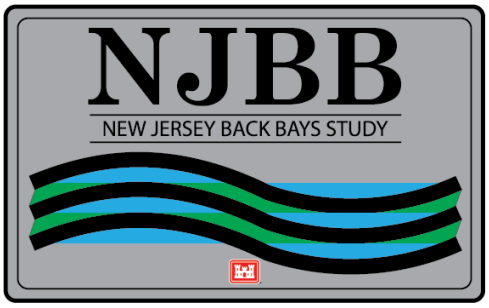
NONSTRUCTURAL APPENDIX

NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY

PHILADELPHIA, PENNSYLVANIA

APPENDIX D

August 2021



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D-1) NONSTRUCTURAL FLOOD PROOFING METHODS

Non-Structural measures fall into four groups: Acquisition / Relocation, Building Retrofit (flood proofing, elevations, ring levees), Enhanced Flood Warnings (evacuation planning, emergency response systems), and Land Use Management (zoning, undeveloped land preservation).

Acquisition / Relocation

Acquisition and Relocation remove the structure from the floodplain. Acquisition is the outright purchasing of a structure and zoning the property as open space. The home and utilities are removed from the property.

Relocation involves moving a structure to a location that is less prone to flooding or flood-related hazards such as erosion. The structure may be relocated to another portion of the current site or to a different site. The surest way to eliminate the risk of flood damage is to relocate the structure out of the floodplain.

Relocation is an appropriate measure in high hazard areas where continued occupancy is unsafe or owners want to be free from flood worries. It is also a viable option in communities that are considering using the resulting open space for more appropriate floodplain activities. Relocation may offer an alternative to elevation for substantially damaged structures that are required under local regulations to meet NFIP requirements.

Figure 1: Structure placed on a wheeled vehicle for relocation to a new site

Relocation of a structure requires steps that typically increase the cost of implementing this retrofitting method compared to elevation. These additional costs include moving the structure to its new location, purchase and preparation of a new site to receive the structure (with utilities), construction of a new foundation, and restoration of the old site. Most types and sizes of structures can be relocated either as a unit or in segments. One-story wood-frame houses are usually the easiest to move, particularly if they are located over a crawlspace or basement that provides easy access to floor joists. Smaller, lighter wood-frame structures may also be lifted with ordinary house-moving equipment and often can be moved without partitioning. Homes constructed of brick, concrete, or masonry are also movable, but usually with more difficulty and increased costs.

Structural relocation professionals should help owners to consider many factors in the decision to relocate. The structural soundness should be thoroughly checked and arrangements should be made for temporary housing and storage of belongings. Many States and communities have requirements governing the movement of structures in public rights-of-way.

Table 1: Advantages and Disadvantages of Acquisition/Relocation

Advantages	Disadvantages
Allows substantially damaged or improved structure to be brought into compliance with the NFIP	May be cost-prohibitive

Significantly reduces flood risk to the structure and its contents	A new site must be located
Uses established techniques	Requires addressing disposition of the flood-prone site
Can be initiated quickly because qualified contractors are often readily available	May require additional costs to bring the structure up to current building codes for plumbing, electrical, and energy systems
Can eliminate the need to purchase flood insurance or reduce the premium because the home is no longer in the floodplain	
Reduces the physical, financial, and emotional strains that accompany flood events	

NFIP = National Flood Insurance Program

Building Retrofit

Appropriately applied retrofitting measures have several advantages over other damage reduction methods. Individual owners can undertake retrofitting projects without waiting for government action to construct flood control projects. Retrofitting may also provide protection in areas where large structural projects, such as dams or major waterway improvements, are not feasible, warranted, or appropriate. Some general considerations when implementing a retrofitting strategy include:

- Substantial damage or improvement requirements under the NFIP, local building codes, and floodplain management ordinances render some retrofitting measures illegal.
- Codes, ordinances, and regulations for other restrictions, such as setbacks and wetlands, should be observed.
- Retrofitted structures should not be used nor occupied during conditions of flooding.
- Most retrofitting measures should be designed and constructed by experienced professionals (engineers, architects, or contractors) to ensure proper consideration of all factors influencing effectiveness.
- Most retrofitting measures cannot be installed and forgotten. Maintenance must be performed on a scheduled basis to ensure that the retrofitting measures adequately protect the structure over time.
- Floods may exceed the level of protection provided in retrofitting measures. In addition to implementing these protective measures, owners should consider continuing (and may be required to purchase) flood insurance. In some cases, owners may be required by lending institutions to continue flood insurance coverage.
- When human intervention is most often needed for successful flood protection, a plan of action must be in place and an awareness of flood conditions is required.

Figure 2. Elevation of existing residence on extended foundation walls

Elevation

Elevating a structure to prevent floodwaters from reaching damageable portions is an effective retrofitting technique. The structure is raised so that the lowest floor is at or above the Design Flood Elevation (DFE) to avoid damage from a base flood.

While elevation may provide increased protection of a structure from floodwaters, other hazards must be considered before implementing this strategy. Elevated structures may encounter additional wind forces on wall and roof systems, and the existing footings may experience additional loading. Extended and open foundations (piers, posts, columns, and piles) are also subject to undermining, movement, and impact failures caused by seismic activity, erosion, scour, ice or debris flows, mudslides, and alluvial fan forces, among others.

Table 2. Advantages and Disadvantages of Elevation

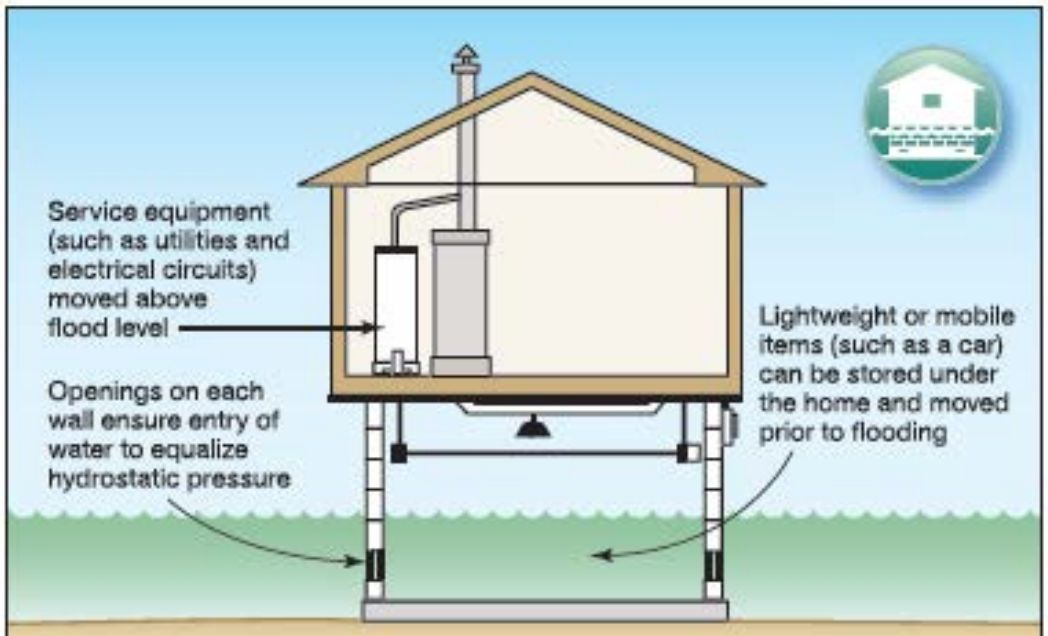
Advantages	Disadvantages
Brings a substantially damaged or improved building into compliance with the NFIP if the lowest horizontal structural member of the lowest floor is elevated to the BFE	May be cost-prohibitive
Reduces flood risk to the structure and its contents	May adversely affect the structure's appearance

Eliminates the need to relocate vulnerable items above the flood level during flooding	Does not eliminate the need to evacuate during floods
Often reduces flood insurance premiums	May adversely affect access to the structure
Uses established techniques	Cannot be used in areas with high-velocity water flow, fast-moving ice or debris flow, or erosion unless special measures are taken
Can be initiated quickly because qualified contractors are often readily available	May require additional costs to bring the structure up to current building codes for plumbing, electrical, and energy systems
Reduces the physical, financial, and emotional strains that accompany flood events	Requires consideration of forces from wind and seismic hazards and possible changes to building design
Does not require the additional land that may be needed for floodwalls or levees	

NFIP = National Flood Insurance Program BFE = Base Flood Elevation

Solid Perimeter Foundation Walls

- ✓ low to moderate water depth and velocity
- ✓ Deep floodwaters can generate loads great enough to collapse the structure regardless of the materials used. Constructing solid foundation walls with openings or vents will help alleviate the danger by allowing hydrostatic forces to be equalized on both sides.

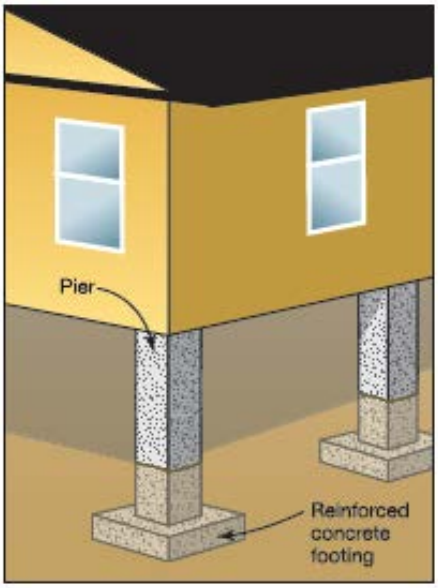


Elevation on Open Foundation Systems

Open foundation systems are vertical structural members that support the structure at key points without the support of a continuous foundation wall. Open foundation systems include piers, posts, columns, and piles.

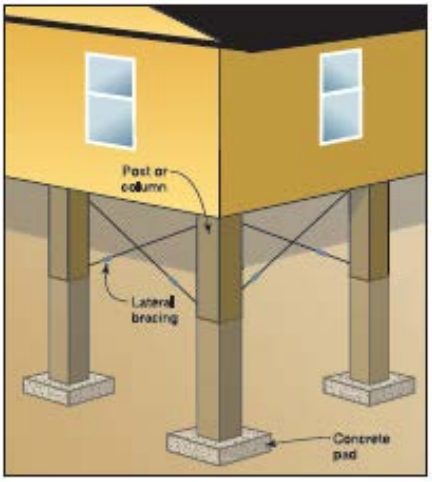
Elevation on Piers (concrete)

- ✓ Vertical structure members supported by a reinforced concrete footing
- ✓ piers are often the elevation technique least suited for withstanding significant horizontal flood forces
- ✓ Piers are generally used in shallow depth flooding conditions with low-velocity ice, debris, and water flow potential



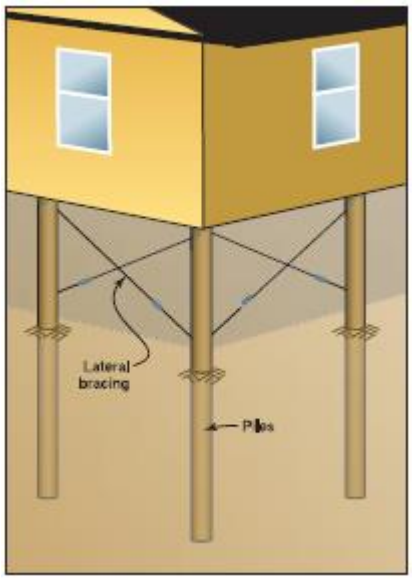
Elevation on Posts or Column

- ✓ wood, steel, or precast reinforced concrete
- ✓ moderate depths and velocities
- ✓ posts must be braced
- ✓ posts are smaller than columns



Elevation on Piles

- ✓ driven, jetted, or set (augured)
- ✓ less susceptible to the effects of high-velocity floodwaters, scouring, and debris impact
- ✓ rest on bedrock or be driven deep enough to create enough friction



Dry Flood Proofing

In dry flood proofing, the portion of a structure that is below the DFE (walls and other exterior components) is sealed to make it watertight and substantially impermeable to floodwaters. Such watertight impervious membrane sealant systems can include wall coatings, waterproofing compounds, impermeable sheeting and, supplemental impermeable wall systems, such as cast-in-place concrete. Doors, windows, sewer and water lines, and vents are closed with permanent or removable shields or valves.

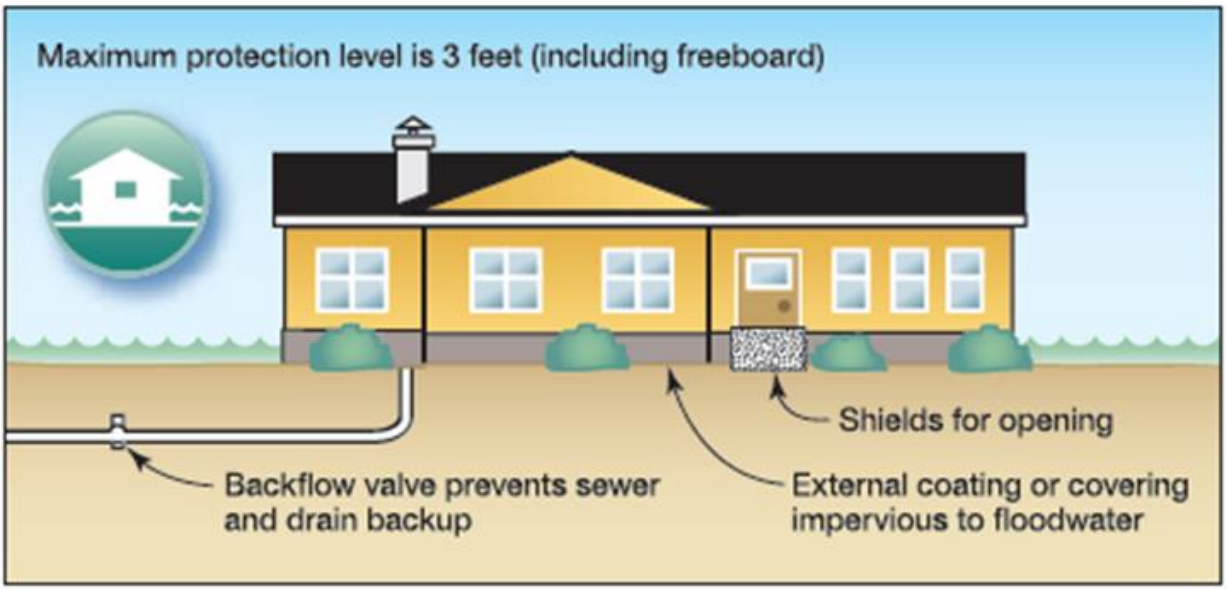


Figure 3. Dry Flood Proofed Structure

The expected duration of flooding is critical when deciding which sealant systems to use because seepage can increase over time, rendering the flood proofing ineffective. Waterproofing compounds, sheeting, or sheathing may fail or deteriorate if exposed to floodwaters for extended periods. Sealant systems are also subject to damage (puncture) in areas that experience water flow of significant velocity, or ice or debris flow. The USACE National Flood Proofing Committee has investigated the effect of various depths of water on masonry walls. The results of their work show that, as a general rule, no more than 3 feet of water should be allowed on a non-reinforced concrete block wall that has not previously been designed and constructed to withstand flood loads. Therefore, application of sealants and shields should involve a determination of the structural soundness of a building and its corresponding ability to resist flood and flood-related loads. An engineer should be involved in any design of dry flood proofing mitigation systems so that they can evaluate the building and run calculations to determine the appropriate height of dry flood proofing.

Dry flood proofing is also not recommended for structures with a basement. These types of structures can be susceptible to significant lateral and uplift (buoyancy) forces. Dry flood proofing may not be appropriate for a wood-frame superstructure; however, in some instances, buildings constructed of concrete block or faced with brick veneer may be considered for dry flood proofing

retrofits. Weaker construction materials, such as wood-frame superstructure with siding, will often fail at much lower water depths from hydrostatic forces.

Table 3. Advantages and Disadvantages of Dry Flood Proofing

Advantages	Disadvantages
Reduces the flood risk to the structure and contents if the design flood level is not exceeded	Does not satisfy the NFIP requirement for bringing substantially damaged or improved residential structures into compliance
May be less costly than other retrofitting measures	Requires ongoing maintenance
Does not require the extra land that may be needed for floodwalls or reduced levees	Does not reduce flood insurance premiums for residential structures
Reduces the physical, financial, and emotional strains that accompany flood events	Usually requires human intervention and adequate warning time for installation of protective measures
Retains the structure in its present environment and may avoid significant changes in appearance	May not provide protection if measures fail or the flood event exceeds the design parameters of the measure
	May result in more damage than flooding if design loads are exceeded, walls collapse, floors buckle, or the building floats
	Does not eliminate the need to evacuate during floods
	May adversely affect the appearance of the building if shields are not aesthetically pleasing
	May not reduce damage to the exterior of the building and other property
	May lead to damage of the building and its contents if the sealant system leaks

NFIP = National Flood Insurance Program

Wet Flood Proofing

Another approach to retrofitting involves modifying a structure to allow floodwaters to enter it in such a way that damage to the structure and its contents is minimized. This type of protection is classified as wet flood proofing.

Wet flood proofing is often used when all other mitigation techniques are technically infeasible or are too costly. Wet flood proofing is generally appropriate if a structure has available space where damageable items can be stored temporarily. Utilities and furnaces may need to be relocated or protected along with other non-movable items with flood damage-resistant building materials. Wet

flood proofing may also be appropriate for structures with basements and crawlspaces that cannot be protected technically or cost-effectively by other retrofitting measures.

Compared with the more extensive flood protection measures described in this manual, wet flood proofing is generally the least expensive. The major costs of this measure involve the rearrangement of utility systems, installation of flood damage-resistant materials, acquisition of labor and equipment to move items, and organization of cleanup when floodwaters recede. Major disruptions to structure occupancy often result during conditions of flooding.

Table 4. Advantages and Disadvantages of Wet Flood Proofing

Advantages	Disadvantages
Reduces the risk of flood damage to a building and its contents, even with minor mitigation	Does not satisfy the NFIP requirement for bringing substantially damaged or improved structures into compliance
Greatly reduces loads on walls and floors due to equalized hydrostatic pressure	Usually requires a flood warning to prepare the building and contents for flooding
May be eligible for flood insurance coverage of cost of relocating or storing contents, except basement contents, after a flood warning is issued	Requires human intervention to evacuate contents from the flood-prone area
Costs less than other measures	Results in a structure that is wet on the inside and possibly contaminated by sewage, chemicals, and other materials borne by floodwaters and may require extensive cleanup
Does not require extra land	Does not eliminate the need to evacuate during floods
Reduces the physical, financial, and emotional strains that accompany flood events	May make the structure uninhabitable for some period after flooding
	Limits the use of the floodable area
	May require ongoing maintenance
	May require additional costs to bring the structure up to current building codes for plumbing, electrical, and energy systems
	Requires care when pumping out basements to avoid foundation wall collapse

NFIP = National Flood Insurance Program

Coastal Storm Plans and Preparedness

Hazard Mitigation Plans: Hazard mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. It is most effective when implemented under a comprehensive,

long-term mitigation plan. State, tribal, and local governments engage in hazard mitigation planning to identify risks and vulnerabilities associated with natural disasters, and develop long-term strategies for protecting people and property from future hazard events. The State of New Jersey and all five counties in the study area have FEMA-approved hazard mitigation plans.

Emergency and Evacuation Plans: Emergency and evacuation planning is imperative for areas with limited access, such as barrier islands, high density housing areas, elderly population centers, cultural resources, and areas with limited transportation options. When a coastal storm threatens many of the communities in the study area, the limited number of bridges and causeways that connect the islands with the mainland become overcrowded, making evacuations from the barrier islands to the mainland difficult. Timely evacuation depends on well-defined emergency evacuation plans used in conjunction with accurate flood forecasting.

The State of New Jersey Office of Emergency Management completed a hurricane evacuation study in 2007 with the support of the USACE and FEMA that provides the State of New Jersey with updated local and regional hurricane evacuation clearance times. The State also developed a hurricane survival guide and coastal evacuation maps. Prior to an emergency local, county or State emergency management officials notify neighborhoods of the need to evacuate or take other protective actions prior to the arrival of a storm event. This done via Emergency Alert System messages on local radio and TV. They may also alert entire areas via community notification systems such as “Reverse 911,” which sends messages to home telephones.

Early Flood Warning Systems: A critical component of successful emergency and evacuation plans are early flood warning systems. Despite improved tracking and forecasting techniques, the uncertainty associated with the size of a storm, the path, or its duration necessitate that warnings be issued as early as possible.

The National Hurricane Center and National Weather Service are responsible for preparing hurricane and nor’easter forecasts and warnings respectively. Both agencies are able to predict storm surge in real-time and asses potential storm surge flooding while the track of the storm is still changing. A limiting factor in the accuracy of early forecasts are predictions of storm track and intensity.

In addition to NHC and NWS storm surge forecasts, the New Jersey Tide Telemetry System (NJTTS) is able to report observed tidal elevations and weather data at 20 tide gages, 5 tide/weather stations, and 31 tidal crest-stage gages in 13 New Jersey counties. The tide level at each of the tide gages is automatically transmitted by NOAA and to specific critical decision-making centers. Additional work needs to be accomplished with Early Flood Warning Systems so local flood risk managers understand the severity of each event as it relates to their location based on the surge forecast and the regional topography. Descriptions such as “high”, “medium” and “low” risks for flooding, without definitions of what that means for local residents are not meaningful. Without two critical pieces of information, surge level compared to topography, a flood warning system may not communicate the specific level of risk to that community. More standardized systems, based on surge prediction networks, and local topography, and standardized elevation data can help local municipalities understand the risk for each surge event.

Public Education and Risk Communication: Hazard mitigation plans, emergency and evacuation plans, and early flood warning systems are of little value without communicating risk to local officials, community leaders, and decision-makers who are responsible for land use, evacuation planning, and implementation of mitigation measures. Public acceptability of coastal storm risk management measures, the difficulty individuals and communities have in understanding their own risk, and a lack of community engagement about coastal storm risk management options have all been cited as barriers to implementing good coastal management strategies.

Communities and residents often struggle navigating the complicated network of Federal, State, and local coastal programs. Hurricane Sandy generated huge public interest and awareness in flood risk management; however, it also led to several new initiatives and programs that may make communities feel overwhelmed and calloused to flood risk management opportunities.

Zoning Changes

Effective local floodplain management could potentially reduce the risk of flood peril even before the next storm event occurs. Communities at risk of flood peril have the regulatory authority to address local land use, zoning, and building codes to avoid siting development in floodplains. Communities participating in the NFIP must incorporate flood resistant construction standards into building codes. Local ordinances have been established in in some municipalities to reduce impervious surfaces such as driveways and parking areas, promote uniform bulkhead elevations, and require buildings to have an additional 2-3 feet of freeboard above the FEMA Base Flood Elevation (BFE).

An interagency task force could help municipalities incorporate climate change and sea level change in their planning, zoning, and adaptation plans.

National Flood Insurance Program Refinement

Increase homeowner participation: Residents that are uncertain about reducing risk to their belongings may be prone to attempt to remain in vulnerable areas during storm events, creating further risk. Knowing that personal property is insured, residents may be more comfortable with evacuating vulnerable areas at the approach of a storm. Flood insurance rates and regulations directly and indirectly impact property owners' decisions to reduce risk to their property though favorable construction practices.

Increase municipal participation in Community Rating System (CRS): Community participation in the National Flood Insurance Program (NFIP) is conditional on meeting program guidelines. Participating communities must manage development within their floodplains in accordance with FEMA standards or risk removal from the program, which risks cancellation of all flood insurance policies within the community. Under the CRS, flood insurance premium rates are discounted to reward community actions that meet the three goals of the CRS, which are: (1) reduce flood damage to insurable property; (2) strengthen and support the insurance aspects of the NFIP; and (3) encourage a comprehensive approach to floodplain management. Participation in the CRS helps strengthen and enforce floodplain management policies.

Voucher system to assist lower income groups: One way to increase participation in the NFIP is a voucher system to provide assistance to lower income groups. Rising insurance rates and expanded flood plains have a greater burden on low income groups who may not be able to afford the increasing premiums associated with the Biggert-Waters Flood Insurance Reform Act.

D-2) NONSTRUCTURAL IMPLEMENTATION PLAN

Definitions

Term	Definition
1% Annual Chance of Exceedance Floodplain	The 1% ACE also known as the 100-Year Floodplain is defined as having up to a 1% chance of being exceeded in any given year.
5% Annual Chance of Exceedance Floodplain	The 5% ACE also known as the 20-Year Floodplain is defined as having up to a 5% chance of being exceeded in any given year.
Base Flood	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".
Base Flood Elevation (BFE)	The computed elevation to which floodwater is anticipated to rise during the base flood. The BFE is shown on community's Flood Insurance Rate Map (FIRM).
Dry Flood Proofing	Dry flood proofing makes the structure watertight below the level for which hurricane storm surge risk reduction is provided by preventing flood waters that derive from storm surge from entering the structure. Dry flood proofing may include one or more of the following methods: using waterproof membranes or sealants to reduce seepage of floodwater through walls and wall penetrations; use of watertight shields for doors and windows; and/or installing measures to prevent sewer backup.
Economically Justified	The cost to elevate the structure does not exceed the total monetary cost of the hurricane storm surge damages that are anticipated to be avoided over the 50-year period of analysis.
Eligible structures	Structures that are determined by the United States Army Corps of Engineers (USACE) to be eligible for flood proofing after the completion of the investigations and analyses as described herein.
Floodplain	A floodplain is an area of land adjacent to a coast, stream, or river that experiences flooding during periods of elevated water surface elevations due to storms or high discharge.
Flood Proofing	Any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce the risk of hurricane storm surge damage to improved real property, water and sanitary facilities, structures and their contents.

Historic Structure	As defined in 44 CFR Part 59, means any structure that is (1) listed individually in the National Register of Historic Places (maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (2) certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; (3) individually listed on a state inventory of historic places with historic preservation programs which have been approved by the Secretary of the Interior; and (4) individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either by (a) an approved state program as determined by the Secretary of the Interior or; (b) directly by the Secretary of the Interior in states without approved programs.
Hazardous, Toxic, or Radioactive Waste (HTRW)	HTRW means hazardous, toxic and radioactive waste as more specifically defined in Engineer Regulation (ER) 1165-2-132, “Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects”.
Main Floor Elevation	Also known as the Lowest Flood Elevation or First Flood Elevation. Define here. The bottom of the lowest horizontal structural member of a building.
Non-Federal Sponsor (NFS)	The NFS is the cost-sharing partner for the study, design, construction of the project, as well as for the Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) of the project.
Nonstructural Measures	Nonstructural Measures are permanent or contingent measures applied to a structure and/or its contents that reduces the risk of damages that could result from hurricane storm surge. Nonstructural measures differ from Structural measures (i.e., levees, floodwalls, etc.) in that they focus on reducing the consequences of damages from hurricane storm surge instead of focusing on reducing the probability of damages from hurricane storm surge.
Target Design Elevation	The elevation in which the structures first floor would be elevated above. (NAVD88)
Target Flood Elevation	The flood elevation in which the structures with a first flood elevation at or below would be eligible for nonstructural measures. (NAVD88)

Wet Floodproofing	Wet floodproofing is a design method that allows water to move in the enclosed parts of a home's lower area, such as the crawlspace or an unoccupied area, and then out when water recedes.

Introduction

This Nonstructural Implementation Plan describes the general process for the implementation of nonstructural measures, as described in this Report, designed to reduce the risk of damages caused by hurricane and storm surge in the study area. The primary goal of the Recommended Plan (RP) is to reduce the risk of damage from hurricane storm surge through the implementation of nonstructural measures as standalone features as well as in combination with structural and natural and nature based features of the Recommended Plan.

1. Leveraging National Assets for Success

The Philadelphia District recognizes that there are unique challenges related to implementing a relatively large nonstructural plan. Because of this, the District has proactively leveraged national experts in the planning, design, and construction of nonstructural measures. Within the enterprise, these groups include the National Nonstructural Flood Proofing Committee, Coastal Storm Risk Management Center of Expertise, and the Silver Jackets program, as well as other teams that are currently working to implement similar projects including Southwest Coastal Louisiana Study (SWL) and Fire Island Inlet to Montauk Point (FIMP). The District created the New

Jersey Nonstructural Working Group to further coordination with Federal Agencies including the Federal Emergency Management Agency (FEMA), New York District (NAN), and North Atlantic Division (NAD). State agencies provided valuable information through the working group venue including The Governor's Office of Recovery and Rebuilding (GORR) created in response to Superstorm Sandy, New Jersey Department of Environmental Protection (NJDEP), New Jersey Association for Floodplain Management (NJAFM), New Jersey Office of Emergency Management (NJOEM), New Jersey Department of Community Affairs (NJDCA). The District places a priority on continuing this coordination throughout PED and construction, and sharing lessons learned with USACE teams.

2. The Recommended Nonstructural Plan

The Recommended Nonstructural Plan consists of the following measures:

1. Elevation of eligible structures.
2. Flood proofing of eligible structures.
3. Acquisition of eligible structures.
4. Fill the basement of eligible structures.
5. Relocation of eligible structures.

The Recommended Plan consists of implementing nonstructural measures for a number of structures (determined during design) that lie within the economically justified target flood elevation.

Per USACE Planning Bulletin (PB) 2016-01 “Clarification of Existing Policy for USACE Participation in Nonstructural Flood Risk Management and Coastal Storm Damage Reduction Measures” (December 22, 2015), the structure elevations and flood proofing will be implemented on a voluntary basis. Property owners may choose to participate in the plan. In contrast, there is a requirement for mandatory implementation of the structure acquisitions. The NFS is aware of the requirement for it to use eminent domain if necessary, in order to acquire the properties.

The specific nonstructural measures to be implemented at each property will be reviewed and refined in the Pre-construction Engineering and Design (PED) phase to ensure that the proposed measures, and the applicable population is appropriately identified. Property owners located in the project area will be informed of the details of implementation of the Recommended Plan, including eligibility criteria, the eligibility process, and the related duties and obligations of USACE, the NFS, and the property owner. Based upon present information, the anticipated duties and obligations are generally outlined below; however, some of this information may be modified as the Nonstructural Implementation Plan is finalized as part of PED. While each individual eligible structure will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

If the structure owner does not want to participate in the Project, USACE and the NFS would defer any further action on that structure until such time as the structure owner elects to participate or until the period of construction ends. However, the Government reserves, at its sole discretion, the right to determine whether a structure may participate in the Recommended Plan after a structure owner has declined participation and if allowed to participate, the timing and scheduling of such participation in the Project.

Each of the nonstructural measures has the potential to cause adverse effects to historic properties. The historic analysis will be determined during PED. The Programmatic Agreement executed for the project identifies the process by which USACE will determine which of the participating buildings and structures are historic properties (see Appendix X of the project’s Environmental Impact Statement). The investigations, coordination, and consultation required by the Programmatic Agreement and any resulting mitigation will be conducted after participating buildings and structures are identified but before any of the nonstructural measures identified below are carried out.

The scale of the Project is highly dependent upon the participation rate and the amount of funding allocated in any given year.

Elevation of Eligible Structures

Owners of eligible structures may participate in having their structure elevated to the target elevation. If the required elevation were greater than 12 ft. above ground level, the structure would not be eligible for elevation and would be ineligible to participate due to engineering and risk related factors.

1. Determining Eligibility: 2 Step Eligibility Process

Step 1 - Preliminary eligibility: Structures that meet the following eligibility criteria will have met this first step in the eligibility process and will be eligible for further consideration in the process.

- The structure must have a FFE at or below the 5% Annual Chance of Exceedance flood elevation, based on hydrologic conditions predicted to occur in 2080 (the end of the 50-year period of analysis); and
- Elevation of the structure is deemed to be economically justified.

At the time of this Report, a structure inventory has been compiled which identifies the structures in the Study Area that, based on present information, have been deemed to be preliminarily eligible to participate in the Project. These structures will require additional structure-specific analysis during PED to determine final eligibility.

Step 2 - Eligibility Determination – Investigations: The following is a general overview of Step 2 in the eligibility process for those structures meeting the Step 1 eligibility requirements. Additional details concerning the process, what makes up the eligibility criteria, and related requirements will be developed during PED and provided prior to Project implementation.

- Once preliminary eligibility is determined, residential property owners will be asked to grant a temporary right-of-entry to USACE and the NFS to enter upon the property to conduct such property and structural investigations deemed necessary to determine final eligibility for participation in the Project. These investigations may include structural inspections, surveys, limited environmental testing and site assessments, verifying current elevation and determining elevation requirements, and conducting such other activities deemed necessary by USACE and the NFS to make a final determination of eligibility. A property owner may elect not to participate at any time prior to execution of an agreement for the performance of the nonstructural measure upon the property. Refusal to grant temporary right-of-entry will constitute the election not to participate.

- The property owner shall submit satisfactory documentation as deemed necessary by USACE (to be detailed during the design phase) which may include, but will not be limited to:
    - Proof of Ownership deemed necessary by USACE (including but not limited to a legal description of the property, deed, or a tax assessor's receipt) to identify the names of all of the owners of the property, and provide information regarding the names and addresses of all third party interest holders and any holders of a lien or encumbrance against the property.
    - In instances involving the representation of a person or persons whose signature is required for any document, subordination, or release which may be required to be executed for the Project, either through a trust, agency, succession, partnership, business, or corporation or any other form of representation under law or contract, documentation will be provided along with the title evidence that documents the identity, powers, and authorities of the person or persons authorized to act on behalf of the required signatory.
- The NFS shall conduct title research to confirm the property has clear title; and appraisals that may be necessary.
- An ASTM Phase I Environmental Site Assessment (ESA) and asbestos investigation will be conducted to confirm the absence of HTRW and damaged or friable asbestos or asbestos-containing materials, and, if warranted, additional HTRW investigations and a Phase II ESA will be conducted at the property. If the presence of HTRW, asbestos, or asbestos-containing materials in a damaged or friable form is confirmed on the property, the property owner shall be obligated, at his sole cost and expense, to conduct all necessary response and remedial activities in full compliance with applicable local, state, and federal laws and regulations and provide proof of same before the property can be deemed to have met the eligibility requirements;
- The structure will be evaluated by USACE to ensure that all of the following eligibility requirements are satisfied:
    - The structure can be elevated to meet the required BFE. However, in no event will a structure be raised greater than 12 ft. above the ground level;
    - Based on a visual assessment, the structure is in a condition that is suitable for elevation without the need for repair or rehabilitation as determined by a professional registered structural engineer. Any repair or rehabilitation necessary to achieve that condition will be at the sole cost and expense of the property owner (see "Eligible and Ineligible Improvement Costs" below);

- Implementation of nonstructural measures will not impact threatened or endangered species;
- Implementing nonstructural measures on the property does not require fill in the waters of the United States and would not result in any impact to wetlands; and
- The property has not previously received any disaster assistance for the elevation of the structure.

2. Execution /Recordation of Agreement

An agreement shall be executed between the Nonfederal Sponsor and the property owners. The agreement will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that it will include provisions such as those discussed below. The agreement will obligate the property owner to expend any and all costs that may be necessary in connection with the elevation of the structure which are not deemed “eligible costs” (as described below); the agreement releases and holds USACE and the NFS harmless for any and all loss, cost, damage, or expense arising out of any claims, including third party claims that arise directly or indirectly from any Project-related activity. The agreement will include provisions that would prohibit both the conversion of any part of the structure located below the lowest habitable finished floor for purposes of human habitation, the alteration of the structure in any way that would impede the movement of flood waters under the structure and would prohibit the construction of any new habitable structures on the property that do not meet the requirements of the project. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the county in which the property is located prior to commencement of the nonstructural improvements on the property.

The agreement will contain restrictive covenants that run with the land in perpetuity. Among other rights, the agreement will include the right for the NFS and the Government to inspect the property during structure elevation. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

3. Commencement of Nonstructural Improvements

Following eligibility determination, the historic property survey required by the project Programmatic Agreement, and receipt of proof of recordation of the required documentation, elevation of the structure will be commenced. The entire foundation of the structure will be lifted and placed on a new foundation (i.e., columns, piers, posted or

raised foundation walls) so that the lowest habitable finished floor is at or above the target design elevation. All utilities and mechanical equipment, including air conditioners and hot water heaters, will also be raised to the required elevation. Property owners may choose to raise the structure, utilities, and/or mechanical equipment in excess of the target design elevation; however costs attributable to elevations in excess of the minimum requirements set forth herein are not deemed eligible costs (described below) and would be performed at the sole cost, risk, and expense of the property owner.

4. Notice of Construction Complete (NCC).

Upon completion of the improvements, an inspection will be performed by USACE and upon final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual elevation project will be closed out as complete.

5. Eligible and Ineligible Project Costs.

Eligible Project Costs: All elevations will require local permits prior to any onsite construction. Only the costs of elevation and foundation retrofitting are eligible costs. No Federal funds will be used to restore, replace, or repair the structure. No additions to the habitable spaces of the structure will be permitted in the performance of the elevation work.

Elements of structure elevation work that are deemed to be potentially eligible project costs include: historic property investigations, including mitigation in accordance with the project Programmatic Agreement, 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), except as identified to be an ineligible item of project cost; costs of title searches (in review of title information submitted by the property owner), surveys, and costs for the following tasks:

- elevating the structure;
- raising the roof and extending the walls of a side structure attached to the main structure (i.e., garage);
- raising mechanical equipment (i.e., air conditioner, furnace, water heater, electrical panel, fuel storage, valves, or meters);
- connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- meeting access requirements of applicable building codes (i.e., stairs with landings, guardrails);
- creating large vent openings in the foundation and walls to meet requirements for flood water entry and exit;
- in instances where special access improvements (i.e., elevators, lifts, ramps, etc.) may be required (i.e., in the case of physically handicapped or elderly homeowners or occupants)

special handicapped access can be considered an eligible improvement cost when documented by the medical certificate of a licensed physician. Multiple special access points may also be eligible for funding where necessary to meet state or local building code compliance;

- removal of any trees which restrict the elevation of a structure;
- site grading and site restoration including restoring landscaping to its preconstruction condition;
- for historic structures that are listed or eligible for listing on the National Register of Historic Places, costs associated with maintaining the historic designation as determined by the New Jersey State Historic Preservation Office (including such costs so as to preserve the historic façade and character of the building whether through exterior structural modifications, landscaping, lighting, paint, disguising and/or blending of the nonstructural measure with the building, etc.);
- temporary site protection measures during site work; and
- allowable relocation assistance funds for displaced tenants 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. Relocation assistance for tenants may include, among other things, advisory services, differential housing payments, and reimbursement of costs of moving personal property, rental assistance to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance to purchase a replacement dwelling. (See Appendix E, Real Estate Plan for more detailed information.) Note that a structure is ineligible for nonstructural measures if it would require elevation over 12 ft. above ground level due to engineering and risk related factors. Landowners whose properties are voluntarily elevated will not be eligible for benefits in accordance with URA; however, tenants of these structures may be eligible for these benefits.

Ineligible Project Costs: The costs that exceed that which is necessary to safely elevate and or flood-proof an eligible structure are deemed ineligible costs and any such costs remain the sole responsibility of the property owner. These costs may include, among others, costs associated with:

- any structural and system repair due to existing deficiencies;
- modifications or improvements to a septic system except for extension of lines from the raised structure to the existing system;
- cost for elevation above the identified target flood elevation;
- modifications to structures that are not attached to the eligible structure;
- modifications to tubs, pools, spas, hot tubs, and related structures or accessories;

- modifications to decks and patios not connected to or immediately adjacent to the structure except for modifications that are expressly required by building codes (i.e., stairways and landing modifications);
- the proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, asbestos, and asbestos-containing materials in damaged or friable form;
- costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes;
- costs associated with special access improvements (i.e., elevators, lifts, ramps, etc.) that are not deemed eligible; and
- improvements to structures not considered the primary residence (i.e., detached garage, shed and/or barns).

6. Target Design Elevation

The target design elevation is the final height of structures to be elevated. The Hurricane Sandy Rebuilding Task Force (TF) required that all Hurricane Sandy-related rebuilding projects funded by P.L. 113-2 must meet a single uniform flood risk reduction standard (FRRS) of one foot above the best available and most recent BFE) information provided by FEMA. The base flood is an event that has a one percent chance of occurrence in any given year (commonly known as a 100-year flood). The FRRS takes into account the increased risk to the region from extreme weather events, sea level rise and other impacts of climate change; is informed by the best science and best practices, including assessments taken following Hurricane Sandy; and brings the Federal standard into alignment with many state and local standards already in place. Where Federal, state and local standards exceed this standard, Federal agencies will be guided by the higher standard. The FRRS applies to USACE vertical infrastructure and nonstructural flood proofing projects located in the Sandy recovery area as described by the guidelines presented in Engineering and Construction Bulletin (ECB) 2013-33 “Application of Flood Risk Reduction Standard for Sandy Rebuilding Projects” (December 17, 2015). New Jersey State Building Codes require that all new or retrofitted construction in flood prone areas have a target design elevation of one feet above the BFE. The target design elevation of all structure elevations is thus one foot above the BFE.

Flood Proofing

Dry flood proofing consists of sealing all areas from the ground level up to approximately 3 feet of a structure to reduce the risk of damage from storm surge resulting from coastal storms of a certain magnitude, as described in this report, by making walls, doors, windows and other openings resistant to penetration by storm surge waters. 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.

Wet flood proofing as a standalone measure is when all construction materials that will be below target design elevation are made water resistant materials and all utilities are elevated above the design flood elevation. Wet flood proofing is applicable to large commercial and industrial structures when combined with flood warning and flood preparedness plans.

Some common flood proofing measures include:

- Backflow valves;
- Closures on doors, windows, stairwells, and vents--they may be temporary or permanent;
- Rearranging or protecting damageable property--e.g., relocate or raise utilities;
- Sump pumps and sub-drains; and
- Water resistant material; metal windows, doors and jambs; waterproof adhesives; sealants and floor drains.

While each eligible structures will be evaluated for the most cost effective nonstructural Measure, the government reserves the right to determine which measure shall be Implemented at each structure location.

1. Determining Eligibility: 2 Step Eligibility Process

The process of determining eligibility would be substantially similar to the process followed above in connection with the elevation of structures. Identification of further eligibility criteria and details concerning the process will be developed during PED and provided prior to project implementation. Eligible property owners, who request application of the flood proofing measures to their structures must provide temporary right-of-entry, undergo similar site and structural assessments, present the requisite documentation, and undergo a structure-specific analysis performed during the design phase that is substantially similar to that which is described above in connection with the elevation of residential structures.

Step 1 - Preliminary eligibility: Structures that meet the following eligibility criteria will have met this first step in the eligibility process and will be eligible for further consideration in the process.

- The residential structure must have a FFE at or below the 20-year BFE, based on hydrologic conditions predicted to occur in 2030 (the beginning of the 50-year period of analysis); and
- The maximum flood dry floodproofing is recommended to protect is 3 ft.
- Dry or wet flood proofing of the structure is deemed to be economically justified.

At the time of this Report, a structure inventory has been compiled which identifies the structures in the Study Area that, based on present information, have been deemed to be preliminarily eligible to participate in the Project. These structures will require additional structure-specific analysis during PED to determine final eligibility.

Step 2 - Eligibility Determination – Investigations: The following is a general overview of Step 2 in the eligibility process for those structures meeting the Step 1 eligibility requirements. Additional details concerning the process, what makes up the eligibility criteria, and related requirements will be developed during PED and provided prior to Project implementation.

- Once preliminary eligibility is determined, residential property owners will be asked to grant a temporary right-of-entry to USACE and the NFS to enter upon the property to conduct such property and structural investigations deemed necessary to determine final eligibility for participation in the Project. These investigations may include, structural inspections, surveys, limited environmental testing and site assessments, verifying current elevation and determining elevation requirements, and conducting such other activities deemed necessary by USACE and the NFS to make a final determination of eligibility. A property owner may elect not to participate at any time prior to execution of an agreement for the performance of the nonstructural measure upon the property. Refusal to grant temporary right-of-entry will constitute the election not to participate.
- The property owner shall submit satisfactory documentation as deemed necessary by USACE (to be detailed during the design phase) which may include, but will not be limited to:
    - Proof of Ownership deemed necessary by USACE (including but not limited to a legal description of the property, deed, or a tax assessor's receipt) to identify the names of all of the owners of the property, and provide information regarding the names and addresses of all third party interest holders and any holders of a lien or encumbrance against the property.
    - In instances involving the representation of a person or persons whose signature is required for any document, subordination, or release which may be required to be executed for the Project, either through a trust, agency, succession, partnership, business, or corporation or any other form of representation under law or contract, documentation will be provided along with the title evidence that documents the identity, powers, and authorities of the person or persons authorized to act on behalf of the required signatory.
- The NFS shall conduct title research to confirm the property has clear title; and appraisals that may be necessary.
- An ASTM Phase I Environmental Site Assessment (ESA) and asbestos investigation will be conducted to confirm the absence of HTRW and damaged or friable asbestos or asbestos-containing materials, and, if warranted, additional HTRW investigations and a Phase II ESA will be conducted at the property. If the presence of HTRW, asbestos, or asbestos-containing materials in a damaged or friable form is confirmed on the property, the property owner shall be obligated, at his sole cost and expense, to conduct all necessary response and remedial activities in full compliance with applicable local, state, and federal laws and regulations and provide proof of same before the property can be deemed to have met the eligibility requirements;
- The structure will be evaluated by USACE to ensure that all of the following eligibility requirements are satisfied:
- The structure can be safely flood proofed to meet the required BFE.

- Based on a visual assessment, the structure is in a condition that is suitable for flood proofing without the need for repair or rehabilitation as determined by a professional registered structural engineer. Any repair or rehabilitation necessary to achieve that condition will be at the sole cost and expense of the property owner (see “Eligible and Ineligible Improvement Costs” below);
- Implementation of nonstructural measures will not impact threatened or endangered species; and
- Implementing nonstructural measures on the property does not require fill in the waters of the United States and would not result in any impact to wetlands

2. Execution /Recordation of Agreement

An agreement shall be executed between the NFS and the property owners. The agreement will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that it will include provisions such as those discussed below. The agreement will obligate the property owner to expend any and all costs that may be necessary in connection with the flood proofing of the structure which are not deemed “eligible costs” (as described below); the agreement releases and holds USACE and the NFS harmless for any and all loss, cost, damage, or expense arising out of any claims, including third party claims that arise directly or indirectly from any Project-related activity. The agreement will ensure a hazard mitigation plan is in place for the structure in order for the flood proofing methods to be used correctly. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

The agreement will contain restrictive covenants that run with the land in perpetuity. Among other rights, the agreement will include the right for the NFS and the Government to inspect the property during structure elevation. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

3. Commencement of Nonstructural Improvements.

Following eligibility determination, the historic property survey required by the project Programmatic Agreement, and receipt of proof of recordation of the required documentation, a scope of work will be developed and the property owner will be required to execute an agreement in favor of the NFS. The agreement will be accompanied by the requisite curative documents, including, but not limited to any subordinations or releases of interest from third party interest owners, and holders of any liens or encumbrances against the property. The agreement and supporting curative instruments, subordinations, and releases will be filed in the records of the Clerk of Court in the county where the property is located and will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that the developed agreement may include provisions such as those discussed below. Each structure that

is flood proofed must have an approved sanitary disposal system and be in compliance with local and state health and building codes. The owners of the structure must agree to hold the Government and the NFS harmless for the flood proofing work to be performed on the structure and must allow both entities the right to inspect the properties during flood proofing. Additionally, the agreement will include provisions that would prohibit the conversion or modification of any part of the structure in a manner that would damage or impair the flood proofing work performed on the structure by the project and prohibit the construction of any new structure on the property or modification to the existing structure that is not flood proofed in accordance with the project coastal storm risk management objectives and requirements. After the agreement and associated curative documents are recorded in the public records of the Clerk of Court of the county in which the property is located, and the historic property investigations are completed in accordance with the Project Programmatic Agreement, the flood proofing work will be commenced, completed, inspected by USACE, and after final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

4. Notice of Construction Complete (NCC).

Upon completion of the improvements, an inspection will be performed by USACE and upon final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

5. Eligible and Ineligible Project Costs.

Eligible Project Costs: All flood proofing will require local permits prior to any onsite construction. Only the costs of flood proofing and foundation retrofitting are eligible costs. No Federal funds will be used to restore, replace, or repair the structure. No additions to the habitable spaces of the structure will be permitted in the performance of the flood proofing work.

Elements of structure flood proofing work that are deemed to be potentially eligible project costs include: 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), except as identified to be an ineligible item of project cost; costs of title searches (in review of title information submitted by the property owner), surveys, and costs for the following tasks:

- flood proofing the structure;
- raising mechanical equipment (i.e., air conditioner, furnace, water heater, electrical panel, fuel storage, valves, or meters);
- connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- meeting access requirements of applicable building codes (i.e., stairs with landings, guardrails);
- creating large vent openings in the foundation and walls to meet requirements for flood water entry and exit;

- in instances where special access improvements (i.e., elevators, lifts, ramps, etc.) may be required (i.e., in the case of physically handicapped or elderly homeowners or occupants) special handicapped access can be considered an eligible improvement cost when documented by the medical certificate of a licensed physician. Multiple special access points may also be eligible for funding where necessary to meet state or local building code compliance;
- site grading and site restoration including restoring landscaping to its preconstruction condition;
- for historic structures that are listed or eligible for listing on the National Register of Historic Places, costs associated with maintaining the historic designation as determined by the New Jersey State Historic Preservation Office (including such costs so as to preserve the historic façade and character of the building whether through exterior structural modifications, landscaping, lighting, paint, disguising and/or blending of the nonstructural measure with the building, etc.);
- temporary site protection measures during site work; and
- allowable relocation assistance funds for displaced tenants 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. Relocation assistance for tenants may include, among other things, advisory services, differential housing payments, and reimbursement of costs of moving personal property, rental assistance to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance to purchase a replacement dwelling. (See Appendix E, Real Estate Plan for more detailed information.) Note that a structure is ineligible for nonstructural measures if it would require elevation over 12 ft above ground level due to engineering and risk related factors. Landowners whose properties are voluntarily elevated will not be eligible for benefits in accordance with URA; however, tenants of these structures may be eligible for these benefits.

Ineligible Project Costs: The costs that exceed that which is necessary to safely flood proof an eligible structure are deemed ineligible costs and any such costs remain the sole responsibility of the property owner. These costs may include, among others, costs associated with:

- any structural and system repair due to existing deficiencies;
- modifications or improvements to a septic system except
- cost for flood proofing above the target design elevation;
- modifications to structures that are not attached to the eligible structure;
- modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- modifications to decks and patios not connected to or immediately adjacent to the structure except for modifications that are expressly required by building codes (i.e., stairways and landing modifications);

- the proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, asbestos, and asbestos-containing materials in damaged or friable form;
- costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes;
- costs associated with special access improvements (i.e., elevators, lifts, ramps, etc.) that are not deemed eligible; and
- improvements to structures not considered the primary residence (i.e., detached garage, shed and/or barns).

6. Design Heights

Deigns of floodproofing measures is based on the individual structures conditions. General guildlines for plan formulation consider dry floodproofing 3ft above the ground surface.

Buyout or Acquire Eligible Structure

This nonstructural measure consists of acquiring the at-risk structure and land that the structure sat upon. The land where the structure had been originally located is purchased, becoming deed restricted in order to prevent development from occurring in the future, and becomes available for open land management as stipulated by the NFIP.

While each eligible structures will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

1. Determining Eligibility: Two Step Eligibility Process

The process of determining eligibility would be substantially similar to the process followed above in connection with other flood proofing methods. Identification of eligibility criteria and details concerning the process will be developed during PED and provided prior to project implementation. Eligible property owners, who request application of the flood proofing measures to their structures must provide temporary right-of-entry, undergo similar site and structural assessments, present the requisite documentation, and undergo a structure-specific analysis performed during the design phase that is substantially similar to that which is described above in connection with the elevation of residential structures.

At the time of this Report, a structure inventory has been compiled which identifies the structures in the Study Area that, based on present information, have been deemed to be preliminarily eligible to participate in the Project. These structures will require additional structure-specific analysis during PED to determine final eligibility.

2. Execution /Recordation of Agreement

An agreement shall be executed between the NFS and the property owners. The agreement will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that it will include provisions such as those discussed below. The agreement will obligate the property owner to expend any and all costs that may be necessary in connection with the flood proofing of the structure which are not deemed “eligible costs” (as described below); the agreement releases and holds USACE and the NFS harmless for any and all loss, cost, damage, or expense arising out of any claims, including third party claims that arise directly or indirectly from any Project-related activity. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

The agreement will contain restrictive covenants that run with the land in perpetuity. Among other rights, the agreement will include the right for the NFS and the Government to inspect the property during structure elevation. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

3. Commencement of Improvements and NCC

If a determination is made that a structure is qualified for acquisition, a scope of work will be developed and the property owner will be required to execute an agreement in favor of the NFS. The agreement will be accompanied by the requisite curative documents, including, but not limited to any subordinations or releases of interest from third party interest owners, and holders of any liens or encumbrances against the property. The agreement and supporting curative instruments, subordinations and releases will be filed in the records of the Clerk of Court in the county where the property is located and will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that the developed agreement may include provisions such as those discussed below. The owners of the structure must agree to hold the Government and the NFS harmless for the flood proofing work to be performed on the structure and must allow both entities the right to inspect the properties during flood proofing. After the agreement and associated curative documents are recorded in the public records of the Clerk of Court of the county in which the property is located, and the historic property investigations are completed in accordance with the Project Programmatic Agreement, the aquisition will be commenced, completed, inspected by USACE, and after final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

4. Notice of Construction Complete (NCC).

Upon completion of the improvements, an inspection will be performed by USACE and upon final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

5. Eligible and Ineligible Project Costs

Eligible Project Costs: Acquisition will require local permits prior to any onsite construction. Only the costs acquisition and converting the land to open space are eligible. No Federal funds will be used to restore, replace, or repair the structure.

Elements of structure acquisition that are deemed to be potentially eligible project costs include: 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), except as identified to be an ineligible item of project cost; costs of title searches (in review of title information submitted by the property owner), surveys, and costs for the following tasks:

- acquiring the structure;
- connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- temporary site protection measures during site work; and
- allowable relocation assistance funds for displaced tenants 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. Relocation assistance for tenants may include, among other things, advisory services, differential housing payments, and reimbursement of costs of moving personal property, rental assistance to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance to purchase a replacement dwelling. (See Appendix E, Real Estate Plan for more detailed information.) Note that a structure is ineligible for nonstructural measures if it would require elevation over 12 ft above ground level due to engineering and risk related factors. Landowners whose properties are voluntarily elevated will not be eligible for benefits in accordance with URA; however, tenants of these structures may be eligible for these benefits.

Ineligible Project Costs: The costs that exceed that which is necessary to acquire an eligible structure are deemed ineligible costs and any such costs remain the sole responsibility of the property owner. These costs may include, among others, costs associated with:

- the proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, asbestos, and asbestos-containing materials in damaged or friable form;

Basement Fill of Eligible Structures

This nonstructural measure consists of filling the basement of the at-risk structure. Basement fill cannot be completed as a stand alone feature but can be in combination with elevation or floodproofing.

While each eligible structures will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

1. Determining Eligibility: Two Step Eligibility Process

The process of determining eligibility would be substantially similar to the process followed above in connection with the other flood proofing methods. Identification of eligibility criteria and details concerning the process will be developed during PED and provided prior to project implementation. Eligible property owners, who request application of the flood proofing measures to their structures must provide temporary right-of-entry, undergo similar site and structural assessments, present the requisite documentation, and undergo a structure-specific analysis performed during the design phase that is substantially similar to that which is described above in connection with the basement fill of the structures.

At the time of this Report, a structure inventory has been compiled which identifies the structures in the Study Area that, based on present information, have been deemed to be preliminarily eligible to participate in the Project. These structures will require additional structure-specific analysis during PED to determine final eligibility.

2. Execution /Recordation of Agreement

An agreement shall be executed between the NFS and the property owners. The agreement will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that it will include provisions such as those discussed below. The agreement will obligate the property owner to expend any and all costs that may be necessary in connection with the basement filling of the structure which are not deemed “eligible costs” (as described below); the agreement releases and holds USACE and the NFS harmless for any and all loss, cost, damage, or expense arising out of any claims, including third party claims that arise directly or indirectly from any Project-related activity. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

The agreement will contain restrictive covenants that run with the land in perpetuity. Among other rights, the agreement will include the right for the NFS and the Government to inspect the property during structure elevation. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

3. Commencement of Improvements and NCC

If a determination is made that a structure is qualified for basement fill, a scope of work will be developed and the property owner will be required to execute an agreement in favor of the NFS. The agreement will be accompanied by the requisite curative documents, including, but not limited to any subordinations or releases of interest from third party interest owners, and holders of any liens or encumbrances against the property. The agreement and supporting curative instruments, subordinations and releases will be filed in the records of the Clerk of Court in the county where the property is located and will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that the developed agreement may include provisions such as those discussed below. Each structure that is flood proofed must have an approved sanitary disposal system and be in compliance with local and state health and building codes. The owners of the structure must agree to hold the Government and the NFS harmless for the basement fill work to be performed on the structure and must allow both entities the right to inspect the properties during flood proofing.

Additionally, the agreement will include provisions that would prohibit the conversion or modification of any part of the structure in a manner that would damage or impair the flood proofing work performed on the structure by the project and prohibit the construction of any new structure on the property or modification to the existing structure that is not flood proofed in accordance with the project coastal storm risk management objectives and requirements. After the agreement and associated curative documents are recorded in the public records of the Clerk of Court of the county in which the property is located, and the historic property investigations are completed in accordance with the Project Programmatic Agreement, the flood proofing work will be commenced, completed, inspected by USACE, and after final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

4. Notice of Construction Complete (NCC).

Upon completion of the improvements, an inspection will be performed by USACE and upon final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

5. Eligible and Ineligible Project Costs.

Eligible Project Costs: All basement fill will require local permits prior to any onsite construction. Only the costs of basement fill and foundation retrofitting are eligible costs. No Federal funds will be used to restore, replace, or repair the structure. No additions to the habitable spaces of the structure will be permitted in the performance of the flood proofing work.

Elements of structure basement fill work that are deemed to be potentially eligible project costs include: 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), except as identified to be an ineligible item of project cost; costs of title searches (in review of title information submitted by the property owner), surveys, and costs for the following tasks:

- Filling the basement of the structure;
- raising mechanical equipment (i.e., air conditioner, furnace, water heater, electrical panel, fuel storage, valves, or meters);
- connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- meeting access requirements of applicable building codes (i.e., stairs with landings, guardrails);
- creating large vent openings in the foundation and walls to meet requirements for flood water entry and exit;
- in instances where special access improvements (i.e., elevators, lifts, ramps, etc.) may be required (i.e., in the case of physically handicapped or elderly homeowners or occupants) special handicapped access can be considered an eligible improvement cost when documented by the medical certificate of a licensed physician. Multiple special access points may also be eligible for funding where necessary to meet state or local building code compliance;
- site grading and site restoration including restoring landscaping to its preconstruction condition;
- for historic structures that are listed or eligible for listing on the National Register of Historic Places, costs associated with maintaining the historic designation as determined by the New Jersey State Historic Preservation Office (including such costs so as to preserve the historic façade and character of the building whether through exterior structural modifications, landscaping, lighting, paint, disguising and/or blending of the nonstructural measure with the building, etc.);
- temporary site protection measures during site work; and
- allowable relocation assistance funds for displaced tenants 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. Relocation assistance for tenants may include, among other things, advisory services, differential housing payments, and reimbursement of costs of moving personal property, rental assistance to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance to purchase a replacement dwelling. (See Appendix E, Real Estate Plan for more detailed information.) Note that a structure is ineligible for nonstructural measures if it would require elevation over 12 ft above ground level due to engineering and risk related factors. Landowners whose properties are voluntarily elevated will not be eligible for benefits in accordance with URA; however, tenants of these structures may be eligible for these benefits.

Ineligible Project Costs: The costs that exceed that which is necessary to safely flood proof an eligible structure are deemed ineligible costs and any such costs remain the sole responsibility of the property owner. These costs may include, among others, costs associated with:

- any structural and system repair due to existing deficiencies;
- modifications or improvements to a septic system except
- modifications to structures that are not attached to the eligible structure;
- modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- modifications to decks and patios not connected to or immediately adjacent to the structure except for modifications that are expressly required by building codes (i.e., stairways and landing modifications);
- the proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, asbestos, and asbestos-containing materials in damaged or friable form;
- costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes;
- costs associated with special access improvements (i.e., elevators, lifts, ramps, etc.) that are not deemed eligible; and
- improvements to structures not considered the primary residence (i.e., detached garage, shed and/or barns).

Relocation of Eligible Structures

This nonstructural measure consists of removing the at-risk structure and relocating the structure on a new foundation. The land where the structure had been originally located is purchased, becoming deed restricted in order to prevent development from occurring in the future, and becomes available for open land management as stipulated by the NFIP.

While each eligible structures will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

1. Determining Eligibility: Two Step Eligibility Process

The process of determining eligibility would be substantially similar to the process followed above in connection with the other flood proofing methods. Identification of eligibility criteria and details concerning the process will be developed during PED and provided prior to project implementation. Eligible property owners, who request application of the flood proofing measures to their structures must provide temporary right-of-entry, undergo similar site and structural assessments, present the requisite documentation, and undergo a structure-specific analysis performed during the design phase that is substantially similar to that which is described above in connection with the relocation of the structures.

At the time of this Report, a structure inventory has been compiled which identifies the structures in the Study Area that, based on present information, have been deemed to be preliminarily eligible to participate in the Project. These structures will require additional structure-specific analysis during PED to determine final eligibility.

2. Execution /Recordation of Agreement

An agreement shall be executed between the NFS and the property owners. The agreement will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that it will include provisions such as those discussed below. The agreement will obligate the property owner to expend any and all costs that may be necessary in connection with the basement filling of the structure which are not deemed “eligible costs” (as described below); the agreement releases and holds USACE and the NFS harmless for any and all loss, cost, damage, or expense arising out of any claims, including third party claims that arise directly or indirectly from any Project-related activity. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

The agreement will contain restrictive covenants that run with the land in perpetuity. Among other rights, the agreement will include the right for the NFS and the Government to inspect the property during structure elevation. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the local municipality in which the property is located prior to commencement of the nonstructural improvements on the property.

3. Commencement of Improvements and NCC

If a determination is made that a structure is qualified for relocation, a scope of work will be developed and the property owner will be required to execute an agreement in favor of the NFS. The agreement will be accompanied by the requisite curative documents, including, but not limited to any subordinations or releases of interest from third party interest owners, and holders of any liens or encumbrances against the property. The agreement and supporting curative instruments, subordinations and releases will be filed in the records of the Clerk of Court in the county where the property is located and will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that the developed agreement may include provisions such as those discussed below. Each structure that is flood proofed must have an approved sanitary disposal system and be in compliance with local and state health and building codes. The owners of the structure must agree to hold the Government and the NFS harmless for the basement fill work to be performed on the structure and must allow both entities the right to inspect the properties during relocation.

Additionally, the agreement will include provisions that would prohibit the conversion or modification of any part of the structure in a manner that would damage or impair the flood proofing work performed on the structure by the project and prohibit the construction of any new structure on the property or modification to the existing structure that is not flood proofed in accordance with the project coastal storm risk management objectives and requirements. After the agreement and associated curative documents are recorded in the public records of the Clerk of Court of the county in which the property is located, and the historic property investigations are completed in accordance with the Project Programmatic Agreement, the flood proofing work will be commenced, completed, inspected by USACE, and after final approval by the District

Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

4. Notice of Construction Complete (NCC).

Upon completion of the improvements, an inspection will be performed by USACE and upon final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual flood proofing project will be closed out as complete.

5. Eligible and Ineligible Project Costs.

Eligible Project Costs: All elevations will require local permits prior to any onsite construction. Only the costs of elevation and foundation retrofitting are eligible costs. No Federal funds will be used to restore, replace, or repair the structure. No additions to the habitable spaces of the structure will be permitted in the performance of the elevation work.

Elements of structure elevation work that are deemed to be potentially eligible project costs include: historic property investigations, including mitigation in accordance with the project Programmatic Agreement, 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), except as identified to be an ineligible item of project cost; costs of title searches (in review of title information submitted by the property owner), surveys, and costs for the following tasks:

- removing the structure;
- connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- meeting access requirements of applicable building codes (i.e., stairs with landings, guardrails);
- creating large vent openings in the foundation and walls to meet requirements for flood water entry and exit;
- in instances where special access improvements (i.e., elevators, lifts, ramps, etc.) may be required (i.e., in the case of physically handicapped or elderly homeowners or occupants) special handicapped access can be considered an eligible improvement cost when documented by the medical certificate of a licensed physician. Multiple special access points may also be eligible for funding where necessary to meet state or local building code compliance;
- removal of any trees which restrict the elevation of a structure;
- site grading and site restoration including restoring landscaping to its preconstruction condition;
- for historic structures that are listed or eligible for listing on the National Register of Historic Places, costs associated with maintaining the historic designation as determined by the New Jersey State Historic Preservation Office (including such costs so as to preserve the historic façade and character of the building whether through exterior structural

modifications, landscaping, lighting, paint, disguising and/or blending of the nonstructural measure with the building, etc.);

- temporary site protection measures during site work; and
- allowable relocation assistance funds for displaced tenants 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. Relocation assistance for tenants may include, among other things, advisory services, differential housing payments, and reimbursement of costs of moving personal property, rental assistance to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance to purchase a replacement dwelling. (See Appendix E, Real Estate Plan for more detailed information.) Note that a structure is ineligible for nonstructural measures if it would require elevation over 12 ft. above ground level due to engineering and risk related factors. Landowners whose properties are voluntarily elevated will not be eligible for benefits in accordance with URA; however, tenants of these structures may be eligible for these benefits.

Ineligible Project Costs: The costs that exceed that which is necessary to safely elevate and or flood-proof an eligible structure are deemed ineligible costs and any such costs remain the sole responsibility of the property owner. These costs may include, among others, costs associated with:

- any structural and system repair due to existing deficiencies;
- modifications or improvements to a septic system except for extension of lines from the raised structure to the existing system;
- modifications to structures that are not attached to the eligible structure;
- modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- modifications to decks and patios not connected to or immediately adjacent to the structure except for modifications that are expressly required by building codes (i.e., stairways and landing modifications);
- the proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, asbestos, and asbestos-containing materials in damaged or friable form;
- costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes;
- costs associated with special access improvements (i.e., elevators, lifts, ramps, etc.) that are not deemed eligible; and
- improvements to structures not considered the primary residence (i.e., detached garage, shed and/or barns).

Implementation Method: Federal Procurement

The traditional method of implementation is generally described in publications of the USACE National Nonstructural Committee and Flood Risk Management Planning Center of Expertise. This method of implementation utilizes a Federal procurement to obtain design and construction contractors for the various flood proofing measures. The Government will procure contracts that will allow a contractor to perform flood proofing work on multiple structures through a series of one or more task orders. The contractor will also be responsible for all work associated with the flood proofing from approval of the flood proofing plans for each structure to final inspection.

Various Methods for Prioritizing the Nonstructural Elevation Work

This Plan recommends the agreement of a strategy to implement nonstructural measures, to be developed and coordinated through the NFS and local stakeholders. Structures that have been identified as preliminarily eligible as part of the Recommended Plan are located across the study area. In order to effectively implement the Recommended Plan, clusters of eligible structures that represent the highest risk for storm surge damages (i.e. those with a MFE below the current ten percent water surface elevation) would be identified and prioritized for construction. Individual structures would be addressed based on a ranking of risk from highest to lowest within the cluster. The ranking of individual structures would be revisited as elevation work is completed, as additional funding is distributed, and as new clusters are identified. Addressing groups of structures within a small geographic area would be more cost-effective, efficient, and would also allow for a more strategic methodology for applying nonstructural measures to at-risk structures. Additional work on this process would occur during the design phase of the Project.

Any structure scheduling or prioritization will be subject to the availability of Federal funds. The locations for scheduling or prioritizing the implementation of nonstructural work will be determined during PED but will be fully assessed for implementing the nonstructural plan in an efficient and cost-effective manner. Some of the methods for scheduling or prioritizing nonstructural work that will be considered as part of the prioritization process are as follows; however, additional methods of scheduling or prioritizing such work will also be considered for the priority locations to implement the nonstructural plan.

Clustering

The eligible property owners in a contiguous neighborhood or subdivision (i.e. small scale area) would be targeted for priority in nonstructural plan implementation. A focus on clustered properties would create a ranking hierarchy of which properties to address first. The size of a cluster would need to be defined but would consist of an area where multiple eligible structures would be constructed simultaneously. This approach would rank efficiency as the main factor in determining which eligible properties should be prioritized.

Risk-Level

Within the clustered area, structures of various risk levels would be identified. In such cases, the focus would be on willing property owners that exhibit the highest risk for flood damages (i.e. highest BCRs). For example, if 100 property owners execute easements within the clustered area,

the owners who reside in the lowest portions of the floodplain would be prioritized for construction. Once these properties are elevated, the next highest-risk properties would be targeted. This approach couples risk exposure and clustering to determine which eligible properties should be prioritized.

Various Methods for Prioritizing the Nonstructural Acquisition/Buyout Work

Repetitive Loss Properties

The eligible structure that has been designated repetitive loss or severe repetitive loss would be given priority on consideration when a structure is going to be acquired.

Operations, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R)

The nonstructural project OMRR&R is a 100% non-Federal responsibility. The non-federal sponsor is required to operate and maintain the mitigation measures, and, in the case of interests in real property acquired in conjunction with nonstructural measures, to operate and maintain the property in accordance with regulations prescribed by USACE.

For all structure types OMRR&R costs are expected to be ‘de minimis’ and will be confined to regular, periodic surveys and site visits of structures where nonstructural measures have been applied in order to determine that the requirements of the OMRR&R Manual are being met.

A minimal cost for these efforts has been calculated as part of NFS OMRR&R responsibilities. Once the NED nonstructural measures have been implemented and NCC’d, the owner of the property will be responsible for all cost and risk of maintaining, repairing, rehabilitating and replacement the flood proofing measures that were utilized for the subject property. A draft OMRR&R Manual shall be provided to the NFS as early as possible in the period of implementation because USACE will issue a NCC for each flood proofed structure once the flood proofing is complete. At the time of the issuance of an NCC, the NFS’s obligations for operation and maintenance for the subject structure or lands commences. Flood proofed structures shall be considered a separable element and functional portion of the Project. The NFS is responsible for the enforcement of the provisions of the easement executed by the owners of property benefiting from the nonstructural measures and for enforcement of the requirements of the OMRR&R Manual, including by not limited to, compliance with the requirements of Section 402 of the Water Resources Development Act of 1986, as amended. Upon NCC for NED implementation for a given structure or contract, the USACE will furnish to the NFS a final OMRR&R manual addressing, among other things, the NFS responsibility for enforcement of terms of the easement, as well as other OMRR&R requirements. The NFS shall conduct periodic inspections at the intervals specified in the OMRR&R Manual to ensure that the owners, their heirs, and assigns, are in compliance with the terms and conditions of the executed easements and shall provide written certifications to USACE that the structures and lands have been inspected and that no violations have been found. Regarding the elevated residential structures, the inspections will determine among other things, that no part of the structure located below the level of the lowest habitable finished floor has been converted to living area for human habitation, or otherwise altered in any manner which would impede the movement of waters beneath the structure; that the area below the predicted target FFE is being used solely for the parking of vehicles, limited

storage, or access to the structure and not for human habitation; that mechanical, electrical or plumbing devices have not been installed below the target FFE; that the property is in compliance with all applicable floodplain ordinances and regulations. USACE shall have the right, but not the obligation, to perform its own inspections of the flood proofed structures pursuant to the Project.

Federal Compliance

The local NFIP Coordinator will ensure that any changes to topology is reflected in a Letter of Map Revision to adhere to National Flood Insurance Requirements for FEMA. Further details developed during PED.