historic properties, FEMA will document the process in a REC and no further NEPA review would be required. If the proposed project will result in

adverse effects on historic properties, FEMA will document the agreed upon treatment measures, including avoidance, minimization, or mitigation measures, in a site-specific SEA.

5.9.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

Impacts on historic properties under this alternative are expected to be similar to those identified in Alternative 2, except that undisturbed areas are more likely to raise concerns regarding presence of intact archeological resources. FEMA will engage in the process, including Section 106 consultation process, as outlined in Section 5.9.2.2 to avoid and minimize the impacts of this action on historic properties.

5.10 Air Quality

5.10.1 Regulatory Framework

The EPA has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 *et seq.*). The CAA not only established the NAAQS, but also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emissions standards for hazardous air pollutants.

The EPA classifies the air quality within an air quality control region (AQCR) according to whether the region meets or exceeds Federal primary and secondary NAAQS. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare (i.e., soils, vegetation, and wildlife) from any known or anticipated adverse impacts of a pollutant. Federal NAAQS are currently established for the following seven pollutants (known as "criteria pollutants"): carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM_{10}), and particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Table 4-1 shows the NAAQS.

Table 5-2: National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide (CO)	9 ppm (10 milligrams/ m^3 [mg/m^3])	8 hours	None	
	35 ppm (40 mg/m^3)	1 hour		
Lead (Pb)	0.15 $\mu g/m^3$	Rolling 3-month average	Same as primary	
	1.5 $\mu g/m^3$	Quarterly average	Same as primary	
Nitrogen Dioxide (NO_2)	0.053 ppm (100 $\mu g/m^3$)	Annual (arithmetic mean)	Same as primary	
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24 hours	Same as primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual	Same as primary	

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
		(arithmetic mean)		
	35 µg/m^3	24 hours	Same as primary	
Ozone (O_3)	0.075 ppm (2008 std)	8 hours	Same as primary	
	0.08 ppm (1997 std)	8 hours	Same as primary	
	0.12 ppm	1 hour (applies only in limited areas)	Same as primary	
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (arithmetic mean)	0.5 ppm (1300 µg/m^3)	3-hours
	0.14 ppm	24-hours		

Source: EPA 2008a

Air quality is affected by both stationary sources (e.g., urban and industrial developments) and mobile sources (e.g., automobiles and trains). In general, urban environments are characterized by elevated levels of criteria pollutants, which can potentially reach unhealthy levels. Rural environments, in contrast, are typically characterized by good air quality for most criteria pollutants due to the lack of pollution- emitting sources. However, due to the migratory nature of air pollutants, emissions from urban areas can have a negative impact on the air quality of a rural area. Land use practices in rural areas can affect air quality when wind erosion raises dust from tilled fields, and when agricultural burning and fires caused by vegetation management practices adversely affect air quality with smoke and wind blown ashes.

An AQCR or portion of an AQCR may be classified as attainment, non-attainment, or unclassified for each of the seven criteria pollutants. Attainment describes a condition in which one or more of the seven NAAQS are being met in an area. The area is considered to be attainment only for those criteria pollutants for which the NAAQS are being met. Non-attainment describes a condition in which one or more of the seven NAAQS are not being met in an area. Unclassified indicates that air quality in the area has not been classified and is therefore treated as attainment. Areas that have been recently re-designated from non-attainment to attainment are called maintenance areas (in reference to how the area will maintain attainment).

An area may have all four classifications for different criteria pollutants. Air emission regulations are more stringent in non-attainment areas and vary not only from AQCR to AQCR, but also within an AQCR. States with air quality that does not achieve the NAAQS are required to develop and maintain State Implementation Plans (SIPs). In addition, the USEPA may develop a Federal Implementation Plan (FIP) and Tribes may develop their own Tribal Implementation Plans (TIP). These plans constitute a federally enforceable definition of the applicable approach (or plan) and schedule for the attainment of the NAAQS.

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

States as well as regional and local authorities have established emission standards and permitting requirements for emission sources in their jurisdictions. Generators and emergency

generators as well as construction activity are regulated under these permitting frameworks and facilities must check with these authorities to determine applicability of these requirements. New requirements related to greenhouse gas emission reduction and energy conservation are also being developed and innovative solutions will be considered in order to adhere to these requirements.

5.10.2 Impacts Evaluation

5.10.2.1 Alternative 1: No Action

No effects on air quality are expected from the no action alternative.

5.10.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

In general, the air quality impacts from these activities will be temporary and minor. Some proposed projects could include the installation of a new or upgraded emergency generator that operates during power outages. The operation of generators may be regulated in the particular State or region where the project will take place. A generator may qualify for emergency generator provisions depending on its usage or it may be exempt from permit requirements if they are below the State's established emission threshold. FEMA will coordinate with their State environmental quality agency to determine the applicable requirements.

Activities involving the expansion, placement, and construction of supporting facilities have the potential to affect air quality. Fugitive dust and air pollutants associated with the operation of construction equipment may affect air quality conditions at the project site. Off-road engines used in construction-related vehicles such as backhoes, front end loaders, bulldozers, tractors, graders, excavators, etc. are typically diesel-based that produce nitrogen oxides (NOx), hydrocarbons (HC), carbon monoxide (CO) and particulate matter (PM) emissions. (USEPA 2003). In FEMA's experience, the air emissions associated with individual site preparation and construction activities in sites less than one (1) acre do not rise to the level of significance even in non-attainment areas. Table 5-3 shows an estimate made by the agency on the air emissions associated with equipment used for site preparation and construction activities

Table 5-3: Estimate of Criteria Pollutant Emissions from Equipment Used in Site Preparation and Construction Activities

Pollutant	Total (tons/year)	*de minimus* Thresholds (tons/year) [1]
CO	16.50	100
Volatile Organic Compounds (VOC)	3.21	100
Nitrous Oxides (NO_x)	23.62	100
PM-10	8.23	100
PM-2.5	2.54	100
SO_2	2.93	100

Source: FEMA 2009, prepared by Gulf South Research Corp.

for the placement of alternative housing units in the Gulf Coast of the U.S. (FEMA 2009). These estimates were based on US EPA's NONROAD Model (USEPA 2005). These estimates are similar to those expected for construction activities associated with this alternative.

Older structures often contain lead-based paint or asbestos containing materials. Any activities associated with the demolition of facilities must be done 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.

Although these impacts will not be significant, FEMA will follow the general mitigation measures for ground disturbance activities in Section 7.2 to further reduce the potential impacts on air quality. FEMA will require a site-specific SEA or stand-alone EA for those projects under this project type that warrant more than one (1) acre of ground.

5.10.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

This alternative will result in similar impacts to air quality as those discussed in Alternative 2.

5.11 Noise

5.11.1 Regulatory Framework

Noise is defined as unwanted sound that interferes with normal human activities or wildlife behavior, or may otherwise diminish environmental quality. Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. In a typical day, most people are exposed to sound levels of 50 to 55 dB or higher.

Topographic features and structural barriers that absorb, reflect, or scatter sound waves can decrease or increase noise levels. (HUD 2009). In addition, atmospheric conditions, such as wind speed and direction, and weather, can also affect the perception of the sound. (HUD 2009). Animals use sounds for communication and navigation, to avoid danger, and to find food. The same noise factors that affect humans may also influence wildlife. In general, wildlife has a wider hearing range than humans, both on the low and high frequency ends of the noise spectrum. Noise studies, principally those on aircraft noise, have found varying results, ranging from no identifiable effects in some species, to noticeable behavioral and physiological effects in other species (e.g., birds) (EPA 1980).

For this PEA FEMA will adopt the U.S. Department of Transportation's Federal Highway Administration standards for noise abatement found in 23 CFR Part 772 – Table 1. These establish, for example, the need to consider noise abatement measures for actions that produce sound levels that 10 percent of the time exceed 70 dB in areas with sensitive receptors (e.g. as

playgrounds, parks, schools, libraries, residences, and hospitals) and exceed 75 dB in developed lands.

5.11.2 Impact Evaluation

5.11.2.1 Alternative 1: No Action

No effects on associated with noise pollution expected from the no action alternative.

5.11.2.2 Alternative 2: Upgrades and Minor Construction in Previously Disturbed Areas

Activity work associated with this alternative have measurable noise-related impacts. Table 5-4 shows an estimate of the noise levels associated with typical construction equipment and attenuation of noise at various distances. To estimate the attenuation of the noise over a given distance the following relationship was used:

$$dBA_2 = dBA_1 - 20 \log (d_2/ d_1)$$

Where:

dBA_2 = dBA at distance 2 from source (predicted);
dBA_1 = dBA at distance 1 from source (measured);
d_1 = distance to location 2 from source;
d_2 = distance to location 1 from source

Source: California Department of Transportation (1998).

Table 5-4. Estimated Sound Levels for Construction Equipment and Attenuation at Various Distances

Equipment	Typical Noise Level (dBA) at 50 ft. from Source[1]	Estimate at 100 ft.	Estimate at 200 ft.	Estimate at 500 ft.	Estimate at 1,000 ft.
Air Compressor	81	75	69	61	55
Backhoe	80	74	68	60	54
Concrete Mixer	85	79	73	65	59
Dozer	85	79	73	65	59
Generator	81	75	69	61	55
Loader	85	79	73	65	59
Paver	89	83	77	69	63
Pneumatic Tool	85	79	73	65	59
Pump	76	70	64	56	50
Saw	76	70	64	56	50
Shovel	82	76	70	62	56
Truck	88	82	76	68	62

[1]Source: FHWA 2006.

The estimates provided in Table 5-4 indicate that most of the equipment commonly associated with construction activities produces noise levels that exceed 75 dBA. A distance of 200 feet or more is needed between most of the construction equipment provided and a receptor to attenuate the noise levels those that are acceptable.

Land disturbance associated with this activity is expected to be less than one (1) acre. This limits the type and time of use for each piece of equipment. FEMA will follow the mitigation measures for ground disturbance activities in Section 7.2, which includes operation during business hours (Monday thru Friday from 7am to 5pm) and the use equipment using the manufacturer's standard noise control devices (i.e. mufflers, baffling, and/or engine enclosures). In addition, FEMA will comply with any State, Territory, Tribal or local noise control requirements.

FEMA will document those actions that would result in noise levels exceeding 70 dBA for more than 10 percent of the time and will take place less than 200 feet from sensitive receptors (e.g. schools, hospitals, and residential areas) through either a REC or a site-specific SEA, depending on the nature and magnitude of the potential impacts.

5.11.2.3 Alternative 3: Upgrades and Minor Construction in Undisturbed Areas

This alternative will result in similar impacts associated with noise pollution as those discussed in Alternative 2.

Section Six Cumulative Impacts

The CEQ regulations implementing NEPA define cumulative impacts as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

6.1 Alternative 1: No Action

The no action alternative would have moderate cumulative effects on human health and safety and disproportionate adverse effects on low-income populations. Under this alternative FEMA would not be able to ensure that selected transmitter facilities across the Nation operate during natural or man-made disasters, including catastrophic events. Some communities and populated areas across the country will not receive public safety and status information regarding the incident affecting them. Low-income populations may rely more on radio transmission than other sources of information and communication available to the community such as Internet or television. FEMA would not be supporting the implementation of E.O. 13407 and implementing Section 202 of the Stafford Act to the detriment of the Nation.

6.2 Alternatives 2 and 3

FEMA's experience with similar types of projects addressed in this PEA is that they would have minor adverse cumulative impacts given the relatively small amount of land that will be physically affected by the proposed projects. However, project-specific information will be needed for the following projects to appropriately take into consideration the potential for cumulative impacts of the construction projects as they relate to impacts on historic properties, threatened and endangered species, federally designated critical habitat, and wetlands.

FEMA will take cumulative impacts into account when evaluating whether the particular action fits within this PEA. If the potential for cumulative impacts is present FEMA, will document this in a REC or a site-specific SEA.

Section Seven Mitigation

FEMA will take the following measures to the extent practicable and applicable to avoid or further minimize impacts to the quality of the human environment. The general mitigation measures outlined in this section may be superseded by higher or more stringent standards required by the particular Federal, State or Territory, Tribe, or local government agency issuing a permit, license, or approval for the project.

7.1 Measures to avoid impacts to the human environment

1. Avoid sites areas characterized by susceptibility to seismic or volcanic activity, tsunamis, landslides, mudslides, structural instability, excessive erodibility, or steep slopes;
2. Avoid sites in the floodplain;
3. Avoid sites on important farmlands;
4. Avoid sites on or near TCPs;
5. Avoid sites in wetlands;
6. Avoid undertaking projects that adversely affect historic properties;
7. Avoid projects that adversely affect threatened and endangered or special status species or critical habitat.

7.2 Minimization Measures for ground disturbing/ construction activities

1. Follow applicable State, Territory, Tribal, and local permitting requirements for construction;
2. Water down construction site two to three times per day if dust emissions become a problem;
3. Enclose or water down exposed dirt storage piles;
4. Minimize the disturbed area and preserve vegetation to the maximum extent possible;
5. Maintain topsoil whenever possible;
6. Phase construction activities to the extent possible;
7. Control stormwater flowing to and through the project site;
8. Protect slopes by using measures such as erosion control blankets, bonded fiber matrices, turf reinforcement mats, silt fences (for moderate slopes), etc.;
9. Temporarily protect storm drain inlets until site is stabilized;
10. Retain sediment on-site and control dewatering practices by using sediment traps or basins for large areas (> 1 acre) when appropriate;
11. Establish stabilized construction entrances/exits (e.g. large crushed rocks, stone pads, steel wash racks, hose-down systems, pads);
12. Limit construction activities, including operation of heavy machinery, to normal business hours (M-F 7am-5pm);
13. Avoid engaging in construction activities within 200 feet of noise-sensitive receptors such as schools, hospitals, residential areas, nursing homes, etc.
14. Ensure adequate maintenance of equipment, including proper engine maintenance, adequate tire inflation, and proper maintenance of pollution control devices;

15. Ensure equipment at the project site uses the manufacturer's standard noise control devices (i.e., mufflers, baffling, and/or engine enclosures);
16. Reduce construction equipment idling to the maximum extent practicable;
17. Implement plans to eliminate and minimize oil or fuel spills from construction equipment;
18. Minimize the impacts of equipment staging areas;
19. Stabilize slopes promptly through temporary and permanent cover best management practices (BMPs). Following construction all remaining disturbed areas must be revegetated with locally acquired sources of native seeds and plants in a manner that returns the site to its pre-construction condition or better. Plantings are done during the optimum season for the species being planted. Any seeding carried out during the revegetation program is completed with commercially available seeds certified to be free of noxious weed seeds and other invasive species. If necessary, an irrigation system is installed to ensure establishment of the planted vegetation. The target for new plantings is an 80 percent survival rate at the end of 3 years. Invasive exotic plant species are controlled to the maximum extent practical to accomplish the revegetation effort. If the application of a chemical is required to control an invasive exotic plant species, the chemical is applied by a certified pesticide or herbicide applicator per labeled directions and in compliance with all Federal, State, and local laws and regulations.
20. When applicable adopt measures to minimize traffic impacts during construction such as providing warning signage, limit the use of public right-of-ways for staging of equipment or materials, use of flagpersons when needed, and coordinate detours if traffic access points will be obstructed.
21. Avoid engaging in construction activities within 660 feet of a bald or golden eagle nest during nesting and fledging, as nesting eagles are quite sensitive to human activities during these times.
22. Establish an inspection and maintenance approach to ensure these measures are working adequately.
23. Avoid archeological sites by shifting ground disturbance in a particular area, when possible.

Section Eight Documents Incorporated by Reference

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

USEPA (U.S. Environmental Protection Agency) 2007. Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites. http://www.rpi.edu/~kilduff/Stormwater/EPA%20swppp%20guide.pdf

NEHRP (National Earthquake Hazard Reduction Program) 2000. *Recommended Provisions for New Buildings and Other Structures*. March 2000. http://www.bssconline.org/NEHRP2000/comments/provisions/front.pdf

NPS (National Park Service) 1998. *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. 1990, revised 1992, 1998. Available at: http://www.nps.gov/history/nr/publications/bulletins/nrb38/.

Glossary of Terms

Ground disturbance - any work or activity that results in a disturbance of the earth, including excavating, digging, trenching, plowing, drilling, tunneling, backfilling, blasting, topsoil stripping, land leveling, peat removing, quarrying, clearing and grating

Best Management Practices (BMPs) – Effective, practical, structural or nonstructural methods, schedules of activities, or prohibitions of practices which prevent or reduce the movement of sediment, nutrients, pesticides and other pollutants from the land to surface or ground water, or which otherwise protect water quality.

Historic property – Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register of Historic Places, including artifacts, records, and material remains related to such a property or resource. Historic properties are significant at the national, tribal, regional, state, territory, or local level in American history, architecture, archaeology, engineering, or culture.

Modification – Changes to an existing building or structure resulting from the addition or removal of architectural elements, equipment, utilities, etc.

Construction – The preparation of previously disturbed or undisturbed land and the building or assembly of new buildings, structures, infrastructure and other real property on that land. The preparation of land includes removal of vegetation; site clearing, grading, and grubbing; excavation, etc. This definition does not include activities prior to construction, such as design, siting of buildings, or specification of materials, nor does it include the operation of a facility following construction.

References

California Department of Transportation (CDOT) 1998. Technical Noise Supplement by the California Department of Transportation Environmental Program Environmental Engineering - Noise, Air Quality, and Hazardous Waste Management Office. October 1998, pp. 24-28.

CEQ (President's Council on Environmental Quality) 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act*. December 1997.

FEMA (Federal Emergency Management Agency) 2009. Programmatic Environmental Assessment for the Alternative Housing Pilot Program's Permanent Housing in Calcasieu Parish, Louisiana. March 2009.

FHWA (Federal Highway Administration) 2006. *Highway Construction Noise Handbook, August 2006*. FHWA-HEP-06-015, DOT-VNTSC-FHWA-06-02, NTIS No. PB2006-109102. Available at: http://www.fhwa.dot.gov/environment/noise/handbook/index.htm.

HUD (US Housing and Urban Development) 2009. *The Noise Guidebook*. Available at: http://www.hud.gov/offices/cpd/environment/training/guidebooks/noise/index.cfm.

NEHRP (National Earthquake Hazard Reduction Program) 2000. Recommended Provisions for New Buildings and Other Structures. March 1.

NPS (National Park Service), 1998. *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. 1990, revised 1992, 1998. Available at: http://www.nps.gov/history/nr/publications/bulletins/nrb38/. Accessed 8 January 2009.

USCB (United States Census Bureau) 2008. *Poverty Thresholds for 2007 by Size of Family and Number of Related Children Under 18 Years*. 2008. Available at: http://www.census.gov/hhes/www/poverty/threshld/thresh07.html. Accessed 8 January 2009.

USEPA (U.S. Environmental Protection Agency) 1980. *Effects of Noise on Wildlife and Other Animals*. EPA 550/9-80-100. TIC 242667. December 1980.

USEPA 1995. *Compilation of Air Pollutant Factors, Volume 1: Stationary Point and Area Sources (AP-42)*, 5th edition, United Stated Environmental Protection Agency, Ann Arbor. January.

USEPA 2007. Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites. http://www.rpi.edu/~kilduff/Stormwater/EPA%20swppp%20guide.pdf

USEPA. 2008a. Air and Radiation Division, Office of Air Quality Planning and Standards. National Ambient Air Quality Standards. http://www.epa.gov/air/criteria.html

Western Regional Air Partnership (WRAP). 2004. WRAP Fugitive Dust Handbook. November 15.

List of Preparers

FEMA

Jomar Maldonado, FEMA Environmental Officer

Appendix A: Record of Environmental Considerations

Record of Environmental Consideration

See 44 Code of Federal Regulation Part 10.

Project Name/Number:

Project Location:

Project Description:

Documentation Requirements

☐ No Documentation Required **(Review Concluded)**

☐ **(Short version)** All consultation and agreements implemented to comply with the National Historic Preservation Act, Endangered Species Act, and Executive Orders 11988, 11990 and 12898 are completed and no other laws apply. **(Review Concluded)**

☐ (Long version) **All applicable laws and executive orders were reviewed. Additional information for compliance is attached to this REC.**

National Environmental Policy Act (NEPA) Determination

☐ **Statutorily excluded from NEPA review. (**Review Concluded)

☐ Programmatic Categorical Exclusion - Category (Reference PCE in comments) **(Review Concluded)**

☐ Categorical Exclusion - Category

- ☐ No Extraordinary Circumstances exist.

  Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

- ☐ Extraordinary Circumstances exist (See Section IV).

  ☐ Extraordinary Circumstances mitigated. (See Section IV comments)

  Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Environmental Assessment

☐ Supplemental Environmental Assessment (Reference EA or PEA in comments)

☐ Environmental Impact Statement

Comments:

Reviewer and Approvals

☐ Project is Non-Compliant (See attached documentation justifying selection).

FEMA Environmental Reviewer.

Name:

Signature_____. Date _____.

FEMA Regional Environmental Officer or delegated approving official.

Name:

Signature_____. Date _____.

I. Compliance Review for Environmental Laws (other than NEPA)

8.1.1 A. National Historic Preservation Act

☐ Not type of activity with potential to affect historic properties. **(Review Concluded)**

☐ Applicable executed Programmatic Agreement (insert date) Otherwise, conduct standard Section 106 review.

☐ Activity meets Programmatic Allowance # _____

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

1.1 HISTORIC BUILDINGS AND STRUCTURES

☐ No historic properties that are listed or 45/50 years or older in project area. **(Review Concluded)**

☐ Building or structure listed or 45/50 years or older in project area and activity not exempt from review.

☐ Determination of No Historic Properties Affected (FEMA finding/SHPO/THPO concurrence on file)

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Determination of Historic Properties Affected (FEMA finding/SHPO/THPO concurrence on file)

☐ Property a National Historic Landmark and National Park Service was provided early notification during the consultation process. If not, explain in comments

☐ No Adverse Effect Determination (FEMA finding/SHPO/THPO concurrence on file).

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ **Adverse Effect Determination (FEMA finding/SHPO/THPO concurrence on file)**

☐ **Resolution of Adverse Effect completed. (MOA on file)**

Are project conditions required ☐ Yes (see section V) ☐ No **(Review Concluded)**

1.2 ARCHEOLOGICAL RESOURCES

☐ Project affects only previously disturbed ground. **(Review Concluded)**

☐ Project affects undisturbed ground.

☐ Project area has no potential for presence of archeological resources

☐ Determination of no historic properties affected (FEMA finding/SHPO/THPO concurrence or consultation on file). **(Review Concluded)**

☐ Project area has potential for presence of archeological resources

☐ Determination of no historic properties affected (FEMA finding/SHPO/THPO concurrence on file)

Are project conditions required ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Determination of historic properties affected

☐ NR eligible resources not present (FEMA finding/SHPO/THPO concurrence on file).

Are project conditions required ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ NR eligible resources present in project area. (FEMA finding/ SHPO/THPO concurrence on file)

☐ No Adverse Effect Determination. (FEMA finding/ SHPO/THPO concurrence on file)

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Adverse Effect Determination. (FEMA finding/ SHPO/THPO concurrence on file)

☐ Resolution of Adverse Effect completed. (MOA on file)

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

B. Endangered Species Act

☐ No listed species and/or designated critical habitat present in areas affected directly or indirectly by the Federal action. **(Review Concluded)**

☐ Listed species and/or designated critical habitat present in the areas affected directly or indirectly by the Federal action.

☐ No effect to species or designated critical habitat**.** (See comments for justification)

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ May affect, but not likely to adversely affect species or designated critical habitat (FEMA determination/USFWS/NMFS concurrence on file) **(Review Concluded)**

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Likely to adversely affect species or designated critical habitat

☐ Formal consultation concluded. (Biological Assessment and Biological Opinion on file)

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

C. Coastal Barrier Resources Act

☐ Project is not on or connected to CBRA Unit or Otherwise Protected Area **(Review Concluded)**.

☐ Project is on or connected to CBRA Unit or Otherwise Protected Area. (FEMA determination/USFWS consultation on file)

☐ Proposed action an exception under Section 3505.a.6? **(Review Concluded)**

☐ Proposed action not excepted under Section 3505.a.6.

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

D. Clean Water Act

☐ Project would not affect any waters of the U.S. **(Review Concluded)**

☐ Project would affect waters, including wetlands, of the U.S.

☐ Project exempted as in kind replacement or other exemption. **(Review Concluded)**

☐ Project requires Section 404/401/or Section 9/10 (Rivers and Harbors Act) permit, including qualification under Nationwide Permits.

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

E. Coastal Zone Management Act

☐ Project is not located in a coastal zone area and does not affect a coastal zone area (**Review concluded)**

☐ Project is located in a coastal zone area and/or affects the coastal zone

☐ State administering agency does not require consistency review. **(Review Concluded)**.

☐ State administering agency requires consistency review.

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

F. Fish and Wildlife Coordination Act

☐ Project does not affect, control, or modify a waterway/body of water**. (Review Concluded)**

☐ Project affects, controls or modifies a waterway/body of water.

☐ Coordination with USFWS conducted

☐ No Recommendations offered by USFWS. **(Review Concluded)**

☐ Recommendations provided by USFWS.

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

G. Clean Air Act

☐ Project will not result in permanent air emissions. **(Review Concluded)**

☐ Project is located in an attainment area. **(Review Concluded)**

☐ Project is located in a non-attainment area.

☐ Coordination required with applicable state administering agency..

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

H. Farmland Protection Policy Act

☐ Project does not affect designated prime or unique farmland. **(Review Concluded)**

☐ Project causes unnecessary or irreversible conversion of designated prime or unique farmland.

☐ Coordination with Natural Resource Conservation Commission required.

☐ Farmland Conversion Impact Rating, Form AD-1006, completed.

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

I. Migratory Bird Treaty Act

☐ Project not located within a flyway zone. **(Review Concluded)**

☐ Project located within a flyway zone.

☐ Project does not have potential to take migratory birds. **(Review Concluded)**

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Project has potential to take migratory birds.

☐ Contact made with USFWS

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:
Correspondence/Consultation/References:

J. Magnuson-Stevens Fishery Conservation and Management Act

☐ Project not located in or near Essential Fish Habitat. **(Review Concluded)**

☐ Project located in or near Essential Fish Habitat.

☐ Project does not adversely affect Essential Fish Habitat. **(Review Concluded)**

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Project adversely affects Essential Fish Habitat (FEMA determination/USFWS/NMFS concurrence on file)

☐ NOAA Fisheries provided no recommendation(s) **(Review Concluded).**

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ NOAA Fisheries provided recommendation(s)

☐ Written reply to NOAA Fisheries recommendations completed.

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:
Correspondence/Consultation/References:

K. Wild and Scenic Rivers Act

☐ Project is not along and does not affect Wild or Scenic River (WSR) - **(Review Concluded)**

☐ Project is along or affects WSR

☐ Project adversely affects WSR as determined by NPS/USFS. **FEMA cannot fund the action**. (NPS/USFS/USFWS/BLM consultation on file) **(Review Concluded)**

☐ Project does not adversely affect WSR. (NPS/USFS/USFWS/BLM consultation on file)

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

8.1.2 L. Other Relevant Laws and Environmental Regulations

Identify relevant law or regulations, resolution and any consultation/references

II. Compliance Review for Executive Orders

A. E.O. 11988 - Floodplains

☐ No Effect on Floodplains/Flood levels and project outside Floodplain - **(Review Concluded)**

☐ Located in Floodplain or Effects on Floodplains/Flood levels

☐ No adverse effect on floodplain and not adversely affected by the floodplain. **(Review Concluded)**,

Are project conditions required? ☐ Yes (see section V) ☐ No **(Review Concluded)**

☐ Beneficial Effect on Floodplain Occupancy/Values **(Review Concluded).**

☐ Possible adverse effects associated with investment in floodplain, occupancy or modification of floodplain environment

☐ 8 Step Process Complete - documentation on file

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:

Correspondence/Consultation/References:

B. E.O. 11990 - Wetlands

☐ No Effects on Wetland(s) and project located outside Wetland(s) - **(Review Concluded)**

☐ Located in Wetland or effects Wetland(s)

☐ Beneficial Effect on Wetland - **(Review Concluded)**

☐ Possible adverse effect associated with constructing in or near wetland

☐ Review completed as part of floodplain review

☐ 8 Step Process Complete - documentation on file

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:
Correspondence/Consultation/References:

C. E.O. 12898 - Environmental Justice For Low Income and Minority Populations

☐ No Low income or minority population in, near or affected by the project - **(Review Concluded)**

☐ Low income or minority population in or near project area

☐ No disproportionately high and adverse impact on low income or minority population- **(Review Concluded)**

☐ Disproportionately high or adverse effects on low income or minority population

Are project conditions required? ☐ YES (see section V) ☐ NO **(Review Concluded)**

Comments:
Correspondence/Consultation/References:

III. Other Environmental Issues

Identify other potential environmental concerns in the comment box not clearly falling under a law or executive order (see environmental concerns scoping checklist for guidance).

Comments:
Correspondence/Consultation/References:

IV. Extraordinary Circumstances

Based on the review of compliance with other environmental laws and Executive Orders, and in consideration of other environmental factors, review the project for extraordinary circumstances.

* A "Yes" under any circumstance may require an Environmental Assessment (EA) with the exception of (ii) which should be applied in conjunction with controversy on an environmental issue. If the circumstance can be mitigated, please explain in comments. If no, leave blank.

Yes

☐ (i) Greater scope or size than normally experienced for a particular category of action

☐ (ii) Actions with a high level of public controversy

☐ (iii) Potential for degradation, even though slight, of already existing poor environmental conditions;

☐ (iv) Employment of unproven technology with potential adverse effects or actions involving unique or unknown environmental risks;

☐ (v) Presence of endangered or threatened species or their critical habitat, or archaeological, cultural, historical or other protected resources;

☐ (vi) Presence of hazardous or toxic substances at levels which exceed Federal, state or local regulations or standards requiring action or attention;

☐ (vii) Actions with the potential to affect special status areas adversely or other critical resources such as wetlands, coastal zones, wildlife refuge and wilderness areas, wild and scenic rivers, sole or principal drinking water aquifers;

☐ (viii) Potential for adverse effects on health or safety; and

☐ (ix) Potential to violate a federal, state, local or tribal law or requirement imposed for the protection of the environment.

☐ (x) Potential for significant cumulative impact when the proposed action is combined with other past, present and reasonably foreseeable future actions, even though the impacts of the proposed action may not be significant by themselves.

Comments:

V. Environmental Review Project Conditions

General comments:

Project Conditions:

Monitoring Requirements: