

Programmatic Environmental Assessment

# Alternative Housing Pilot Program Permanent Housing

Calcasieu Parish, Louisiana  
FEMA-1603/1607-DR-LA  
*April 2009*

**U.S. Department of Homeland Security**  
Federal Emergency Management Agency (FEMA)  
Louisiana Transitional Recovery Office – New Orleans, LA



*This document was prepared by*



Gulf South Research Corporation  
8081 GSRI Avenue  
Baton Rouge, Louisiana 70820

Contract No. HSFEHQ-07-C-0173

## TABLE OF CONTENTS

<b>1.0</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Purpose and Need .....	2
1.2	Scope, and Use of the Programmatic Environmental Assessment .....	3
1.3	Cumulative Impacts .....	4
<b>2.0</b>	<b>Alternatives.....</b>	<b>6</b>
2.1	Alternative 1: No Action Alternative .....	6
2.2	Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land .....	6
2.3	Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land.....	7
<b>3.0</b>	<b>Summary of Potential Impacts.....</b>	<b>9</b>
<b>4.0</b>	<b>Affected Environment, Environmental Consequences, and Mitigation Measures .</b>	<b>11</b>
4.1	Geology and Soils .....	11
4.1.1	Affected Environment .....	11
4.1.1.1	Regulatory Setting .....	11
4.1.1.2	Existing Conditions .....	12
4.1.2	Environmental Consequences and Mitigation Measures.....	14
4.2	Air Quality.....	15
4.2.1	Affected Environment .....	15
4.2.2	Environmental Consequences and Mitigation Measures.....	17
4.3	Noise .....	19
4.3.1	Affected Environment .....	19
4.3.2	Environmental Consequences and Mitigation Measures.....	20
4.4	Water Quality.....	22
4.4.1	Affected Environment .....	22
4.4.2	Environmental Consequences and Mitigation Measures.....	23
4.5	Floodplains .....	25
4.5.1	Affected Environment .....	25
4.5.2	Environmental Consequences and Mitigation Measures.....	26
4.6	Wetlands .....	27
4.6.1	Affected Environment .....	27
4.6.2	Environmental Consequences and Mitigation Measures.....	28
4.7	Biological Resources .....	29
4.7.1	Affected Environment .....	29
4.7.2	Environmental Consequences and Mitigation Measures.....	32
4.8	Cultural Resources .....	33
4.8.1	Affected Environment .....	33
4.8.2	Environmental Consequences and Mitigation Measures.....	34
4.9	Socioeconomics .....	36
4.9.1	Affected Environment .....	36
4.9.2	Environmental Consequences and Mitigation Measures.....	38
4.10	Traffic and Transportation .....	39
4.10.1	Affected Environment .....	39
4.10.2	Environmental Consequences and Mitigation Measures.....	40
4.11	Hazardous Materials and Wastes.....	41
4.11.1	Affected Environment .....	41
4.10.2	Environmental Consequences and Mitigation Measures.....	42
<b>5.0</b>	<b>List of Preparers.....</b>	<b>44</b>
5.1	FEMA .....	44
5.2	Gulf South Research Corporation .....	44

5.3	URS Corporation .....	44
<b>6.0</b>	<b>References .....</b>	<b>45</b>

### TABLES

Table 1.	National Ambient Air Quality Standards.....	16
Table 2.	Total Air Emissions (tons/year) from the Proposed Action Construction verses the <i>de minimus</i> Threshold Levels.....	18
Table 3.	A-Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances .....	21
Table 4.	LDEQ Sub-watersheds in the Program Area and Water Quality Attainment Status ....	23
Table 5.	Federally Protected Species in Calcasieu Parish .....	31
Table 6.	State Protected Species Likely to Occur in Calcasieu Parish.....	32
Table 7.	Federal and State Major Highways with Traffic Counts within Calcasieu Parish.....	39

### PHOTOGRAPH

Photograph 1.	Typical Louisiana Cottages .....	7
---------------	----------------------------------	---

### APPENDICES

Appendix A.	Figures
Appendix B.	Correspondence
Appendix C.	AHPP Cottage Designs
Appendix D.	Air Quality Calculations
Appendix E.	Floodplain Eight Step Planning Process and Public Notice
Appendix F.	Rare, Threatened, and Endangered Species in Calcasieu Parish

### List of Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter of air
AADT	Average Annual Daily Traffic
ACHP	Advisory Council on Historic Preservation
AHPP	Alternative Housing Pilot Program
amsl	Above mean sea level
BEA	Bureau of Economic Analysis
BFE	Base Flood Elevation
BMP	Best Management Practice
CAA	Clean Air Act
CO	Carbon monoxide
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHHA	Coastal High Hazard Area
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 map
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 Maps
FPPA	Farmland Protection Policy Act
FONSI	Finding of No Significant Impact
GOHSEP	Governor's Office of Homeland Security and Emergency Preparedness
GSRC	Gulf South Research Corporation
HFH	Habitat for Humanity
HUD	U.S. Department of Housing and Urban Development
I	Interstate
I-10	Interstate 10
LA	Louisiana state highway
LaDOTD	Louisiana Department of Transportation and Development
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
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

mg/m <sup>3</sup>	Milligrams per cubic meter of air
MBTA	Migratory Bird Treaty Act
MLRA	Major land resource areas
MSA	Metropolitan Statistical Area
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
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
NPDES	National Pollutant Discharge Elimination System
NRIS	National Register of Historic Places online database
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O <sub>3</sub>	Ozone
P	Primary
PA	Programmatic Agreement
Pb	Lead
PBAF	Project Build A Future
PCPI	Per Capita Personal Income
PEA	Programmatic Environmental Assessment
P.L.	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
ROI	Region of Influence
RPT	Recovery Planning Tool
S	Secondary
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	Sulfur dioxide
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
State	State of Louisiana
SWPPP	Stormwater Pollution Prevention Plan
TPI	Total Personal Income
TSCA	Toxic Substances Control Act
US	U.S. highway
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
US 90	U.S. Highway 90
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.
WWTP	Wastewater treatment plant

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



## 1.0 Introduction

The Department of Homeland Security's (DHS) 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 (P.L.) 93-288, as amended. Under the authority of Section 408 of the Stafford Act, the Individual Assistance Program provides for 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 a combination of travel trailers and manufactured homes. Travel trailers have been used principally for short-term housing needs and are placed on private sites while a homeowner's permanent residence is being repaired, or in group configurations to primarily support displaced renters. 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 unmet 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 impacts of Hurricanes Katrina and Rita on the Gulf Coast decimated the housing stock resulting in:

- a significant number of homes on private lots were completely destroyed;
- complete neighborhoods were destroyed;
- 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 travel trailers 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 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, P.L. 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.

The Louisiana Recovery Authority (LRA), in conjunction with the State of Louisiana (State), has applied for FEMA funding under the AHPP to provide approximately 55 permanent housing sites within Calcasieu Parish for eligible applicant families displaced by Hurricanes Katrina and Rita throughout the State (Appendix A, Figure 1). The majority of the individual AHPP housing sites would be primarily scattered throughout the City of Lake Charles while a few sites may be located outside of Lake Charles but within Calcasieu Parish.

Two private non profit organizations, Project Build A Future (PBAF) and Habitat for Humanity (HFH), are also working with the LRA and the City of Lake Charles to implement the AHPP initiative throughout Calcasieu Parish. Both have mission statements which include providing quality, affordable housing within the communities they serve.

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 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 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 southwest Louisiana that includes long-term and permanent solutions. The need for this action is to address the housing shortages caused by the

catastrophic effects of Hurricanes Katrina and Rita and to move disaster victims from current temporary solutions (e.g., rental dwellings, manufactured housing, etc.) to permanent housing. As of January 2009, in Louisiana there are 765 mobile homes, 3,674 manufactured housing, and 385 park model houses still occupied by residents displaced by Hurricanes Katrina and Rita. An additional 4,227 people are receiving rental assistance. Currently in Calcasieu Parish (as of January 2009), there are 144 mobile homes, 349 manufactured housing, and 25 park model houses still occupied by residents displaced by Hurricane Rita.

## **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 the southwestern parishes, 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 Calcasieu 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.

Since Hurricanes Katrina and Rita, 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 to actions identified by FEMA during their initial agency coordination process. Additional agency consultation 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 Resource Conservation Services (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. 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 the development of the PEA and the SHPO has reviewed portions of this document.

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) 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 the preparation of the SEA, to require a more detailed or broader environmental review would be subject to the stand-alone EA process. Actions that are determined to have significant environmental impacts would be subject to the environmental impact statement (EIS) process.

### **1.3 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.

---

<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.

The Louisiana Gulf Coast is undergoing recovery efforts after Hurricanes Katrina and Rita which include demolition, reconstruction, and new construction both within the private sector as well as projects by Federal and state agencies. These projects and the proposed AHPP actions may have impacts to the proposed project areas and their surroundings. Cumulative impacts of the proposed AHPP actions will be considered by FEMA when determining the compatibility of this PEA for specific actions. Should FEMA identify, during the course of the project, cumulative impacts that will be greater in magnitude, extent, or duration than the direct and indirect effects described in the PEA, a SEA would be prepared to analyze the potential environmental impacts of the proposed AHPP action and other recovery efforts.

#### *Calcasieu Parish*

The Parish Recovery Planning Tool (RPT) created by the Louisiana Long-term Community Recovery (LTCR) planning team, allowed LTCR parish teams, Federal and state agencies, local parish governments, the general public, and displaced Louisianans access to the planning process. The Louisiana Speaks parish planning component indicates that in Calcasieu Parish “Revitalizing Downtown Lake Charles” is the highest priority for residents. The RPT would be a reference for much of the past, present, and reasonably foreseeable future actions associated with Hurricane Rita in Calcasieu Parish (Louisiana Speaks 2006).

Calcasieu Parish has begun numerous recovery projects that have to do with environmental management, housing and community development, economic, workforce development, public health and health care, transportation and infrastructure, human services, public safety, flood problems, and costal restoration (Louisiana Speaks 2006).

In addition, the LRA, in conjunction with PBAF, HFH, and the City of Lake Charles, have proposed to utilize AHPP funds to purchase and install a group housing development with 34 AHPP housing units located within a previously developed subdivision south of Highway 90 (Broad Street), north of 2<sup>nd</sup> Street, and east of 6<sup>th</sup> Street. An EA is being performed by FEMA to analyze any impacts of the AHPP housing to the natural environment.

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



## **2.0 Alternatives**

This section describes the alternative actions that the State and FEMA propose to undertake in order to provide AHPP housing to Louisiana residents displaced as a result of Hurricanes Katrina and Rita within Calcasieu Parish and surrounding parishes (program area) (Appendix A, Figure 1). Three alternatives, including the No Action Alternative, are described below.

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

Inclusion of 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; facilities damaged by the storm and determined structurally unsafe or unsanitary; or through charitable donations.

### **2.2 Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

Alternative 2 would include the acquisition of the land and the installation of AHPP units on previously disturbed land. Previously disturbed land would include land that was previously residential or commercial. 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 the demolition of former housing structures, slab/foundation removal, and the modification of utilities (*i.e.*, utility lines, septic systems, water wells) and entryways (driveways, sidewalks, *etc.*). All units would be located outside of the Coastal High Hazard Area (CHHA). If located within the 100-year floodplain, the AHPP units would be elevated above the preliminary digital flood insurance rate map (DFIRM) Base Flood Elevation (BFE).

After the purchase of the individual properties, only single-family dwellings (Louisiana Cottages) would be constructed upon the site. The living area for the various Louisiana Cottages at the proposed site would range from 874 square feet to 1,112 square feet. 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 based on the lot size, lot layout, and



**Photograph 1. Typical Louisiana Cottage**

nearby housing designs. The Louisiana Cottages would be built on piers to raise them to the required elevation, as necessary. Photograph 1 shows a typical Louisiana Cottage.

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, where these exist. If the site cannot be connected to existing sanitary sewer systems, an engineered septic system or a site specific wastewater treatment plant (WWTP) would be constructed on site. Safety fences would be installed and maintained around any water wells or WWTPs.

### **2.3 Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Alternative 3 would include the acquisition of the land and the installation of AHPP units on undeveloped land. 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 site preparation (clearing of debris and vegetation) and the installation of utilities (*i.e.*, utility lines, septic systems, water wells) and entryways (driveways, sidewalks, *etc.*). All units would be located outside of the CHHA. If located within the 100-year floodplain, the AHPP units would be elevated above the preliminary DFIRM BFEs.

The single family dwellings (Louisiana Cottages) utilized in this alternative are described above. New utility installation would consist of connecting electrical service, domestic water service, stormwater and sanitary sewer systems, and telecommunication service to existing municipal infrastructure, where these services or systems exist. If the site cannot be connected to existing

sanitary sewer systems, an engineered septic system or a site specific WWTP would be constructed on site. Safety fences would be installed and maintained around any water wells or WWTPs.

***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</b>	<b>Alternative 2: Installation of a Permanent AHPP Unit on Previously Disturbed Land</b>	<b>Alternative 3: Installation of a Permanent AHPP Unit on Undeveloped Land</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. As these sites have been previously disturbed and converted for residential use, this alternative is not anticipated to impact prime, unique, or important farmlands.  Potential soil erosion would be minimized through the use of Best Management Practices (BMP).	No impacts to geology are anticipated; however, short-term impacts to soils could occur during construction of AHPP units. Prime farmlands could be impacted. FEMA would prepare the appropriate sections of an AD 1006 Farmland Conversion Impact Rating Form for the action, coordinate with the NRCS to determine the overall impact of the conversion, and document the results of FPPA compliance in the project's administrative record.
<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 occurs.	Impacts to air quality under this alternative would be similar to Alternative 2. Measures as outlined in Alternative 2 would be utilized to minimize equipment exhaust and fugitive emissions.
<b>Noise</b>	No impacts to noise are anticipated.	Short-term impacts from increased noise could occur at the proposed project site during construction and have the potential to expose sensitive receptors to noise emissions that are normally unacceptable. To minimize this impact, construction activities would be limited to 7:30 AM to 5:30 PM, Monday through Friday. Construction activities would not occur in the late evenings and early mornings or on weekends and holidays.	Impacts to noise under this alternative would be similar to Alternative 2. Measures as outlined in Alternative 2 would be utilized to minimize impacts.
<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. FEMA would consult with LDEQ regarding National Pollutant Discharge Elimination System (NPDES) permitting and water quality certification and the Louisiana General Land Office 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.	This alternative would have similar impacts as described in Alternative 2 and would utilize the same BMPs as described in Alternative 2.
<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 preliminary DFIRM BFEs, where applicable. Impacts to floodplains would be considered a minimal, but insignificant adverse effect. No project under this alternative would be located within the CHHA.	Impacts to floodplains would be similar to Alternative 2.
<b>Wetlands</b>	No impacts to wetlands are anticipated.	No wetlands would be impacted under this alternative.	Impacts to wetlands could occur under Alternative 2. However, in general each of the proposed sites is substantially less than 1 acre (all 55 sites would only total approximately 1.0 acre) and would be located in areas where there are currently adjacent residential developments. Due to these conditions there would be a minimal, insignificant effect to wetlands from this alternative. If needed, Clean Water Act (CWA) Section 404 permitting would be coordinated with the USACE, New Orleans District.
<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 Fisheries in an effort to identify actions to potentially minimize any impacts and to identify proposed mitigation.	Constructing AHPP units on undeveloped land could potentially impact biological resources; consultation would be performed as outlined in Alternative 2.

	<b>Alternative 1: No Action</b>	<b>Alternative 2: Installation of a Permanent AHPP Unit on Previously Disturbed Land</b>	<b>Alternative 3: Installation of a Permanent AHPP Unit on Undeveloped Land</b>
<b>Cultural Resources</b>	No impacts to cultural resources are anticipated.	Historic viewsheds could be impacted under this alternative. However, impacts to subsurface cultural resources and/or historic properties and viewsheds would be identified for the AHPP sites by FEMA through the Section 106 consultation process with the State Historic Preservation Officer (SHPO) and in consultation with any affected tribes.	The impacts to cultural resources from this alternative would be similar to Alternative 2. Section 106 consultation with SHPO would occur and the process as outlined in Alternative 2 would be followed, if applicable.
<b>Socioeconomics</b>	Displaced residents would continue to utilize FEMA travel trailers and mobile homes. Existing adverse health effects could continue to affect displaced residents.	Beneficial socioeconomic effects would be anticipated.	Socioeconomic effects under this alternative would be similar to Alternative 2.
<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, FEMA and the LRA would consult with Louisiana Department of Transportation (LaDOTD) to identify mitigation measures to lessen construction impacts.	Impacts to traffic and transportation would be similar to Alternative 2.
<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 LRA encounter any explosive or flammable materials, toxic chemicals, and/or radioactive materials during site clearing and demolition then 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.	Impacts would be similar to those described in Alternative 2.

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

---

---

#### **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 Calcasieu Parish that may be impacted by the two action alternatives and one No Action Alternative 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 regional in nature. 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 (MLRA). 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**

There are three MLRAs in Calcasieu Parish: the Western Gulf Coast Flatwoods, the Gulf Coast Marsh, and the Gulf Coast Prairies. Western Gulf Coast Flatwoods cover approximately 5,880 square miles, 41 percent of which is in Louisiana. This MLRA is located north of Lake Charles and encompass the towns of Singer, Sulfur, and Oberlin, Louisiana. Interstate 10 (I-10) is just south of this area. The Gulf Coast Marsh MLRA makes up about 8,495 square miles, 95 percent of which is in Louisiana. I-10 and U.S. Highway 90 (US 90) cross the area. The Gulf Coast Prairie MLRA covers approximately 16,365 square miles, 17 percent of which are in Louisiana and encompasses the towns of Crowley, Eunice, and Lake Charles, Louisiana (USDA 2006).

In Calcasieu Parish, all three MLRAs are within the West Gulf Coastal Plain Section of the Coastal Plain Province of the Atlantic Plain. Western Gulf Coast Flatwoods are nearly level to gently sloping and have low local relief. Their elevations range from 80 to 330 feet above mean sea level (amsl). Gulf Coast Marsh MLRA is characterized by many rivers, lakes, bayous, tidal channels, and manmade canals. Its elevation ranges from sea level to approximately 10 feet amsl on beach ridges, canal spoil banks, and natural levees, and as much as 165 feet amsl on salt dome islands. Some areas that are protected by levees have subsided below sea level. The Gulf Coast Prairies MLRA is characterized by nearly level plains that have low local relief and are dissected by rivers and streams that flow toward the Gulf of Mexico. Elevations in this MLRA range from sea level to approximately 165 feet amsl along the interior margin (USDA 2006).

There are 39 soil map units in Calcasieu Parish (USDA 2009). Farmland classification identifies map units that are classified as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Volume 43, Number 21, January 31, 1978 (USDA 2006).

Calcasieu Parish contains soils designated as prime or unique farmland. Within the program area there are 13 map units classified as prime farmland. In total, 479,207 acres of prime farmland exist in Calcasieu Parish (USDA 2007).

The entire Western Gulf Coast Flatwoods MLRA is underlain by unconsolidated clay, silt, sand, and gravel deposited by ancient rivers during the late Tertiary and Quaternary periods. Recent silt, sand, and gravel deposits fill the valleys along most of the major rivers in the area. Within the Gulf Coast Marsh MLRA, The surface of this area primarily consists of river clay, silt, and fine sand deposited over the past 2 million years. It is underlain by older alluvial and marine sediments. Salt domes, natural gas, and petroleum deposits are below the surface in this area. In Louisiana, the Gulf Coast Prairies MLRA is a narrow strip of land approximately 50 to 80 miles wide and is located directly north of the Gulf Coast Marsh MLRA. The sedimentary rocks at the surface were laid down during the Pleistocene epoch, approximately 2 million years ago. The deposits are deltaic and lagoonal clays and loams derived from older rocks to the west. Some Tertiary deposits occur along the interior edge of this MLRA. Recent deposits of alluvial sand fill the valleys of large rivers in the area (USDA 2006).

Louisiana is not considered seismically active although the State has experienced periodic small earthquakes. Such an earthquake occurred in Lake Charles in 1983 and was recorded by locally deployed instruments. A deep seated basement fault which may be controlled by shallower growth faults found in thick sediments was considered to be primarily responsible for the 1983 earthquake (Louisiana Geological Survey 2001).

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

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

This alternative does not include any FEMA action. Therefore, FEMA would not be required to comply with the FPPA. Alternative 1 does not have the potential to affect geology or soils within the program area.

##### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

The installation of permanent AHPP cottages on previously developed property and on the existing footprint does not have the potential to affect geology. Area soils would likely be disturbed during installation of underground utilities and septic systems, if needed. Soil loss would occur directly from disturbance or indirectly via wind or water. To minimize soil loss, the LRA would implement Best Management Practices (BMP), such as developing and implementing an erosion and sedimentation control plan, using silt fences or hay bales, revegetating disturbed soils, and maintaining site soil stockpiles, to prevent soils from eroding and dispersing off-site.

As these sites have been previously disturbed and converted for residential use, this alternative is not anticipated to impact prime, unique, or important farmlands. However, due to the large amount of prime or unique farmland within Calcasieu Parish, FEMA would work closely with the NRCS to determine each site specific action's potential impact to prime or unique farmland. Additionally, the installation of individual AHPP units would not be expected to impact more than 1 acre of soil per installation. Should a specific action have the potential to impact prime or unique farmland, FEMA would determine if the proposed site is within the limits of an incorporated city or if the site contains state-listed prime, unique, or important soils. 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. Otherwise, FEMA would prepare the appropriate sections of an AD 1006 Farmland Conversion Impact Rating Form for the

action, coordinate with the NRCS to determine the overall impact of the conversion, and document the results of FPPA compliance in the project's administrative record.

### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Permanent installation of AHPP cottage units on undeveloped land would not be deep enough to impact underlying geologic resources. The site would be cleared of all debris and vegetation, then grubbed, contoured, and graded, if necessary. Area soils would likely be disturbed during site preparation, installation of dwellings, utilities, driveways and other auxiliary utilities such as septic systems. Soil loss could occur directly from disturbance or indirectly via wind or water erosion. The LRA would implement BMPs to mitigate soil loss and/or erosion as described in Alternative 2. The potential exists to convert agricultural land to other uses due to new construction. If prime or unique farmland is proposed for construction of new utilities, FEMA would follow the FPPA compliance procedure as described in Alternative 2.

On February 26, 2009, a letter requesting project review was sent to NRCS. No response has been received to date.

## **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 1.

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.

**Table 1. 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  
 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

Source: USEPA 2008

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

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

## 4.2.2 Environmental Consequences and Mitigation Measures

### 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.

### Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land

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 AHPP housing units and access roads. The following paragraphs describe the air calculation methodologies utilized to estimate air emissions produced by the installation of one housing unit.

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-month presented in AP-42 Section 13 Miscellaneous Sources 13.2.3.3 (USEPA 2001).

USEPA's NONROAD Model (USEPA 2005) was used, as recommended by USEPA's *Procedures Document for National Emission Inventory, Criteria Air Pollutants, 1985-1999* (USEPA 2001), to calculate emissions from construction equipment. Combustible emission calculations were made for standard construction equipment, such as front-end loaders, backhoes, bulldozers, and cement trucks. Assumptions were made regarding the total number of days each piece of equipment will 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 would also contribute to the overall air emission budget. Emissions from delivery trucks, construction worker commuters traveling to the job site were calculated using the USEPA MOBILE 6.2 Model (USEPA 2005a, 2005b and 2005c).

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

**Table 2. Total Air Emissions (tons/year) from the Proposed Action Construction verses the *de minimus* Threshold Levels**

Pollutant	Total (tons/year)	<i>de minimus</i> Thresholds (tons/year) <sup>(1)</sup>
CO	16.50	100
Volatile Organic Compounds (VOC)	3.21	100
Nitrous Oxides (NO <sub>x</sub> )	23.62	100
PM-10	8.23	100
PM-2.5	2.54	100
SO <sub>2</sub>	2.93	100

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

<sup>(1)</sup> Note that Calcasieu Parish is in attainment for all NAAQS.

Several sources of air pollutants would contribute to the overall air impacts of the construction project. The air results in Table 2 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 above, the proposed construction activities do not exceed federal *de minimis* thresholds; thus, 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 the implementation of Alternative 2.

#### *Ongoing Air Emissions*

Air emissions from the personally owned vehicles (POV) of the new residents of the AHPP units commuting to work and daily activities were not calculated. The new residents would most likely be from areas inside Calcasieu Parish that were devastated by Hurricane Rita. The air emissions would be transferring from one part of the airshed (Calcasieu Parish) to another.

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 the implementation of Alternative 2. Furthermore, during construction activities, 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 would be implemented to minimize fugitive dust. In particular, wetting solutions would be applied to construction area to minimize the emissions of fugitive dust. By using these BMPs, air

emissions from Alternative 2 would be temporary and should not significantly impair air quality in the region.

### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Temporary and minor increases in air pollution would occur and are similar to those described in Alternative 2. Ongoing air emissions from the resident's POVs would be the same as those described in Alternative 2. In addition, BMPs to minimize dust emissions would be utilized as outlined in Alternative 2.

On February 26, 2009, a letter requesting project review was sent to USEPA. No response on air quality from USEPA has been received to date.

## **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 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 occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 A-weighted decibel (dBA). A-weighted decibel 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. This perception is largely because background environmental sound levels at night in most areas are also approximately 10 dBA lower than those during the day. Acceptable noise levels have been established by the U.S. Department of Housing and Urban Development (HUD) in 1984 for construction activities in residential areas:

**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 constructions 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 dBA over hard surfaces and 9 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:

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

Source: California Department of Transportation 1998

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

##### **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.

##### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

The proposed project sites would generally be located in an urban residential area with a number of sensitive noise receptors located within 500 feet of the construction site. The installation of the new AHPP cottages would require the use of common construction

equipment. Table 3 describes noise emission levels for construction equipment which range from 70 dBA to 84 dBA (Federal Highway Administration 2007 [FHWA] 2007).

Assuming the worst case scenario of 84 dBA, the noise model projected that noise levels of 84 dBA from a bull dozer would have to travel 450 feet before they would be attenuated to acceptable levels of 65 dBA. To achieve an attenuation of 84 dBA to a normally unacceptable level of 75 dBA, the distance from the noise source to the receptor is 140 feet. Due to the urban residential settings any number of sensitive noise receptors could be within 140 feet and 450 feet from the boundary of the construction sites.

**Table 3. 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
Backhoe	78	72	68	58	52
Crane	81	75	69	61	55
Dump truck	76	70	64	56	50
Excavator	81	75	69	61	55
Front end loader	79	73	67	59	53
Concrete mixer truck	79	73	67	59	53
Pneumatic tools	81	75	69	61	55
Auger drill rig	84	78	72	64	58
Bull dozer	82	76	70	62	56
Generator	81	75	69	61	55

Source: FHWA 2007 and GSRC

<sup>1</sup>The dBA at 50 feet is a measured noise emission (FHWA 2007). The 100 to 1,000 foot results are modeled estimates.

The construction activities have the potential to expose sensitive receptors to noise emissions that are normally unacceptable. To minimize this impact, construction activities would be limited to daylight hours during the work week when most of the residents are at school or at work. The construction activities from Alternative 2 would not create significant impacts to sensitive noise receptors adjacent to the project sites if the construction activities are limited to 7:30 AM to 5:30 PM on Monday through Friday. Construction activities would not occur in the late evenings and early mornings or on weekends and holidays. Noise impacts should be minor if these timing restrictions are implemented when constructing new homes and driveways.

**Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Construction activities from this Alternative would be similar to Alternative 2, although if the area is somewhat less developed the noise impacts to sensitive noise receptors could be less than the previous alternative. However, to minimize any impacts construction under this alternative would be limited in the same manner as discussed in Alternative 2.

**4.4 Water Quality****4.4.1 Affected Environment****Regulatory Setting**

Section 303(d) of the Clean Water Act (CWA) requires that states develop a list of waters which are not meeting water quality standards and not supporting their designated uses (USEPA 2008a). The multiple project sites are 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 dissolved oxygen (DO), metals, chloride and sulfate criteria (LDEQ 2006).

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 include water quality parameters that effect the health of fish and wildlife such as the concentration DO, total dissolved solids, nutrients, *etc.*

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.

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.

Calcasieu Parish is within the Louisiana Coastal Zone and adopted a local Coastal Management Program in 1986. The Parish Division of Planning and Development administers this program.

### Existing Conditions

Major water bodies in the program area consist of the Lake Charles and the Calcasieu River. Smaller hydrologic features include a number of drainage canals and marshes. The existing water quality conditions for each of the sub-watersheds in the program area are summarized in Table 4 below.

**Table 4. LDEQ Sub-watersheds in the 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>
English Bayou 030702	Not meeting fish and wildlife standards	Mercury and Total Dissolved Solids	Atmospheric deposition Flow alterations from water diversions
Calcasieu 030301	Fully meeting standards	NA	NA
Lake Charles 030302	Not meeting fish and wildlife standards	Low levels of DO	Discharges from storm sewer systems Sanitary sewer overflows
Contraband Bayou 030305	Fully meeting standards	NA	NA
Intracoastal Waterway 031101	Not meeting fish and wildlife standards	Chloride Sulfates Total Dissolved Solids	Hydro modification Changes in tidal circulation

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

#### 4.4.2 Environmental Consequences and Mitigation Measures

##### 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. Alternative 1 does not have the potential to affect water quality.

##### Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land

Minor, short-term impacts to the downstream surface waters may occur during the construction activities due to soil erosion. Existing stormwater drains and ditches located within or adjacent to the proposed project site would be removed and reconfigured to provide improved drainage and accommodate unit placement. It is anticipated that the installation of a 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 National Pollutant Discharge Elimination System (NPDES) permit process. The NPDES permit would identify BMPs for protection of water quality within ephemeral and perennial streams. 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 would be required to obtain an approved SWPPP and NPDES permit prior to the start of construction.

Sewage would be treated at a licensed WWTP or an engineered septic system. In addition, stormwater would be conveyed to the local municipal stormwater system or treated on-site by retention ponds. Finally, FEMA and the LRA would coordinate with appropriate agencies regarding NPDES permitting, water quality certification, and CZMA compliance for construction and operation of any WWTP. For activities not exempt from NPDES permitting or water quality certification 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 or other authorization from LDNR and Calcasieu Parish local Coastal Management Program may require additional permitting. If a development is occurring in Calcasieu Parish and it is located within the local coastal zone, an application must be submitted to LDNR or the Local Coastal Zone Administrator to determine if a permit is necessary.

Project activities under this alternative are not anticipated to impact WSRA.

### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

This alternative would have similar impacts as described in Alternative 2 and would utilize the same BMPs as described in Alternative 2. In addition, this alternative would follow the same steps as outlined in Alternative 2 for stormwater management, NPDES permitting and CZMA compliance.

On February 26, 2009, a letter requesting project review was sent to LDEQ. No response has been received to date.

## **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 Digital Flood Insurance Rate Maps or DFIRM. A FIRM would generally show a community's BFE, 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**

Consistent with EO 11988, FEMA Q3 data was examined during the preparation of this PEA. Approximately 50 percent of Calcasieu Parish is located in a flood hazard zone (100-year or 500-year floodplain), and Calcasieu Parish is a member of the NFIP. FEMA requires that rebuilt communities adhere to the elevation requirements established by the DFIRMs (FEMA 2008). A map is included in Appendix A, Figure 2 which illustrates the flood hazard zones within Calcasieu Parish. All construction of structures within the City of Lake Charles must be built above the BFE, except for when the BFE is 9 feet amsl, and then any structures being built within those areas are required to be built one foot above the BFE. Construction of structures within Calcasieu Parish, but outside the city limits of Lake Charles, must be built above the ABFE. However to fully satisfy EO 11988, the LRA would build the AHPP units to the preliminary DFIRM BFE, when necessary.

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

#### **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.

#### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

Under Alternative 2, AHPP cottages could be constructed in a designated 100-year floodplain; therefore, the LRA or its contractors would elevate the finished floor of the AHPP units above the preliminary DFIRM BFEs, when necessary. A site elevation survey will be performed by PBAF and HFH to ensure that the AHPP housing will meet or exceed the BFE, as necessary. Elevation of the proposed AHPP units to the BFE will be attained through the addition of fill material, the construction the AHPP units on piers, or through a combination of both to meet the DFIRM BFEs. No projects will be located in the CHHA.

Should all of the proposed 55 AHPP units be installed in the 100-year floodplain, the impacts to the floodplain would include converting approximately 1.0 acre of 100-year floodplain to areas outside the floodplain. Such a loss of floodplain area would generally be considered a direct, permanent impact; however, as all of the 55 AHPP units may not be located in the 100-year floodplain and would be scattered throughout Calcasieu Parish, this action would cause a minimal but insignificant adverse effect. Furthermore, construction of AHPP units within the 100-

year floodplain would not likely increase flood levels or velocities downstream from the sites. Although the proposed program alternatives do not encourage additional development within the floodplain, the program would result in providing civic support to populations living in the floodplain which would be an adverse indirect effect.

In accordance with EO 11988, FEMA has completed the Eight-Step Planning Process for Floodplains and Wetlands to identify, minimize, and mitigate floodplain impacts within Calcasieu Parish. An initial notice for the building of AHPP units within the State has been previously publicized by FEMA. A final notice will be publicly circulated during the public comment period for this PEA for 15 days starting on March 4, 2009 explaining the various FEMA actions and the reasons for siting in the floodplain. The public notice illustrating the Eight-Step Planning Process for floodplains and wetlands and the process itself can be found in Appendix E.

### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Under this alternative, the impacts and conditions would be similar to Alternative 2.

## **4.6 Wetlands**

### **4.6.1 Affected Environment**

#### **Regulatory Setting**

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 same Eight-Step Planning Process is used to evaluate the potential effects of an action on wetlands. As discussed in the CWA Section 4.4.1.1, 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 the USFWS which provides wetland information by digital data files. The NWI does not currently include data for Calcasieu Parish. Calcasieu Parish, along with Cameron Parish, is located within the 630,000-acre Calcasieu/Sabine Basin in southwest Louisiana. The basin contains about 312,500 acres of wetlands, consisting of 32,800 acres of fresh marsh, 112,000 acres of intermediate marsh,

158,200 of brackish marsh, and 9,500 acres of saline marsh (Louisiana Coastal Wetland Conservation and Restoration Task Force 2009).

#### **4.6.2 Environmental Consequences and Mitigation Measures**

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

This alternative does not include any FEMA actions. Therefore, FEMA would not be required to comply with EO 11990. Alternative 1 does not have the potential to affect wetlands or Waters of the U.S. (WUS).

##### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

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

##### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Projects under this alternative have the potential to impact wetland areas. However, in general each of the proposed sites is substantially less than 1 acre (all 55 proposed sites would only total approximately 1.0 acre) and would be located in areas where there are currently adjacent residential developments. Due to these conditions there would be a minimal, insignificant effect to wetlands from this alternative.

For projects having the potential to impact wetlands or WUS, FEMA would delineate the proposed project site to identify the presence of jurisdictional wetlands and WUS. Should wetlands or WUS be identified and their impacts considered unavoidable, early coordination with the regulatory section of the local USACE district, USEPA, the parish NRCS, LDEQ, and other appropriate agencies would be completed prior to the initiation of the construction activities.

In general, land use conversion (complete loss of function) or a change in hydrology (partial reduction in function) results in adverse affects to wetlands. Under Alternative 3, adverse impacts to WUS including wetlands could occur during construction at the proposed sites scattered throughout Calcasieu Parish. Activities that result in the dredging and/or filling of WUS are regulated under Section 404 of the CWA. Applicable CWA Section 404/401 permit procedures would be completed prior to any work in these areas and compensatory mitigation would be implemented, as appropriate.

In accordance with EO 11988, FEMA has completed the Eight-Step Planning Process for Floodplains and Wetlands to identify, minimize, and mitigate floodplain impacts within Calcasieu Parish. FEMA would coordinate with USACE and LDEQ on projects where wetland impacts are anticipated, and results would be documented in the project's administrative record. In addition, the LRA would ensure the completion of all agency coordination, permitting, and mitigation measures for any loss of wetlands, prior to the commencement of construction activities.

On February 26, 2009, a letter requesting project review was sent to USACE. A response was provided on March 6, 2009 in which the USACE stated that no adverse impacts to USACE projects were anticipated; however, should fill be required, additional information for each specific site would be necessary.

## **4.7 Biological Resources**

### **4.7.1 Affected Environment**

#### **Regulatory Setting**

The Endangered Species Act (ESA) establishes a Federal mandate 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 the NOAA National Marine Fisheries Service (NOAA 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 Bald and Golden Eagle Protection Act of 1940 (16 U.S. Code [U.S.C.] 668; 50 CFR 22) as amended was originally passed in 1940 to protect bald eagles, the Eagle Act was amended in 1962 to protect golden eagles as well, by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.3) (USFWS 2007). If an action is determined to cause a potential impact on Bald or golden eagles 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 the 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.

The National Wild and Scenic Rivers Act (16 U.S.C. 1271 to 1287) as amended, establishes the National Wild and Scenic Rivers System to protect rivers with important scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values. It is the policy of the US that the selected national rivers and their immediate environments are to be preserved in free-flowing condition for the benefit and enjoyment of present and future generations. The act authorizes Congress to include rivers that are designated as wild, scenic or recreational by the legislatures of the states through which they flow. Rivers considered for designation as National Wild and Scenic must be determined by the Secretary of the Interior as meeting the established guidelines and approved for inclusion in the system. Administration of these systems is assigned either to the Secretary of the Interior or the Secretary of Agriculture. Federal agencies must give consideration to potential national wild, scenic and recreational river areas in planning for use and development of water and related land resources. The Act does not affect the jurisdiction or responsibilities of states with respect to fish and wildlife unless those lands are within a national park or monument (University of New Mexico 1993).

### Existing Conditions

Federally endangered and threatened animal species listed for Calcasieu Parish include the following species shown in the table below (Francis email correspondence 2009)

**Table 5. Federally Protected Species in Calcasieu Parish**

Common Name	Scientific Name	Status	Habitat
Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted in Louisiana	Cypress swamps in coastal Louisiana, prefer to nest in sturdy cypress trees adjacent to open water where they forage for fish
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered	Mature longleaf pine forests and mixed pine-upland hardwood forests with little or no hardwood mid-story

Source: USFWS 2004, LDWF 2008

LDWF has listed 55 species of plants and animals and 5 natural communities that are rare, threatened, or endangered in Calcasieu Parish (Appendix F). Listed below in Table 6 are the State species likely to occur in the program area. Two species are listed as endangered, one species is listed as prohibited, and one species is listed as restricted harvest by LDWF within Calcasieu Parish (LDWF 2008).

There is one Wildlife Management Area (WMA) located in Calcasieu Parish. The 8,743-acre Sabine Island WMA is located in west-central Calcasieu Parish and is owned by the State Land Office and the Calcasieu Parish School Board.

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. Undeveloped properties within the program area would likely have a greater diversity of vegetation and wildlife (USDA 2006). More undeveloped areas of Calcasieu Parish would have a higher diversity of wildlife species than the urban setting.

**Table 6. State Protected Species Likely to Occur in Calcasieu Parish**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>	<b>Habitat</b>
Bald eagle	<i>Haliaeetus leucocephalus</i>	Endangered	Cypress swamps in coastal Louisiana, prefer to nest in sturdy cypress trees adjacent to open water where they forage for fish
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered	Mature longleaf pine forests and mixed pine-upland hardwood forests with little or no hardwood mid-story
Paddlefish	<i>Polydon spathula</i>	Prohibited	Can be found in the Sabine River drainage basin, prefers deeper, low-current areas of river systems including side channels, backwaters, oxbow lakes, other river lakes, and tail waters below dams
Ornate box turtle	<i>Terrapene ornata</i>	Restricted Harvest	Inhabits treeless, sandy plains and gently rolling country with grass and scattered low brush as the dominant vegetation

Source: Louisiana Sea Grant College Program 2008, USACE 2000

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

##### **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.

##### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

The 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 site and all auxiliary facilities, such as septic systems and water wells 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 as 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; and 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.

#### Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land

The site preparation and installation of AHPP units on undeveloped land has the potential to adversely affect sensitive biological resources. FEMA would evaluate the locations of the proposed housing site and all auxiliary utilities, such as septic systems and water wells, 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 as outlined above in Alternative 2.

On February 26, 2009, letters requesting project review was sent to USFWS, NOAA, and LDWF. LDWF responded to FEMA's project review request on March 5, 2009 and stated that they felt that no wetlands would be impacted in Alternative 1 and 2 but may need further information regarding work performed under Alternative 3. A response from USFWS was also received on March 10, 2009 providing information on protected species. A response from NOAA was received dated March 17, 2009 in which they stated that no essential fish habitat or marine fisheries resources would be impacted by this action. No responses have been received to date.

## **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 800) outline the procedures to be followed in the documentation, evaluation, and mitigation of impacts on cultural resources. The Section 106 process applies to any Federal undertaking that has the potential to affect cultural resources. The Section 106 process includes identifying significant historic properties and districts 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 Programmatic Agreement (PA) dated October 16, 2004 to streamline the Section 106 review process. A copy of the PA for Louisiana is provided on the FEMA website site at <http://www.fema.gov/plan/ehp/hp/programmatic.shtm>.

### **Existing Conditions**

The LRA proposes to utilize AHPP funding for the land acquisition and construction approximately 55 single-family, permanent housing units scattered throughout Calcasieu Parish but predominately within the City of Lake Charles.

Calcasieu Parish, Louisiana contains evidence for a very long and diverse cultural past. A records search at the Louisiana Division of Archaeology in Baton Rouge revealed that a total 153 site records are on file. Among the site records one site, 16CU173 also known as the Arcade Theatre is listed on the NRHP. Additionally 11 sites are recorded as potentially eligible for NRHP listing, 101 sites are of unknown eligibility and 41 are recorded as not eligible.

A records search of the NRHP online database (NRIS) indicated the presence of 16 NRHP listed properties including the Lake Charles Historic District, also known as the Charpentier Historic District. Most of the archaeological and historic sites reported for Calcasieu Parish are located within the City of Lake Charles.

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

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

This alternative does not include any FEMA undertaking. Therefore, no cultural resources review would be required of FEMA 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 archaeological resources associated with built-environment resources, or coincidentally in proximity to such resources under the No Action Alternative.

**Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

This alternative includes some ground disturbing activities. Thus, there is the potential to affect subsurface cultural resources. This alternative may also involve the demolition of existing structures; therefore, historic structures and/or their viewsheds would potentially be affected. Currently, the individual proposed locations for the individual AHPP units have not been confirmed. At such time the proposed locations for the individual AHPP units are determined; FEMA will comply with the Section 106 process by identifying any impacts to subsurface cultural resources and historic properties and/or their viewsheds in accordance with the streamlined Section 106 review process agreed upon in the above mentioned PA. This Section 106 compliance process will also include consultation with any Native American groups claiming affinity to the area. Projects having the potential to adversely affect historic properties would be subject to a SEA.

During construction activities, should any archeological deposits, including any Native American pottery, stone tools, or human remains are uncovered, the project would be halted. LRA or its contractor would stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings would be secured and access to the sensitive area restricted. The LRA would inform FEMA immediately and FEMA would consult with the SHPO any effected Native American groups. Work in sensitive areas would not resume until consultation is completed and appropriate measures have been taken to ensure that the project is in compliance with the NHPA.

**Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

This alternative includes ground disturbing activities. Thus, there is the potential to affect subsurface cultural resources and historic property viewsheds. The discussion of impacts and procedural compliance for this alternative is similar to Alternative 2.

## **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 risks 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 Region of Influence (ROI) for the proposed project is Calcasieu Parish, Louisiana. Calcasieu Parish is one of 64 parishes in Louisiana and contains part of the Lake Charles Metropolitan Statistical Area (MSA). In 2006, the parish had a population of 183,426, and ranked 7<sup>th</sup> in the State (U.S. Bureau of Economic Analysis [BEA] 2004).

The City of Lake Charles is the major city within Calcasieu Parish. The estimated population of the City of Lake Charles for 2006 was 70,224, which constituted 61 percent of the total population of Calcasieu Parish. This figure is slightly below the 2000 and 1990 populations of 71,757 and 70,580, respectively (U.S. Census Bureau 2004). The predominant race within the city is Caucasian (50 percent) followed by approximately 46 percent African-American. People claiming to be of some race other than Caucasian, African-American, Native American, Asian, Native Hawaiian, and other Pacific Islander constituted approximately 2 percent of the population. Only approximately 2 percent of the population of the City of Lake Charles claim to be of Hispanic origin (U.S. Census Bureau 2004).

According to the U.S. Census Bureau, the population of Calcasieu Parish consisted of approximately 28 percent minorities and 16 percent of low-income families in contrast to the U.S. population of approximately 26 percent minorities and 13 percent low income families (U.S. Census Bureau 2000). Of the total population of Calcasieu Parish, approximately 27 percent is comprised of children under the age of 18 (U.S. Census Bureau 2000).

The total number of jobs in the proposed program area in 2003 was 102,258, an increase of 16 percent over the 1993 number of jobs of 85,426 (BEA 2004). Management, professional, and related occupations were the largest employment group, followed by the sales and office occupations, and service jobs. The 2000 annual average unemployment rate for Calcasieu Parish was 5.5 percent (U.S. Census Bureau 2000). This is higher than the average annual unemployment rate for the State of Louisiana of 4.3 percent (U.S. Census Bureau 2004).

In 2006, Calcasieu Parish had a per capita personal income (PCPI) of \$30,488. This PCPI ranked 15<sup>th</sup> in the State and was 96 percent of the State average, \$31,821, and 83 percent of the National average, \$36,714. The 2006 PCPI reflected an increase of approximately 26 percent from 2005. The 2005 to 2006 State change was approximately 28 percent and the National change was 6 percent. In 1996, the PCPI of Calcasieu Parish was \$20,212 and ranked 10<sup>th</sup> in the State. The 1996 to 2006 average annual growth rate of PCPI was 4.2 percent. The average annual growth rate for the State was 4.9 percent and for the Nation was 4.3 percent.

In 2006, Calcasieu Parish had a total personal income (TPI) of \$5.6 billion. This TPI ranked 7<sup>th</sup> in the State and accounted for nearly 4 percent of the State total. The 2006 TPI reflected an increase of 25 percent from 2005. The 2005 to 2006 State change was 20.6 percent and the National change was 6.7 percent. The increase in TPI for Calcasieu Parish and the State, when the National TPI is much lower is more than likely related to Hurricanes Katrina and Rita. In 1996, the TPI of Calcasieu Parish was \$3.6 million and ranked 7<sup>th</sup> in the State. The 1996 to 2006 average annual growth rate of TPI was 4.4 percent. The average annual growth rate for the State was 4.5 percent and for the Nation was 5.4 percent (BEA 2004).

Earnings of all persons employed in Calcasieu Parish increased from \$3.6 million in 2002 to \$3.8 million in 2003, an increase of nearly 4 percent. The 2002 to 2003 State change was 5 percent and the National change was 4.1 percent. The average annual growth rate from the

1993 estimate of \$2.3 million to the 2003 estimate was 5.0 percent. The average annual growth rate for the State was 5 percent and for the Nation was 5.3 percent (BEA 2004).

The total number of housing units in the ROI was 75,995 in 2000 (U.S. Census Bureau 2000). This represents less than 1 percent of the total housing units reported for the State. Of the housing units within Calcasieu Parish, 8,613 (90 percent) are occupied and the remaining 7,382 (10 percent) are vacant. Approximately 54 percent (37,289) of the occupied housing units are owner occupied, while 28 percent (19,402) are renter occupied (U.S. Census Bureau 2000). The number of households within Calcasieu Parish grew from 60,328 in 1990 to an estimated 68,613 in 2000. This represents a 10-year growth rate of 12 percent for the parish (U.S. Census Bureau 2000). Currently in Calcasieu Parish (as of January 2009), there are 144 mobile homes, 349 manufactured housing, and 25 park model houses still occupied by residents displaced by Hurricane Rita.

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

##### **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 expending 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.

##### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

Implementation of Alternative 2 would result in beneficial economic impacts to both displaced residents (who receive subsidized housing) and contractors that perform site work or construct

auxiliary facilities for the placement of AHPP units. On a macroeconomic scale, the establishment of a permanent housing solution for displaced persons would benefit the local economy by helping to restore normal life to the community, including normalized employment patterns and commercial transactions. No significant adverse socioeconomic impacts would result from the implementation of Alternative 2.

### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Implementation of Alternative 3 would not cause adverse socioeconomic impacts, and the impacts would be similar to Alternative 2.

## **4.10 Traffic and Transportation**

### **4.10.1 Affected Environment**

#### **Regulatory Setting**

Louisiana Department of Transportation and Development (LaDOTD) is responsible for the design, construction, and maintenance of the State's highway system, as well as the portion of Federal interstate highways within Louisiana's boundaries. Arterials, connectors, rural roads, and local roads are constructed and maintained by county or city governments. The LaDOTD (District 7) consists of a five parish region and includes Allen, Beauregard, Calcasieu, Cameron, and Jefferson Davis Parishes. As shown below in Table 7, Calcasieu Parish has an extensive network of Federal (I and US highways) and state highways (LA) throughout the program area.

**Table 7. Federal and State Major Highways with Traffic Counts within Calcasieu Parish**

<b>Parish</b>	<b>Highways</b>	<b>AADT (2007)</b>
Calcasieu	I 10	25,677 – 64,770
	I 210	19,430 – 34,564
	US 90	2,532 – 15,879
	US 171	15,106 – 26,881
	LA 12	2,799-13,469
	LA 14	3,380 – 29,063
	LA 27	5,603 – 22,208
	LA 109	1,023 – 3,989

Source: LaDOTD 2008

#### **Existing Conditions**

The State provides actual traffic counts along various highways for the year 2004, 2005 and 2006, depending on the parish. Traffic counts are given in units of Average Annual Daily Traffic (AADT). As shown in Table 6, in Calcasieu Parish the highest of the traffic counts on Federal

highways was on the interstate system of I-10 with counts ranging from 25,677 to 64,770. On other Federal highways (US 90 and US 171) counts ranged from as low as 2,532 to as high as 26,881. State highway traffic counts ranged from 1,023 to 29,063 AADT (LaDOTD 2008).

The Lake Charles Regional Airport is also located in Calcasieu Parish, Louisiana. I-10 and I-210 are major arteries through the parish. A transportation map is provided (Appendix A, Figure 3).

The proposed 55 AHPP housing sites are scattered throughout Calcasieu Parish, Louisiana. Public transportation within the parish is provided by Calcasieu Parish Public Transit, Lake Charles Transit System, and Calcasieu Association of Retarded Citizens (Wherever Life Takes You 2009). The Calcasieu Parish Police Jury, Office of Community Services offers these transit services to residents outside city limits. All systems are operated to the public on a response driven system.

The Department of Public Works Transit Division provides bus transportation for residents within Lake Charles. There are currently four fixed routes operating within the city. Bus service is provided Monday through Friday from 5:45 A.M. through 5:45 P.M. (except on city holidays). Routes are approximately 55 minutes in length and are currently beginning and culminating at the Amtrak Train Terminal located at 100 N. Ryan Street. The city has future plans to construct a new Transit terminal (City of Lake Charles 2009). A map of the current fixed routes within the City of Lake Charles is provided (Appendix A, Figure 4).

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

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

Under this alternative, traffic volumes would increase in the vicinity of the housing provided by friends and family members, hotels, and temporary dormitories. Because these locations would be scattered across a large area, no localized or regional effects on transportation are expected.

##### **Alternative 2: Installation of Permanent AHPP Units on Previously Disturbed Land**

This alternative could result in short-term increased traffic volumes associated with site preparation, and installation of the AHPP units in areas that were previously developed as residential neighborhoods. To minimize adverse impacts on traffic resulting from construction equipment, traffic along adjacent roadways would be temporarily rerouted as necessary during

construction, traffic lane closures would be coordinated with the appropriate local government, equipment staging and worker POVs would be sited to hinder the traffic flow as little as possible 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 rerouting of local traffic. Since the AHPP housing unit is typically being installed in a previously developed residential setting, traffic volumes should return to pre-construction levels after completion.

Traffic volumes would also increase in the vicinity of the project site from new residents. However, the increase in traffic volumes would be negligible relative to total traffic volume capacities local to the project site. Therefore, the level of service on the ingress and egress street would not be less than development of the property under the No Action Alternative.

### **Alternative 3: Installation of Permanent AHPP Units on Undeveloped Land**

Although this alternative would install AHPP units on undeveloped land, the impacts would result in similar impacts as outlined in Alternative 2.

## **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.

### **Existing Conditions**

Calcasieu Parish has one site proposed for the National Priorities List, and is identified as the Gulf States Utilities – Ryan Street site, LAD985169317 which is located on Ryan Street within Lake Charles city limits (USEPA 2007).

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

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

Although Alternative 1 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 Hurricanes Katrina and Rita. 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.

##### **Alternative 2: Installation of Permanent AHPP Units on an Alternate Site on Previously Disturbed Land**

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; any hazardous materials discovered, generated, or used during construction would be disposed of and handled in accordance with applicable local, state, and Federal regulations. FEMA would conduct a site investigation on project areas where hazardous materials are suspected or known to existing on or adjacent to the proposed project area. 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 documented in the project's administrative record. Should LRA encounter any explosive or flammable materials, toxic chemicals, and/or radioactive materials during site clearing and demolition than 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 and depending on the age of the home may potentially contain lead- and asbestos-containing material. If this is likely, LRA would ensure that the disposal of any lead or asbestos containing material is properly disposed of after demolition of the structure.

**Alternative 3: Installation of Permanent AHPP Units on an Alternate Site on Undeveloped Land**

Alternative 3 impacts and conditions would be similar to those discussed under Alternative 2.

On February 26, 2009, a letter requesting project review was sent to USEPA. No response on hazardous materials and waste from USEPA has been received to date.

***SECTION 5.0***  
***LIST OF PREPARERS***



**5.0 List of Preparers**

**5.1 FEMA**

Jomar Maldonado, Environmental Program Specialist

Cynthia Teeter, Deputy Environmental Liaison Officer

**5.2 Gulf South Research Corporation**

Denise Rousseau Ford, Project Manager

Greg Lacy, Section Preparer

Steve Kolian, Section Preparer

Carey Lynn Perry, Section Preparer and Reviewer

Suna Adam Knaus, Senior Project Reviewer

**5.3 URS Corporation**

Brian Mehok, Environmental Coordinator

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



## 6.0 References

- Bureau of Economic Analysis (BEA). 2004. Internet URL: <http://www.bea.gov>.
- California Department of Transportation. 1998. Technical Noise Supplement by the California Department of Transportation Environmental Program Environmental Engineering-Noise, Air Quality, and Hazardous Waste Management Office. October 1998 Page 24-28.
- City of Lake Charles. 2009. Department of Public Works, Transit Division. Internet URL: <http://www.cityoflakecharles.com/departments/division.asp?fDD=14-108>. Last Accessed: February 2009.
- Federal Emergency Management Agency (FEMA). 2008. Advisory Flood Elevations and Disaster Assistance. Internet URL: <http://www.fema.gov/news/newsrelease.fema?id+23283>. Last Accessed: January 2009.
- Federal Highway Administration (FHWA). 2007. Special Report: Highway construction Noise: Measurement, Prediction, and Mitigation, Appendix A. Construction Equipment Noise Levels and Ranges.
- Francis, K.D.. 2009. Email correspondence with Katherhine Francis , Administrative Officer, U.S. Fish & Wildlife Service, Ecological Services, Lafayette, LA.
- Louisiana Coastal Wetland Conservation and Restoration Task Force. 2009. Internet URL: <http://www.lacoast.gov/landchange/basins/cs/calsum.htm>. Last Accessed: February 2009.
- Louisiana Department of Environmental Quality (LDEQ). 2006. Water Quality Inventory Integrated Report (Section 305(b) and 303(d) Reports) 2006. Louisiana's FINAL DRAFT of the 2006 Integrated Report was submitted to EPA Region 6 February 9, 2007. Internet URL: <http://www.deq.louisiana.gov/portal/tabid/2692/Default.aspx>.
- Louisiana Department of Transportation (LaDOTD). 2008. Encyclopedia Louisiana, enlou.com/maps, Internet URL: <http://www.dotd.la.gov/highways/tatv/default.asp>. Last Accessed: January 2009.
- Louisiana Department of Wildlife and Fisheries (LDWF). 2008. Rare, Threatened, & Endangered Species & Natural Communities Tracked by the Louisiana Natural Heritage Program, Calcasieu Parish. Internet URL: <http://www.wlf.louisiana.gov/pdfs/experience/naturalheritage/calcasieu.pdf>. Last Accessed: January 2009.
- Louisiana Geological Survey. 2001. Public Information Series No. 7. Internet URL: <http://www.lgs.lsu.edu/deploy/uploads/8faults.pdf>. Last Accessed: January 2009.
- Louisiana Sea Grant College Program. 2008. Biology of the Paddlefish. Internet URL: <http://www.lamer.lsu.edu/projects/nativefish/pdfs/Section1.pdf>. Last Accessed: July 2008.

- Louisiana Speaks. 2006. Louisiana Speaks, Long-term Community Recovery Planning. Internet URL: <http://www.louisianaspeaks-parishplans.org/>.
- Midwest Research Institute. 1996. Improvement of Specific Emission Factors (BACM Project No. 1) Prepared for South Coast Air Quality Management District. SCAQMD Contract 95040, Diamond Bar, CA. March 1996.
- Natural Resources Conservation Service (NRCS). 2008. Farmland Policy Protection Act. Internet URL: <http://www.nrcs.usda.gov/programs/fppa/>. Last Accessed: July 2008.
- University of New Mexico. 1993. Wild and Scenic Rivers Act. Internet URL: <http://wildlifelaw.unm.edu/fedbook/wildrive.html>. Last accessed: February 2009.
- U.S. Army Corps of Engineers (USACE). 2000. Ornate Box Turtle (*Terrepepe ornate*). Internet URL: <http://el.erdc.usace.army.mil/emrrp/turtles/frames/terrest.html>. Last Accessed: July 2008.
- U.S. Census Bureau. 2000. American Factfinder. Internet URL: [http://factfinder.census.gov/home/saff/main.html?\\_lang=en&\\_ts=](http://factfinder.census.gov/home/saff/main.html?_lang=en&_ts=). Last Accessed: December 2008.
- U.S. Census Bureau. 2004. Internet URL: <http://www.census.gov/>. Last Accessed: December 2008.
- U.S. Department of Agriculture (USDA). 2006. NRCS Agriculture Handbook 296. Internet URL: <http://soils.usda.gov/MLRAExplorer>. Last Accessed: February 2009.
- USDA. 2007. Soil Survey Data Mart, Tabular Data Version Date: 04/12/2007. Internet URL: <http://soildatamart.nrcs.usda.gov>. Last Accessed: February 2009.
- USDA 2009. NRCS Custom Soil Report for Calcasieu Parish. Soil Survey Data Mart, USDA Agriculture Handbook 296 (2006). Internet URL: <http://soildatamart.nrcs.usda.gov>. Last Accessed: February 2009.
- U.S. Environmental Protection Agency (USEPA). 1979. Statement of Procedures on Floodplain Management and Wetlands Protection. Internet URL: <http://www.epa.gov/compliance/resources/policies/nepa/floodplain-management-wetlands-statement-pg.pdf>.
- USEPA. 2001. Procedures Document for National Emission Inventory, Criteria Air Pollutants 1985-1999. EPA-454/R-01-006. Office of Air Quality Planning and Standards Research Triangle Park NC 27711.
- USEPA. 2005. User's Guide for the Final NONROAD 2005 Model. EPA420-R-05-013 December 2005.
- USEPA. 2005a. Emission Facts: Average In-Use Emissions from Heavy Duty Trucks. EPA 420-F-05-0yy, May 2005.
- USEPA. 2005b. Emission Facts: Average In-Use Emission Factors for Urban Buses and School Buses. Office of Transportation and Air Quality EPA420-F-05-024 August 2005.

USEPA. 2005c. Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks. EPA 420-F-05-022.

USEPA. 2007. Superfund Information System. Internet URL: <http://www.epa.gov/superfund/sites/index.htm>. Last Accessed: February 2009.

USEPA. 2008. Welcome to the Green Book Nonattainment Areas for Criteria Pollutants Internet URL: [www.epa.gov/oar/oaqps/greenbk](http://www.epa.gov/oar/oaqps/greenbk).

USEPA. 2008a. Summary of the Clean Water Act. Internet URL: <http://www.epa.gov/lawsregs/laws/cwa.html>.

U.S. Fish and Wildlife Service (USFWS). 2004. The Bald Eagle: Other Protection following Delisting under the Endangered Species Act of 1973. Internet URL: <http://www.fws.gov/migratorybirds/issues/BaldEagle/FactSheetJan1806.pdf>. Last Accessed: January 2009.

USFWS 2007. National Bald Eagle Management Guidelines. May 2007. Internet URL: <http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>. Last Accessed: January 2009.

US Housing and Urban Development (HUD) 1984. 24 CFR Part 51 - Environmental Criteria and Standards Sec. 51.103 Criteria and standards 44 FR 40861, July 12, 1979, as amended at 49 FR 12214, Mar. 29, 1984.

Wherever Life Takes You. 2009. Public Transportation in Calcasieu Parish. Internet URL: <http://www.publictransportation.org/systems/state.asp?state=LA#A15>. Last Accessed: February 2009.