

**APPENDIX L**

**DRAFT  
NONSTRUCTURAL IMPLEMENTATION PLAN**

DRAFT





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## APPENDIX L

### Draft Nonstructural Implementation Plan

#### A. Introduction

This document describes nonstructural flood risk and damage reduction measures that are recommended for implementation as part of a NED Nonstructural Program (“Program”) to be undertaken in Calcasieu, Cameron, and Vermilion parishes in the Southwest Coastal (“SWC”) Study Area. This draft Implementation Plan provides a conceptual framework for the refinement and development of a Nonstructural Program in the absence of any current USACE policy and guidance on this subject.

In preparing this Plan, the SWC project delivery team (“PDT”) reviewed nonstructural program reports from other USACE Districts, other state and federal entities administering nonstructural programs, and communicated extensively with the Vertical Team. The PDT also followed the guidance contained in the Memorandum from James F. Johnson, Chief, Planning and Policy Division, Directorate of Civil Works (22 January 2001), which provides changes to ER 1105-2-100 (April 2000) and IWR Report 88-R-2 (March 1988) pertaining to flood plain evacuation by relocation or acquisition/demolition for all projects proposed after the Water Resource and Development Act of 1999. Additional regulations that were considered include, but are not limited to, Executive Order 11988, “Floodplain Management” (24 May 1977) as amended (Jan. 2015); Federal Emergency Management Agency (“FEMA”) Revised Guidelines for Implementing Executive Order 11988, Floodplain Management; EP 1165-2-314 “Flood Proofing Regulations” (15 Dec. 1995); ER 1165-2-26 “Implementation of Executive Order 11988 on Flood Plain Management” (30 March 1984); ER 1105-2-101 “Risk Analysis for Flood Damage Reduction Studies” (3 Jan 2006); EM 1110-2-1619 “Risk Based Analysis for Flood Damage Reduction Studies” (1 Aug 1996); Section 73 of the Water Resource and Development Act of 1974; and Section 219 of the of the Water Resource and Development Act of 1999.

Flood-proofing is generally described as any combination of structural and nonstructural additions, changes or adjustments to structures, which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitation facilities or structures with their contents. Various types of nonstructural flood-proofing measures have proven to be successful in reducing flood risk and damages by modifying structures located in floodplains (i.e., land areas susceptible to being inundated by floodwaters from any source). The more common measures employed include the elevation of structures; the removal of at-risk structures from floodplains and floodways; detached flood proofing around structures through the construction of small berms and/or flood walls no higher than 6 feet above grade; and implementing flood warning and preparedness plans and floodplain regulations.

Buildings that have been placed on the National Register of Historic Buildings are considered national treasures. Building listed on the National Registry and buildings and structures that are 50 years or older and which are eligible for listing on the National Register and where the elevation of the structure will require ground disturbing activities and potential impacts to archaeological, cultural, or historical resources are not eligible for structural modifications for the purpose of flood protection and risk reduction. Given the total Project cost and the estimated ~\$824 million dollar total investment required to complete the Project, it is anticipated that implementation of the nonstructural program will occur over an approximate 17-year period (assuming funding of ~\$50 million/year). The time anticipated to fully implement this Plan also affords the opportunity to maximize participation in a voluntary manner. The combined effects of the Biggert-Waters Insurance Reform Act, the modified conditions imposed by the Homeowner Flood Insurance Affordability Act, and the likelihood of



property transfers provide a scenario and existing incentive to increase participation over time. In addition, the clear and present risk of future storm events, and subsequent disaster declarations and relief funding, indicate potential situations for advantageously incentivizing and accelerating implementation. Education, successful implementation, increased property values, and a reduced number of structures in the 0-25-year floodplain will help ensure a successful nonstructural program that meets SWC Study goals. There will be structures that do not fall cleanly into categories that are being defined in this implementation plan (for example historical structures, structures with HTRW concerns or structures that have human remains buried adjacent to them). Implementing this Program will require flexibility to deal with unique situations while the NFS works to achieve success.

A primary goal of the Nonstructural Plan is reduce flood risks for residential and non-residential structures that have first floor elevations at or below the 0-25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the period of analysis). The Plan will provide reduced flood risk for a total of 4,952 total impacted structures comprised of 4,219 eligible residential structures, 396 eligible commercial structures and public buildings, and 337 eligible warehouses. The expected average annual net benefits are approximated at \$231.6 million dollars, with \$846,000,000 in first costs and a benefit/cost ration of 7.74:1. Eligible structures will require additional structure specific analysis during the preconstruction engineering and design ("PED") and construction phases to determine the best, most cost-effective measures to be employed for reducing flood risk. Consequently, each eligible structure will be inspected by a floodplain engineer, structural engineer, cost engineer, civil engineer, and real estate specialist to determine the type of nonstructural measure to be employed. The inspection of individual structures has not been performed at this stage of the Study.

To the maximum extent practicable, implementation of the Program will target willing participants and will be implemented as a voluntary program. However, for properties that meet certain criteria, eminent domain authority will be utilized when warranted. Eminent domain is the power of the government to take private property for public purposes with payment of just compensation. The Nonstructural Program will include:

- 1) Voluntary participation by residential and non-residential property owners of eligible structures that are in the 0-25-year floodplain.
- 2) Participation by local governments in administrative measures that support the NFIP (i.e. floodplain management, education programs, etc.); and
- 3) Involuntary acquisition of certain structures through eminent domain as further described herein.

#### **B. NED Tentatively Selected Plan**

The following nonstructural measures are included in the NED TSP:

1. Elevation of eligible residential structures. The term "Base Flood" is defined by the National Flood Insurance Program (NFIP) as the "flood having a 1% chance of being exceeded in any given year and is also called the 100 year flood". For the purposes of this Study this base flood elevation has been forecast into the future based on anticipated hydrologic conditions in the year 2075. This measure requires lifting the entire structure or the habitable area to the predicted 2075, 100-year base flood elevation unless the required elevation is greater than a maximum of 13 feet above ground level. Velocity and hydrodynamic forces of storm surge and flooding also have to be considered. The most common methods of elevation are: (1) elevating on open foundations such as piers, columns, posts, or piles; (2) elevating on continuous foundation walls; (3) elevating by extending the walls or by moving the living space to an upper floor; and (4) elevating on fill. Eligible structures will be elevated to meet the predicted 2075 100-year base flood elevation, so that the habitable floors are raised to levels which will protect the residential structures from storm surge flooding to reduce



future losses by allowing the free movement of floodwaters beneath and around the raised structures. Elevation is the only flood proofing measure that reduces flood insurance premiums for residential structures. In any elevation program, local building and zoning codes must be considered. Some zoning codes contain restrictions on “substantial improvements” to existing non-confirming structures which require that the entire structure be brought up to current building code requirements which may increase the costs beyond that of the elevation costs alone. In addition, zoning codes may have height restrictions for buildings in residential areas that might affect the ability of certain structures to be raised without obtaining a variance or other form of relief from the zoning code. Other eligibility considerations may include whether the structure is eligible for participation in another state, local or federal elevation program to avoid redundancy. The following process shall apply to property owners who are willing and eligible to participate in the elevation Program:

- Property owner shall complete an application for structure elevation which must be signed by all owners and lien-holders of the property and structure);
  - Property must meet all eligibility criteria;
  - Property owner shall submit proof of ownership and a current Elevation Certificate;
  - The property has clear title and title research is completed;
  - Site inspection is conducted:
    - Phase I HTRW/Asbestos investigation is completed. The property must be certified as “clean” by the appropriate State office before any Project funds may be expended. All asbestos must be abated and disposed of properly;
    - A determination of suitability for elevation is made.
  - Elevation Agreement and Residential Structure Elevation Covenant Running With The Land are executed and recorded in the public records of the Parish in which the property is located.
  - Elevation of the structure is completed.
2. Dry flood proofing of eligible non-residential structures. Dry flood proofing consists of sealing all areas below the flood protection level of a structure to make it watertight and ensure that floodwaters cannot get inside by making walls, doors, windows and other opening impermeable to water penetration. Walls are coated with sealants, waterproofing compounds, or plastic sheeting is placed around the walls and covered, and back-flow from water and sewer lines prevention mechanisms such as drain plugs, standpipes, grinder pumps and back-up valves are installed. Openings, such as doors, windows, sewer lines and vents, may also be closed temporarily, with sandbags or removable closures, or permanently. Dry flood proofing achieves flood risk reduction but it is not recognized by the NFIP for any flood insurance premium rate reduction when applied to residential structures, and may not be used under the NFIP for new or substantially damaged buildings located in a Special Flood Hazard Area. Based upon National Flood Proof Committee sponsored tests at the Engineering Research and Development Center (“ERDC”), a “conventional” built structure can generally only be dry flood proofed up to 3 feet on the walls. A structural analysis of the wall strength is required to achieve higher protection. Closure panels may be used at openings. This measure is viable for appropriate structures in the study area if design flood depths are generally less than three feet, and hydrodynamic forces would also be a consideration. For structures with crawlspaces, the only effective way to dry flood proof is to make the first floor impermeable to the passage of floodwater. Some common flood proofing measures include:
- Backflow valves;
  - Closures on doors, windows, stairwells and vents--they may be temporary or permanent;
  - Elevating structures via landfill, walls, posts, piers, jacks and beams;



- Rearranging or protecting damageable property--e.g., relocate or raise utilities;
- Ring walls and small berms with a maximum height of less than 6 feet constructed around structures and utilities;
- Sump pumps and sub-drains;
- Water resistant material; metal windows, doors and jambs; waterproof adhesives; sealants and floor drains.

The following process will apply to property owners willing to dry-flood proof their structures and/or to have barriers constructed for flood risk reduction:

- Property owner shall complete an application for dry flood proofing which must be signed by all owners and lien-holders of the property and structure);
  - Property owner shall submit proof of ownership and a current Elevation Certificate;
  - Site inspection is conducted;
  - Phase I HTRW/Asbestos investigation must be performed concurrently with the verification of application. The property must be certified as “clean” by the appropriate State office before any Project funds may be expended. All asbestos must be abated and disposed of properly. Asbestos impacted by flood proofing is removed at Project cost, while HTRW impacted by flood proofing must be remediated by the property owner prior to the initiation of the flood proofing work;
  - A determination of suitability for dry flood proofing and/or the construction of small barriers for flood risk reduction is made;
- Some form of easement or developmental control agreement shall be required to be executed by the property owner and recorded in the public records of the parish where the property is located to prohibit future alteration of the dry flood proofing measures and/or any barriers constructed to reduce the risk of flooding .
- Each structure that is dry flood proofed must have an approved sanitary disposal system and be in compliance with local and state health codes.
- The structure will be dry flood proofed and/or where appropriate, a berm or floodwall of a height not to exceed 6 feet may be constructed around the structure.
3. Construction of flood proofing barriers or berms less than 6 feet in height around structures, primarily industrial complexes and warehouses. These measures are intended to reduce the frequency of flooding but not eliminate floodplain management and flood insurance requirements. Barriers or berms can be constructed of earth, concrete, masonry or steel and placed around a single structure or a contiguous group of structures. It should be noted that some local governments may have adopted floodplain management rules that exceed the minimum requirements of the NFIP, and may limit the ability of certain flood-proofing measures to be constructed if effects of the flood-proofing measure (i.e., small berms, barriers, or floodwalls) create the potential for drainage problems by displacing flood storage, elevating buildings on fill, requiring significant tree removal, etc.
4. Floodplain Management Plans. The NFS for the SWC Project is required to prepare a Floodplain Management Plan (FPMP) in coordination with USACE to maintain the integrity of the USACE Project. The NFS should use best efforts to work with the governing bodies within the three parishes to ensure consistency with local development plans and regulations across the Study Area. If the FPMP is prepared during the feasibility phase of the study, the costs of preparing the FPMP can be cost-shared on the same basis as the feasibility study. By integrating the FPMP with the feasibility study, both the FPMP and the ultimate project are bettered, and therefore it is recommended that the FPMP be prepared within this Feasibility Study.





5. Adoption of more stringent local floodplain regulations. Floodplain regulation and floodplain management are based in the NFIP which requires minimum standards of floodplain management and floodplain regulation for participating communities. Although communities within the SWC study area cannot change the minimum NFIP standards, local governments can adopt local standards that achieve higher levels of flood risk reduction, such as:
  - Replace elevation requirements based on the 100-year to the 500-year;
  - Implement a zero rise floodway; and
  - Adopt cumulative damages as the trigger for substantial damage determination.
6. Adoption of more restrictive parish and municipal building codes, land use & zoning regulations and other developmental controls. Local governments within the floodplain should be encouraged to stricter building and housing code requirements, and land use and zoning regulations and other developmental controls aimed at reducing flood risk and flood damage. Examples include, restrictions on where new development may occur, minimum elevations for habitable first floors, requiring suitable anchorage to prevent flotation of buildings during floods; establishing minimum protection elevations for the first floors of structures; requiring electrical outlets and mechanical equipment to be above regulatory flood levels or be appropriately flood-proofed; restricting the use of materials that deteriorate when wetted; requiring adequate structural designs that can withstand the effects of water pressure and flood velocities; requiring the repair of flood-damaged structures in a manner that will ensure the safety of occupants and prevent blight.

### **C. Residential Structure Elevation Program.**

Participation in the Residential Non-Structural Program is primarily voluntary in nature. However, for properties that meet certain criteria, eminent domain authority will be utilized for acquisition of the land and structure and demolition of the structure when warranted.

#### **Involuntary Participation.**

Structures that meet criteria established by the Program for involuntary participation must be elevated or acquired; below is the criteria that will be used to determine structure inclusion in the Involuntary Program:

1. The structure is designated a "Severe Repetitive Loss" property in accordance with FEMA criteria (i.e. at least 4 NFIP payouts including building and contents of over \$5,000 each payout with a cumulative payout total of over \$20,000 OR is a residential property for which at least 2 separate claims payments (building only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building). For both of the above, at least 2 of the claims must have occurred within any 10-year period and must be greater than 10 days apart; or
2. The structure is located in a Regulatory Floodway as established by FEMA. A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height; and
3. The structure constitutes a danger to public safety in that the un-remediated condition of the structure poses a substantial and certain risk of harm, death, injury or property damage if the structure ("At-risk Structure") is subjected to the forces, conditions, and risks typically associated with hurricanes and tropical storms and storm surge flooding. A non-exhaustive list of conditions that may warrant the condemnation of an At-risk Structure include: structures located in high hazard and repetitive loss areas, floodways or floodplains that are at significant risk of collapse or actual failure if exposed to the impacts of hurricanes, tropical storms and associated storm surge, flooding, wave action, winds and erosion. At-risk structures may include structures that are in a dilapidated,



unsafe, and uninhabitable condition including but not limited to, structures that have severely cracked, collapsed or unsound foundations; structures with visible damage to or cracking in load bearing and masonry walls; structures with corroded, distressed, or defective steel or wood framings; structures with significant water and/or insect damage; structures with significant roof damage; structures with other structural defects that render it unsuitable for elevation; structures that have substantial damage such that the cost of restoring the structure to its before-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

Some or all of these criteria may be modified or eliminated and additional criteria may be added as the Implementation Plan is finalized. If a property owner owns a structure that is included in the Involuntary Program, he must participate in the program; otherwise, the Non-Federal Sponsor will use its eminent domain authority to acquire the property and relocate the occupant. Landowners and tenants of structures that are identified as Involuntary Program participants may be eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 ([42 U.S.C. 4601](#)), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378. Eminent domain is the power of the government to take private property for public purposes with payment of just compensation. The following steps represent the general process to be followed under the URA when acquiring property under threat of eminent domain:

- Notify owner of the intent to acquire the property and their protections under the URA;
- Appraise the property and invite the property owner to accompany the appraiser;
- Review the appraisal;
- Establish just compensation for the property. Just compensation is derived from the appraisal process. Typically, the approved appraisal's estimate of fair market value is the basis for the amount of just compensation offered for the property to be acquired. Just compensation cannot be less than the approved appraisal's estimate of fair market value of the property being acquired;
- Provide property owner with written offer and summary statement for property to be acquired;
- Negotiate with property owner for the purchase of property;
- If negotiations are successful, complete the sale and reimburse property owner for related incidental expenses;
- If negotiations are unsuccessful, consider an administrative settlement to complete the sale;
- If negotiations are still unsuccessful, acquire the property through the use of eminent domain. Acquisition of properties will be performed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 ([42 U.S.C. 4601](#)), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378;
- The property owner will be relocated outside of the predicted 2075 100-year floodplain;
- The structure will be demolished.

Landowners and tenants of structures that will be acquired through eminent domain are eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 ([42 U.S.C. 4601](#)), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378. A minimum of 90 days written notice to vacate shall be provided prior to requiring possession. Relocation assistance may include but is not limited to, advisory services, differential housing payments (the added cost of renting or purchasing





comparable replacement housing), and reimbursement of costs of moving personal property. Tenant occupants may be eligible for a rental assistance payment to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance payment to purchase a replacement dwelling. Owner occupants may be eligible for a price differential payment, mortgage interest differential payment, or incidental payments to supplement the costs of purchasing a comparable replacement dwelling. Occupants will be relocated outside of the 100-year floodplain and the structure will be demolished.

### **Voluntary Participation.**

Residential structures that are eligible for elevation (and willing property owners) must meet the following eligibility criteria:

1. The property owner is willing to participate in the Nonstructural Program;
2. The structure is a condition suitable for human habitation;
3. The property has clear title;
4. The structure can be elevated to meet the required Base Flood Elevation so that the habitable floors are raised to levels which will protect the residential structures from storm surge flooding to reduce future losses from the likelihood of the 100-Year Flood Event to the extent practicable. However, in no event will a structure be raised greater than 13 ft above the ground level;
5. The structure and/or land is not contaminated with hazardous or toxic waste or materials;
6. The property owner is willing to enter into a Flood Proofing Agreement and execute the Residential Structure Elevation Covenant Running with the Land;
7. Based on a visual assessment, the structure does not have signs of actual or potential significant structural defects, distress, or failure (i.e., no evidence of corrosion of steel framing or concrete; no water or insect damage to wood framing; no framing that is in obvious need of repair or replacement, no settlement, cracking, buckling, or collapse of the foundation; no damage to load bearing or masonry walls; no damage to veneer or siding, no evidence of unrepaired roof leaks, etc.);
8. The property owner does not owe taxes or other debts to any state or local governmental entity or to the Federal government;
9. The property is located in a community/Parish that participates in the National Flood Insurance Program and the property owner has a current Elevation Certificate;
10. The property owner has not previously received any disaster assistance for the elevation of the structure;
11. The structure complies with the building code and floodplain management codes under which the structure was originally permitted;
12. The property owner is willing to expend any costs that *may* be necessary in connection with the elevation of the structure which are not eligible costs that are covered by the Program;
13. There are no special considerations or unique circumstances which prohibit elevation.

Note: Tenants who reside in structures being elevated may be eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 ([42 U.S.C. 4601](#)), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378. Eligible tenants that temporarily relocate would be reimbursed for the cost of temporary alternate housing, meals and incidentals (such as laundry services), and the fees for disconnection and connection of utilities at the temporary residence. Alternate housing could be hotels or apartments, depending upon availability in the community. All temporary housing costs would need to be approved in advance by the Non Federal Sponsor. Hotel costs would be reimbursed based on the General Services Administration per diem rates for Louisiana. Apartment costs would be based on market rents. All temporary housing costs would need to be approved in advance by the Non Federal Sponsor. Hotel costs would be reimbursed based on the General Services Administration per diem rates for Louisiana. Apartment costs would be based on market rents. The URA provides for different replacement



housing payments based on a displaced person's occupancy status and length of occupancy. All conditions of temporary relocation must be reasonable. Temporary relocation should not extend beyond one year before the person is returned to his or her previous unit or location. Any residential tenant who has been temporarily relocated for more than one year must be offered all permanent relocation assistance which may not be reduced by the amount of any temporary relocation assistance previously provided. At a minimum, tenants shall be provided the following: reimbursement for all reasonable out-of-pocket expenses incurred in connection with the temporary relocation, including the cost of moving to and from the temporarily occupied housing and any increase in monthly rent or utility costs at such housing. Appropriate advisory services, including reasonable advance written notice of the following:

- Date and approximate duration of the temporary relocation;
- Address of the suitable decent, safe, and sanitary dwelling to be made available for the temporary period;
- Terms and conditions under which the tenant may lease and occupy a suitable decent, safe and sanitary dwelling in the building/complex upon completion of the project; and
- Provisions of reimbursement for all reasonable out of pocket expenses incurred in connection with the temporary relocation as noted above.
- In addition to relocation advisory services, residential displaced persons may be eligible for other relocation assistance including relocation payments for moving expenses and replacement housing payments for the increased costs of renting or purchasing a comparable replacement dwelling.
- All temporary housing costs must be approved in advance by the NFS.

**D. Residential Structure Elevation Agreement And Residential Structure Elevation Covenant Running With The Land.**

Prior to the commencement of any elevation work and the expenditure of Federal funds, the property owner and NFS must execute an Elevation Agreement and a covenant that runs with the land to ensure that the elevated structure remains at the prescribed elevation and no future alternations are made to the structure that undermines the integrity of the project or violates floodplain management regulations and/or local and state codes. A form of a draft covenant, entitled "Residential Structure Elevation Covenant Running With the Land," is attached hereto as **Exhibit "A"** for consideration.

The Agreement shall be executed by the property owner and the NFS, both of which shall be recorded in the real property records of the Parish in which the property is located. The Agreement shall require the property owner, for himself/herself/themselves and his/her/their heirs and assigns, to covenant, warrant, and agree to forever release, discharge, indemnify, defend, and hold and save harmless USACE and the NFS and their successors and assigns from and against any liability or any claim of any kind or nature whatsoever which might arise out of the work performed on the structure in connection with the Project, and any damages or injuries resulting either directly or indirectly from any elevation work and/or any flooding of the land or of the structure. In addition, the Agreement will authorize right of entry to the property and structure by the NFS and USACE.

The Agreement and the "Residential Structure Elevation Covenant Running With The Land" shall prohibit future alteration or new construction for human habitation on the property at an elevation lower than the predicted 2075 100-year base flood elevation. The Agreement shall contain the following restrictions: (a) upon completion of the elevation work, no part of the structure located below the level of the lowest habitable finished floor will thereafter be converted to living area for human habitation, or otherwise altered in any manner which would impede the movement of waters beneath the structure; (b) the area below the predicted 2075 100-year Base Flood Elevation shall be used solely for the parking of vehicles, limited storage, or access to the structure and will never be used for human habitation; (c) that mechanical, electrical or plumbing devices shall not be installed below the Base Flood Elevation. These restrictions must be



specifically included in every deed and instrument that is executed subsequent to the Agreement that conveys or purports to convey title to or any interest in the land or structures thereon. The Agreement will be prepared during PED and will be submitted to CEMVD and CEHQ for review and approval.

**E. Residential Structure Elevation Process, Generally**

Within the Project area, each residential structure that is located within the 0-25-year floodplain will be considered for eligibility in the elevation Program. At a minimum, eligible structures owned by willing participants shall be raised so that the lowest habitable finished floor is at or above the 100-year Base Flood Elevation predicted to occur in 2075. All utilities and mechanical equipment, such as air conditioners and hot water heaters, must also be raised to at or above this elevation. Property owners may choose to raise the structure, utilities and/or mechanical equipment in excess of the predicted 2075 100-year Base Flood Elevation; however costs attributable to elevation in excess of the minimum requirements set forth herein are not eligible for reimbursement. All elevations shall be considered “development in the floodplain” and will require a local permit prior to any onsite construction. Failure to obtain a local permit may result in a violation against the local floodplain ordinance and the NFIP. The elevated structure must comply with the locally adopted floodplain ordinances; the local government is responsible for ensuring the structure is compliant with the NFIP. Only the costs of elevation and foundation retrofitting are eligible for reimbursement. No funds will be provided to restore, replace or repair the structure. No additions to the habitable spaces of the structure will be eligible for reimbursement. Detailed guidance on foundation construction can be found in FEMA 550, “*Recommended Residential Construction for the Gulf Coast: Building on Strong and Safe Foundations*”.

The Program cost share of any individual residential structure that is raised in the implementation of the Program will depend not only upon the costs associated with the elevation of that particular residential structure, but also upon the total costs of elevating other similar eligible residential structures in the implementation of the Program.

**F. Residential Structure Elevation; Selecting a Contractor (One Method of Implementation).**

Property owners shall be responsible for obtaining a minimum of three itemized bids for the elevation work from qualified contractors. The elevation work shall be performed by a state of Louisiana licensed, registered, insured, and bonded contractor that meets minimum contractor qualification requirements established by USACE and the NFS. Eligible costs shall be clearly identified and refer to specific tasks identified in the Agreement. The property owner shall submit all bids to the NFS for review and approval. A minimum of three responsive bids that conform with the requirements of the Program must be approved by the NFS before the NFS can issue a Notice to Proceed to the property owner. An Independent Government Estimate will be prepared while the property owner is accepting bids. The Notice to Proceed issued by the NFS shall identify the maximum approved elevation cost, subject to the availability of: (a) Federal funds; and (b) the submission by the property owner of elevation work cost documentation as is required by the NFS. If the lowest bid is less than the maximum approved elevation cost, then the maximum approved elevation cost shall be reduced to match the lowest bid. The NFS shall give written notice to the property owner of the maximum amount of funds available for reimbursement to the property owner under the Program. Within thirty (30) days after the NFS issues a Notice to Proceed, the property owner shall enter into a written contract with any contractor whose bid was approved by the NFS. The property owner shall have the sole responsibility for evaluating whether a contractor is capable and possesses the necessary skills, expertise, insurance and resources necessary to perform the elevation work within budget and on time. The property owner shall have the sole responsibility for selecting and managing the contractor. In the event of a dispute between the property owner and the contractor, the property owner and the contractor shall be responsible for resolution, and neither the NFS nor USACE shall have any responsibility or obligation in the resolution process or outcome.

**G. Residential Structure Elevation; Expenses Eligible for Reimbursement.**

Structure elevation work that is eligible for reimbursement shall include actual costs (itemized costs for each task), including but not necessarily limited to: design costs, costs of obtaining all required permits (i.e., zoning or land use approvals; environmental permits or required certifications; historic preservation approvals; and building permits), and costs of title searches, surveys, appraisal fees, Louisiana state sales tax, and costs for the following tasks:

- a. raising the structure;
- b. raising the roof and extending the walls of a side structure attached to the main structure (i.e., garage);
- c. raising mechanical equipment (i.e., air conditioner, furnace, water heater, electrical panel, fuel storage, valves, or meters);
- d. connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- e. meeting access requirements of applicable building codes (i.e., stairs with landings, guardrails);
- f. creating large vent openings in the foundation and walls to meet requirements for flood water entry and exit;
- g. completing an Elevation Certificate to verify the as-built relationship between the lowest habitable finished floor and the Base Flood Elevation;
- h. only trees which restrict the demolition and reconstruction work on any structure may be removed;
- i. relocation assistance funds for displaced tenants are available to cover some expenses incurred during the actual raising of the structure for a period of no more than 90 days;
- j. debris removal (all demolition debris (hazardous and non-hazardous) shall be removed and taken to an approved landfill);
- k. site grading and site restoration;
- l. temporary site protection measures such as temporary construction fencing.

**Ineligible Costs**

The costs associated with the following tasks are ineligible for reimbursement:

- a. any work not strictly necessary for the safe completion of the structure elevation;
- b. any repair of existing deficiencies, including structural and system deficiencies;
- c. modifications or improvements to a septic system except for extension of lines from the raised structure to the existing system;
- d. cost for elevation of more than one foot above Base Flood Elevation;
- e. modifications to structures that are not attached to the structure;
- f. modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- g. modifications to decks and patios except for modifications that are expressly required by building codes (i.e., stairways and landing modifications);
- h. in the event the structure elevation is not completed, any costs for design, permits or any other eligible tasks are ineligible and will not be reimbursed. If any such costs have been previously reimbursed or paid, the owner will be responsible for repaying such costs.
- i. environmental site remediation costs are not eligible;
- j. costs to bring a non-conforming structure into compliance with current building code, housing code and/or other applicable codes;
- k. costs associated with special access improvements such as elevators, lifts, ramps, etc.; and
- l. maintenance costs.

**H. Residential Structure Elevation; Inspections (One Method of Implementation).**



The property owner shall be responsible for ensuring compliance with all permits, rules, regulations, approvals, codes, laws, and floodplain management standards. The property owner shall permit inspections of the elevation work by the NFS, its contractors, assigns and representatives during and upon completion of the elevation work, and/or at any time during the elevation work's progress to ensure that the elevation work is acceptable to the NFS and has been satisfactorily performed to comply with the Project Residential Structure Elevation Guidelines, Plans, and Specifications and the Project's design, construction, and risk reduction criteria prior to any payments being made. When the structure is raised-in-place, a safety inspection of the underside of the house must be performed to help prevent injuries from falling debris. The inspector will observe the excavation and pouring of the footings to verify that proper dimensions and depth as well as installation of reinforcing steel and concrete are installed in compliance with the Project Residential Structure Elevation Guidelines, Plans, and Specifications. Periodic inspections will continue through the remainder of the work to verify that proper materials and techniques are being utilized according to standard construction practices.

A Certificate of Occupancy must be issued by a qualified building official to certify that the construction was properly completed. When the elevation work is completed, all structures must be covered by flood insurance in an amount at least equal to the Project cost or to the maximum limit of coverage made available with respect to the property, whichever is less. Upon completion of the elevation, the property owner must provide a National Flood Insurance Program Elevation Certificate prepared by a professional land surveyor and verifying that the structure has been elevated to the required elevation and any elevation certificates showing the elevation level before the structure was elevated. The property owner must provide proof of current flood insurance.

#### **I. Residential Structure Elevation; Various Methods of Implementing the Program.**

The nonstructural Program could be implemented in a number of ways:

##### *Clustering*

If numerous property owners in a contiguous neighborhood or subdivision agree to participate, that particular area could be targeted for priority in implementation (Figure 4). A focus on clustered properties can create a ranking hierarchy of which properties to address first. This approach would rank efficiency as the main factor in determining which eligible properties should be prioritized.

##### *Risk-Level*

Willing property owners may not exist in clusters. In such case, an alternative option is to focus on the willing property owners that exhibit the highest risk for flood damages. For example, if 1,000 property owners apply to participate in the Program, the owners who reside in the 0-5-year floodplain would be prioritized for construction. Once these properties are removed from the floodplain or flood proofed, the next highest-risk properties (6-10-year floodplain) would be targeted. This approach would rank risk exposure as the main factor in determining which eligible properties should be prioritized.

##### *First-Come, First-Served*

This approach would involve creating a list of eligible property owners and ranking them by how quickly their applications are processed. This approach would help ensure that resources would be used effectively by focusing on properties that have owner support to be flood proofed or elevated.

#### **J. Examples of Nonstructural Measure Implementation.**

The following graphics (Figures 1-4) depict examples of properties that could qualify for Nonstructural measures.



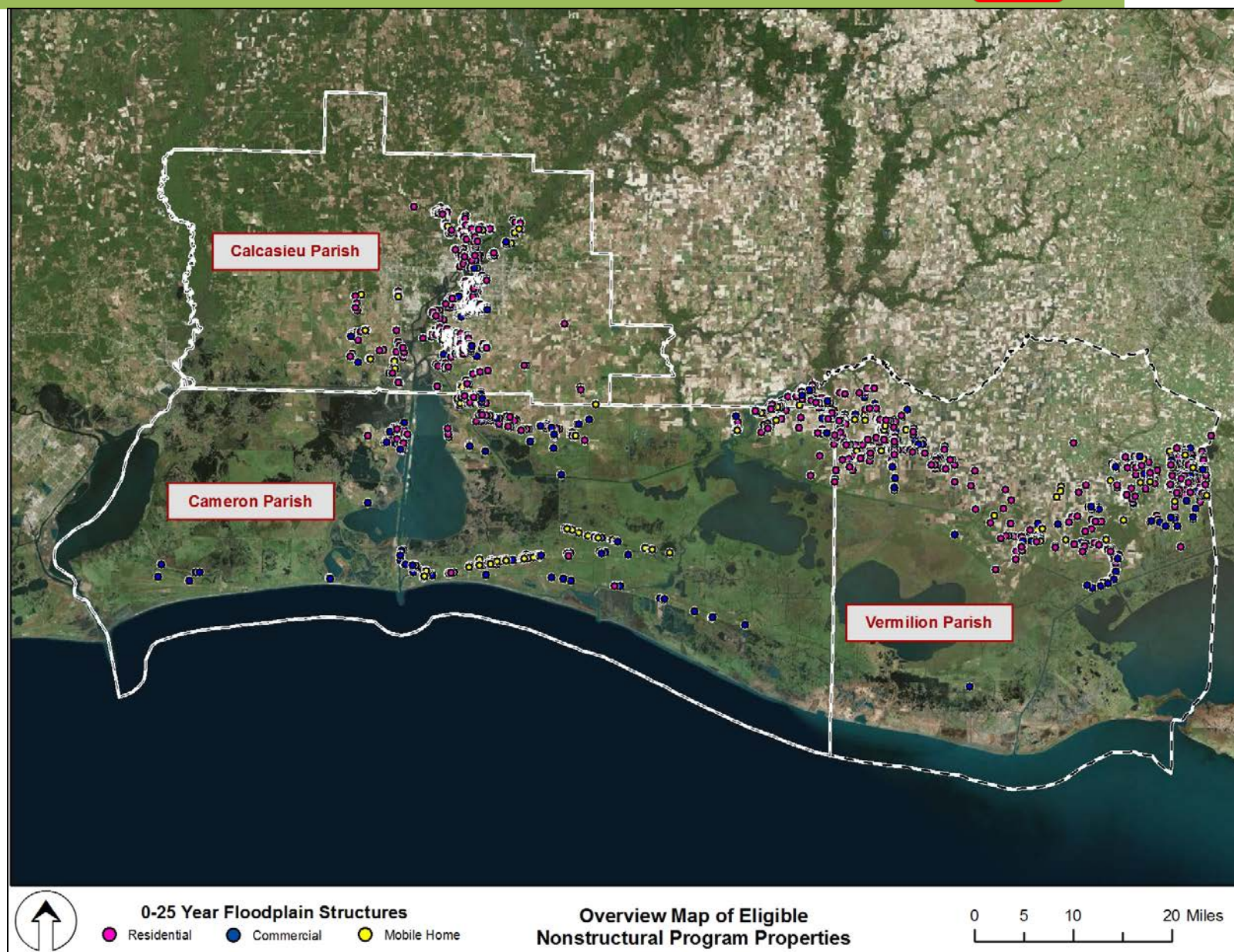


Figure 1: Overview map of the 4,952 structures eligible for participation in the Nonstructural Program in the SWC Study Area.





Figure 2: Aerial view of residential properties eligible for elevation to the 2075 100-year floodplain (11.4' first floor elevation for property in red box). The red box and directional arrow depict the street view direction in Figure 2B.





Figure 3: Aerial view of residential properties eligible for elevation to the 2075 100-year floodplain (7.08' first floor elevation for property in red box). The red box and directional arrow depict the street view direction in Figure 3B.





Figure 4: Aerial view of residential properties eligible for elevation to the 2075 100-year floodplain (varying first floor elevations for properties in red box). The red box and directional arrow depict the street view direction in Figure 4B.

**EXHIBIT "A"****RESIDENTIAL STRUCTURE ELEVATION  
COVENANT RUNNING WITH THE LAND**

**WHEREAS**, the United States of America, acting through the U. S. Army USACE of Engineers, and The Coastal Protection and Restoration Authority Board of Louisiana ("CPRAB"), have each provided a cost share toward the Southwest Coastal Project ("Project"); and

**WHEREAS**, a Structure ("Structure") located at \_\_\_\_\_ is eligible for raising-in-place in the implementation of the Project; and

**FOR AND IN CONSIDERATION** of the benefits derived from participation in the voluntary Structure Elevation Program ("Program"), which has been implemented as part of the Project, I/(We) (first name) \_\_\_\_\_ (last name) \_\_\_\_\_, the Owner(s) of said Structure(s), do hereby promise and covenant that on completion of the raising-in-place of the Structure, no part of the raised Structure located above the level of the lowest habitable finished floor will thereafter be converted to living area for human habitation, or otherwise altered in any manner which would impeded the movement of water beneath the Structure.

The Structure identified above is located on the Property described in a deed from \_\_\_\_\_ to \_\_\_\_\_ dated \_\_\_\_\_ and identified with recording numbers \_\_\_\_\_ in the records of \_\_\_\_\_ Parish, Louisiana.

This Property has received Federal hazard mitigation assistance. Federal law requires that insurance coverage on this property must be maintained during the life of the property regardless of transfer of ownership of the Property. Pursuant to 42 U.S.C. 5154a, failure to maintain flood insurance on this Property may prohibit the Owner(s), and his/her/their successors and assigns, from receiving Federal disaster assistance with respect to this Property in the event of a flood disaster. The Owner(s) is required to maintain this Property in accordance with the flood plain management criteria of Title 44 of the Code of Federal Regulations Part 60.3 and City/Parish Ordinance.

The promise and covenant herein shall run with the land and shall be binding on our heirs, successors, and assigns. I/(We) furthermore agree not to file a claim against \_\_\_\_\_ for contents stored beneath the lowest habitable finished floor of the Structure that maybe damaged by floodwaters or to file claims for damages to the area beneath the lowest habitable finished floor of the Structure.

WITNESS OUR HANDS, this \_\_\_\_ day of \_\_\_\_ 20\_\_.

(Printed) Owner's Name: \_\_\_\_\_

(Printed) Owner's Name: \_\_\_\_\_



STATE OF LOUISIANA

PARISH OF \_\_\_\_\_

Personally appeared before me a Notary Public in and for the State and Parish above mentioned, \_\_\_\_\_, \_\_\_\_\_, the within named Owner(s), with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence) and who acknowledged that they executed the foregoing instrument for the purposes stated herein.

SUBSCRIBED AND SWORN to before me this \_\_\_\_ day of \_\_\_\_, 20\_\_.

Printed Name: \_\_\_\_\_

Notary Public in and for the state of Louisiana

My commission expires: