

Draft Programmatic Environmental Assessment

Alternative Housing Pilot Program

Permanent Housing

State of Texas
Alternative Housing Pilot Program
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List of Acronyms

AADT	Average Annual Daily Traffic
ACHP	Advisory Council on Historic Preservation
AHPP	Alternate Housing Pilot Program
BFE	Base Flood Elevation
BMP	Best management practice
CAA	Clean Air Act
CEI	Center for Environmental Informatics
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHHA	Coastal High Hazard Area
CO	Carbon monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DFIRM	Digital flood insurance rate map
DHS	Department of Homeland Security
EA	Environmental Assessment
EAC	Early Action Compact
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GDEM	Governor's Division of Emergency Management
I	Interstate
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO ₂	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory

O ₃	Ozone
PA	Programmatic Agreement
Pb	Lead
PCB	Polychlorinated biphenyls
PEA	Programmatic Environmental Assessment
PL	Public Law
PM-2.5	Particulate matter less than 2.5 micrometers
PM-10	Particulate matter less than 10 micrometers
RCRA	Resource Conservation and Recovery Act
POV	Personally owned vehicles
SEA	Supplemental Environmental Assessment
SH	State highway
SHPO	State Historic Preservation Office
SO ₂	Sulfur dioxide
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
SWPPP	Stormwater Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TCMP	Texas Coastal Management Program
TDHCA	Texas Department of Housing and Community Affairs
THC	Texas Historical Commission
THPO	Tribal Historic Preservation Office
TPWD	Texas Parks and Wildlife Department
TSCA	Toxic Substances Control Act
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
US	U.S. highway
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
WSRA	Wild and Scenic Rivers Act
WWTP	Waste Water 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 (PL) 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, Congress appropriated funds to DHS to support alternative housing pilot programs (Emergency Supplemental Appropriations Act, 2006, PL 109-234). The Alternative Housing Pilot Program (AHPP) represents a one-time exception to FEMA's existing authority under the Stafford Act. The Stafford Act legally binds FEMA to a temporary housing mission, by providing an opportunity to explore, implement, and evaluate innovative approaches to housing solutions, and to address ongoing housing challenges created by the 2005 hurricane season in the states of the Gulf Coast region, including the State of Texas.

The Texas Department of Housing and Community Affairs (TDHCA) Disaster Recovery Division has applied for FEMA funding under the AHPP to provide both temporary and permanent housing solutions for eligible applicant families displaced by Hurricane Rita. TDHCA proposes to provide permanent housing to eligible families in the following counties in the State of Texas: Chambers, Hardin, Harris, Jasper, Jefferson, Liberty, Newton, Orange, Polk, and Tyler.

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 Texas.

1.1 Purpose and Need

The purpose of this action is to provide alternative disaster housing in the State of Texas that includes long-term and permanent solutions. The need for this action is to address the housing shortages caused by the catastrophic effects of Hurricane Rita, and to move disaster victims from current temporary solutions (*e.g.*, rental dwellings, travel trailers, *etc.*) to permanent housing. As of October 2008, there are 6,248 families who are receiving disaster housing aid from within the ten-county program area due to 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 TDHCA and FEMA under the AHPP for Texas residents displaced as a result of Hurricane Rita. 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 Texas, 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 Hurricane 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. FEMA has established during the scoping process for the AHPP that the proposed 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) and the Texas Historical Commission (THC) were conducted by FEMA requesting a project review and any available information under their respective jurisdictions to ensure that the proposed actions had no significant impacts on biological and cultural resources. Coordination letters can be found in Appendix A. FEMA will review each proposed action on a case-by-case basis to assess its potential to impact resources. Any proposed action requiring further resource agency consultation or coordination will be documented by FEMA with all supporting documentation in the project's administrative record.

Should a specific action be expected to (1) create impacts not identified in the PEA; (2) create impacts greater in magnitude, extent, or duration than those described in the PEA; or (3) require mitigation measures to keep impacts below significant levels that are not described in the PEA; a Supplemental Environmental Assessment (SEA) and corresponding Finding of No Significant Impact (FONSI) would be prepared to address the specific action. The SEA would be tiered from this PEA, in accordance with 40 CFR Part 1508.28.¹ 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 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.

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 Texas and other actions occurring or proposed in the vicinity of the proposed project sites.

The Texas Gulf Coast is undergoing recovery efforts after Hurricane Rita and includes demolition, reconstruction, and new construction both within the private sector as well as projects by Federal and state agencies. Additionally, in September 2008, the Gulf Coast States, in particular the Texas Gulf Coast experienced two hurricanes, Gustav and Ike. These 2008 hurricanes caused extensive damage to the counties within the AHPP program area. 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 cumulative impacts 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.

SECTION 2.0
ALTERNATIVES



2.0 Alternatives

This section describes alternative actions that TDHCA and FEMA propose to undertake in order to provide AHPP housing to Texas residents displaced as a result of Hurricane Rita within Chambers, Hardin, Harris, Jasper, Jefferson, Liberty, Newton, Orange, Polk, and Tyler counties (program area) (Figure 1, Appendix B). All available 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 a Permanent AHPP Unit on the Former Dwelling Footprint

The Texas AHPP unit is an alternative to FEMA trailers and manufactured homes and typically, AHPP housing units are:

- Single-family prefabricated, panelized housing unit;
- Constructed in as little as 8 hours;

- Shipped in a standard 8-foot by 20-foot shipping container, allowing for expedient delivery by standard methods including flat bed truck, barge, and train;
- Designed with a “Texas Vernacular” style that can meet neighborhood and community standards throughout Texas.

Alternative 2 would place AHPP units on the eligible applicant’s property, within the former dwelling’s footprint. As AHPP units would be placed within the former dwelling’s footprint, all sites consist of previously disturbed land. All units would be located outside of the CHHA and the 100-year floodplain and elevated above the BFE, where applicable. Projects under this alternative may require ground disturbing activities including the demolition of the former housing structure, slab/foundation removal, and the refurbishment of existing utilities (*i.e.*, utility lines, septic systems, water wells). These sites generally either have existing infrastructure, including electricity, domestic water, stormwater and sanitary sewer systems, and telecommunication systems, or have had previous ground disturbance to at least the depth that these infrastructure systems would be installed.

2.3 Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Within the Property Occupied by the Former Dwelling

Alternative 3 would place AHPP units on the same property as the applicant’s former dwelling, but in a location outside of the footprint of the storm damaged housing structure, at the applicant’s request. Projects under this alternative would include the placement of units on either disturbed or undisturbed portions of the applicant’s property. All units would be located outside of the CHHA and the 100-year floodplain and elevated above the BFE, where applicable. Projects under this alternative may require ground disturbing activities, including the demolition of the former housing structure, slab/foundation removal, and the installation or modification of utilities (*i.e.*, utility lines, septic systems, water wells) and entryways (driveways, sidewalks, *etc.*).

These sites would typically have nearby existing infrastructure; however, certain utilities may need to be connected to the new site footprint. If insufficient electric service exists then an on-site generator would be installed for power supply to the site. No lift stations would be required to convey domestic water, stormwater, or sewage to/from the site to local utility systems. If necessary, shallow drainage ditches would be constructed to carry stormwater from the site to the local municipal stormwater system.

2.4 Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Alternative 4 would locate a single AHPP unit at an alternate property than the applicant's former dwelling, placing the unit on previously disturbed land. Previously disturbed land would include land that was previously residential or agricultural. The site would be cleared of all debris and vegetation, then grubbed, contoured, and graded, if necessary. Additional ground disturbing activities would include the installation or modification of utilities (*i.e.*, utility lines, septic systems, water wells) and entryways (driveways, sidewalks, *etc.*). All units would be located outside of the CHHA and the 100-year floodplain and elevated above the BFE, where applicable. Projects under this alternative may also require ground disturbing activities at the applicant's former housing site, which includes the demolition of the former housing structure and slab/foundation removal.

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. A new electric substation may need to be installed for power supply to the site. If an electric substation is needed, an electric generator may be temporarily installed to provide power during substation construction. 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 transformer substations, water wells, or WWTPs.

2.5 Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

Alternative 5 would locate a single AHPP unit at an alternate property than the applicant's former dwelling, placing the unit 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 and the 100-year floodplain and elevated above the BFE, where applicable. Projects under this alternative may also require ground disturbing activities at the applicant's former housing site, which includes the demolition of the former housing structure and slab/foundation removal.

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. A new electric transformer substation may need to be installed for power supply to the site. If needed, an electric generator may be temporarily installed to provide power during substation construction. 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 transformer substations, 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.

	Alternative 1: No Action	Alternative 2: Installation of a Permanent AHPP Unit on the Former Dwelling Footprint	Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Within the Property Occupied by the Former Dwelling	Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land	Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land
Geology and Soils	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. Potential soil erosion would be minimized through the use of Best Management Practices (BMP). Impacts to prime farmlands would not be anticipated.	Impacts to geology and soils would be the same as described in Alternative 2.	Impacts to geology and soils would be the same as described in Alternative 2.	No impacts to geology; however short-term impacts to soils could occur during construction of AHPP units. Prime farmlands could be impacted.
Air Quality	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 TDHCA would ensure equipment is well maintained and idling is minimized; and periodic watering of active construction areas occurs.	Impacts to air quality would be the same as described in Alternative 2. Measures as outlined in Alternative 2 would be utilized to minimize equipment exhaust and fugitive emissions.	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.	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.
Water Quality	No impacts to water quality are anticipated.	Minor, short-term impacts to water quality are anticipated under this alternative during construction activities. Project activities under this alternative are not anticipated to impact wild and scenic rivers or the Texas Coastal Zone. BMPs such as installing silt fences and revegetating bare soils would be implemented to minimize these impacts. FEMA would consult with Texas Commission on Environmental Quality (TCEQ) regarding National Pollutant Discharge Elimination System (NPDES) permitting, water quality certification and the Texas General Land Office for Coastal Zone Management Act (CZMA) compliance.	Alternative 3 would have similar impacts to Alternative 2. In addition, the construction of driveways and sidewalks have the potential to increase impervious surfaces, reduce groundwater recharge, and adversely affect water quality through the transmission of sediment, debris, oils, hazardous substances, and effluent into surface waters. TDHCA would mitigate these construction impacts by applying BMPs (as described in Alternative 2) to reduce transport of sediment, debris, oils, and hazardous substances.	Under Alternative 4, impacts to water quality would be similar to those described in Alternative 3. During construction, TDHCA would mitigate these impacts by applying BMPs as described in Alternative 2.	This alternative would have similar impacts as described in Alternative 3 and would utilize the same BMPs as described in Alternative 2. In addition, this alternative would follow the same steps as outlined in Alternative 4 for stormwater management, NPDES permitting and CZMA compliance.
Floodplains	No impacts to floodplains are anticipated.	All structures would be elevated so that the lowest floor is at or above the BFE, where applicable. No project under this alternative would be located within the CHHA or the 100-year floodplain.	Impacts to floodplains under this alternative would be the same as Alternative 2.	Impacts to floodplains would be similar to Alternative 2.	Impacts to floodplains would be similar to Alternative 2.
Wetlands	No impacts to wetlands are anticipated.	No impacts to wetlands are anticipated.	Jurisdictional determinations would be conducted per site. If needed, Clean Water Act (CWA) Section 404 permitting would be coordinated with the U.S. Army Corps of Engineers (USACE), Galveston District.	The impacts to wetlands from this alternative would be similar to Alternative 3.	The impacts to wetlands from this alternative would be similar to Alternative 3.

	Alternative 1: No Action	Alternative 2: Installation of a Permanent AHPP Unit on the Former Dwelling Footprint	Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Within the Property Occupied by the Former Dwelling	Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land	Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land
Biological Resources	No impacts to biological resources are anticipated.	No additional impacts to biological resources are anticipated.	Under this alternative there is a small potential that AHPP units on nearby land would impact biological resources. FEMA would consult with Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Services (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries in an effort to identify actions to potentially minimize any impacts and to identify proposed mitigation.	The impacts to biological resources from this alternative would be similar to Alternative 3.	Constructing AAHP units on undeveloped land would potentially impact biological resources; consultation would be performed as outlined in Alternative 3.
Cultural Resources	No impacts to cultural resources are anticipated.	No impacts to subsurface cultural resources would occur; however, historic viewsheds could be impacted under this alternative. Section 106 consultation with State Historic Preservation Officer (SHPO) would occur and would identify actions to minimize any potential impacts.	Impacts to cultural resources would be similar to Alternative 2. However, other Programmatic Agreement (PA) Stipulations would be invoked.	The impacts to cultural resources from this alternative would be similar to Alternative 3.	The impacts to cultural resources from this alternative would be similar to Alternative 3. However, historic structures could also be impacted. Section 106 consultation with SHPO would occur to minimize impacts.
Socioeconomics	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.	Socioeconomic effects under this alternative would be similar to Alternative 2.	Socioeconomic effects under this alternative would be similar to Alternative 4.
Traffic and Transportation	No impacts to traffic and transportation are expected.	Short-term impacts to traffic and transportation could occur during construction. However, FEMA and the TDHCA would consult with Texas Department of transportation (TxDOT) to identify mitigation measures to lessen construction impacts.	Impacts to traffic and transportation are similar to Alternative 2.	Impacts to traffic and transportation are similar to Alternative 2. Applicant would own the land where the AHPP unit would be installed so no socioeconomic adverse impacts to families would occur.	Impacts to traffic and transportation would be similar to Alternative 2.
Hazardous Materials and Wastes	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.	Impacts would be similar to those described in Alternative 2.	Impacts would be similar to those described in Alternative 2.	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 Texas that may be impacted by the four action alternatives and one no action alternative considered:

- Geology and Soils
- Air Quality
- 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

4.1.1.1 Regulatory Setting

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, Natural Resources Conservation Service (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).

4.1.1.2 Existing Conditions

Texas does experience seismic activities; however, the hazard is small when compared to other states (Governor's Division of Emergency Management 1998). In 1964, a series of small earthquakes were felt along the Texas-Louisiana Border during the construction of Toledo Bend Dam and the filling of the Sam Rayburn Reservoir. Overall, within the program area the incidence of earthquakes in the program area is considered exceedingly rare (Governor's Division of Emergency Management 1998).

Two Major Land Resource Areas (MLRA) encompass the ten counties within the program area; and include the South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock Region and the Atlantic and Gulf Coast Lowland Forest and Crop Region (Center for Environmental Informatics [CEI] 1998). The South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock Region MLRA consist of the gently sloping to rolling southern Piedmont and upper Coastal Plain and extend into Newton, Jasper, Tyler, and Polk counties (CEI 1998). The Atlantic and Gulf Coast Lowland Forest and Crop Region MLRA consist of the nearly level low parts of the Atlantic and Gulf Coastal Plains and encompass portions of Newton, Jasper, Tyler, and Polk counties while the counties of Orange, Harris, Harding, Liberty, Jefferson, and Chambers are completely within this MLRA (CEI 1998).

Each of the ten-counties within program area contains soils designated as prime or unique farmland. Due to the large amount of prime or unique farmland, FEMA would work closely with the NRCS to determine each site specific action's potential impact to

prime or unique farmland. Within the program area there is a total of 1,802,235 acres of prime farmland and an additional 1,234,488 acres of prime farmland if drained (NRCS 2007). Listed below in Table 1 are the acres per county that can be classified as prime farmland or prime farmland if drained for the ten-county program area.

Table 1. Acres of Prime or Unique Farmland within the Program Area

County	Soil Type	Acres
Chambers County	Prime Farmland	74,833
	Prime Farmland if Drained*	205,910
	Total	280,743
Hardin County	Prime Farmland	157,438
	Prime Farmland if Drained*	149,237
	Total	306,675
Harris County	Prime Farmland	404,968
	Prime Farmland if Drained*	273,676
	Total	678,644
Jasper County	Prime Farmland	189,477
	Prime Farmland if Drained*	0
	Total	189,477
Jefferson County	Prime Farmland	175,157
	Prime Farmland if Drained*	92,296
	Total	267,453
Liberty County	Prime Farmland	141,204
	Prime Farmland if Drained*	397,779
	Total	538,983
Newton County	Prime Farmland	149,312
	Prime Farmland if Drained*	0
	Total	149,312
Orange County	Prime Farmland	72,417
	Prime Farmland if Drained*	58,147
	Total	130,564
Polk County	Prime Farmland	262,727
	Prime Farmland if Drained*	10,229
	Total	272,956
Tyler County	Prime Farmland	174,701
	Prime Farmland if Drained*	47,214
	Total	221,915

* If zero this category was not identified in county database
Source: NRCS 2007

4.1.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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 a Permanent AHPP Unit on the Former Dwelling Footprint

The installation of permanent AHPP dwellings on previously developed housing foundations and existing footprints does not have the potential to affect geology. Area soils would likely be disturbed during demolition of the former housing structure and refurbishment of existing utilities. Soil loss would occur directly from disturbance or indirectly via wind or water. To minimize soil loss, TDHCA 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. Additionally, the installation of individual AHPP units would not be expected to impact more than 1 acre of soil. 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 a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

Alternative 3 has similar impacts and conditions as in Alternative 2. TDHCA would implement BMPs, as described in Alternative 2. Should a specific action have the potential to impact prime or unique farmland then the procedure outlined above in Alternative 2 would be followed.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Alternative 4 has similar impacts and conditions as in Alternative 2. TDHCA would implement BMPs, as described in Alternative 2. Should a specific action have the potential to impact prime or unique farmland then the procedure outlined above in Alternative 2 would be followed.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

Permanent installation of AHPP dwellings 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. Roads would be constructed for ingress and egress to and from the site. Area soils would likely be disturbed during site preparation, installation of dwellings, utilities, and other ancillary facilities. Soil loss could occur directly from disturbance or indirectly via wind or water erosion. TDHCA 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 facilities, FEMA would follow the FPPA compliance procedure as described in Alternative 2.

4.2 Air Quality

4.2.1 Affected Environment

4.2.1.1 Regulatory Setting

The Clean Air Act (CAA) requires that the U.S. Environmental Protection Agency (USEPA) establish primary and secondary National Ambient Air Quality Standards (NAAQS) for air pollutants that are considered harmful to the public and environment. Primary NAAQS are established at levels necessary, with an adequate margin of safety, to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Similarly, secondary NAAQS specify the levels of air quality determined appropriate to protect the public welfare from any known or anticipated adverse effects associated with air contaminants. The pollutants for which USEPA has established ambient concentration standards are called criteria pollutants, and include ozone (O₃), particulates that have aerodynamic diameters of 10 micrometers or less (PM-10), fine particles with aerodynamic diameters less than 2.5 micrometers, (PM-2.5); carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); and lead (Pb).

The CAA also requires USEPA to assign a designation to each area of the nation regarding compliance with the NAAQS. The USEPA categorizes the level of compliance or noncompliance as follows: attainment (area currently meets the NAAQS), maintenance (area currently meets the NAAQS but has previously been out of compliance), and nonattainment (area currently does not meet the NAAQS) (USEPA 2008a).

In addition, USEPA has delegated its CAA enforcement authority in Texas to the Texas Commission on Environmental Quality (TCEQ), Air Quality Division. TCEQ air quality standards are identical to the Federal standards.

4.2.1.2 Existing Conditions

Texas meets Federal air quality standards with the following exceptions: (1) CO and particulate matter in El Paso; and (2) eight-hour ground-level O₃ in Houston-Galveston-

Brazoria, Dallas–Fort Worth, San Antonio, and Beaumont–Port Arthur areas. Texas also has three Early Action Compact (EAC) Areas: Austin, San Antonio, and Northeast Texas. These are areas that have submitted EAC plans which were utilized to develop State Implementation Plan strategies to reduce emission standards to meet the eight-hour O₃ standards by 2007 (TCEQ 2008).

4.2.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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 a Permanent AHPP Unit on the Former Dwelling Footprint

Under this alternative, short-term impacts to air quality could occur during construction. Emissions from fuel-burning internal combustion engines (*e.g.*, heavy equipment, earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO₂, O₃, PM-10, and non-criteria pollutants such as volatile organic compounds. To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum and engines would be properly maintained. In addition, periodic watering of active construction areas, particularly areas close to any nearby sensitive receptors (*e.g.*, hospitals, senior citizen homes, schools), would reduce temporary impacts from fugitive dust.

The TDHCA would ensure that all equipment meets state and Federal standards and that appropriate permits from the TCEQ are obtained. The TCEQ permitting process would ensure that any equipment requiring a permit has a negligible impact on air quality. Any stationary equipment exempt from permitting requirements is expected to be a negligible source of emissions. When the single AHPP units are in use, increased emissions from the AHPP occupants' personally owned vehicles (POV) are not expected to adversely affect regional air quality.

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

Under Alternative 3, impacts to air quality would be similar to Alternative 2 above.

Mitigation measures as outlined in Alternative 2 would also be utilized.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Alternative 4 would have similar impacts and conditions as Alternative 2. Mitigation measures as outlined in Alternative 2 would also be utilized.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

This alternative would have similar impacts and conditions as Alternative 2. Mitigation measures as outlined in Alternative 2 would also be utilized.

4.3 Water Quality**4.3.1 Affected Environment****4.3.1.1 Regulatory Setting**

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

The U.S. Army Corps of Engineers (USACE) is charged with regulating the disposal of dredged and fill materials under Section 404 of the CWA. A Section 404 permit from the USACE must be obtained for any dredge or fill activities within jurisdictional waters of the U.S. During the permit review process, the USACE determines the type of permit appropriate for the proposed action. Two types of permits are issued by the USACE: (1) General Permits, issued on a state, regional, and nationwide basis and covering a

variety of activities, including minimal individual and cumulative adverse affects, and (2) Individual Permits, issued for a case-specific activity (USACE 1998).

Section 401 of the CWA specifies that states must certify that any activity subject to a permit issued by a Federal agency, such as a CWA Section 404 permit, meets all state water quality standards. Water quality certification is also necessary when a project qualifies for a General Permit, even if the activity does not need to be reported to the USACE (USEPA 2008b).

The 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.

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.

All Federally funded projects must be consistent with the Texas Coastal Management Program (TCMP). The Texas General Land Office monitors and manages coastal zone actions in partnership with the Federal government under the CZMA within the Texas Coastal Zone and encompasses the four of the ten counties (Orange, Harris, Jefferson, and Chambers). FEMA must conduct its activities in a manner consistent with the Federally-approved TCMP.

4.3.1.2 Existing Conditions

Water can be divided into surface water that is held in streams, rivers and reservoirs and groundwater, whether in deep underground aquifers or shallow local aquifers. At present, Texas uses about 75 percent of "available" surface water. The Gulf Coast Aquifer in Texas encompasses the ten-county program area as well as 44 other Texas counties and extends from the Rio Grande northeast to the Louisiana/Texas border. The Gulf Coast Aquifer consists of 4 major water-producing components; the Catahoula, the Jasper, the Evangeline, and the Chicot. The Chicot underlies the ten-county program area (Texas Water Development Board [TWDB] 2008).

Municipal and irrigation use accounts for 90 percent of the total pumpage from the Gulf Coast aquifer, with the Greater Houston metropolitan area as the largest municipal user with well yields at an approximate average of 1,600 gallons per minute (TWDB 2008). Water quality is generally good in the ten-county program area, although the quality deteriorates along the coast due to an increase in chloride concentration and saltwater encroachment. In several areas at or near the coast, including Galveston Island and the central and southern parts of Orange County, heavy municipal or industrial pumping has caused saltwater intrusion into the aquifer; however, recent reductions in pumping have resulted in stabilization and, in some cases, even improvement of ground-water quality. In addition, the years of heavy pumping for municipal and manufacturing use of the aquifer have resulted in areas of significant water-level decline. Declines of 200 feet to 300 feet have been measured in some areas of eastern and southeastern Harris other areas with significant water-level declines include portions of Jefferson, Orange, and Wharton counties (TWDB 2008). Some of these declines have resulted in compaction of dewatered clays and significant land surface subsidence. This subsidence is typically less than 0.5 foot over most of the Texas coast, but has been as high as nine feet in Harris and surrounding counties (TWDB 2008). As a result, structural damage and flooding have occurred in many low-lying areas along Galveston Bay in Baytown, Texas City, and Houston. Conversion to surface-water use in many of the problem areas has reversed the decline trend (TWDB 2008).

The only river in Texas designated as a Wild and Scenic River is the Rio Grande and is not located within the ten-county program area. Approximately 69 miles of the Rio Grande has a Wild and Scenic River designation and this portion lies within Big Bend National Park (National Park Service 2007).

4.3.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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 a Permanent AHPP Unit on the Former Dwelling Footprint

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 single AHPP unit would impact less than 1 acre; however, should a construction site be greater than 1 acre, the site would then require a Stormwater Pollution Prevention Plan (SWPPP) as part of the NPDES permit process. The NPDES permit would identify BMPs for protection of water quality within ephemeral and perennial streams. To reduce impacts to the downstream surface waters, the TDHCA would implement appropriate BMPs, such as installing silt fences and revegetating bare soils. The TDHCA would be required to obtain an approved SWPPP and NPDES permit prior to the start of construction.

Project activities under this alternative are not anticipated to impact WSRA or the Texas Coastal Zone.

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

Alternative 3 would have similar impacts to Alternative 2. In addition, the construction of driveways and sidewalks have the potential to increase impervious surfaces, reduce groundwater recharge, and adversely affect water quality through the transmission of sediment, debris, oils, hazardous substances, and effluent into surface waters. During construction, the TDHCA would mitigate these impacts by applying BMPs (as described in Alternative 2) to reduce transport of sediment, debris, oils, and hazardous substances.

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 TDHCA would coordinate with appropriate agencies regarding NPDES permitting, water quality certification, and CZMA compliance for construction and operation of auxiliary facilities. For activities not exempt from NPDES permitting or water quality certification or not consistent with the TCMP, FEMA would document permitting and other requirements to comply with CWA and CZMA in the projects administrative record.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Under Alternative 4, impacts to water quality would be similar to Alternative 3 above and would utilize the same BMPs as described in Alternative 2.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

This alternative would have similar impacts as described in Alternative 3 and would utilize the same BMPs as described in Alternative 2. In addition, this alternative would follow the same steps as outlined in Alternative 3 for stormwater management, NPDES permitting and CZMA compliance.

4.4 Floodplains

4.4.1 Affected Environment

4.4.1.1 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 as an area, including the base floodplain, which is subject to inundation from a flood having a 0.2 percent chance of being equaled or exceeded in any given year.

Flood zones are land areas identified by FEMA that describe the land area in terms of its risk of flooding. A flood insurance rate map (FIRM) is a map created by the National Flood Insurance program (NFIP) for floodplain management and insurance purposes. Digital versions of these maps are called DFIRMs. A FIRM would generally show a community's 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. By its nature, the NEPA compliance process involves the same basic decision-making process as the Eight-Step Planning Process.

4.4.1.2 Existing Conditions

FEMA has developed BFE maps based on a flood frequency analysis completed by FEMA that update the flood risk data with information on storms that have occurred in the past 25+ years. FEMA currently utilizes the BFE maps in conjunction with FIRMs to determine elevation requirements for planning and redevelopment projects. FEMA requires that communities adhere to the elevation requirements established by BFE (FEMA 2006). As of 2004, Texas has 1,102 communities which participate in the NFIP.

4.4.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

This Alternative does not include any FEMA actions. Therefore, FEMA would not be required to comply with EO 11988. The No Action Alternative does not have the potential to affect floodplains.

Alternative 2: Installation of a Permanent AHPP Unit on the Former Dwelling Footprint

Under this alternative, AHPP units would be installed at the same location and footprint of the former dwelling. Projects would be located outside of the CHHA and the 100-year floodplain and elevated above the BFE, where applicable.

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

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

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Under Alternative 4, impacts to water quality would be similar to Alternative 2.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

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

4.5 Wetlands

4.5.1 Affected Environment

4.5.1.1 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 4.3.1.1, 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.

4.5.1.2 Existing Conditions

The National Wetlands Inventory (NWI) is a resource provided by the USFWS which provides wetland information by digital data files. The NWI currently includes data for six of the ten-county program area but does not include county data for Polk, Tyler, Jasper, and Newton counties. Based upon the counties included in the NWI, there are approximately 1,016,289 acres of estuarine and marine wetlands, freshwater emergent wetland, and freshwater forested/shrub wetland, within the ten-county program area (USFWS 2008a).

4.5.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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.

Alternative 2: Installation of a Permanent AHPP Unit on the Former Dwelling Footprint

Under this alternative, permanent AHPP units would be placed at the same location and footprint on the former dwelling's existing foundation. As project activities would occur within a previously disturbed area, this alternative is not anticipated to impact wetlands or waters of the U.S.

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

Projects under this alternative have the potential to impact wetland areas. For projects having the potential to impact wetlands or waters of the U.S., FEMA would delineate the proposed project site to identify the presence of jurisdictional wetlands and waters of the U.S. Should wetlands or waters of the U.S. be identified and their impacts considered unavoidable, early coordination with the regulatory section of the local USACE district, USEPA, the county NRCS, Texas Parks and Wildlife Department (TPWD), and other appropriate agencies would be completed prior to the initiation of the construction activities. 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. FEMA would coordinate with USACE and TPWD on projects where wetland impacts are anticipated and results would be documented in the project's administrative record.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Potential impacts and project conditions to minimize impacts to wetlands and waters of the U.S. for Alternative 4 would be similar to those discussed in Alternative 3.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

Under Alternative 5, project activities have the potential to impact wetlands and waters of the U.S. Potential impacts and project conditions to minimize potential impacts to wetlands and waters of the U.S. would be similar to those discussed in Alternative 3.

4.6 Biological Resources

4.6.1 Affected Environment

4.6.1.1 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 National Oceanic and Atmospheric Administration (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 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.

4.6.1.2 Existing Conditions

The State of Texas has 65 species of animals and 28 species of plants listed as Federally threatened or endangered (USFWS 2008b). Appendix C contains a list of these species and their status under the ESA for the ten-county program area. Within the AHPP program area there is no critical habitat for endangered species. (USFWS 2008c).

Although not within the program area, the Flower Garden Banks National Marine Sanctuary is located off the coast of Texas near Galveston County and is a Geographically Defined Habitat Area of Particular Concern identified in Fishery Management Plan Amendments affecting the Southeast and Caribbean Areas. Additionally, although not specifically within the ten-county program area, but within the Gulf of Mexico, the Louisiana/Texas Shelf and the south Texas shelf contain EFH identified in Fishery Management Plan Amendments of the Gulf of Mexico, South Atlantic, Caribbean and Mid-Atlantic Fishery Management Councils (NOAA 1999).

4.6.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

This alternative does not include any FEMA action. Therefore, FEMA would not be required to consult with USFWS, NOAA Fisheries, or TPWD 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 a Permanent AHPP Unit on the Former Dwelling Footprint

Installing AHPP dwellings on the previous dwelling's footprint does not have the potential to affect sensitive biological resources. FEMA has no requirement to consult with USFWS, NOAA Fisheries, or TPWD to comply with the ESA, MBTA, or the Sustainable Fisheries Act and compliance with these laws is met with no further documentation.

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

The site preparation and installation of AHPP units on a new footprint within the original property has the potential to affect sensitive biological resources. FEMA would evaluate the locations of the proposed housing site and all auxiliary facilities, such as WWTPs, water well, and generators, to determine the potential for the project to affect threatened and endangered species or their habitats, migratory birds, natural waterways, or EFH.

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 project 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. If USFWS or NOAA Fisheries determine that additional consultation is required under MBTA, Sustainable Fisheries Act, or Section 7 of the ESA, the resulting consultation would be documented, and to ensure full NEPA compliance, a SEA would be developed.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

The site preparation and installation of AHPP units on an alternate site owned by the applicant, has the potential to affect sensitive biological resources. FEMA would evaluate the locations of the proposed housing site and all auxiliary facilities, such as WWTPs, water well, and generators, to determine the potential for the project to affect threatened and endangered species or their habitats, migratory birds, natural waterways, or EFH and follow the procedure as outlined above in Alternative 3.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site 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 facilities, such as WWTPs, water well, and generators, to determine the potential for the project to affect threatened and endangered species or their habitats, migratory birds, natural waterways, or EFH and follow the procedure as outlined above in Alternative 3.

4.7 Cultural Resources

4.7.1 Affected Environment

4.7.1.1 Regulatory Setting

Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800, requires Federal agencies to consider the effects of their actions on historic properties, and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on Federal projects that would have an effect on historic properties prior to implementation. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP).

The Section 106 process includes identifying significant historic properties and districts that may be affected by an action and mitigating adverse effects on properties listed, or eligible for listing, in the NRHP (36 CFR 60.4). FEMA, Texas Historical Commission (THC), and the Governor's Division of Emergency Management (GDEM) have executed a Programmatic Agreement (PA) to streamline the Section 106 review process. A copy of the PA for Texas is provided on the FEMA website site at <http://www.fema.gov/plan/ehp/envdocuments/ea-region6.shtm>.

4.7.1.2 Existing Conditions

The State of Texas has various historic districts listed in the NRHP. Two archeological districts are found within Harris County; however, no other archeological districts are found within the other counties in the AHPP program area. Twelve historic districts are

located in Harris County with an additional four historic districts located within the remaining nine counties within the program area. FEMA has identified close to 2,909 sites on the NRHP in Texas and 246 National Register Properties are within Harris County with an additional 51 National Register properties located within the remaining nine counties in the AHPP program area (THC 2008). FEMA is working closely with the State Historic Preservation Office (SHPO) to identify NRHP listed or eligible properties that may be affected by the AHPP actions.

There are three Federally recognized tribes that have historical and cultural ties to areas in Texas, the Alabama-Coushatta Tribes, the Kickapoo Traditional Tribe of Texas, and the Ysleta Del Sur Pueblo of Texas. Within the ten-county program area, lies Texas' oldest Indian Reservation within Big Thicket in Polk County near Livingston, Texas and is the home of the Alabama-Coushatta Tribe. FEMA would consult with the tribe's Tribal Historic Preservation Officer (THPO) to identify religious and culturally significant properties that may be impacted by the AHPP housing actions.

4.7.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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.

Alternative 2: Installation of a Permanent AHPP Unit on the Former Dwelling Footprint

This alternative would not involve ground disturbing activities below previously disturbed soil depths. Thus, there is no potential to affect subsurface cultural resources. This

alternative does include demolition of the previous dwelling and could potentially impact historic structures.

To ensure compliance with Section 106 of the NHPA, FEMA would evaluate each project for the potential to affect historic structures and cultural resources. FEMA would determine if the scope of work falls under the Programmatic Allowances. Per Stipulations III through VI of the PA and in concert with Programmatic Allowances I.A., I.B. and III of the PA, FEMA has no requirement to consult with SHPO for these actions, and compliance with Section 106 of the NHPA is met with no further documentation. For those actions that do not fall within the Programmatic Allowances, FEMA would follow the procedures in Stipulation VI of the PA. If FEMA finds that an undertaking may affect a historic property, the agency would document the consultation required including stipulated mitigation measures in the project's administrative record. Projects having the potential to adversely affect historic properties would be subject to a SEA.

In the event that archeological deposits, including any Native American pottery, stone tools, or human remains, are uncovered, the project would be halted. TDHCA 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 TDHCA would inform FEMA immediately and FEMA would consult with the SHPO or THPO and interested tribes. 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 a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

This alternative includes ground disturbing activities. Thus, there is the potential to affect subsurface cultural resources. This alternative also involves the demolition of the former structure, so historic structures would potentially be affected. To ensure compliance with Section 106 of the NHPA, FEMA would invoke the PA among FEMA, SHPO, and GDEM. Stipulations VI and VII of the PA, in concert with Programmatic Allowance I, state that ground disturbing activities and site work do not require SHPO

review when all work is performed in archaeologically surveyed areas. If ground-disturbing activities meet these conditions, the action would comply with Section 106 of the NHPA with no further documentation needed.

For areas which have not been subject to archaeological survey or areas which were surveyed and were found to be positive for cultural resources, FEMA would provide to SHPO available information about the condition of the property, the proposed action, and prudent and feasible measures that would take the adverse effect into account, per PA Stipulation VI.B.3. SHPO would have 7 days to respond to FEMA's request with recommendations. FEMA would incorporate SHPO's recommendations into the project design, and the action would comply with Section 106 of the NHPA with no further documentation required. If FEMA and SHPO are unable to follow the stipulations of the PA as described above for any reason, FEMA would invoke Stipulation XI of the PA on dispute resolution. The results of this consultation would be documented in a SEA. Similarly, in the event unexpected discoveries are encountered, FEMA would invoke Stipulation X of the PA, initiate consultation, and document the results of this consultation in a SEA.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

This alternative includes ground disturbing activities. Thus, there is the potential to affect subsurface cultural resources. The discussion of impacts and procedural compliance for this alternative is similar to Alternative 3.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

This alternative would involve ground disturbing activities on previously undeveloped land and as such would have the potential to affect subsurface cultural resources. The discussion of impacts and procedural compliance for this alternative is similar to Alternative 3.

4.8 Socioeconomics

4.8.1 Affected Environment

4.8.1.1 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.

4.8.1.2 Existing Conditions

As of October 2008, there are 6,248 families who are receiving disaster housing assistance from within the ten-county program area due to Hurricane Rita. Of the 6,248 families which are receiving housing assistance, Harris County has the highest amount of families requiring housing assistance (5,882 families) and Polk County has the smallest amount (4 families). Excluding Harris County, the remaining nine counties have an average of 40 families per county who still require housing aid.

4.8.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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 a Permanent AHPP Unit on the Former Dwelling Footprint

Implementation of Alternative 2 would result in beneficial economic impacts on 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 a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

The discussion of impacts for this alternative would be similar to Alternative 2.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Alternative 4 impacts would be similar to Alternative 2. Additionally, contractors perform site work or construct auxiliary facilities (e.g., WWTPs or septic systems) would also benefit financially.

Establishing permanent housing for displaced persons would benefit the local economy by helping to restore normal life to the community, including normalized employment patterns and commercial transactions.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

Implementation of Alternative 5 would not cause adverse socioeconomic impacts as the land is owned by the applicant and the impacts would be similar to Alternative 4.

4.9 Traffic and Transportation**4.9.1 Affected Environment****4.9.1.1 Regulatory Setting**

Texas Department of Transportation (TxDOT) is responsible for the design, construction, and maintenance of the state highway system, as well as the portion of the Federal highways and interstates within Texas' boundaries. Arterials, connectors, rural roads, and local roads are constructed and maintained by county or city governments.

4.9.1.2 Existing Conditions

The ten southeastern counties have an extensive network of Federal (interstates and U.S. highways) and state highways (SH) throughout the program area. The State provides actual traffic counts in these counties along several highways for the year 2006 (TxDOT 2008). Traffic counts are given in units of Average Annual Daily Traffic (AADT). Highways and corresponding traffic counts for these highways within the ten-county program area are shown in Table 2. The highest traffic counts on Federal highways were on Interstate (I) 10 and U.S. highway (US) 69. I-10 travels through Chambers, Jefferson, Harris, and Orange counties and traffic counts range throughout

these counties from 47,000 to 192,000 with the highest counts in Harris County followed by Jefferson County. State highway traffic counts for all ten counties in the program area range from 230 to 98,000, with the highest traffic volume in Harris County followed by Jefferson County (TxDOT 2008).

4.9.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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 a Permanent AHPP Unit on the Former Dwelling Footprint

Permanent installation of AHPP units on the previous dwelling's footprint and refurbishing existing utilities could result in short-term increased traffic volumes associated with site preparation, and installation of the AHPP units and auxiliary facilities in areas that were previously developed temporary housing sites. 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 POV would be sited to hinder the traffic flow as little as possible in the areas where the actions are implemented, and 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 being installed on the same footprint as the applicant's original residence, traffic volumes should return to pre-construction levels after completion.

Table 2. Federal and State Major Highways with Traffic Counts within the Program Area

Counties	Highways	AADT (2006)
Chambers	I 10	47,000 to 64,000
	SH 61	1,800 to 2,000
	SH 65	910 to 2,400
	SH 87	NA
	SH 99	6,600 to 12,400
	SH 124	3,700 to 10,900
Hardin	SH 146	9,700 to 38,000
	US 69	7,700 to 59,000
	US 96	9,700 to 36,000
	SH 105	3,700 to 10,300
	SH 326	2,500 to 8,400
Harris	SH 327	5,300 to 8,900
	I 10	71,000 to 192,000
	I 45	49,000 to 297,000
	I 610	172,000 to 209,110
	US 59	76,000 to 282,000
	US 90	18,200
	US 290	44,000 to 198,000
	SH 8	NA
Jasper	SH 288	98,000
	US 96	7,400 to 18,900
	US 190	5,300 to 21,000
	SH 62	3,600 to 10,000
Jefferson	SH 63	3,200 to 5,600
	I 10	47,000 to 120,000
	US 69	57,000 to 118,000
	US 90	7,800 to 37,000
	SH 73	9,900 to 53,000
	SH 82	1,850 to 3,900
	SH 87	230 to 1,900
	SH 105	13,700 to 26,000
	SH 124	2,500 to 10,600
	SH 326	4800
Liberty	SH 347	15,200 to 46,000
	US 59	28,000 to 43,000
	US 90	8,000 to 23,000
	SH 61	1,250 to 1,850
	SH 105	4,500 to 18,200
	SH 146	9,800 to 11,600
Newton	SH 321	6,400 to 21,000
	US 190	3,200 to 8,200
	SH 12	4,100 to 6,000
	SH 62	6,300
	SH 63	1,150 to 2,100
Orange	SH 87	2,200 to 5,500
	I 10	47,000 to 80,000
	SH 12	6,000 to 13,000
	SH 62	6,300 to 21,000
	SH 73	28,000
	SH 87	7,000 to 32,000

Table 2, continued

Counties	Highways	AADT (2006)
Polk	US 59	15,900 to 24,000
	US 190	4,500 to 21,000
	US 287	2,100 to 3,600
Tyler	US 69	3,700 to 9,700
	US 190	4,300 to 15,400
	US 287	2,500 to 11,000

Source: TxDOT 2008

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

Alternative 3 would result in similar impacts and conditions as outlined in Alternative 2.

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Although this alternative would install AHPP units on an alternate site the impacts would for each individual unit would result in similar impacts as outlined in Alternative 2.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

Although this alternative would install AHPP units on an alternate site the impacts would for each individual unit would result in similar impacts as outlined in Alternative 2.

4.10 Hazardous Materials and Waste

4.10.1 Affected Environment

4.10.1.1 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 wastes and materials 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 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 may delegate this responsibility to states to implement it. Texas has been delegated with this responsibility. RCRA also sets forth a framework for the management of non-hazardous wastes. The 1986 amendments to RCRA enable the USEPA through TCEQ 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 the USEPA the ability to track the approximately 75,000 industrial chemicals currently produced or imported into the U.S. The USEPA repeatedly screens these chemicals, and can require reporting or testing of those chemicals that may pose an environmental or human-health hazard. The USEPA may ban the manufacture and import of those chemicals that pose an unreasonable risk. TSCA supplements other Federal statutes, including CAA and the Toxic Release Inventory under the Emergency Planning and Community-Right-to-Know Act. TSCA includes regulations regarding asbestos and polychlorinated biphenyls (PCB). CERCLA and the Superfund Amendments and Reauthorization Act govern the process for identifying and prioritizing the cleanup of abandoned or other sites not regulated under RCRA that are contaminated by the release of hazardous materials. The USEPA was given power to seek out those parties responsible for any release and ensure their cooperation in the cleanup.

Superfund site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies. Section 112 of the CAA requires the USEPA to develop emission standards for hazardous air pollutants. In response to this section, the USEPA published a list of hazardous air pollutants and promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. Because lead and asbestos present a substantial risk to human health as a result of air emissions from one or more source categories, they are considered hazardous air pollutants and, thus, hazardous materials. The Asbestos NESHAP (40 CFR 61, Subpart M) addresses milling, manufacturing, and fabricating operations, demolition and renovation activities, waste

disposal issues, active and inactive waste disposal sites, and asbestos conversion processes.

4.10.1.2 Existing Conditions

The State of Texas has 474 Superfund sites, of which 45 are on the National Priorities List (NPL), 17 of which have been removed from the NPL, and four have been proposed for the NPL (USEPA 2007). Within the ten-county program area there are 18 active sites on the NPL. Twelve of the active NPL sites are within Harris County while the remaining six are within the other counties in the AHPP program area. The 18 active NPL sites are listed in Table 3, below.

Table 3. Active NPL Sites within Program Area

County	Site ID	EPA ID Number
Harris	San Jacinto River Waste Pits	TXN000606611
	French, LTD.	TXD980514814
	Sikes Disposal Pits	TXD980513956
	Patrick Bayou	TX0000605329
	Crystal Chemical Company	TXD990707010
	Geneva Industries/Fuhrmann Energy	TXD980748453
	Highlands Acid Pit	TXD980514996
	Jones Road Ground Water Plume	TXN000605460
	Many Diversified Interests, Inc.	TXD008083404
	North Cavalcade Street	TXD980873343
	Sol Lynn/Industrial Transformers	TXD980873327
	South Cavalcade Street	TXD980810386
Jasper	Hart Creosoting Company	TXD050299577
	Jasper Creosoting Company	TXD008096240
Jefferson	Palmer Barge Line	TXD068104561
	Star Lake Canal Superfund Site	TX0001414341
	State Marine of Port Arthur	TXD099801102
Liberty	Petro-Chemical Systems, Inc. (Turtle Bayou)	TXD980873350

Source: USEPA 2008

4.10.2 Environmental Consequences and Mitigation Measures

Alternative 1: No Action

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 Hurricane 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 a Permanent AHPP Unit on the Former Dwelling Footprint

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. TDHCA 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.

The applicant's former housing structure 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, TDHCA will ensure that the disposal of any lead or asbestos containing material is properly disposed of after demolition of the structure.

Alternative 3: Installation of a Permanent AHPP Unit on a New Footprint Adjacent Within the Property Occupied by the Former Dwelling

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

Alternative 4: Installation of a Permanent AHPP Unit on an Alternate Site on Previously Disturbed Land

Alternative 4 impacts and conditions would be similar to those discussed under Alternative 2.

Alternative 5: Installation of a Permanent AHPP Unit on an Alternate Site on Undeveloped Land

Alternative 5 impacts and conditions would be similar to those discussed under Alternative 2.

SECTION 5.0
LIST OF PREPARERS



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SECTION 6.0
REFERENCES



6.0 References

- Center for Environmental Informatics. (CEI). 1998. Soil Information for Environmental Modeling and Ecosystem Management. Internet URL: http://www.soilinfo.psu.edu/soil_lrr/. Accessed: October 2008.
- Federal Emergency Management Agency (FEMA). 2008. FEMA Map Service Center. Internet URL: <http://msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMApersent20Floodpersent20Zonepersent20Designations>.
- FEMA. 2006. Advisory Flood Elevations and Disaster Assistance. Internet URL: <http://www.fema.gov/news/newsrelease.fema?id=23283>.
- Governor's Division of Emergency Management. 1998. Chapter 12 of, *State of Texas Hazards Analysis*. Department of Public Safety, Austin, Texas, 1998.
- NOAA. 1999. Essential Fish Habitat: New Marine Fish Habitat Conservation Mandate for Federal Agencies. Internet URL: <http://www.safmc.net/Portals/0/EFH/EFHMandate.pdf>. Accessed: June 2008.
- National Park Service. 2007. Rio Grande Wild and Scenic River. Internet URL: <http://www.nps.gov/rigr/>. Accessed: June 2008.
- National Resource Conservation Service (NRCS). 2008. Farmland Protection Policy Act. Internet URL: <http://www.nrcs.usda.gov/programs/fppa/>. Accessed: June 2008.
- NRCS. 2007. SSURGO Soil Data. Internet URL: <http://soildatamart.nrcs.usda.gov/Metadata.aspx?Survey=TX071&UseState=TX>.
- Texas Commission on Environmental Quality. 2008. Texas Attainment Status by Region. Internet URL: <http://www.tceq.state.tx.us/implementation/air/sip/siptexas.html#map>. Accessed: June 2008.
- Texas Department of Transportation (TxDOT). 2008. Statewide Planning Map, Traffic Count (Overlays) for AADT 2006. Internet URL: http://www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html. Accessed: August 2008.
- Texas Historical Commission (THC). 2008. Texas Historical Sites Atlas. Internet URL: <http://atlas.thc.state.tx.us/index.asp>. Accessed: June 2008.

- Texas Water Development Board. 2008. The Gulf Coast Aquifer. Internet URL: <http://www.twdb.state.tx.us/publications/reports/groundwaterreports/gwreports/r345%20aquifers%20of%20texas/Majors/gulf.pdf>. Accessed : June 2008.
- U.S. Army Corps of Engineers (USACE). 1998. The Wetlands Regulation Center, Internet URL: <http://www.wetlands.com/regs/tlpge02h.htm>.
- U.S. Environmental Protection Agency (USEPA). 2008a. National Ambient Air Quality Standards. Internet URL: <http://www.epa.gov/air/criteria.html>.
- USEPA. 2008b. Summary of the Clean Water Act. Internet URL: <http://www.epa.gov/lawsregs/laws/cwa.html>.
- USEPA. 2007. Superfund Information System. Internet URL: <http://www.epa.gov/superfund/sites/index.htm>. Accessed: June 2008.
- 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>.
- U.S. Fish and Wildlife Service (USFWS). 2008a. National Wetlands Inventory Digital Data. Internet URL: <http://wetlandfws.er.usgs.gov/nwi/download.html>. Last Modified: September 2008. Accessed: September 2008.
- USFWS. 2008b. Threatened and Endangered Species System. Internet URL: <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm>. Accessed: June 2008.
- USFWS. 2008c. Critical Habitat Portal. Internet URL: <http://criticalhabitat.fws.gov/>. Accessed: October 2008.