

Revised Draft Programmatic Environmental Assessment

# Alternative Housing Pilot Program Permanent Housing

Orleans Parish, Louisiana  
FEMA-1603/1607-DR-LA  
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**U.S. Department of Homeland Security**  
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### List of Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter of air
AA	Alternative Arrangements
AADT	Average Annual Daily Traffic
Ae	Allemands
ACHP	Advisory Council on Historic Preservation
AHPP	Alternative Housing Pilot Program
amsl	Above mean sea level
An	Aquents
AT	Also Aquents
BEA	Bureau of Economic Analysis
bgs	Below ground surface
BMP	Best Management Practice
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHHA	Coastal High Hazard Area
CIA	Cumulative Impact Analysis
Cm	Cancienne silt loam
CO	Carbon monoxide
Co	Cancienne silty clay loam
CUP	Coastal Use Permit
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
dB	Decibel
dBA	A-weighted decibel
DFIRM	Digital Flood Insurance Rate Maps
DHS	Department of Homeland Security
DO	Dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
FONSI	Finding of No Significant Impact
GOHSEP	Governor's Office of Homeland Security and Emergency Preparedness
GNOCDC	Greater New Orleans Community Data Center
GSRC	Gulf South Research Corporation
HMGP	Hazard Mitigation Grant Program
Ha	Harahan clay
HUD	U.S. Department of Housing and Urban Development
I	Interstate
IHNC	Inner Harbor Navigation Canal

LA	Louisiana state highway
LaDOTD	Louisiana Department of Transportation and Development
LaMP	Louisiana Mapping Project
LCP	Local Coastal Management Program
LDA	Louisiana Division of Archeology
LDEQ	Louisiana Department of Environmental Quality
LDWF	Louisiana Department of Wildlife and Fisheries
LNHP	Louisiana Natural Heritage Program
LOHSEP	Louisiana Office of Homeland Security and Emergency Preparedness
Louisiana Cottages	Permanent single-family AHPP units
LRA	Louisiana Recovery Authority
LTCR	Louisiana Long-Term Community Recovery
MBTA	Migratory Bird Treaty Act
mg/m <sup>3</sup>	Milligrams per cubic meter of air
MLRA	Major Land Resource Area
MSA	Metropolitan Statistical Area
msl	Mean sea level
NA	Not applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrous oxides
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA National Marine Fisheries Service
NOMA	New Orleans Metropolitan Area
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHD	National Register Historic Districts
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O <sub>3</sub>	Ozone
P	Primary
PA	Programmatic Agreement
PEA	Programmatic Environmental Assessment
Pb	Lead
PCPI	Per capita personal income
PL	Public Law
PM-2.5	Particulate matter less than 2.5 micrometers
PM-10	Particulate matter less than 10 micrometers
ppm	Parts per million
POV	Personally owned vehicle
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
RTA	New Orleans Regional Transit Authority
S	Secondary
SEA	Supplemental Environmental Assessment
Sh	Schriever silty clay loam

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SHPO	State Historic Preservation Officer
Sk	Schriever clay
SO <sub>2</sub>	Sulfur dioxide
sq ft	Square feet
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
State	State of Louisiana
SWPPP	Stormwater Pollution Prevention Plan
TSCA	Toxic Substances Control Act
US	U.S. highway
U.S.	United States
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile organic compound
WMA	Wildlife Management Area
WSRA	Wild and Scenic Rivers Act
WUS	Waters of the U.S.
Ww	Westwego Series

***SECTION 1.0***  
***INTRODUCTION***



## 1.0 Introduction

The Department of Homeland Security's (DHS's) Federal Emergency Management Agency (FEMA) is mandated by the United States (U.S.) Congress to administer Federal disaster assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law (PL) 93-288, as amended. Under the authority of Section 408 of the Stafford Act, the Individual Assistance Program provides temporary housing for disaster victims in the affected areas whose homes are uninhabitable or destroyed. This temporary housing is made available for the intermediate period (generally up to 18 months) that covers the gap between sheltering and securing permanent housing. FEMA typically addresses disaster-related housing requirements first with rental assistance and then through manufactured homes. Manufactured homes have been used to meet both short- and long-term disaster housing needs and are typically placed on commercial pads or in group sites developed expressly for this purpose.

Although FEMA's traditional temporary housing options are sufficient to address the housing needs of residents in most disasters, the catastrophic dimensions of the 2005 hurricane season challenged the efficacy of these traditional methods. These traditional methods are based on the statutory supposition that such assistance will generally not be required for more than 18 months. However, the impact of Hurricanes Katrina and Rita on the Gulf Coast decimated the housing stock resulting in:

- the complete destruction of a significant number of homes on private lots;
- the destruction of complete neighborhoods;
- protracted community recovery timelines, with the likelihood that temporary housing may be required in some cases for extended periods;
- a shortage of resources for reconstruction of homes, uncertainty with respect to community and neighborhood recovery, labor shortage, and other factors that limit the pace of recovery; and
- community and individual resistance to the use of manufactured homes for extended temporary housing; concurrent with the interest of the design community, local governments, and Congress to find better temporary housing options for disaster victim use while pursuing permanent housing solutions.

Recognizing the extensive and complex housing challenges facing victims and communities as a result of natural disasters, such as the 2005 hurricane season, and acknowledging the limitations on FEMA's ordinary statutory authority to provide long-term and permanent housing solutions, the U.S. Congress appropriated funds to DHS to support alternative housing pilot

programs (Emergency Supplemental Appropriations Act, 2006, PL 109-234). The Alternative Housing Pilot Program (AHPP) represents a one-time exception to FEMA's existing authority under the Stafford Act. The Stafford Act legally binds FEMA to a temporary housing mission, by providing an opportunity to explore, implement, and evaluate innovative approaches to housing solutions, and to address ongoing housing challenges created by the 2005 hurricane season in the states of the Gulf Coast region, including the State of Louisiana (State).

The State through the Louisiana Recovery Authority (LRA) has applied for FEMA funding under the AHPP to provide approximately 160 permanent housing units within Orleans Parish for eligible applicant families displaced by Hurricane Katrina throughout Louisiana and particularly Orleans Parish (Appendix A, Figure 1).

In accordance with the National Environmental Policy Act (NEPA), as implemented through 40 Code of Federal Regulations (CFR) 1500 *et. seq.*, 44 CFR 10 *et. seq.*, and DHS's Management Directive 023.1 (formerly Directive 5100.1), FEMA must fully understand and consider the environmental impacts of actions proposed for Federal funding. The purpose of this Programmatic Environmental Assessment (PEA) is to document the review and analysis of any potential impacts the AHPP would have on the natural and human environment in Orleans Parish, Louisiana.

### **1.1 Purpose and Need**

The purpose of this action is to provide alternative disaster housing for families displaced during the 2005 hurricane season in Orleans Parish. The alternative housing is to be implemented through a pilot program that includes long-term housing solutions. Furthermore, the purpose of the pilot program included implementing easily installed housing solutions that can be rapidly deployed to move families from temporary to permanent housing. The need for this action is to address the housing shortages caused by the catastrophic effects of Hurricane Katrina and to move disaster victims from temporary solutions (*e.g.*, rental dwellings, manufactured housing, *etc.*) to permanent housing. In Orleans Parish, as the result of Hurricanes Katrina and Rita there were approximately 89,799 individuals housed in 23,343 temporary housing units. As of May 1, 2009, FEMA's mission for temporary housing solutions has phased out; however, there are still currently 667 temporary housing units being occupied in Orleans Parish.

## 1.2 Scope and Use of the Programmatic Environmental Assessment

FEMA has determined through experience that the majority of typical recurring actions proposed for funding, and for which an Environmental Assessment (EA) is required, can be grouped by type of action or location. These groups of actions can be evaluated in a PEA for compliance with NEPA and its implementing regulations without the need to develop and produce a stand-alone EA for every action. In addition, satisfying NEPA compliance through the use of a PEA would also streamline the process and expedite the placement of displaced residents into permanent housing.

This PEA evaluates the long-term and permanent housing actions proposed by the LRA and FEMA under the AHPP for Louisiana residents, especially those in Orleans Parish, displaced as a result of the 2005 hurricane season. This PEA also provides the public and decision-makers with the information required to understand and evaluate the potential environmental consequences of these actions. FEMA will use this PEA to determine the level of environmental analysis and documentation required under NEPA for any proposed AHPP housing action in Orleans Parish, given the available site-specific information. If the alternatives, levels of analysis, and site-specific information of an action proposed for FEMA funding are fully and accurately described in this PEA, then no further documentation will be required to comply with NEPA.

FEMA will review each proposed action on a case-by-case basis to assess its potential to impact resources. Any proposed action requiring further resource agency consultation or coordination will be documented by FEMA with all supporting documentation in the project's administrative record.

Should a specific action be expected to (1) create impacts not identified in the PEA; (2) create impacts greater in magnitude, extent, or duration than those described in the PEA; or (3) require mitigation measures to keep impacts below significant levels that are not described in the PEA; a Supplemental Environmental Assessment (SEA) and corresponding Finding of No Significant Impact (FONSI), if appropriate, would be prepared to address the specific action. The SEA would be tiered from this PEA, in accordance with 40 CFR Part 1508.28.<sup>1</sup> Actions that are determined, during preparation of the SEA, to require a more detailed or broader environmental

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<sup>1</sup>Tiering refers to incorporating, by reference, the general assessments and discussions from this PEA into a focused SEA. The SEA would focus on the particular effects of the specific action.

review would be subject to the stand-alone EA process. Actions that are determined to have significant environmental impacts would be subject to preparation of an Environmental Impact Statement (EIS).

### **1.3 Public Involvement**

This section discusses consultation and coordination that has occurred during preparation of this document. Since Hurricane Katrina, FEMA has coordinated with various Federal and state agencies on the potential impacts of FEMA's proposed disaster response and recovery action on environmental and cultural resources. During the scoping process for the AHPP, FEMA has established that the actions described in Section 2.0 would be inclusive of actions identified by FEMA during their initial agency coordination process. Additional agency coordination with the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACE), Natural Resources Conservation Service (NRCS), Louisiana Department of Wildlife and Fisheries (LDWF), and Louisiana Department of Environmental Quality (LDEQ) were conducted by FEMA requesting project review and any available information under their respective jurisdictions to ensure that the actions had no significant impacts on various natural resources. In addition, the City of New Orleans' Coastal Zone Management Administrator was sent a letter requesting project review for this project. Coordination letters can be found in Appendix B. Due to the nature of this programmatic analysis, FEMA personnel and the Louisiana State Historic Preservation Officer (SHPO) have been in verbal communication prior to development of the PEA.

The LRA has partnered with Providence Community Housing, a private non-profit organization, to install approximately 55 of the 160 proposed AHPP housing units in the Treme/Lafitte neighborhood of New Orleans. Providence has conducted a series of public hearings and issued flyers, ads, and e-mails in the Treme/Lafitte neighborhood regarding the Lafitte Redevelopment, a much larger effort which includes the redevelopment of 1,500 homes and apartments within New Orleans. Currently, as of May 2009, Providence continues to have monthly meetings with nearby residents. Public involvement information provided by Providence is included in Appendix B.

The revised draft PEA and revised draft FONSI are being made available to the public for review for 15 days beginning on July 24, 2009. The Notice of Availability will be published twice

during the 15-day review period in the *New Orleans Times Picayune* and provides instructions to the public on where the draft document can be found (on the Internet as well as in six local libraries located throughout Orleans Parish). In addition, to ensure greater public awareness of the proposed housing initiative, FEMA will provide flyers indicating where the revised draft PEA is available for review. These flyers will be placed in the neighborhoods in which the most proposed sites would be located and will be placed where people congregate, such as grocery stores, gas stations, *etc.* Once a particular proposed site is identified FEMA or the LRA will provide direct mailings to adjacent neighbors informing them of the AHPP housing installation.

***SECTION 2.0***  
***ALTERNATIVES***



## **2.0 Alternatives**

This section describes the alternative actions that meet the project's purpose and need, and that the State, under the auspices of the LRA, and FEMA propose to undertake in order to provide AHPP housing to Louisiana residents displaced as a result of Hurricane Katrina within Orleans Parish and surrounding parishes (program area) (Appendix A, Figure 1). The two alternatives evaluated were: Alternative 1, the No Action Alternative, and Alternative 2 which consists of the construction of permanent AHPP units on previously disturbed land in Orleans Parish, Louisiana. The alternatives are more fully described below.

### **2.1 Alternative 1: No Action Alternative**

Inclusion of Alternative 1, a No Action Alternative, in the environmental analysis and documentation is required under NEPA. The No Action Alternative is defined as maintaining the *status quo*, with no FEMA funding for long-term or permanent housing. This alternative evaluates the effects of not providing long-term or permanent housing and provides a benchmark against which the action alternatives may be evaluated.

Under the No Action Alternative, persons who are receiving temporary resources would continue to do so, until a time when FEMA would discontinue providing temporary housing support. It is assumed that no state or local government agency or non-governmental organization would provide long-term or permanent housing for disaster victims. Displaced persons would be required to find a suitable housing solution without FEMA assistance including seeking out housing provided by family members or friends, hotels, temporary "dormitories" such as homeless shelters or churches, or through charitable donations.

### **2.2 Alternative 2: Proposed Action Alternative**

Alternative 2 would include the construction of AHPP units on previously disturbed land scattered throughout Orleans Parish. Previously disturbed land would include land that was previously residential or commercial land uses. The site would be cleared of all debris and vegetation, then grubbed, contoured, and graded, if necessary. Projects under this alternative may require ground disturbing activities, including demolition of former housing structures, slab/foundation removal, and modification of utilities (*i.e.*, utility lines and septic system connections) and entryways (driveways, sidewalks, *etc.*). If located within the 100-year floodplain, FEMA would require AHPP units be elevated at or above the required digital flood

insurance rate map (DFIRM) elevation, as necessary. No AHPP units would be located within the DFIRM Flood Zones V and VE, also called the Coastal High Hazard Area (CHHA).

Approximately 160 permanent single-family AHPP units (Louisiana Cottages) would be constructed throughout Orleans Parish. The proposed cottages would be scattered throughout the Parish and would “fill-in” throughout existing neighborhoods; as such, this project is at times called the “Orleans Scattered In-fill Housing Project.” Within New Orleans (east and west banks) there are approximately 72 neighborhoods as seen in Appendix A, Figure 2 (Greater New Orleans Community Data Center [GNOCDC] 2004). The majority of the proposed AHPP cottage sites are in the Seventh Ward, Lower Ninth Ward, Central City, Bayou St. John, Tremé/Lafitte, and Bywater neighborhoods.

The living area for the various Louisiana Cottages at the proposed sites would range from 874 square feet (sq ft) to 1,112 sq ft, with several expanded units up to 1,525 sq ft. Appendix C provides architectural design and renderings of the AHPP cottages which would be utilized in the AHPP unit installations. The cottage design utilized at a particular location would be determined by the lot size, lot layout, and nearby housing designs. The Louisiana Cottages would be built on piles extended to the required DFIRM elevation, as necessary. Photograph 1 shows a typical Louisiana Cottage. Currently, the LRA has provided the addresses of over 220 proposed properties located throughout Orleans Parish but predominately located on the east bank of the Mississippi River. The list of these proposed properties in which Louisiana Cottages could be placed can be found in Appendix D. A proposed AHPP house lot site would be reviewed by FEMA to meet the conditions of the PEA and would be documented in a Record of Environmental Consideration (REC) and included in the project’s administrative record. Should the proposed AHPP lot not meet the conditions analyzed in this document then that property would no longer be a viable housing site, would be removed from the list, and another property would be evaluated and documented per the REC.



**Photograph 1. Typical Louisiana Cottage**

Should the proposed AHPP lot not meet the conditions analyzed in this document then that property would no longer be a viable housing site, would be removed from the list, and another property would be evaluated and documented per the REC.

If modification of existing utilities is not possible, new utilities installation would consist of connecting electrical service, domestic water service, stormwater systems, sanitary sewer service, and telecommunication service to existing local municipal infrastructure.

### **Cottage Unit Foundations**

The foundations on each Louisiana Cottage would be of post and beam design and are designed to meet high wind hazard design criteria in Orleans Parish. With this type of foundation design, the piles extend above the ground level and support the house structure through metal brackets attached to wood floor beams which support the frame of the house. This type of foundation results in a crawl space underneath the house, in which wiring and duct work can be laid during construction, and allows the piles to be extended to meet elevation requirements. Because soil conditions in the New Orleans area are typically such that foundation subsidence creates foundation problems, piles are driven into the ground to support the house foundation. By driving piles, soil is displaced and the surrounding soil is compressed, causing greater friction against the sides of the piles, and thus increasing their load-bearing capacity. As such, each AHPP housing unit would include 18 to 40 pilings per cottage design (Table 1). As illustrated in Appendix A, Figure 3, pilings would be driven to approximately 40 feet below ground surface (bgs) and would be wooden with diameters no larger than 12 inches at the base and 7 inches at the driving end of the pile. The finished floor would be elevated to the DFIRM required elevation through the pilings.

**Table 1. Foundation Pile Details for each AHPP Cottage Design**

<b>Cottage Design Unit ID</b>	<b>Living Area of Each Unit (in square feet)</b>	<b>Number of Pilings Proposed per Unit</b>
874	874	22
910	910	31
936	936	18
1080	1080	29
1112	1112	33-40
1200	1200	19
1525	1525	26

Source: Cypress Realty Partners, LLC 2009

***SECTION 3.0***  
***SUMMARY OF POTENTIAL IMPACTS***



**3.0 Summary of Potential Impacts**

The following table summarizes the potential impacts of the Alternatives. Potential impacts and conditions or mitigation measures to offset impacts are discussed further in Section 4.

	<b>Alternative 1: No Action Alternative</b>	<b>Alternative 2: Proposed Action Alternative</b>
<b>Geology and Soils</b>	No impacts to geology, soils, or prime or unique farmland are anticipated.	No additional impacts to geology are anticipated; however, short-term construction impacts to soils could occur. Typically, the proposed sites have been previously disturbed and were utilized for residential use; this alternative is not anticipated to impact prime, unique, or important farmlands. Vibratory pile driving operations may potentially affect adjacent structures; however, a smaller type of vibratory pile driver would be utilized for the scattered in-fill sites which create less vibration.  Potential soil erosion would be minimized through the use of Best Management Practices (BMP) and a vibration threshold value would be utilized by the piling contractor to minimize any potential damage to adjacent homes.
<b>Air Quality</b>	No impacts to air quality are anticipated.	Temporary increases in equipment exhaust emissions and fugitive dust emissions during construction would occur. To minimize potential impacts to air resources, LRA would ensure equipment is well maintained, idling is minimized, and periodic watering of active construction areas would occur.
<b>Noise</b>	No impacts to noise are anticipated.	Short-term impacts from increased noise could occur at the proposed project sites during construction and have the potential to expose sensitive receptors to noise emissions that are normally unacceptable; however, these noise levels would only be for approximately 90 days per proposed site. To minimize this impact, all construction activities would be limited to 8:00 AM to 6:00 PM, Monday through Friday. Construction activities would not occur in the late evenings, early mornings, or on weekends. Should schools be located nearby, special construction mitigations would potentially be utilized, such as the use of noise barriers or adjustment of the construction schedule to the summer months, school holidays, or in the afternoon but prior to 6:00 PM when students are not in class.
<b>Water Quality</b>	No impacts to water quality are anticipated.	Minor, short-term impacts to water quality are anticipated under this alternative during construction activities. BMPs such as installing silt fences and revegetating bare soils would be implemented to minimize these impacts. Project activities under this alternative are not anticipated to impact wild and scenic rivers or the Louisiana Coastal Zone. LRA would consult with LDEQ regarding National Pollutant Discharge Elimination System (NPDES) permitting and the City of New Orleans for Coastal Zone Management Act (CZMA) compliance.  LRA would mitigate construction impacts by applying BMPs to reduce transport of sediment, debris, oils, and hazardous substances.
<b>Floodplains</b>	No impacts to floodplains are anticipated.	Construction of the AHPP units could occur in the 100-year floodplain; however, all structures would be elevated so that the lowest floor is at or above the required DFIRM elevation, where applicable. Impacts to floodplains would be considered a minor, but insignificant adverse effect. No project under this alternative would be located within the CHHA (DFIRM Flood Zone V or VE).
<b>Wetlands</b>	No impacts to wetlands are anticipated.	No wetlands would be impacted under this alternative.
<b>Biological Resources</b>	No impacts to biological resources are anticipated.	Under this alternative there is little to no potential that the AHPP units on nearby land would impact biological resources. FEMA would consult with USFWS or NOAA National Marine Fisheries Service in an effort to identify actions to potentially minimize any impacts and to identify proposed mitigation.
<b>Cultural Resources</b>	No impacts to historic properties (including subsurface properties) are anticipated.	This alternative includes ground disturbing activities. Thus, there is the potential to affect subsurface historic properties. This alternative may also involve the demolition of existing structures 50 years or older, and new construction within listed or eligible National Register Historic Districts; therefore, above-ground historic properties may be affected. Vibratory pile driving operations utilized during the installation of the cottage foundations may potentially affect adjacent historic structures. Section 106 consultation with SHPO and any affected tribes would occur, and a process has been agreed upon by the SHPO and FEMA which would be followed in accordance with 36 CFR Part 800 or the Statewide Programmatic Agreement (PA) for any property with historic property concerns.
<b>Socioeconomics</b>	Displaced residents would continue to utilize FEMA manufactured homes and park model homes. Existing adverse health effects could continue to affect displaced residents.	Housing at the proposed project sites would be offered to families and individuals regardless of their race or economic background who were displaced or impacted by the 2005 hurricane season, thereby providing beneficial socioeconomic effects. Noise from the installation of the AHPP construction could potentially cause adverse impacts to minority or low-income populations; however, the noise impacts are short-term impacts as it is anticipated that each housing unit would take no more than 90 days to complete. In addition, noise impacts would be minimized by scheduling construction in daylight hours during the work week.
<b>Traffic and Transportation</b>	No impacts to traffic and transportation are expected.	Short-term impacts to traffic and transportation could occur during construction. However, the LRA would coordinate with the City of New Orleans to identify mitigation measures to lessen construction impacts. Measures such as providing temporary detours during construction and the siting of road equipment staging and worker to minimize impacts on traffic flow. In addition, adjacent neighborhoods would be notified in advance of construction activities and any required temporary detours.
<b>Hazardous Materials and Wastes</b>	No direct effects from hazardous materials and wastes are anticipated; however, indirect negative impacts to displaced residents from substandard housing could occur.	No additional use of hazardous materials is anticipated. Should the LRA encounter any explosive or flammable materials, toxic chemicals, and/or radioactive materials during site clearing and demolition then the LRA would follow the requirements of 24 CFR Part 51. In addition, all debris associated with site clearing would be removed and disposed of in accordance with all Federal, state, and local regulations.

**SECTION 4.0**  
***AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES,***  
***AND MITIGATION MEASURES***

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#### **4.0 Affected Environment, Environmental Consequences, and Mitigation Measures**

The following subsections discuss the regulatory setting and the existing conditions for the following resource areas in Louisiana that may be impacted by the Proposed Action and the No Action Alternatives considered:

- Geology and Soils
- Air Quality
- Noise
- Water Quality
- Floodplains
- Wetlands
- Biological Resources
- Cultural Resources
- Socioeconomics
- Traffic and Transportation
- Hazardous Materials and Wastes

This discussion is broad and Parish-wide. It does not include a complete inventory of each resource, but does provide information to characterize those resources. This section also describes the potential impacts that each alternative could have on the identified resources. When mitigation is appropriate to avoid or reduce adverse impacts, these measures are also described.

#### **4.1 Geology and Soils**

##### **4.1.1 Affected Environment**

###### **Regulatory Setting**

Various land use regulations of Federal, state, and local governments may impose special restrictions on land use or land treatment. The U.S. Department of Agriculture (USDA), through its NRCS, publishes soil surveys to identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations (USDA 2006).

NRCS soil surveys are developed to provide information about the soils in a specific area. They include a description of the soils, their location within the parish, and the soil properties and limitations. Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological

resources, and land uses (USDA 2006). Soil survey areas typically consist of parts of one or more MLRA. After describing the soils in the survey area and determining their properties, soil scientists assign the soils to taxonomic classes (units). Each map unit is defined by a unique combination of soil components in predictable proportions. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans (USDA 2006).

The Farmland Protection Policy Act (FPPA) requires Federal agencies to evaluate the effects (direct and indirect) of their activities before taking any action that could result in converting designated prime or unique farmland, or farmland of statewide and local importance for nonagricultural purposes. If an action would adversely affect farmland preservation, alternative actions that could avoid or lessen adverse effects must be considered. Determination of the level of impact on prime and unique farmland or farmland of statewide and local importance is done by the lead Federal agency (proponent), which inventories farmlands affected by the proposed action and scores the land as part of a Farmland Conversion Impact Rating (AD 1006 Form), for each alternative. In consultation with the proponent, NRCS completes the AD 1006 Form and determines the level of consideration for protection of farmlands that needs to occur under the FPPA (NRCS 2008).

### **Existing Conditions**

Louisiana is not considered seismically active although the State has experienced periodic small earthquakes. A belt of mostly seaward-facing normal faults borders the northern Gulf of Mexico in most of the Gulf Coast region. As the faults number in the hundreds, the Gulf Coast faults are consolidated into four large groups which are designated as Classes A, B, C, and D. Class A is one in which geologic evidence demonstrates the existence of a Quaternary fault of tectonic origin. Whereas with Class B, the geologic evidence demonstrates the existence of Quaternary deformation, but either the fault might not extend deeply enough to be a potential source of significant earthquakes or the currently available geologic evidence is somewhat indeterminate. Class C and D fault groups demonstrate either deeper deformation or progressively stronger geologic evidence of their fault character (U.S. Geological Survey and Louisiana Geological Survey 2006). The gulf-margin normal faults in Louisiana are assigned as Class B structures (Wheeler and Heinrich 1998).

Most of the land surface in the New Orleans Metropolitan Statistical Area (MSA) is subsiding relative to mean sea level. Subsidence is the combined effect of geological movement along faults and the compaction of poorly consolidated sediments. Subsidence of the land surface in the New Orleans area is attributed to the drainage and oxidation of organic soils, aquifer-system compaction related to groundwater withdrawals, natural compaction and dewatering of surficial sediments, and tectonic activity (Burkett *et al.* 2003).

The rates of subsidence and sea-level rise are important considerations in the restoration of the City of New Orleans and the wetlands that protect it. New Orleans is sinking at an average rate of 2.0 inches per decade, and it is anticipated that it will sink roughly 3.3 feet (1.0 meter) in the next 100 years relative to mean sea level (Burkett *et al.* 2003). In addition, the ocean is also rising and during the last century, the ocean rose approximately 0.4 to 0.8 inches (1.0 to 2.0 millimeters) per year (Burkett *et al.* 2003). Within the next century if nothing is done to modify the existing infrastructure, some areas of the city that did not flood as a result of Hurricane Katrina would likely flood in a future storm due to subsidence and sea-level rise (Burkett *et al.* 2003).

There are two MLRAs in Orleans Parish: Southern Mississippi River Alluvium and Gulf Coast Marsh. There are 9,548 acres of Southern Mississippi River Alluvium in Louisiana (USDA 2006). The Gulf Coast Marsh MLRA runs along the Gulf Coast of Louisiana, Mississippi, and Texas, and this MLRA consists of 20,914 acres in Louisiana (USDA 2006).

Both of these MLRAs are in the Mississippi Alluvial Plain Section of the Coastal Plain Province of the Atlantic Plain. The Southern Mississippi River Alluvium is on the alluvial plain along the lower Mississippi River. The landforms in the area are level or depressionally to very gently undulating alluvial plains, backswamps, oxbows, natural levees, and terraces. The parts of the MLRA south of Baton Rouge, Louisiana, are on a deltaic plain. Landform shapes range from convex on natural levees and undulating terraces to concave in oxbows. These shapes differentiate water-shedding positions from water-receiving positions, both of which have a major role in soil formation and hydrology. Average elevations in Orleans Parish start at just above sea level or lower in most of the Southern Mississippi River Alluvium area (USDA 2006).

The Gulf Coast Marsh MLRA in Orleans Parish is part of the Mississippi River Delta and has a ragged shoreline. There are many rivers, lakes, bayous, tidal channels, and manmade canals.

Elevation generally ranges from sea level to about 7 feet above mean sea level (amsl), but can be as high as 10 feet amsl on beach ridges, canal spoil banks, and natural levees. Some areas that are protected by levees have subsided below sea level (USDA 2006).

There are a total of 18 soil map units in Orleans Parish (USDA 2006). Orleans Parish contains soils designated as prime or unique farmland. Within the program area there are five map units classified as prime farmland (Table 2). These map units combined total 36,504 acres of prime farmland in Orleans Parish (USDA 2007).

**Table 2. Prime or Unique Farmland within the Program Area**

<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Rating</b>	<b>Acres</b>
Cm	Cancienne silt loam	Prime farmland	4,799
Co	Cancienne silty clay loam	Prime farmland	2,379
Ha	Harahan clay	Prime farmland	10,369
Sh	Schriever silty clay loam	Prime farmland	1,097
Sk	Schriever clay	Prime farmland	17,860
<b>Total</b>			<b>36,504</b>

Source: USDA 2007

Based on a soil type study of subsidence rates (Chapiewsky *et al.* 2006), the ideal soils for development within Orleans Parish are Commerce/Cancienne Series (Cm, Co), found high on natural levees; followed by the Sharkey Series (Sk, Sh) found at intermediate levels on natural levees. These soils are firm, with high mineral content. Another potentially good soil would be the Harahan Series (Ha), due to its high clay content. It is found in former drained swamps. The least desirable soils for development, based on type are Allemands (Ae), and Aquents (An, AT), due to their high organic matter content. These will compact easily when drained. An intermediate type for building is Westwego Series (Ww). It is a mix of clayey and organic material, found in artificially drained areas that are protected by artificial levees.

The low bearing strength of many of the soil types in Orleans Parish and the subsidence that is occurring throughout much of Orleans Parish, particularly in the New Orleans east areas, requires that buildings be supported by pilings that are driven to various depths into more competent underlying clay units. Typically, properly spaced pilings stabilize foundations, and, to a degree, can retard subsidence directly under buildings.

## **4.1.2 Environmental Consequences and Mitigation Measures**

### **4.1.2.1 Alternative 1: No Action Alternative**

This alternative does not include any FEMA action. Therefore, FEMA would not be required to comply with the FPPA. The No Action Alternative does not have the potential to affect geology, soils, or prime or unique farmland.

### **4.1.2.2 Alternative 2: Proposed Action Alternative**

No impacts to geology would occur due to the minimal depth of disturbance from the installation of cottage footings and driveway placement. Project sites soils would be disturbed, and there is a potential for a localized increase in soil erosion during construction.

As the site locations were graded and contoured during previous development, it is anticipated that any soil loss would be minimal. Short-term impacts to soils would occur during any additional ground clearing or site preparation, including the installation of driveways. Typically, FEMA would work closely with the NRCS to determine each site specific action's potential impact to prime or unique farmland; however, if the site is within incorporated city limits or does not contain prime, unique, or important soils, the action complies with FPPA and no further documentation is required. The Proposed Action Alternative is currently only proposed within city limits and as such it is not anticipated that any of the specific sites would require coordination with NRCS. However, FEMA sent a letter requesting project review to the NRCS on March 17, 2009; a copy is included in Appendix B. No response has been received to date.

### **Soil Vibrations from Cottage Foundation Activities**

Under the Proposed Action Alternative, pilings would be installed based on the soil and geotechnical information determined for each of the proposed 160 housing unit sites. Foundation work was performed in Orleans Parish earlier this year on a previous FEMA AHPP housing project for limited group housing in Jackson Barracks. Utilizing the piling tests and geotechnical information from the Jackson Barracks AHPP project provides guidance for this current AHPP Orleans Parish Scattered In-fill Project. Further, this information would provide a conservative scenario and would yield useful information to analyze this project and any potential impacts to the human and natural environment from pile driving in Orleans Parish. Jackson Barracks, like much of New Orleans east, was once marsh and swampland which was filled as New Orleans grew and expanded during the post-World War II years. It is anticipated that the pilings would be driven in the subsurface through the use of a vibratory pile driver and

would utilize wooden pilings for the cottage foundations. Pile diameters and pile lengths would vary, but utilizing the Jackson Barracks pile testing data as conservative guidance, piles would be driven no deeper than 40 feet bgs but could be driven to shallower levels based on the specific site's soil conditions. The piles would have a diameter no larger than 12 to 14 inches at the base and 7 to 8 inches at the driving end (Ardaman & Associates, Inc. 2008 and Southern Earth Sciences Inc. 2009).

Vibratory pile driving operations may potentially affect adjacent structures. The energy generated from vibrating pile compactor/drivers is dissipated either as pile penetration or as radiated wave energy. A small vibratory compactor/driver would be utilized for pile driving at the Fischer group site, similar to a "KHP 135 II" vibratory compactor/driver (also called a Hydra-Pak) by Kent Demolition Tools. This type of vibratory compactor/driver would provide 13,500 pounds of impulse force at 2,000 cycles per minute and would be attached to a small excavator (Gillen personal communication 2009).

Criteria for ground vibrations have been established to protect adjacent structures and human health. The U.S. Bureau of Mines recommends that vibrations not exceed 0.5 inches per second near structures. This guideline insures that adjacent structures do not experience damages. A qualified vibration monitor from a testing laboratory would monitor the vibrations at the nearest structure and a threshold limit set by the piling contractor would ensure that all vibrations would not exceed the U.S. Bureau of Mines recommendation. Typically in urban settings the pile driving contractor would utilize a threshold limit of 0.3 to 0.4 inches per second (Bridgefort personal communication 2009). Based on the typical soils in Orleans Parish, which offer little resistance (in general clays, clay loams, and silty clays), each piling should take less than 10 minutes to install. Therefore, a total of 5.0 hours of actual pile driving is anticipated for each housing unit. However, due to deployment and set-up time required per pile, the pile foundation installation may take as long as 1 to 1.5 days per cottage unit.

### **Mitigation Measures**

Any soil loss would be directly from ground disturbing activities or indirectly via wind or water erosion. Best Management Practices (BMP), such as the development and implementation of an erosion and sedimentation control plan, the use of silt fences or hay bales, revegetation of disturbed soils, and maintenance of site soil stockpiles, would be utilized to prevent soils from eroding and dispersing offsite.

### *Foundation Installation*

The construction contractors for the Proposed Action Alternative would employ a qualified laboratory and staff personnel to monitor the vibratory pile driving activities within 250 feet of any adjacent structure such as the nearby schools or homes. The laboratory field technicians would be deployed to the construction sites where they would install vibration sensory devices (seismographs) into the soils next to the adjacent structures on all sides of the construction site. Seismographs would detect vibrations from the pile driving equipment and alert the field technicians if the vibrations were approaching 0.5 inches per second or less, if within historic districts. If this threshold was approached the pile driving activities would be terminated and mitigation measures to reduce vibrations would be implemented. Mitigation measures which could be utilized to reduce vibrations include drilling a pilot hole for the pile or wetting the pile and hole to lubricate the downward insertion (Gillen personal communication 2009). If these mitigation measures are implemented, vibration impacts to adjacent structures from driving piles at the construction sites of the Proposed Action Alternative would be short-term and minor.

## **4.2 Air Quality**

### **4.2.1 Affected Environment**

#### **Regulatory Setting**

The USEPA established National Ambient Air Quality Standards (NAAQS) for specific pollutants. The NAAQS standards are classified as either "primary" or "secondary" standards. The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter less than 10 microns (PM-10), particulate matter less than 2.5 microns (PM-2.5), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. The NAAQS are included in Table 3.

**Table 3. National Ambient Air Quality Standards**

POLLUTANT	STANDARD VALUE	STANDARD TYPE
<b>Carbon Monoxide (CO)</b>		
8-hour average	9ppm (10mg/m <sup>3</sup> )	P
1-hour average	35ppm (40mg/m <sup>3</sup> )	P
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>		
Annual arithmetic mean	0.053ppm (100µg/m <sup>3</sup> )	P and S
<b>Ozone (O<sub>3</sub>)</b>		
8-hour average*	0.08ppm (157µg/m <sup>3</sup> )	P and S
1-hour average*	0.12ppm (235µg/m <sup>3</sup> )	P and S
<b>Lead (Pb)</b>		
Quarterly average	1.5µg/m <sup>3</sup>	P and S
<b>Particulate&lt;10 micrometers (PM-10)</b>		
Annual arithmetic mean	50µg/m <sup>3</sup>	P and S
24-hour average	150µg/m <sup>3</sup>	P and S
<b>Particulate&lt;2.5 micrometers (PM-2.5)</b>		
Annual arithmetic mean	15µg/m <sup>3</sup>	P and S
24-hour average	65µg/m <sup>3</sup>	P and S
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>		
Annual average mean	0.03ppm (80µg/m <sup>3</sup> )	P
24-hour average	0.14ppm (365µg/m <sup>3</sup> )	P
3-hour average	0.50ppm (1300µg/m <sup>3</sup> )	S

Legend: P= Primary S= Secondary

Source: USEPA 2006

ppm = parts per million

mg/m<sup>3</sup> = milligrams per cubic meter of air µg/m<sup>3</sup> = micrograms per cubic meter of air

\* Parenthetical value is an approximate equivalent concentration

Areas that do not meet these NAAQS standards are called non-attainment areas or maintenance areas; areas that meet both primary and secondary standards are known as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria or requirements for conformity determinations for Federal projects. The Federal Conformity Rule was first promulgated in 1993 by the USEPA, following the passage of Amendments to the Clean Air Act (CAA) in 1990. The rule mandates that a conformity analysis must be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS. A conformity analysis is the process used to determine whether a Federal action meets the requirements of the General Conformity Rule. It requires the responsible Federal agency to evaluate the nature of the proposed action and associated air pollutant emissions, calculate emissions as a result of the proposed action, and mitigate emissions if *de minimis* thresholds are exceeded.

## **Existing Conditions**

Orleans Parish is currently in attainment for all NAAQS (USEPA 2008a).

### **4.2.2 Environmental Consequences and Mitigation Measures**

#### **4.2.2.1 Alternative 1: No Action Alternative**

Under the No Action Alternative, traffic volumes and air quality would continue at current levels. No localized or regional effects to air quality are expected.

#### **4.2.2.2 Alternative 2: Proposed Action Alternative**

Temporary and minor increases in air pollution would occur from the use of construction equipment (combustible emissions) and the disturbance of soils (fugitive dust) during construction of the new structures and driveways. Fugitive dust emissions were calculated using the emission factor of 0.19 ton per acre per month (Midwest Research Institute 1996), which is a more current standard than the 1985 PM-10 emission factor of 1.2 tons per acre per month presented in AP- 42 Section 13 Miscellaneous Sources 13.2.3.3 (USEPA 2001).

USEPA's NONROAD Model (USEPA 2005a) was used, as recommended by USEPA's *Procedures Document for National Emission Inventory, Criteria Air Pollutants, 1985-1999* (USEPA 2005a), to calculate emissions from construction equipment. Combustible emission calculations were made for standard construction equipment, such as bulldozers, excavators, pole trucks, front-end loaders, backhoes, cranes, and dump trucks. Assumptions were made regarding the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used.

Construction workers would temporarily increase the combustible emissions in the airshed during their commute to and from the project area. Emissions from delivery trucks contribute to the overall air emission budget. Emissions from delivery trucks and construction worker commuters traveling to the job site were calculated using the USEPA MOBILE 6.2 Model (USEPA 2005b, 2005c and 2005d).

The total air quality emissions were calculated for the construction activities occurring in Orleans Parish to compare to the General Conformity Rule. Summaries of the total emissions for Alternative 2 are presented in Table 4. Details of the analyses are presented in Appendix E.

**Table 4. Total Air Emissions (tons/year) from Construction Activities in Orleans Parish vs. the *de minimus* Levels**

Pollutant	Total (tons/year)	<i>de minimus</i> Thresholds (tons/year)
CO	30.17	100
Volatile Organic Compounds (VOCs)	5.66	100
Nitrous Oxides (NOx)	39.86	100
PM-10	10.72	100
PM-2.5	3.97	100
SO <sub>2</sub>	4.76	100

Source: 40 CFR 51.853 and Gulf South Research Corporation (GSRC) model projections.

Note: Orleans Parish is in attainment for all NAAQS.

Several sources of air pollutants contribute to the overall air impacts of the construction project. The air results in Table 4 included emissions from:

1. Combustible engines, of construction equipment
2. Construction workers commute to and from work
3. Supply trucks delivering materials to construction site
4. Fugitive dust from job site ground disturbances

As can be seen from the table, the proposed construction activities do not exceed *de minimis* thresholds in Orleans Parish, and do not require a Conformity Determination. As there are no violations of air quality standards and no conflicts with the State implementation plans, there would be no significant impacts to air quality from implementation of the Proposed Action.

### Ongoing Air Emissions

Air emissions from personally owned vehicles (POV) of new residents commuting to work and daily auto activities were not calculated. The new residents would most likely be from areas inside Orleans Parish that were devastated by Hurricane Katrina. Therefore, the air emissions associated with POV operation would be transferring from one part of the air-shed (Orleans Parish) to another.

### Mitigation Measures

During construction of the proposed project, proper and routine maintenance of all vehicles and other construction equipment would be implemented to ensure that emissions are within the design standards of all construction equipment. Dust suppression methods, in particular wetting solutions, would be implemented to minimize fugitive dust in construction areas. By using these

BMPs, air emissions from the Proposed Action Alternative would be temporary and should not significantly impair air quality in the region.

### **4.3 Noise**

#### **4.3.1 Affected Environment**

Noise is generally described as unwanted sound, which can be based either on objective effects (*i.e.*, hearing loss, damage to structures, *etc.*) or subjective judgments (*e.g.*, community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing is approximately 0.0 dB and the threshold of discomfort or pain is around 120 dB.

Noise levels occurring at night generally produce a greater annoyance than do the same levels during the day. A-weighted decibel (dBA) is a measure of noise at a given, maximum level or constant state level louder than the same level of intrusive noise during the day, at least in terms of its potential for causing community annoyance. It is generally agreed that people perceive intrusive noise at night as being 10.0 dBA. This perception is largely because background environmental sound levels at night in most areas are also approximately 10.0 dBA lower than those during the day. Acceptable noise levels have been established by the U.S. Department of Housing and Urban Development (HUD) for construction activities in residential areas (HUD 1984):

**Acceptable** (not exceeding 65 dBA) – The noise exposure may be of some concern but common building construction will make the indoor environment acceptable and the outdoor environment will be reasonably pleasant for recreation and play.

**Normally Unacceptable** (above 65 but not greater than 75 dBA) – The noise exposure is significantly more severe. Barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable. Special building construction may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.

**Unacceptable** (greater than 75 dBA) – The noise exposure at the site is so severe that the construction costs to make the indoor noise environment acceptable may be prohibitive and the outdoor environment would still be unacceptable.

As a general rule of thumb, noise generated by a stationary noise source, or “point source,” will decrease by approximately 6.0 dBA over hard surfaces and 9.0 dBA over soft surfaces for each doubling of the distance. For example, if a noise source produces a noise level of 85 dBA at a reference distance of 50 feet over a hard surface, then the noise level would be 79 dBA at a distance of 100 feet from the noise source, 73 dBA at a distance of 200 feet, and so on. To estimate the attenuation of the noise over a given distance the following relationship is utilized:

$$\text{Equation 1: } dBA_2 = dBA_1 - 20 \log (d_2/d_1)$$

Where:

- dBA<sub>2</sub> = dBA at distance 2 from source (predicted)
- dBA<sub>1</sub> = dBA at distance 1 from source (measured)
- d<sub>2</sub> = Distance to location 2 from the source
- d<sub>1</sub> = Distance to location 1 from the source

Source: California Department of Transportation 1998

## **Existing Conditions**

The proposed project sites would be located in urban areas with a number of sensitive noise receptors likely located adjacent to the construction sites.

### **4.3.2 Environmental Consequences and Mitigation Measures**

#### ***4.3.2.1 Alternative 1: No Action Alternative***

Under the No Action Alternative, the AHPP dwellings would not be constructed, and there would be no noise impacts resulting from construction activities or increased vehicle traffic on local roads.

#### ***4.3.2.2 Alternative 2: Proposed Action Alternative***

The installation of new AHPP units would require the use of common construction equipment for the majority of the construction activities; however, installation of the units' foundations would require use of a vibratory pile driver. Table 5 describes the noise emissions at various distances of typical construction equipment which would be utilized at the 160 proposed AHPP sites. Construction equipment used during installation of the foundations would include vibratory pile drivers and for this project a small “KHP 135 II” vibratory compactor/driver by Kent Demolition Tools, or its equivalent, would be used to drive foundation piles. Approximately 18 to 40 piles would be installed for each cottage foundation to a depth of approximately 40 feet bgs. In general, vibratory hammers are treated as a continuous noise source.

**Table 5. A-Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances<sup>1</sup>**

Noise Source	50 feet	100 feet	200 feet	500 feet	1000 feet
Vibratory Compactor/Driver	75	69	63	55	49
Dump Truck	76	70	64	56	50
Excavator	82	76	70	62	56
Front End Loader	79	73	67	59	53
Concrete Mixer Truck	79	73	67	59	53
Pneumatic Tools	81	75	69	61	55
Backhoe	78	72	66	58	52
Generator	81	75	69	61	55

Source: FHWA 2007 and GSRC

1. The dBA at 50 feet is a measured noise emission (Federal Highway Administration [FHWA] 2007). The 100 to 1,000 foot results are GSRC modeled estimates.

### Foundation Installation Activities

Based on in-situ noise measurements during test pile activities for a similar AHPP project in Orleans Parish, the noise emissions of the vibratory compactor/driver ranged from 70 dBA to 84 dBA at a distance of approximately 50 feet from the source; the medians for the three test piles were all 75 dBA. Assuming a conservative scenario of 75 dBA, for pile driving activities, the noise model projected that noise levels of 75 dBA from a point source (i.e., small vibratory compactor/driver) would have to travel 53 feet before the noise would be attenuated to a normally unacceptable level below 75 dBA. However, at 170 feet from the point source, noise would be attenuated to acceptable levels below 65 dBA. Noise emissions from the “KHP 135 II” are comparatively low when compared to common general construction equipment and are anticipated to be within acceptable noise levels beyond 53 feet from the source. Based on the in-situ measurements as well as noise model projections it is anticipated that other construction equipment will produce the dominant noise emissions during construction activities.

### General Construction Activities

General construction noise impacts were assessed for a daily noise exposure based on a 10-hour work shift during daytime hours. Assuming a conservative scenario of 82 dBA, for general construction activities, the noise model projected that noise levels of 82 dBA from a point source (i.e., excavator) would have to travel 110 feet before the noise would be attenuated to a normally unacceptable level below 75 dBA. However, at 360 feet from the point source, noise would be attenuated to acceptable levels below 65 dBA.

The noise model projections for general construction activities were spatially distributed along one of the proposed home sites (1916 Annette Street) in New Orleans as an example of potential noise impacts to nearby receptors as shown in Appendix A, Figure 4. The proposed 1916 Annette Street site was chosen because it is located in one of the more populated areas of the Orleans Parish proposed sites, and it presents a conservative noise impact scenario. Based on modeled noise projections, approximately 10 homes are located within the 75 dBA noise contour at the 1916 Annette Street construction site and 61 homes and one commercial facility are located within the 65 dBA contour.

### **Mitigation Measures**

To minimize the noise impact potential, construction activity would be limited to daylight hours during the work week, between 8:00 am to 6:00 pm on Monday through Friday (City of New Orleans, Code of Ordinances, Sec. 66-138, Article IV 2009). Noise impacts to the residential housing would be minor if this timing restriction is implemented.

Should any schools be located within 110 feet of the proposed project site there is the potential that students at these schools would be exposed to construction noise emissions greater than 75 dBA. To mitigate the potential noise impact to schools, it is recommended that the construction plan includes a noise barrier fence along the school property between the project site and school. The noise barrier would reduce noise emissions from construction activities by approximately 13 to 15 dBA (Allan Block Corporation 2007) which would reduce emissions to below the 75 dBA threshold. If noise mitigation actions are implemented, noise emissions produced by the Proposed Action Alternative would not significantly impair the noise environment at any adjacent schools. Should the noise barrier not be utilized, construction of the foundations could be scheduled to occur during the summer months, during school holidays when students are not in classes, or after the school day ends but prior to 6:00PM.

Overall, the noise generated by construction of the Proposed Action Alternative would be intermittent and last less than 90 days, after which, noise levels would return to ambient levels. Implementation of the mitigation actions suggested above would reduce the noise emissions to levels that are normally acceptable. Therefore, the noise impacts from general construction activities should not significantly impair the noise environment at nearby schools and local neighborhoods.

#### **4.4 Water Quality**

##### **4.4.1 Affected Environment**

###### **Regulatory Setting**

The Clean Water Act (CWA) establishes the basic structure for regulating pollutant discharges to navigable Waters of the U.S. (WUS). It sets forth procedures for effluent limitations, water quality standards and implementation plans, National performance standards, and point source (e.g., municipal wastewater discharges) and nonpoint source programs (e.g., stormwater). The CWA also establishes the National Pollutant Discharge Elimination System (NPDES) under Section 402 and permits for dredged or fill material under Section 404 (USEPA 2008b). In addition, the USACE regulates the discharge of dredged or filled material into WUS, including wetlands, pursuant to Section 404 of the CWA (USACE 1998).

Section 303(d) of the CWA requires that states develop a list of waters which are not meeting water quality standards and not supporting their designated uses (USEPA 2008b). Designated uses are defined as primary contact recreation which includes swimming and water skiing; secondary contact recreation which includes boating and sailing; and fish and wildlife propagation which includes water quality parameters that effect the health of fish and wildlife such as the concentration of dissolved oxygen (DO), total dissolved solids, nutrients, etc. Multiple project sites may be located in several LDEQ sub-watersheds some of which are on the LDEQ Water Quality Inventory Integrated Report (Section 305(b) and 303(d)) in 2006 for violating criteria such as the DO, metals, chloride, and sulfate criteria (LDEQ 2006).

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. Water quality certification is also necessary when a project qualifies for a General Permit, even if the activity does not need to be reported to the USACE (USEPA 2008b).

The Coastal Zone Management Act (CZMA) of 1972 authorizes the Coastal Zone Management Program (CZMP), which is a Federal-state partnership dedicated to comprehensive management of the Nation's coastal resources. By making Federal funds available, the law encourages states to preserve, protect, and, where possible, restore or enhance valuable natural coastal resources, such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats. Any Federal or state agency whose activities directly affect the coastal zone must, to the maximum extent

practicable, be consistent with approved state management programs. In 1978, the Louisiana State and Local Coastal Resources Management Act authorized the development, at the parish level, of local coastal management programs (LCPs). Once an LCP has received Federal and State approval, the parish becomes the permitting authority for coastal uses of local concern.

The Wild and Scenic Rivers Act (WSRA) preserves selected rivers in a free-flowing condition and protects their local environments. These rivers possess outstanding scenic, recreational, geologic, fish and wildlife, historic, or cultural values.

**Existing Conditions**

Major water bodies in the program area consist of the Mississippi River, Lake Pontchartrain, Inner Harbor Navigation Canal (IHNC), and the Gulf Intracoastal Waterway. Smaller hydrologic features include a number of drainage canals and marshes. The existing water quality conditions for each of the sub-watersheds located in Orleans Parish are summarized in Table 6 below.

**Table 6. List of LDEQ Sub-Watersheds Found in the Orleans Parish Program Area and Water Quality Attainment Status**

<b>Sub-Watershed Name &amp; LDEQ ID</b>	<b>Water Quality Attainment Status</b>	<b>Suspected Causes of Impairment</b>	<b>Suspected Sources of Impairment</b>
020601 Gulf Intracoastal Waterway	Not meeting primary contact recreation standards	Fecal coliform	Vessel sanitary waste, municipal point source discharges
070301 Mississippi River	Fully meeting standards	NA	NA
041001 Lake Pontchartrain – South Shore Beaches	Not meeting primary contact recreation standards	Fecal coliform	Sanitary sewer overflows
041002 Lake Pontchartrain – East of LA Hwy.11	Fully meeting standards	NA	NA
042001 Lake Borgne	Not meeting oyster propagation standards	Fecal coliform	Source unknown
041701 The Rigolets	Fully meeting standards	NA	NA
041704 Lake St. Catherine	Fully meeting standards	NA	NA
041702 Bayou Sauvage	Fully meeting standards	NA	NA
041703 Gulf Intracoastal Waterway – Chef Menteur Pass Mississippi	Not meeting oyster propagation standards	Fecal coliform	Septic systems
041401 New Orleans East Leveed Waterbodies	Not meeting primary contact recreation, secondary contact recreation, and fish and wildlife propagation standards	Fecal coliform, dissolved oxygen	Sanitary sewer overflows, municipal wastes from urban area
042004 Bayou Bienvenue	Fully meeting standards	NA	NA

Table 6, continued

<b>Sub-Watershed Name &amp; LDEQ ID</b>	<b>Water Quality Attainment Status</b>	<b>Suspected Causes of Impairment</b>	<b>Suspected Sources of Impairment</b>
041601 Intracoastal Waterway – IHNC to Chef Pass	Not meeting oyster propagation standards	Fecal coliform	Source unknown
041302 Lake Pontchartrain Drainage Canals	Not meeting primary contact recreation and secondary contact recreation standards	Fecal coliform, dissolved oxygen	Sanitary sewer overflows, municipal wastes from urban area
041501 IHNC Mississippi River to Lake Pontchartrain	Fully meeting standards	NA	NA
041301 Bayou St. John	Fully meeting standards	NA	NA
041901 Mississippi River Gulf Outlet	Fully meeting standards	NA	NA
042002 Bayou Bienvenue – Bayou Villery to Lake Borgne	Fully meeting standards	NA	NA

Source: LDEQ 2006 303 (d) Water Quality Inventory Integrated Report List of Impaired Watersheds [303 (d) list].  
NA – Not Applicable

Orleans Parish is within the Louisiana Coastal Zone and adopted a LCP in 1985. The Orleans Parish Division of Planning and Development administers this local program.

#### **4.4.2 Environmental Consequences and Mitigation Measures**

##### **4.4.2.1 Alternative 1: No Action Alternative**

This alternative does not include any FEMA action. Therefore, FEMA would not be required to comply with the CWA, CZMA, or WSRA. The No Action Alternative does not have the potential to affect water quality.

##### **4.4.2.2 Alternative 2: Proposed Action Alternative**

Minor, short-term impacts to the downstream surface waters may occur during the construction activities due to soil erosion. However, project activities under this alternative are not anticipated to impact WSRA or WUS. It is anticipated that installation of AHPP units would impact less than 1 acre; however, should a construction site be greater than 1 acre, the site would then require a Stormwater Pollution Prevention Plan (SWPPP) as part of the NPDES permit process. The NPDES permit would identify BMPs for protection of water quality within ephemeral and perennial streams.

The LRA would coordinate with appropriate State and local agencies regarding NPDES permitting and CZMA compliance. For activities not exempt from NPDES permitting or not consistent with the Louisiana Coastal Resource Program, FEMA would document permitting

and other requirements to comply with CWA and CZMA in the project's administrative record. A Coastal Use Permit (CUP) may be required from the Orleans Parish Local Coastal Management Program.

On March 17, 2009, a letter requesting review of the PEA was sent to LDEQ and is included in Appendix B. A response was received on May 4, 2009, from LDEQ which, based on the information provided, yielded no objections but reiterated several of the BMPs which FEMA stated in this document. In addition, the City of New Orleans' Coastal Zone Management Administrator was sent a letter requesting project review for this project. No reply from the City has been received at this time. This correspondence can be found in Appendix B.

### **Mitigation Measures**

To reduce impacts to the downstream surface waters, the LRA would implement appropriate BMPs, such as installing silt fences and revegetating bare soils. The LRA or its contractors would be required to obtain an approved SWPPP and NPDES permit prior to the start of construction.

## **4.5 Floodplains**

### **4.5.1 Affected Environment**

#### **Regulatory Setting**

Executive Order (EO) 11988 (Floodplain Management) requires Federal agencies to avoid direct or indirect support of development within the 100-year floodplain whenever there is a practicable alternative. A floodplain is defined as the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, and including, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year. The critical action floodplain is defined as the 500-year floodplain (0.2 percent chance floodplain) (USEPA 1979). The 500-year floodplain (as defined by 40 CFR 9) is an area, including the base floodplain, which is subject to inundation from a flood having a 0.2 percent chance of being equaled or exceeded in any given year.

Flood zones are land areas identified by FEMA that describe the land area in terms of its risk of flooding. A flood insurance rate map (FIRM) is a map created by the National Flood Insurance Program (NFIP) for floodplain management and insurance purposes. Digital versions of these maps are called DFIRMs. A FIRM would generally show a community's flood zones, and

floodplain boundaries. However, maps are constantly being updated due to changes in geography, construction and mitigation activities, and meteorological events (FEMA 2008).

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

### **Existing Conditions**

According to the FEMA-supported Louisiana Mapping Project (LaMP), over 75 percent of Orleans Parish is located in a floodplain with most of the Parish at elevations at or below sea level. Consistent with EO 11988, preliminary DFIRMs published by FEMA on November 13, 2008, were examined during the preparation of this PEA (LaMP 2009). FEMA requires that rebuilt communities adhere to the elevation requirements established by the 2008 DFIRM. The majority of Orleans Parish (over 75 percent) according to the 2008 DFIRMs range from 100-year floodplain designations of Zone AE with elevations from -6 to +12 feet mean sea level (msl) (referenced to the North American Vertical Datum of 1988) and Zone VE with elevations ranging from +11 to +21 feet msl (LaMP 2008). The DFIRMs which illustrate the flood hazard zones for Orleans Parish can be found at <http://www.lamappingproject.com/parish-orleans.html>.

## **4.5.2 Environmental Consequences and Mitigation Measures**

### **4.5.2.1 Alternative 1: No Action Alternative**

This alternative does not include any FEMA actions. Therefore, FEMA would not be required to comply with EO 11998. The No Action Alternative does not have the potential to affect floodplains.

#### **4.5.2.2 Alternative 2: Proposed Action Alternative**

Under the Proposed Action Alternative, the AHPP units could potentially be constructed in a designated 100-year floodplain; therefore, FEMA would require that the first floor of a building be elevated above the DFIRM or to the City of New Orleans' required permitting code, whichever is more restrictive. An elevation survey would be performed by the LRA for each proposed AHPP site. The use of fill material is not anticipated for elevation of AHPP housing units within the 100-year floodplain.

The loss of floodplain area in the vicinity of the project would generally be considered a direct, permanent adverse effect; however, the program area is the entire Orleans Parish (115,616 acres of land and 108,534 acres of water) with the developed portions of the Parish located behind risk reduction levees and all drainage forced via pump stations. In addition, the 160 proposed AHPP houses are scattered throughout previously developed neighborhoods or previously developed parcels within the Parish; therefore, the Proposed Action Alternative would cause minor but less than significant effects.

FEMA has completed the Eight-Step Planning Process to ensure that its actions are consistent with EO 11988 within Orleans Parish. Initial and final notices for the building of FEMA housing within the Parish have been previously publicized. A copy of the final public notice (dated November 30, 2007) and the Eight-Step Planning Process for this Proposed Action Alternative can be found in Appendix F.

#### **Mitigation Measures**

To minimize impacts to the floodplain, the LRA proposes to elevate units on piers to achieve the appropriate elevation requirement.

### **4.6 Wetlands**

#### **4.6.1 Affected Environment**

##### **Regulatory Setting**

The CWA, as amended in 1977, established the basic framework for regulating discharges of pollutants into WUS. The USACE regulates the discharge of dredged or filled material into WUS, including wetlands, pursuant to Section 404 of the CWA (USACE 1998).

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

### Existing Conditions

The National Wetlands Inventory (NWI) is a resource provided by USFWS which provides wetland information by digital data files. The NWI currently includes data for Orleans Parish. Based upon the NWI, there are approximately 48,314 acres of estuarine and marine wetlands, freshwater emergent wetlands, and freshwater forested/shrub wetlands within Orleans Parish (Table 7) (USFWS 2006). However, none of these wetlands occur on previously developed parcels within the Greater New Orleans Hurricane and Storm Damage Risk Reduction System and are primarily located outside the levee system or within undeveloped, managed areas, such as Bayou Sauvage National Wildlife Refuge.

**Table 7. Wetland Acreage in Orleans Parish, Louisiana**

<b>Wetland Type</b>	<b>Acres</b>
Estuarine and Marine Wetlands	31,833
Freshwater Emergent Wetlands	5,299
Freshwater Forested/Shrub Wetlands	11,182
<b>Total</b>	<b>48,314</b>

Source: USFWS 2006

## 4.6.2 Environmental Consequences and Mitigation Measures

### 4.6.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, FEMA would not install AHPP housing on the proposed project sites. Therefore, no impacts to wetlands or WUS would occur.

### 4.6.2.2 Alternative 2: Proposed Action Alternative

Under this alternative, permanent AHPP cottages would be placed on previously developed land, thus this alternative is not anticipated to impact wetlands or WUS. However, FEMA has

completed the Eight-Step Planning Process for Floodplains and Wetlands to ensure that its actions are consistent with EOs 11998 and 11990 within Orleans Parish (Appendix F).

On March 17, 2009, a letter requesting project review was sent to USACE. A response from the USACE was provided on April 7, 2009, in which the USACE stated that based on the information provided there would be no impacts to USACE projects and that no CWA 404/401 Permits would be required. This correspondence can be found in Appendix B.

## **4.7 Biological Resources**

### **4.7.1 Affected Environment**

#### **Regulatory Setting**

The Endangered Species Act (ESA) establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. Section 7 of the ESA mandates that all Federal agencies must ensure that any action authorized, funded, or implemented is not likely to jeopardize the continued existence of a threatened or endangered species or result in the destruction of critical habitat for these species. To accomplish this, Federal agencies must consult with the USFWS or NOAA National Marine Fisheries Service (Fisheries) when taking action that has the potential to affect species listed as endangered or threatened or proposed for threatened or endangered listing.

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

The Magnuson-Stevens Fishery Conservation and Management Act (as amended), also known as the Sustainable Fisheries Act, requires all Federal agencies to consult with NOAA National Marine Fisheries Service (NOAA Fisheries) on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH).

The EFH provisions of the Sustainable Fisheries Act are designed to protect fisheries habitat from being lost due to disturbance and degradation.

### Existing Conditions

Federally endangered and threatened animal species listed for Orleans Parish are shown in Table 8. There is critical habitat for the gulf sturgeon in Orleans Parish. It is located in Lake Pontchartrain from the Jefferson Parish boundary eastward, the Rigolets, and Lake Saint Catherine (USFWS 2009).

**Table 8. Federally Protected Species in Orleans Parish**

Common Name	Scientific Name	Status	Habitat
Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted	Cypress swamps in coastal Louisiana, prefer to nest in sturdy cypress trees adjacent to open water where they forage for fish
Gulf sturgeon	<i>Carpenter oxyrinchus desotoi</i>	Threatened	All saltwater habitats, except during the spawning season when it is found in major rivers that empty into the Gulf of Mexico
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers in southeast U.S. including the Mississippi River; prefers the main channels of excessively turbid rivers in areas with strong currents over firm sandy bottom
Manatee	<i>Trichechus manatus</i>	Endangered	Marine open water, bays, and rivers, generally restricted to rivers and estuaries although manatees may enter salt water when traveling from site to site; often found in waters with submerged aquatic beds or floating vegetation

Source: USFWS 2008a, Louisiana National Heritage Program (LNHP) 2008, USFWS 2009

LDWF has listed 17 species of plants and animals and five natural communities that are rare, threatened, or endangered in Orleans Parish (Louisiana National Heritage Program [LNHP] 2008). Six state species are likely to occur in the program area and include the four Federally endangered and threatened animal species listed above in Table 8 with the addition of the paddlefish (*Polydon spathula*) and the diamondback terrapin (*Malaclemys terrapin*). The bald eagle, pallid sturgeon, and manatees are listed as endangered, the gulf sturgeon is listed as threatened, the paddlefish is prohibited, and the diamondback terrapin is listed as restricted harvest by LDWF within Orleans Parish (LNHP 2008). Typically the paddlefish prefers deeper,

low-current areas of river systems including side channels, backwaters, oxbow lakes, other river lakes, and tail waters below dams while the diamondback terrapin is restricted to saline or brackish habitats. Additionally, the diamondback terrapin prefer sea grass beds, marshes, and estuaries (especially those bordered by mangroves) as favored habitats (LNHP 2008).

There is one Wildlife Management Area (WMA) located in Orleans Parish. Bayou Sauvage National Wildlife Refuge was established in 1990. Bayou Sauvage has 23,000 acres of fresh and brackish marshes, all within the city limits of New Orleans, making it the Nation's largest urban wildlife refuge. The refuge is located in New Orleans East in the former St. Bernard Delta of the Mississippi River (USFWS 2008b).

The majority of specific proposed properties utilized by the AHPP would be in urban areas that have been previously developed. These urban areas provide limited wildlife habitat. Wildlife species most likely to inhabit urban properties within the program area include those which are able to easily adapt to an urban environment such as doves, pigeons, squirrels, opossums, armadillos, and nutria.

#### **4.7.2 Environmental Consequences and Mitigation Measures**

##### ***4.7.2.1 Alternative 1: No Action Alternative***

This alternative does not include any FEMA action. Therefore, FEMA would not be required to consult with USFWS, NOAA Fisheries, or LDWF to comply with the ESA, MBTA, or the Sustainable Fisheries Act. The No Action Alternative does not have the potential to affect sensitive biological resources.

##### ***4.7.2.2 Alternative 2: Proposed Action Alternative***

Site preparation and installation of AHPP units on previously disturbed land has little potential to affect sensitive biological resources. FEMA would evaluate the locations of the proposed housing sites to determine the potential for the program to affect threatened and endangered species or their habitats, migratory birds, natural waterways, or EFH, and follow the procedure outlined below.

If FEMA determines that the project has no potential to affect threatened and endangered species or their habitats, migratory birds, natural waterways, or EFH, then the program would be in compliance with MBTA, Sustainable Fisheries Act, and Section 7 of the ESA; no further

documentation would be required. If FEMA determines that the project has the potential to affect threatened or endangered species or their habitats, migratory birds, natural waterways, or EFH, then FEMA would consult with USFWS or NOAA Fisheries to minimize any impacts and to identify additional proposed mitigation. Any additional consultation required under the MBTA, Sustainable Fisheries Act, or Section 7 of the ESA, would be documented in the project's administrative record, and to ensure full NEPA compliance, a SEA would be developed.

On March 17, 2009, letters requesting project review were sent to USFWS, NOAA, and LDWF and are included in Appendix B. A response was received from USFWS on April 2, 2009, that states there would be no affect on biological resources. Responses were received by LDWF and the LNHP on April 8, 2009 which stated that they have no ecological concerns and that no impacts to rare, threatened, or endangered species or their critical habitats would be impacted. A response from NOAA Fisheries on April 20, 2009, stated that they had no comment due to the fact that no EFH or any marine resource supportive of fisheries would be impacted.

## **4.8 Cultural Resources**

### **4.8.1 Affected Environment**

#### **Regulatory Setting**

The National Historic Preservation Act (NHPA) declares Federal policy to protect historic sites and values in cooperation with other nations, states, and local governments. Subsequent amendments designated the SHPO as the individual responsible for administering state-level programs. Section 106 of the NHPA and implementing regulations (36 CFR Part 800) outline the procedures to be followed in the documentation, evaluation, and mitigation of impacts on historic properties. The Section 106 process applies to any Federal undertaking that has the potential to affect historic properties. The Section 106 process includes identifying significant historic properties that may be affected by an action and mitigating adverse effects to properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) (36 CFR 60.4).

FEMA, Louisiana SHPO, Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), formerly the Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP), and the Advisory Council on Historic Preservation (ACHP) have executed a Statewide Programmatic Agreement (PA) dated December 3, 2004, to streamline the Section 106 review process (hereafter referred to as the 2004 Statewide PA). A copy of the Statewide PA for Louisiana is provided on the FEMA website site at

<http://www.fema.gov/plan/ehp/hp/programmatic.shtm>. FEMA proposes to revise the 2004 Statewide PA and this revised Statewide PA will apply immediately upon its execution.

### ***Existing Conditions***

Orleans Parish has a rich and diverse cultural past. A records search at the Louisiana Division of Archaeology (LDA) in Baton Rouge revealed that a total of 454 site records are onfile for Orleans Parish. Orleans Parish has also received extensive research attention with 131 cultural resources surveys on file at the LDA at the time of writing. In addition, Orleans Parish also hosts 145 listings on the NRHP including 29 historic districts (including listed and eligible).

## **4.8.2 Environmental Consequences and Mitigation Measures**

### ***4.8.2.1 Alternative 1: No Action Alternative***

This alternative does not include any FEMA undertaking. Therefore, FEMA has no further responsibility under Section 106 of the NHPA. The possibility exists that potentially historic, private structures such as churches and homeless shelters would be modified for use as temporary dormitories. Further, potentially historic, structurally unsafe, or unsanitary facilities may be modified. Since FEMA does not participate in any activities under the No Action Alternative, it does not need to take into consideration the actions of individuals, local governments, or the State that affect historic structures. Neither would FEMA need to take into consideration impacts to subsurface historic properties, or coincidentally in proximity to such resources under the No Action Alternative.

### ***4.8.2.2 Alternative 2: Proposed Action Alternative***

The undertaking proposed would utilize AHPP funding for the construction of 160 single-family, permanent housing units scattered throughout Orleans Parish by the LRA. This alternative includes ground disturbing activities. Thus, there is the potential to affect subsurface historic properties. This alternative may also involve demolition of existing structures 50 years or older, and new construction within listed or eligible National Register Historic Districts (NRHD); therefore, above-ground historic properties may potentially be affected. As described in the Proposed Action Alternative in Section 2.2, the foundations on each Louisiana Cottage would be of post and beam design and are designed to meet high wind hazard design criteria in Orleans Parish. As such, each proposed AHPP housing unit, depending on cottage unit design chosen for each applicable site could include between 18 to 40 pilings. A schematic of the foundation is included in Appendix A, Figure 3. Vibratory pile driving operations for installation of the

foundations may potentially affect adjacent historic structures and the pile driving process is described more fully in Section 4.1.2. Criteria for ground vibrations have been established to protect adjacent structures and human health. To ensure that adjacent structures do not experience damage, the U.S. Bureau of Mines recommends that vibrations not exceed 0.5 inches per second near structures. A qualified vibration monitor from a testing laboratory would monitor the vibrations at the nearest structure and a threshold limit set by the piling contractor, typically 0.3 to 0.4 inches per second in older urban settings, and would ensure that all vibrations would not exceed the U.S. Bureau of Mines recommendation. Specific mitigation measures as outlined in Section 4.1.2 would be utilized to minimize the potential to affect nearby historic structures.

Currently, the proposed locations for the individual AHPP units have not been confirmed, although a working list of over 220 proposed properties is included in Appendix D. At such time as the proposed locations for the individual AHPP units are determined, FEMA will comply with the Section 106 process by assessing effects to historic properties in accordance with the streamlined Section 106 review process agreed upon in the 2004 Statewide PA (or revised Statewide PA). Consultation with Federally recognized Indian tribes will be carried out in accordance with 36 CFR Part 800. Projects having the potential to adversely affect historic properties would be subject to a SEA. If FEMA determines that an adverse effect will result from the proposed action, FEMA will initiate consultation in accordance with the 2004 Statewide PA (or revised Statewide PA) and 36 CFR Part 800, if necessary.

If during the course of AHPP construction, archaeological artifacts (prehistoric or historic), or human remains are discovered, LRA and its contractor shall stop work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the finds. All archaeological findings or remains would be secured and access to the sensitive area restricted. LRA or its contractors shall immediately inform FEMA of the discovery. If unmarked graves are present, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq.*) is required. LRA or its contractor shall notify the law enforcement agency of the jurisdiction where the remains are located within 24 hours of the discovery. LRA or its contractor shall also notify FEMA and the Louisiana Division of Archaeology at (225) 342-8170 within 72 hours of the discovery. The LRA and its contractor will not proceed with work until consultation with the SHPO and/or Federally recognized Indian Tribes is completed with assistance from FEMA.

Correspondence was sent to SHPO on April 21, May 15, and June 15, 2009 for 87 properties that were initially proposed by the LRA in late 2008. The SHPO concurred with a determination of no historic properties affected for these properties on May 6, May 19, and June 18, 2009. However, only 43 of these properties with SHPO concurrence are on the current LRA proposed property list in Appendix D.

## **4.9 Socioeconomics**

### **4.9.1 Affected Environment**

#### **Regulatory Setting**

EO 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) requires Federal lead agencies to ensure rights established under Title VI of the Civil Rights Act of 1964 when analyzing environmental effects. FEMA and most Federal lead agencies determine impacts on low-income and minority communities as part of the NEPA compliance process. Agencies are required to identify and correct programs, policies, and activities that have disproportionately high and adverse human health or environmental effects on minority or low-income populations. EO 12898 also tasks Federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible. EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks) requires Federal agencies to identify and assess health and safety risks that may disproportionately affect children. As with EO 12898, FEMA and most Federal lead agencies determine impacts on children as part of the NEPA compliance process.

#### **Existing Conditions**

The project sites would be scattered throughout Orleans Parish. Orleans Parish was heavily impacted from Hurricane Katrina with widespread damage to housing and other infrastructure. Since Hurricane Katrina, the GNOCDC has used U.S. Postal Service delivery statistics to track repopulation in the greater New Orleans area. According to GNOCDC, 198,232 households were actively receiving mail in Orleans Parish in July 2005, prior to Hurricane Katrina. As of December 2008, a total of 146,113 households were actively receiving mail in Orleans Parish, representing approximately 73.7 percent of the July 2005 households (GNOCDC 2008).

The U.S. Census population of Orleans Parish in 2000 was approximately 484,674. This population had dropped to an estimated 223,388 by 2006, largely as a result of Hurricane Katrina, but has since increased to a population of 288,113 as of July 1, 2007 (U.S. Census

Bureau [USCB] 2008; Brookings Institute 2009). As of December 2008, the estimated population of Orleans Parish had reached approximately 74 percent of its pre-Katrina estimate (Brookings Institute 2009).

The availability of affordable housing has been a serious issue in Orleans Parish in the years following Hurricane Katrina. According to FEMA estimates, 71 percent of housing units in the Parish were damaged. A total of 107,379 housing units were flooded in Orleans Parish while an additional 26,965 units sustained wind damage. In 2000, prior to Hurricane Katrina, there were approximately twice as many (215,091) housing units in Orleans Parish as in 2006, and the vacancy rate was 12 percent (USCB 2007). The total number of housing units in the Orleans Parish had increased to only 140,848 in 2007 (USCB 2007). Of the housing units within Orleans Parish, 101,221 (71.9 percent) are occupied and the remaining 39,627 (28 percent) are vacant. Approximately 50 percent (50,743) of the occupied housing units are owner-occupied, while 50 percent (50,478) are renter-occupied (USCB 2007). The number of households within Orleans Parish dropped from 188,251 in 2000 to an estimated 101,221 in 2007 (USCB 2007).

A total of 3,815 families in Orleans Parish were receiving Disaster Housing Assistance Program vouchers as of March 2009. Permits for new multi-family construction increased significantly in Orleans Parish during 2007, where 2,200 units were permitted to replace inventory destroyed by Hurricane Katrina, compared to 355 units permitted in 2006. Financing for this construction activity, driven by the Gulf Opportunity Zone legislation, has made use of tax exempt bonds and low-income housing credits. Permits for new single-family construction have increased significantly in Orleans Parish during 2007.

Public services have continued to return to the New Orleans area since Hurricane Katrina. As of October 2008, 65 private schools were open in Orleans Parish, and 89 public schools were open in the City of New Orleans (Brookings Institution 2009). As of December 2008, 13 state-licensed hospitals and 12 public libraries were operating in Orleans Parish (Brookings Institution 2009), while as of January 2009, 125 child care centers were open in the Greater New Orleans area (Brookings Institute 2009). Prior to Hurricane Katrina, 93 private schools, 23 state-licensed hospitals, and 275 childcare centers were open in Orleans Parish, and 128 public schools were open in the City of New Orleans (Brookings Institute 2008).

According to the 2007 U.S. Census, the median household income in Orleans Parish was estimated to be \$35,409. Approximately 19 percent of local families lived below the poverty level (USCB 2007). The total work force for Orleans Parish in June 2005 prior to Hurricane Katrina was approximately 636,886 individuals (U.S. Bureau of Labor Statistics 2009). After the 2005 hurricane season, the work force dropped substantially to a total of 504,802 employed individuals in Orleans Parish in October 2006 before reaching a low in January 2006 of 465,018 individuals (U.S. Bureau of Labor Statistics 2009). Since the January 2006 low, the total work force of Orleans Parish has steadily increased. As of November 2008, the total workforce for Orleans Parish was estimated to be 526,782, nearly 83 percent of the pre-Katrina work force (U.S. Bureau of Labor Statistics 2009).

In 2006, Orleans Parish had a per capita personal income (PCPI) of \$59,449. This PCPI ranked 2<sup>nd</sup> in the State and was 187 percent of the State average (\$31,821) and 162 percent of the National average (\$36,714). The 2006 PCPI reflected an increase of 352.5 percent from 2005. The 2005 to 2006 State change was approximately 28 percent, and the National change was approximately 6 percent. In 1996 the PCPI of Orleans Parish was \$22,216 and ranked 4<sup>th</sup> in the State. The 1996 to 2006 average annual growth rate of PCPI was nearly 10 percent. The average annual growth rate for the State was 4.9 percent and for the Nation was 4.3 percent (Bureau of Economic Analysis [BEA] 2006).

According to the USCB, the 2000 unemployment rate in Orleans Parish was 5.5 percent (USCB 2000). The June 2005 pre-Katrina unemployment rate in the Parish was 5.6 percent. Following the 2005 hurricane season, the unemployment rate Orleans Parish dramatically increased to 15.2 percent by September 2005 and rose again to 15.9 percent by November 2005 (U.S. Bureau of Labor Statistics 2009). As residents and employment opportunities have continued to return to Orleans Parish, the unemployment rate has dropped. As of November 2008, the unemployment rate was 4.9 percent (U.S. Bureau of Labor Statistics 2009).

The majority of jobs within Orleans Parish are in the leisure and hospitality, professional and business, trade, transportation, utilities, state government, education, and health services sectors. Leisure and hospitality jobs employed the most people in Orleans Parish in 2008 with 31,474 individuals holding these jobs (U.S. Bureau of Labor Statistics 2009). As of 2008, professional and business services jobs employed 25,619 individuals, trade, transportation, and

utilities jobs employed 23,450 individuals, and education and health services jobs employed 23,528 individuals in the Parish (U.S. Bureau of Labor Statistics 2009).

At the time of the 2007 Census, the population of Orleans Parish was approximately 63.5 percent African American and 31.6 percent Caucasian. Approximately 19 percent of families and 23 percent of individuals were living below the poverty level. Compared to the State as a whole, the percentage of African Americans and other minority groups was higher in Orleans Parish, as was the percentage of people and families living in poverty (Table 9) (USCB 2007). Although the number of individuals living in the Orleans Parish has decreased substantially since Hurricane Katrina, the proportion of minority and low-income populations is anticipated to be similar to pre-Katrina conditions. Of the total population of Orleans Parish, 21.3 percent is comprised of children under the age of 18 (USCB 2007).

**Table 9. Minority and Low-Income Population Summary Statistics**

<b>Demographics</b>	<b>Orleans Parish</b>	<b>Louisiana</b>
Caucasian	31.6 percent	64 percent
African American	63.5 percent	31.9 percent
Other non-white	4.9 percent	4.1 percent
Families below poverty level	18.6 percent	15 percent

Source: USCB 2007

## **4.9.2 Environmental Consequences and Mitigation Measures**

### **4.9.2.1 Alternative 1: No Action Alternative**

Although there is no requirement for compliance with EOs 12898 and 13045 when there are no Federal actions, the No Action Alternative would likely result in disproportionate health and safety risks to low-income and minority persons and to children, as these groups would be most likely to be affected by the lack of permanent housing.

Displaced persons currently residing with family members or friends, in hotels, in temporary dormitories, or in structurally unsafe or unsanitary facilities would result in adverse socioeconomic and public safety impacts. The hosts would suffer the economic effects of these living arrangements from incurring additional living expenses, such as food and increased utility use. In many cases, displaced residents would be subjected to adverse financial impacts due to the relocations which are distant from their places of employment. Further, the hosts and displaced residents could endure emotional stress associated with the disruption of their normal

lives. For persons who attempt to occupy structurally unsafe or unsanitary facilities, public safety associated with building collapse and transmission of disease is a high risk.

#### **4.9.2.2 Alternative 2: Proposed Action Alternative**

Noise resulting from installation of the proposed AHPP cottages would likely cause disproportionately adverse impacts to minority or low-income populations; conversely, the beneficial socioeconomic benefits from installation of the AHPP cottages would also be disproportionately distributed among minority or low-income populations.

Various studies indicate that Hurricane Katrina caused severe flood damage in the majority of New Orleans neighborhoods, regardless of income and other social factors. However, these studies also suggest that pre-existing socioeconomic conditions play a significant role in the ability for particular economic classes to respond immediately to the disaster and to cope with rebuilding after such a devastating natural disaster. In order to provide housing for lower income level families affected by Hurricane Katrina and those that are least likely to have the resources to rebuild, AHPP housing would be required, at times, to be located in less affluent or mixed neighborhoods throughout Orleans Parish. In general, the availability of Federal assistance, including AHPP housing for displaced individuals, is consistent with EO 12898. All forms of FEMA disaster housing assistance are available to any affected household that meets the conditions of eligibility; demographics are not among the eligibility requirements.

Housing at the proposed project sites would be offered to families and individuals regardless of their race or economic background who were displaced or impacted by the 2005 hurricane season. The specific demographics of occupants are not available at this time because specific individuals or families are in the process of being identified for this area. However, the demographic makeup of the future residents is anticipated to be similar to the community as a whole. Furthermore, the availability of AHPP housing would result in a positive impact to displaced individuals regardless of their race or economic status.

#### **Mitigation Measures**

As mentioned in Section 4.3.2, general construction activities can produce noise emissions which may be normally unacceptable to sensitive noise receptors. However, the noise impacts are short-term impacts as it is anticipated that construction activities at each housing unit would

take no more than 90 days. In addition, noise impacts would be minimized by scheduling construction of the cottages in the daylight hours during the work week.

#### 4.10 Traffic and Transportation

##### 4.10.1 Affected Environment

###### Regulatory Setting

The Louisiana Department of Transportation and Development (LaDOTD) is responsible for the design, construction, and maintenance of the State highway system, as well as the portion of the Federal interstate highways within Louisiana’s boundaries. Arterials, connectors, rural roads, and local roads are constructed and maintained by parish or city governments. The LaDOTD (District 02) consists of a seven parish region and includes Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Charles, and Terrebonne Parishes. As shown below in Table 10 and in Appendix A, Figure 5, Orleans Parish has an extensive network of Federal (Interstates [I] and U.S. highways [US]) and State highways (LA) throughout the program area.

###### Existing Conditions

The State provides actual traffic counts along various highways for the years 2004, 2005, and 2006, depending on the parish. Traffic counts are given in units of Average Annual Daily Traffic (AADT). As shown below in Table 10, in Orleans Parish, the highest of the traffic counts on Federal highways was on the Interstate system of I-10 and I-610 with counts ranging from 69,691 to 128,072. On other Federal highways (US 61 and US 90) counts ranged from as low as 2,559 to as high as 101,366. State highway traffic counts ranged from 7,598 to 53,333 AADT (LaDOTD 2008).

**Table 10. Federal and State Major Highways with Traffic Counts within the Project Area**

Parish	Highways	AADT*
Orleans	I-10	55,439 – 128,072
	I-510	23,969 – 31,498
	I-610	69,691 – 76,074
	US 61	36,136 – 38,394
	US 90	2,559 – 101,366
	LA 39	37,103 – 53,333
	LA 46	21,790 – 28,396
	LA 47	7,598 – 21,984

Source: LaDOTD 2008

\* AADT varies according to segment of highway; units are number of vehicles.

The proposed 160 project sites would be scattered throughout Orleans Parish. Public transportation within the Parish, including buses and street cars, is provided by the New Orleans Regional Transit Authority (RTA). There are several fixed routes operating within the City of New Orleans near the project sites. Service is provided from 5:00 AM to 10:00 PM on weekdays and 6:00 AM to 10:00 PM on weekends and holidays. A map of the current fixed routes within the City of New Orleans is provided (Appendix A, Figure 6). The Lil'Easy is RTA's new flexible-route transit service for the Lower Ninth Ward. The service will use 14-seat mini-buses to circulate throughout a neighborhood, connecting people with other public transit. It combines three main bus stops that are also transfer points, with 24 new flexible stops spread throughout the neighborhood. The service operates the same hours as the other RTA buses.

The Louis Armstrong New Orleans International Airport is approximately 12 miles west of Orleans Parish in Kenner, Jefferson Parish, Louisiana. The New Orleans Lakefront Airport is located on the south shore of Lake Pontchartrain within Orleans Parish. It is the only airport in the New Orleans metropolitan area, and is primarily utilized by privately-owned aircraft, and offers access to southeast Louisiana as well as the Mississippi Gulf Coast. In the 1950s, New Orleans Lakefront Airport was designated as a general aviation airport. Currently, three runways serve private, corporate, and military, and commercial air carrier aircraft. The New Orleans Amtrak Station providing passenger train service, is located on Loyola Avenue and is potentially near some of the proposed sites. There are three Amtrak routes that serve New Orleans: the New Orleans route would take a passenger from New Orleans to Memphis and Chicago; the Crescent route would take a passenger from New Orleans to Atlanta and New York; and the Sunset Limited will take a passenger from New Orleans to San Antonio and Los Angeles. Several roadways including I-10, I-310, I-610, US 61 and the Westbank Expressway (US 90) serve as major arteries throughout Orleans Parish. A mass transportation system map is provided in Appendix A, Figure 5.

Due to the low to moderate income of the residents in the FEMA housing, personal transportation including vehicles may not be readily available during emergency evacuation times. The City of New Orleans has a City Assisted Evacuation Plan in place to help citizens who want to evacuate during an emergency but lack the capability to self-evacuate; this includes citizens without transportation and those in need of medical resources. The City of New Orleans has the responsibility for getting the citizens from pre-identified pick-up locations to registration centers and debarkation points, which would be the Morial Convention Center,

Union Passenger Terminal, and Louis Armstrong International Airport. The State then has responsibility for moving the citizens from the threat area and into shelters. When the threat has passed and re-entry is authorized, this process would be reversed. Citizens are encouraged to first provide for their own evacuation through neighbors, friends, and family, but would have this last-resort evacuation method available (City of New Orleans 2006).

#### **4.10.2 Environmental Consequences and Mitigation Measures**

##### **4.10.2.1 Alternative 1: No Action Alternative**

Under this alternative, traffic volumes would increase on arteries leading to housing provided by friends and family members, hotels, and temporary dormitories. These arteries include I-10, I-12, I-55, I-59, and US 90. Because these locations would be scattered across a large area, no localized or regional effects on transportation beyond the Greater New Orleans area are expected. In addition, arteries such as I-10, I-12, I-55, I-59 and US 90 which link Baton Rouge, and Lafayette, Louisiana; Houston, Texas; and Jackson, Mississippi, would experience large temporary impacts during hurricane evacuations of the Greater New Orleans area.

##### **4.10.2.2 Alternative 2: Proposed Action Alternative**

The Proposed Action would result in short-term increased traffic volumes associated with site preparation and installation of the AHPP units at the previously developed housing sites. Since the AHPP housing units are being installed on once occupied, previously developed land, traffic volumes should return to pre-construction levels after completion.

Traffic volumes would also increase in the vicinity of the proposed site from new residents. However, because the AHPP housing units would be placed in developed neighborhoods on vacant lots in developed neighborhoods, the increase in traffic volumes would be negligible relative to the total traffic volume capacities within the Greater New Orleans area. Therefore, the level of service on ingress and egress streets would be no greater than development of each property under the No Action Alternative.

#### **Mitigation Measures**

To minimize adverse impacts on traffic resulting from construction equipment, traffic along adjacent roadways would be provided temporary detours as necessary during construction. Traffic lane closures during delivery of supplies and construction activities would be coordinated with the appropriate local government; road equipment staging and worker POV would be sited

to minimize impacts on traffic flow in the areas where the actions are implemented. Adjacent residential neighborhoods and commercial/industrial areas would be notified in advance of construction activities and any required temporary detours.

#### **4.11 Hazardous Materials and Wastes**

##### **4.11.1 Affected Environment**

###### **Regulatory Setting**

Hazardous materials and wastes are regulated in the U.S. under a variety of Federal and state laws. Federal laws and subsequent regulations governing the assessment, transportation, and disposal of hazardous materials and wastes include the Resource Conservation and Recovery Act (RCRA); the RCRA Hazardous and Solid Waste Amendments; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Solid Waste Act; the Toxic Substances Control Act (TSCA); and the CAA. RCRA is the Federal law that regulates hazardous waste. RCRA regulates hazardous waste from “cradle to grave,” that is, from the time the waste is generated through its management, storage, transport, treatment, and final disposal. USEPA is responsible for implementing this law and has delegated this responsibility to the State. RCRA also sets forth a framework for the management of non-hazardous wastes. The 1986 amendments to RCRA enable USEPA to address the environmental problems that can result from underground tanks storing petroleum and hazardous substances. RCRA focuses only on active and proposed facilities, and does not address abandoned or historical sites.

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

Superfund site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies. Section 112 of the CAA requires the USEPA to develop emission standards for hazardous air pollutants. In response to this section, the USEPA published a list of hazardous air pollutants and promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. Because lead and asbestos present a substantial risk to human health as a result

of air emissions from one or more source categories, they are considered hazardous air pollutants and, thus, hazardous materials. The Asbestos NESHAP (40 CFR 61, Subpart M) addresses milling, manufacturing, and fabricating operations, demolition and renovation activities, waste disposal issues, active and inactive waste disposal sites, and asbestos conversion processes.

### **Existing Conditions**

Louisiana has 10 National Priorities List (NPL) sites; however, Orleans Parish has only one active NPL site (USEPA 2008c). The NPL site is the Agricultural Street Landfill, located approximately 3.0 miles northeast of the Central Business District and the Vieux Carre, and is bounded on the north by Higgins Road and on the east by Clouet and Montegut Streets. The USEPA Comprehensive Environmental Response Compensation and Liability Information System ID is LAD98154486 (USEPA 2008c).

### **4.11.2 Environmental Consequences and Mitigation Measures**

#### ***4.11.2.1 Alternative 1: No Action Alternative***

Although the No Action Alternative would not actively use hazardous materials or generate hazardous wastes, it may prolong the exposure of individuals to hazardous materials or wastes that may have been generated by Hurricane Katrina. Residents who find themselves without alternative housing may continue to live within an area contaminated by hazardous materials or wastes, such as petro-chemicals (from ruptured storage tanks), air-borne asbestos (from damaged asbestos-containing materials), or lead-paint chips (from peeling surfaces). Further, temporary dormitories not typically used as shelters could contain lead-based paint or other sources of hazardous materials or wastes.

#### ***4.11.2.2 Alternative 2: Proposed Action Alternative***

The program area is populated by sites and facilities frequently seen in older urban settings. These sites and facilities could potentially impact the surrounding environment due to spills or pollutants that migrate offsite. Each of the proposed 160 specific sites would be subject to a hazardous materials and waste site reconnaissance; on project sites where hazardous materials are suspected or known to exist on or adjacent to the proposed project area, FEMA would provide further site investigation. FEMA would remove project sites having the potential to impact hazardous materials or wastes from program consideration. LRA and FEMA would

coordinate with State and local agencies and USEPA on any findings, as appropriate, and results would be documented in the project's administrative record.

In addition, under this alternative, project activities are not anticipated to impact hazardous materials or wastes. Ground disturbing activities could expose or otherwise affect subsurface hazardous wastes or materials. Should LRA or its contractors encounter any explosive or flammable materials, toxic chemicals, and/or radioactive materials during site clearing and demolition, LRA would follow the requirements of 24 CFR Part 51 to minimize any potential harm to human health or the natural environment. In addition, all debris associated with site clearing would be removed and disposed of in accordance with all Federal, state, and local regulations.

Former housing structures may be eligible for demolition. Depending on the age of the former structure, the structure may potentially contain lead- and asbestos-containing material. If this is likely, LRA or its contractor would ensure that any lead or asbestos containing material is properly disposed of after demolition of the structure.

On March 17, 2009, letters requesting project review were sent to USEPA and LDEQ and are included in Appendix B. A response was received from LDEQ on May 4, 2009, stating if properties are located within the boundaries of the Agricultural Street Landfill, consultation with USEPA and LDEQ will need to occur. This correspondence can be found in Appendix B.

**SECTION 5.0**  
**CUMULATIVE IMPACTS**



## **5.0 Cumulative Impacts**

According to the Council on Environmental Quality (CEQ) regulations, cumulative impacts represent 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). In accordance with NEPA, and to the extent reasonable and practical, this PEA considered the combined effect of the AHPP in Louisiana and other actions occurring or proposed in the vicinity of the proposed project sites.

The Louisiana Gulf Coast is undergoing recovery efforts after the 2005 hurricane season which includes demolition, reconstruction, and new construction, both within the private sector as well as projects by Federal and State agencies. The USACE is undergoing one of the largest projects in their history, the rebuilding of the Greater New Orleans Hurricane and Storm Damage Risk Reduction System, which will improve approximately 350 miles of levees, concrete floodwalls, and other structures to meet 100-year level of risk reduction. These improvements include movement of large volumes of borrow material for levee construction, thousands of H-piles, sheet piles, and large quantities of concrete for floodwall construction. In addition, LaDOTD has an unusually large number of infrastructure improvements ongoing in and around Orleans Parish such as the Huey P. Long Bridge widening, the I-10 Twin Span Bridge replacement, and the I-10 and Causeway Boulevard interchange improvements. These infrastructure projects, as well as others in the Parish, are due to repair of damage caused by the 2005 hurricane season as well as needed maintenance and improvements. The combination of recovery development projects, including those mentioned above, and the proposed AHPP actions would have cumulative impacts to Orleans Parish. However, it is anticipated that the Proposed Action would not have cumulative impacts on most resources addressed in this PEA. Cumulative impacts from the AHPP program in Orleans Parish would occur to transportation, socioeconomics, and cultural resources. Cumulative impacts may occur to historic properties and would require an individual evaluation of sites located in or with the potential to affect historic districts. Although there would be short-term adverse cumulative socioeconomic and transportation impacts, in the long-term these private, State, and Federal development projects would provide Orleans Parish with hurricane risk reduction, better transportation infrastructure, and improved housing conditions, which enable lower income and displaced residents of New Orleans to have a higher standard of living than may have been

possible prior to the 2005 hurricane season. Furthermore, the expenditure of Federal funds for all of these improvement projects has a cumulative socioeconomic benefit through job creation and the purchase of materials and supplies.

Cumulative impacts of the proposed AHPP actions will be considered by FEMA when determining the compatibility of this PEA for specific actions proposed. Should FEMA identify, during the course of the project, cumulative impacts that would be greater in magnitude, extent, or duration than the direct and indirect effects described in this PEA, a SEA would be prepared to analyze the potential environmental impacts of the proposed AHPP action and other recovery efforts.

In December 2005, DHS and CEQ established a NEPA Alternative Arrangement (AA) process to enable timely action on grant applications to restore safe and healthful living conditions in New Orleans Metropolitan Area (NOMA) while observing the requirements and objectives of NEPA. NOMA includes Orleans, Jefferson, St. Bernard, Plaquemines, St. Tammany, St. Charles, and St. John the Baptist Parishes. A requirement of AA was to address projects which may have potentially significant cumulative environmental effects upon the various resources in the area. AA enable FEMA to consider the potential for significant direct, indirect, and cumulative impacts to the human environment from reconstruction of critical physical infrastructure in NOMA through its grant programs. AA has been developed in consultation with CEQ pursuant to NEPA regulations found in 40 CFR 1506.11 and 44 CFR Part 10.13. FEMA's determination of the need for this arrangement was based on the immense number and complexity of FEMA-funded actions, when evaluated with all future Federal, state, and local actions in the area.

Rather than spend time and resources trying to quantify the potential significance and proportion of the impacts caused by the FEMA-funded actions (as opposed to the actions of others), emphasis is placed on identifying and implementing mitigation measures for the potential impacts. This approach entails characterizing the typical recurring FEMA-funded actions and assessing the potential impacts of those actions on different resources. Based on this assessment and to comply with CEQ AA, FEMA is in the process of preparing a Cumulative Impact Analysis (CIA). FEMA will identify cumulative impacts to the socioeconomic resources, wetland and coastal systems, and historic properties in NOMA and the mitigation measures for any potential impact. The actions taken into account as part of the CIA include all FEMA-funded

actions within the NOMA, regardless of the program under which they are funded. The three primary FEMA programs include Individual Assistance, Hazard Mitigation, and Public Assistance.

Although restoration of eligible infrastructure substantially to its pre-disaster conditions is excluded from NEPA by Section 5159 of the Stafford Act, FEMA anticipates that the applications from the State for NOMA will more strongly reflect future demands than returning to pre-disaster conditions.

FEMA currently administers grant programs to fund repair, restoration, and replacement of eligible infrastructure damaged or destroyed in areas that have been included in a Presidential disaster declaration. Some of the other ongoing FEMA projects as well as other Orleans Parish-wide projects are outlined below.

## **FEMA**

### *AHPP Projects*

The LRA has proposed to utilize AHPP funds for various projects in and around Orleans Parish. The LRA proposed installation of a limited AHPP group housing development with approximately 95 units located in the Louisiana Army National Guard installation at Jackson Barracks in the Lower Ninth Ward neighborhood of Orleans Parish. Within the West Bank Orleans Parish neighborhood of Algiers, the LRA has also proposed construction of approximately 124 AHPP units at the Fischer AHPP group site. In addition, a group housing development is proposed in nearby Jefferson Parish for the Ephesus AHPP group housing site in Westwego at the 800 block of Wayne Avenue. EAs have been or are being performed by FEMA to analyze the impacts of these proposed AHPP housing projects to the natural and human environment.

### *Public Assistance Grant Program*

The Public Assistance Grant Program provides grants for debris removal, emergency protective measures, repairing infrastructure to pre-disaster conditions, and permanent infrastructure work (e.g., improved projects and alternate projects) beyond its pre-disaster conditions for both publicly-owned facilities as well as private non-profit organizations (FEMA 2007). FEMA, through its Public Assistance Grant Program, is involved in multiple projects for restoration of public infrastructure in Orleans Parish. Although many of these projects are exempted from the

requirements of NEPA under Section 316 of the Stafford Act, they must comply with all other environmental and historic preservation laws, regulations, and EOs.

#### *Hazard Mitigation Grant Program*

The Hazard Mitigation Grant Program (HMGP) provides funding for activities that mitigate the impacts of future disasters including, but not limited to, retrofitting of commercial and residential structures, reconstruction of homes with hazard mitigation measures, elevation of structures, flood-proofing of structures, and acquisition of facilities.

The State is using part of their available HMGP funds to assist in the Road Home Program efforts. In particular, HMGP funds would be used for the elevations and reconstruction of some homes identified under the Road Home Program. In December 2007, FEMA announced a program exception that would allow the agency to provide HMGP assistance to actions that were initiated or completed without the agency's approval in the State. FEMA issued a PEA for these activities and executed a PA under Section 106 of the NHPA.

#### *Demolition Activities*

After the 2005 hurricane season devastated southern Louisiana, FEMA implemented a disaster response program funding demolition of homes identified by the local government as a threat to public health and/or safety. As a Federally funded program, these demolitions are subject to review under Section 106 of the NHPA. FEMA conducts individual historic review of buildings eligible for this program to identify those demolitions which would affect historic properties. From the onset, there was a general acknowledgement that this demolition program would potentially have adverse effects on historic properties, particularly in Orleans Parish with its many NRHD and widespread devastation. Very early in the process, FEMA recognized that the Section 106 review and potential adverse effects in Orleans Parish necessitated a programmatic approach in order to mitigate the potential loss to the historic fabric of New Orleans.

Building on the existing Louisiana PA, FEMA initiated consultation which led to a Secondary Programmatic Agreement for Orleans Parish to encompass private property demolitions. Adverse effects resulting from the private property demolitions are programmatically addressed on a specific basis with pre-demolition treatment measures for NRHP-eligible homes and this process is outlined below.

- Buildings which were found to be historic, primarily contributing to historic districts, are individually discussed in a meeting with all interested parties (FEMA, City of New Orleans, SHPO, National Trust for Historic Preservation, and the Preservation Resource Center) to examine alternatives to demolition for each property.
- After this is complete, each NRHP-eligible house is photographed for archival recordation.
- Finally, before demolition, each building is assessed by a team of historic architects and specialists from the above organizations to identify character-defining architectural elements to be removed prior to demolition.
- Once removed, these items are given to the Preservation Resource Center, a local non-profit preservation advocacy group to be resold into the community.

### **Orleans Parish**

The Parish Recovery Planning Tool, created by the Louisiana Long-term Community Recovery (LTCR) planning team, allows Federal and state agencies, local parish governments, general public, and displaced Louisianans, as well as other LTCR parish teams, access to the planning process. Recovery goals specific to Orleans Parish include restoration and improvement projects in the following areas:

- Environmental
- Housing and Community Development
- Economic and Workforce Development
- Public Health and Healthcare
- Transportation and Infrastructure
- Education
- Human Services
- Flood Protection and Coastal Restoration

Details about current projects in several of these areas are provided below (Louisiana Speaks 2006).

Current environmental restoration and improvement projects in Orleans Parish include the restoration of 1,100 acres of City Park, restoration of urban forest throughout the Parish in effort to replace some of the approximately 40,000 public trees under the jurisdiction of the New Orleans Department of Parks and Parkways growing in parks, along the City's extensive network of neutral grounds (medians), and within the public right-of-way that were lost as a result of the 2005 hurricane season, and rebuilding of JM Bartholomew Municipal Golf Course.

Current housing and community development efforts are underway in Orleans Parish to address the housing shortage caused by the 2005 hurricane season by providing assistance to rebuild

up to 134,000 damaged or destroyed rental units and rehabilitating up to 67,000 owner-occupied homes, including quality, affordable housing options for approximately 30,000 displaced senior residents and 17,000 displaced low income families. The Parish also has plans for mixed use developments and restoring and protecting approximately 33,000 historic and culturally significant buildings.

Transportation and infrastructure goals specific to Orleans Parish include the following: re-establishing the Parish's roadways and traffic management to efficiently accommodate traffic through the City; stimulating a swift revitalization of commercial and residential neighborhoods while encouraging access between communities across the waterways; re-establishing the regional Mass Transit System in order to provide efficient, safe, and environmentally friendly public transit services to nearly 220,000 individuals in New Orleans; relocating existing deep draft port facilities, tenants, and industries of the Port of New Orleans in order to provide a safer and deeper port for the movement of up to 50 million tons of cargo per year; and collecting data on damages to the sewer and water delivery systems in order to accurately quantify water loss.

In addition, within Orleans Parish, goals were set forth in order to create or restore 4,000 acres of critically located coastal wetlands and other habitats that buffer and protect communities and infrastructure in Orleans Parish and southeast Louisiana; build structures to serve as storm surge buffers that would significantly reduce storm surge and protect coastal wetlands; and develop alternatives to levees to protect the City of New Orleans from flooding (Louisiana Speaks 2006).

***SECTION 6.0***  
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***SECTION 7.0***  
***REFERENCES***



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