ROCKAWAY RIVER AND DEN BROOK
DENVILLE TOWNSHIP
MORRIS COUNTY, NEW JERSEY
CAP SECTION 205
FLOOD RISK MANAGEMENT STUDY

APPENDIX G:
NONSTRUCTURAL IMPLEMENTATION PLAN

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U.S. Army Corps of Engineers
North Atlantic Division New York and Baltimore Districts
In partnership with the New Jersey Department of Environmental Protection

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ROCKAWAY RIVER AND DEN BROOK DENVILLE TOWNSHIP
MORRIS COUNTY, NEW JERSEY CONTINUING AUTHORITIES PROGRAM (CAP)
SECTION 205 FLOOD RISK MANAGEMENT STUDY
DRAFT INTEGRATED FEASIBILITY REPORT & ENVIRONMENTAL ASSESSMENT

Appendix G: Nonstructural Implementation Plan

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SECTION 1.0 DEFINITIONS

Term	Definition
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 flood waters. Nonstructural measures differ from structural measures (i.e., levees, floodwalls, etc.) in that they focus on reducing the consequences of damages from flooding instead of focusing on reducing the probability of damages from flooding.
Economically Justified	The cost of implementing nonstructural measures in a structure does not exceed the total monetary cost of the flood damages that are anticipated to be avoided over the 50-year period of analysis (years 2026 to 2075).
Eligible structures	Structures that are determined by the United States Army Corps of Engineers (USACE) to be eligible for nonstructural measures.
Wet Floodproofing	This measure allows floodwater to get inside lower, non-living-space areas via vents and openings to reduce the effects of hydrostatic pressure and reduce flood-related damages to the structure's foundation. Wet floodproofing is applicable as either a stand-alone measure or as a measure combined with other measures such as elevation. As a stand-alone measure, all construction materials and finishing materials for a building are required to be water resistant to a specified height. All utilities must be elevated above the design flood elevation.
Dry Floodproofing	Dry floodproofing of existing structures is a common floodproofing technique applicable for flood depths of three feet or less on buildings that are structurally sound. Dry floodproofing involves sealing building walls by waterproofing preventing the entry of floodwaters into a structure. Installation of temporary closures or flood shields is a commonly used floodproofing technique. Exterior walls must also be made watertight.
Elevation	Elevation refers to increasing the height of a structure's foundation at least equal to or greater than the design flood elevation to reduce damages from flooding. Elevation can be performed using fill material on extended foundation walls, piers, post, piles, and columns. Elevation is also a very successful technique for reinforced concrete slab-on-grade structures. This measure was limited to residential structures in this study.
Historic Property	As defined in 36 CFR 800.16(l)(1), *Historic property* means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National

	Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.
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”.
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.
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).
First Floor Elevation (FFE)	The elevation of the lowest finished floor level of a structure.

SECTION 2.0 INTRODUCTION

This Nonstructural Implementation Plan describes the general process for the implementation of nonstructural measures in the project designed to reduce the risk of damages caused by riverine flooding from the Rockaway River in the Township of Denville study area as described in the Draft Integrated Feasibility Report and Environmental Assessment (IFR/EA). The Recommended Plan proposes nonstructural measures in a total of 38 structures including 28 residential structures for elevation, 2 non-residential structures for elevation, 2 residential structures for wet floodproofing, and 6 non-residential structures for dry floodproofing in the Township of Denville. The Recommended Plan reasonably maximizes net benefits while providing flood risk reduction, preserves the cohesion of the neighborhood, and enhances community resilience.

The Recommended Plan consists of the following:

1. Elevation of the finished first floor of eligible structures to the design height equivalent to the 1 percent annual exceedance probability (AEP) flood elevation plus 1 foot.

2. Floodproofing (e.g. flood shields, sealants, elevation of utilities) of eligible structures that can't be elevated.

3. Property owners located in the project area will be informed of the details of implementation of the nonstructural measures of the project, including eligibility criteria, the eligibility process, and the related duties and obligations of USACE, the Non-Federal Sponsor (NFS), and the property owner. The NFS for implementation of the nonstructural measures of the Recommended Plan is the Township of Denville. 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 the design and implementation phase. While each individual eligible structure has been evaluated for the most cost-effective nonstructural measure, the Government reserves the right to determine which measure shall be implemented at each structure location. It is anticipated that the nonstructural measures of the project will be implemented in phases of approximately 5 structures at a time for design and construction over 45 days each. Design, contracting, and construction of this project is anticipated to take four years. The design and implementation schedules will be finalized during the design phase and will vary with participation rates, types of structure, and nonstructural measures utilized.

If a property owner elects not to participate in the implementation of this project, USACE would defer any further action on that structure until such time as the property owner elects to participate or until the construction period ends. However, the Government reserves the right to determine whether a structure may participate in the nonstructural plan outlined in this report after a property owner has declined participation during the initial invitation period to participate. If allowed to participate, the Government shall determine the timing and scheduling of such participation in the project.

SECTION 3.0 DETERMINING ELIGIBILITY

3.1 ELEVATION OF ELIGIBLE STRUCTURES

Owners of eligible structures may participate by having their structures elevated to the design height equivalent described in Section 2.0 above. If the required elevation is greater than 12 feet above ground level, the structure would not be eligible for elevation and would be ineligible to participate due to engineering and risk related factors.

3.2 FLOODPROOFING OF ELIGIBLE STRUCTURES

Floodproofing would consist of either wet floodproofing, applicable to residential and non-residential structures, or dry floodproofing, which is only applicable to non-residential structures in accordance with USACE policy. Specific applications of floodproofing that would be determined on a structure-by-structure basis during design and implementation phase. Table 1 below lists the typical floodproofing measures that would be implemented for each type of structure.

Table 1: Typical Floodproofing Measures by Structure Type

	Wet Floodproofing (Residential & Non Residential)	Dry Floodproofing (Non Residential Only)

Typical Measure Type	• Wet floodproof open area
	  ○ Flood louvers in exterior wall
	  ○ Skimmer pump/sump pump and portable emergency generator
	  ○ Sealants and waterproof paints on exterior walls
	• Elevate exterior mechanical and electrical equipment
		• Certified floodproof doors
		• Stoplog closures
		• Interior skimmer pumps
		• Relocate existing electrical panel and meter from basement
		• Backflow preventer on all sewage line connections

While each individual eligible structure will be evaluated for the most cost-effective floodproofing measure, the Government reserves the right to determine which measure shall be implemented at each structure location.

3.3 DETERMINATION OF ELIGIBILITY

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

- The structure must have a First Floor Elevation (FFE) at or below the 1% AEP or 100-year flood elevation as determined by hydrologic analysis.

- Nonstructural measures are deemed to be economically justified for federal participation as part of this project.

At the time of this report, a structure inventory has been compiled that identifies 54 preliminarily eligible structures in the study area. The total project costs for implementation of nonstructural measures in the 54 eligible structures exceeds the $10 million federal per project limit of the Continuing Authorities Program (CAP) Section 205 program authority being used to implement this project. Therefore, USACE is recommending a prioritized implementation strategy for the Recommended Plan to include 38 structures in the three clusters with the highest flood risk to remain within the total project cost of the program's implementation authority (Figure 1). The structure eligibility process will be refined further in design and implementation phase as detailed structure survey data is collected and analyzed by the design team.

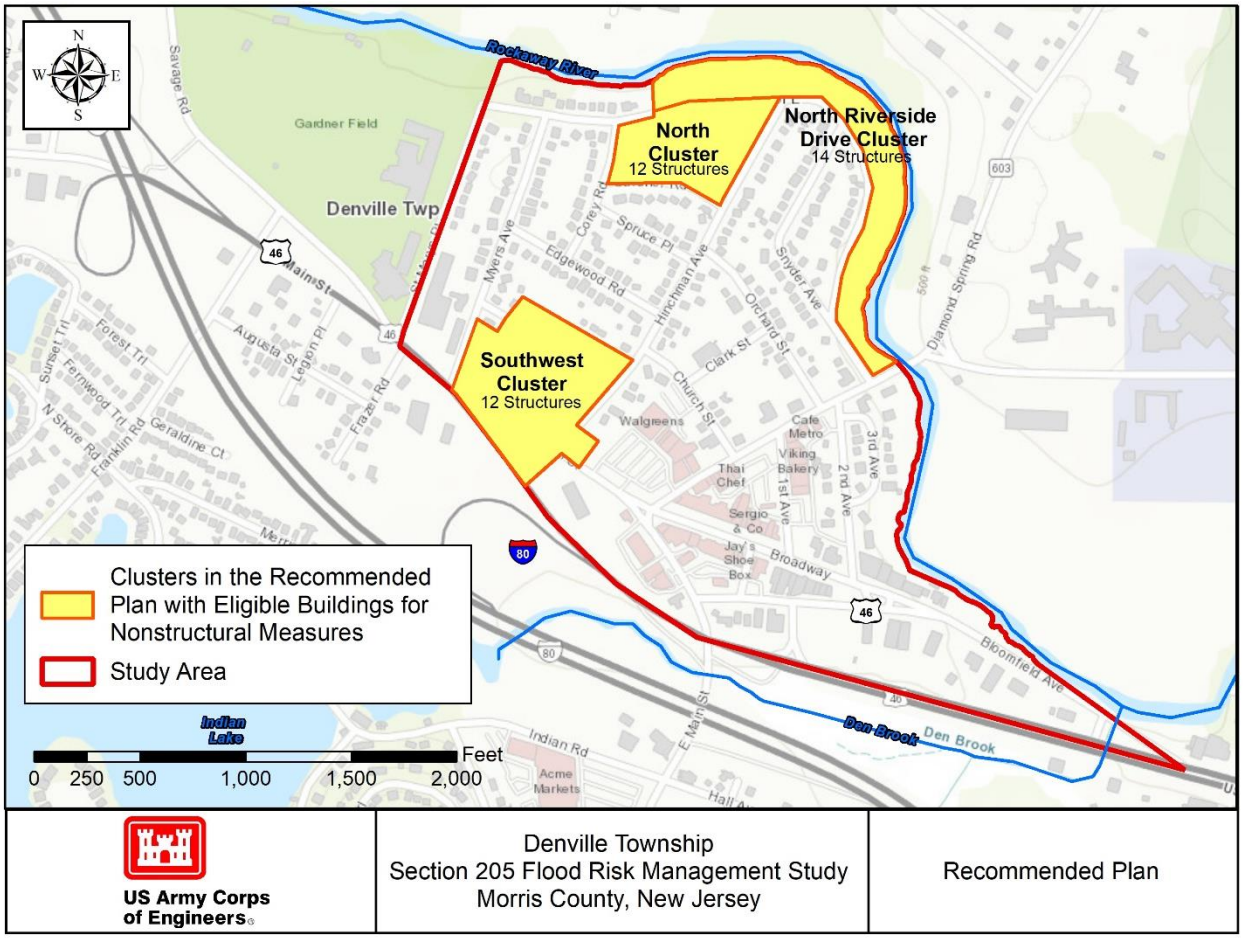

Figure 1: Recommended Plan Map

The preliminarily eligible structures in the Recommended Plan would undergo further eligibility evaluation, generally outlined below:

- Eligible property owners who request application of the nonstructural measures to their structures must execute an application/participation agreement and will also

be required to grant a temporary right-of-entry for survey and exploration to USACE and the NFS to enter upon the property to conduct any property and structural investigations deemed necessary to determine final eligibility for participation in the project. These investigations include structural inspections, surveys, limited environmental testing and site assessments, 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 easement for the performance of the nonstructural measure upon the property. Refusal to grant temporary right of-entry will constitute an election not to participate.

- The property owner shall submit satisfactory documentation as outlined in the application/participation agreement.
- NFS shall conduct a title search to ensure owner of record is properly identified.
- USACE shall complete efforts to evaluate the properties eligible for nonstructural measures and identify any historic properties, as applicable, eligible for listing in the National Register of Historic Places (NRHP). If historic properties meeting criteria for listing in the NRHP are identified because of the Recommended Plan actions, USACE shall assess the effects of the project on these properties in accordance with the Programmatic Agreement between the USACE and the New Jersey State Historic Preservation Office (SHPO), the Delaware Nation, and the Shawnee Tribe.
- Each structure will be evaluated by USACE to ensure that the following eligibility requirements are satisfied at a minimum:
    - Based on a visual assessment, the structure is in a condition that is suitable for nonstructural measure without the need for repair or rehabilitation. Any repair or rehabilitation necessary to achieve that condition will be at the sole cost and expense of the property owner. If substantial, the time and cost required to repair/rehab a structure could lead to it not being included in the project.
    - Any contaminated soils, hazardous, toxic or radioactive materials (e.g,. lead paint, asbestos etc.) or other environmental conditions of concern must be removed and/or mitigated from the project area by the property owner to the level of satisfaction of the Government, prior to contract solicitation and at no cost to the Government.
    - Any remediation, removal and disposal of environmental contaminants including but not limited to Hazardous, Toxic, or Radioactive Waste (HTRW), asbestos, and asbestos-containing materials in damaged or friable form have been satisfactorily completed.

3.4 EXECUTION / RECORDATION OF EASEMENT

Upon project approval, the property owners and the NFS will be required to acquire a temporary work area easement for project construction, as well as a permanent restrictive easement or covenant. Restrictive easements are the required real estate interest for nonstructural projects per USACE Headquarters (HQ) Real Estate guidance. In the current version of the IFR/EA, USACE included compensation for easement agreements in the total project costs as presented. However, USACE policy related to

nonstructural plans is evolving. Such a restriction may be acquired with no compensation to the property owner.

The easement or covenant will be included as a restriction on the deed to the property, which will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The restriction would require that any subsequent construction or improvement to the structure be carried out in a way that the integrity of the nonstructural measure would not be compromised, that any addition to the property would be similarly protected or built above the base flood elevation (BFE), and that flood insurance is required. A non-standard restrictive easement will be forwarded to USACE HQ for review and approval and be finalized during the design and implementation phase.

3.5 COMMENCEMENT OF IMPROVEMENTS AND NOTICE OF CONSTRUCTION COMPLETION

Upon determination that a structure is qualified for elevation or floodproofing, a scope of work will be developed. Each structure must have an approved sanitary disposal system and be in compliance with local and state health and building codes. Upon project approval, the property owners and the NFS will be required to execute a temporary work area easement for project construction, as well as a permanent restrictive easement. A non-standard restrictive easement will be forwarded to HQ Real Estate for review and approval and be finalized during the design phase. Restrictions would vary and may include prohibition of human habitation of enclosed spaces below base flood elevation and that property must carry flood insurance in perpetuity. After the easement is recorded in the city public records, the elevation or floodproofing work will be commenced, completed, inspected by USACE, and after final approval by the District Engineer, or his/her designee, a Notice of Construction Completion (NCC) will be issued to the NFS and the individual nonstructural measures project will be closed out as complete.

SECTION 4.0 IMPLEMENTATION METHOD

Implementing of nonstructural measures in this project will require extensive coordination between the New York District, the NFS, and individual property owners. Upon receipt of design and/or construction funding, discussions will occur with the NFS to better understand their capabilities to execute the project.

The traditional, USACE-led approach will be used as the implementation method. This method of implementation utilizes a federal procurement process to obtain design and construction contractors for the various floodproofing measures. The Government will procure contracts that will allow contractors to perform elevation and/or floodproofing work on multiple structures through a series of one or more design-build task orders. The Contractors will also be responsible for eligible work associated with the elevation and/or floodproofing including the final design of the nonstructural measure, obtaining the required local, state, and federal permits, and all necessary elements to complete construction to desired intent.

SECTION 5.0 IMPLEMENTATION STRATEGY FOR NONSTRUCTURAL MEASURES

This draft IFR/EA recommends a strategy to implement the nonstructural project for eligible structures. Structures that have been identified as preliminarily eligible as part of the Recommended Plan are located in the North Riverside, North, and Southwest Cluster as illustrated in Figure 1. Contractor capacity and availability, local building permitting, and environmental conditions are factors that may influence construction timing.

Any structure construction will be subject to the availability of Federal funds. The scheduling or prioritization of the implementation of nonstructural work will be determined during the design and implementation phase but will be fully assessed for implementing the nonstructural plan in an efficient and cost-effective manner.

SECTION 6.0 OPERATION, MAINTENANCE, REPAIR, REHABILITATION, AND REPLACEMENT

Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) costs for the nonstructural measures is to be determined during the design and implementation phase. OMRR&R costs are expected to be 'de minimus' and will be confined to regular, periodic surveys and site visits of structures where nonstructural measures have been applied to determine that the requirements of the OMRR&R Manual are being met. Costs for these efforts have not been calculated as part of NFS OMRR&R responsibilities. Once the nonstructural measures have been implemented and the NCC has been issued, the owner of the property will be responsible for all cost and risk of maintaining, repairing, rehabilitating and replacement the floodproofing 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 structure with constructed nonstructural measures once the work 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. Structures with constructed nonstructural measures may be considered a separable element and functional portion of the project. The NFS is responsible for the enforcement of the provisions of the agreement executed by the owners of property benefiting from the nonstructural measures and for enforcement of the requirements of the OMRR&R Manual. Upon NCC 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 floodproofing agreement, 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 agreements and shall provide written certifications to USACE that the structures and lands have been inspected and that no violations have been found. USACE shall have the right, but not the obligation, to perform its own inspections of the structures with constructed nonstructural measures pursuant to the project.