

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

APPENDIX G:
NONSTRUCTURAL IMPLEMENTATION PLAN

September 2025



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

FINAL 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.
Historic Property	<i>Historic property</i> 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 Final Integrated Feasibility Report and Environmental Assessment (IFR/EA). The Recommended Plan includes a total of 25 structures including a total of 17 residential structures and 2 non-residential structures for elevation, 1 residential structure for wet floodproofing, and 5 commercial structures for dry floodproofing. Specific structures, types of treatment, and the total number of structures will be confirmed during the design and implementation phase of this project. The Recommended Plan reasonably maximizes net benefits while providing flood risk reduction, preserves the cohesion of the neighborhood, and enhances community resilience.

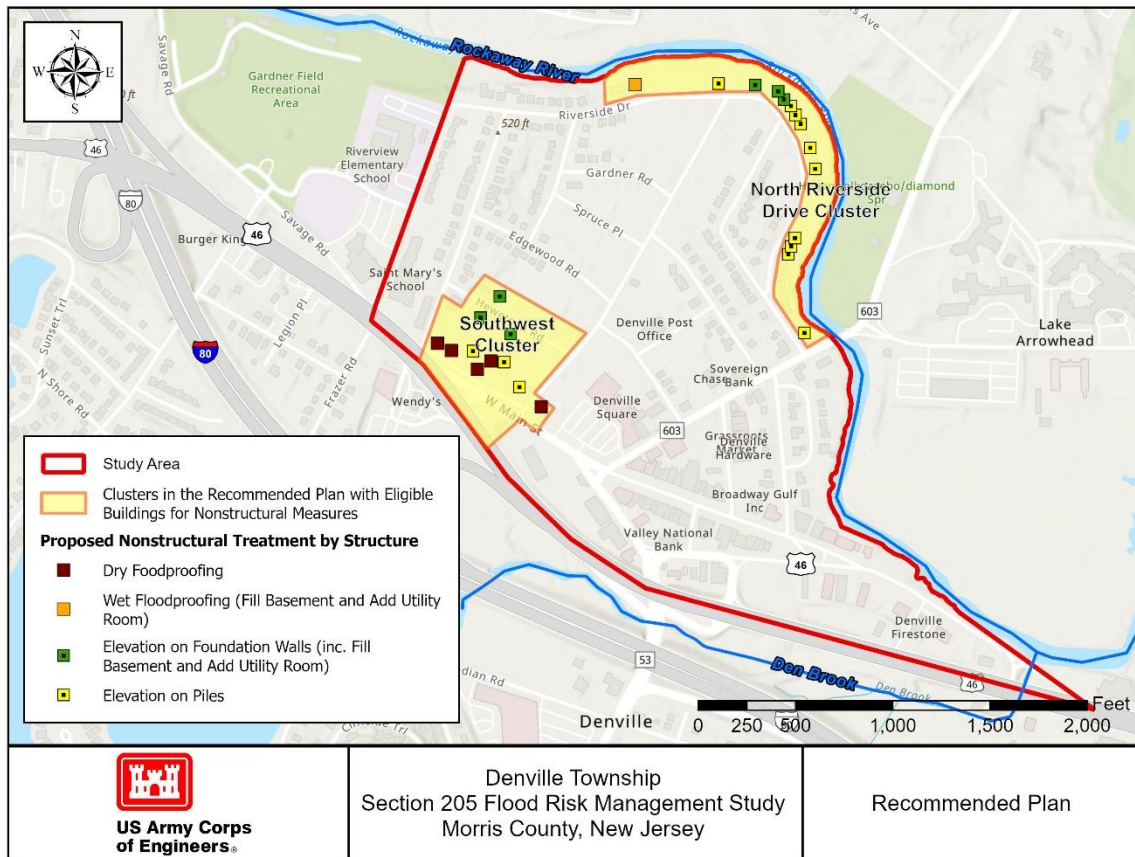


Figure 1: Recommended Plan Clusters Map

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. The State of New Jersey's Flood Hazard Area Control Act (FHACA) Rules would require an additional 2-3 feet in addition to the 1-foot

recommendation, USACE will consider and evaluate the target elevation during the design and implementation phase.

2. Floodproofing (e.g. flood shields, sealants, elevation of utilities) of eligible structures that can't be elevated. All floodproofed structures will be protected to a maximum level of 3 feet above ground level due to the structural limitations of floodproofing technology.
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 NJDEP. 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 and that each cluster will be completed under a separate contract. Construction for each structure is anticipated to take approximately 56 days, and depending on contractor capacity, work on multiple structures may occur simultaneously. Design, contracting, and construction of this project is anticipated to take seven years, which includes an initial coordination period to acquire any needed real estate for the project and gather participation agreements from property owners. 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.

Participation in this project by property owners is voluntary. Participation agreements for the project and documentation of project features is to be maintained in an electronic database maintained by USACE and the non-Federal sponsor. 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, if a property owner who declined participation during the initial invitation period chooses to participate by submitting a participation agreement, the Government reserves the right to determine whether a structure may be allowed to participate in the nonstructural plan outlined in this report. 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 recommended for non-residential structures in accordance with USACE best practices for floodproofing. Specific applications of floodproofing 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	<ul style="list-style-type: none"> • Wet floodproof open area <ul style="list-style-type: none"> ○ 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 	<ul style="list-style-type: none"> • 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 to recommend each structure location. The property owner will be informed of the recommended measure prior to submitting a participation agreement.

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 elevation as determined by hydrologic analysis.
- Nonstructural measures are deemed to be economically justified for federal participation at the cluster level as part of this project.

Determination of Final Eligibility

The preliminarily eligible structures in the Recommended Plan would undergo further evaluation to identify whether structures are eligible for participation in the project.

- 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;
 - And the structure has not received prior disaster assistance for elevation.

Elevation Information

Ground elevations for this study were developed from two-foot contours derived from the 2006-2007 LiDAR (Light Detection And Ranging) developed by the Highlands Council, available for all 88 Highland municipalities in New Jersey. Additional elevation information was used to confirm validity of elevation data including the US Geological Survey's 3D Elevation Program (3DEP) (2017) which consists of a seamless National Elevation

Dataset (NED) at a 1/3 arc-second resolution resulting in approximately 10-meter grids for this area of New Jersey.

Water Surface Elevations

Water surface elevations were derived from HEC-RAS modeling developed for this study between 2018 and 2021. Table 2 summarizes water surface elevations for various annual exceedance probabilities (AEP) considered for the nonstructural analysis.

Table 2: Modeled Water Surface Elevations for Selected Stations in the Study Area

Stream Name	Reach	Station	10% AEP Water Surface Elevation	4% AEP Water Surface Elevation	2% AEP Water Surface Elevation	1% AEP Water Surface Elevation	0.5% AEP Water Surface Elevation	0.2% AEP Water Surface Elevation
Upper Rockaway	Reach2	29983	503.90	505.70	506.56	507.27	508.70	509.76
Upper Rockaway	Reach2	30872	505.75	507.66	508.19	508.81	509.81	510.86
Upper Rockaway	Reach2	31440	506.00	507.83	508.40	509.06	510.07	511.17
Upper Rockaway	Reach2	31982	506.09	507.88	508.46	509.13	510.14	511.24
Upper Rockaway	Reach2	32459	506.21	507.95	508.53	509.19	510.18	511.28

Identification of Treatment Type

Identification of treatment type was completed in coordination with subject matter experts and the National Nonstructural Committee (NNC). The project delivery team (PDT) characterized individual structures in the study area into thirty-five different “Structure Types” specific to this study (see Table 3), which were based on the use of the structure, foundation of structures, number of stories, square footage, and the number of feet required to reduce flood risk to a structure based on various annual exceedance probabilities (AEP). The structure types and the estimated flood depth were used to identify treatments for individual structures based on the NNC Matrix and using best professional judgment. The PDT also developed cost templates with estimated quantities for each “Structure Type” that were used to estimate the total costs of implementing each treatment proposed in the study, see Appendix F Cost Engineering for more detail. Note that the various AEPs were determined for each cluster through multiple iterations of the economic evaluation summarized in Appendix D.

Following selection and optimization of the Recommended Plan, the 25 structures were individually examined using remote sensing data (Google Maps, Google Earth, Imagery) and hydrology and hydraulic information to confirm the most appropriate treatment type and treatment height based on various AEP. The 25 structures in the Recommended Plan including the treatment type and attribute information are summarized in Table 4 and shown in Figure 1. Note that addresses for individual structures are excluded in accordance with USACE policy.

Table 3: Structure Types and Proposed Nonstructural Treatments

Structure Type	Description	Foundation Type	Single or Multiple Stories	Estimated Square Footage (Feet)	Estimated Treatment Height	Treatment Type
I	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	1,200.00	6 Foot Elevation	Elevation on Piles with Basement Fill
II	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	1,000.00	5 Foot Elevation	Elevation on Piles with Basement Fill
III	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	2,200.00	4 Foot Elevation	Elevation on Piles with Basement Fill
IV	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	1,200.00	4 Foot Elevation	Elevation on Piles with Basement Fill
V	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	1,800.00	3 Foot Elevation	Elevation on Piles with Basement Fill
VI	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	1,200.00	3 Foot Elevation	Elevation on Piles with Basement Fill
VII	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	2,600.00	2 Foot Elevation	Elevation on Piles with Basement Fill
VIII	Multi-Floor Split Level Structures (50% Slab on Grade, 50% Basement)	split level (50% slab, 50% basement)	multi	1,400.00	2 Foot Elevation	Elevation on Piles with Basement Fill
IX	Single Floor Slab on Grade	slab	single	1,100.00	6 Foot Elevation	Elevation on Piles
X	Single Floor Slab on Grade	slab	single	1,900.00	2 Foot Elevation	Elevation on Piles
XI	Commercial Slab on Grade	slab	n/a	1000	3 Foot of Impermeable Treatment Height	Dry Floodproofing
XII	Commercial Slab on Grade	slab	n/a	2000	3 Foot of Impermeable Treatment Height	Dry Floodproofing
XIII	Commercial Slab on Grade	slab	n/a	3000	3 Foot of Impermeable Treatment Height	Dry Floodproofing
XIV	Commercial Slab on Grade	slab	n/a	4000	3 Foot of Impermeable Treatment Height	Dry Floodproofing
XV	Commercial Slab on Grade	slab	n/a	5000	3 Foot of Impermeable Treatment Height	Dry Floodproofing
XVI	Commercial Slab on Grade	slab	n/a	6000	3 Foot of Impermeable Treatment Height	Dry Floodproofing
XVII	Multi-Floor Slab on Grade	slab	multi	1,200.00	6 Foot Elevation	Elevation on Piles
XVIII	Multi-Floor Slab on Grade	slab	multi	2,700.00	4 Foot Elevation	Elevation on Piles
XIX	Multi-Floor Slab on Grade	slab	multi	1,600.00	4 Foot Elevation	Elevation on Piles
XX	Multi-Floor Slab on Grade	slab	multi	1,900.00	3 Foot Elevation	Elevation on Piles
XXI	Multi-Floor Slab on Grade	slab	multi	1,600.00	2 Foot Elevation	Elevation on Piles

Structure Type	Description	Foundation Type	Single or Multiple Stories	Estimated Square Footage (Feet)	Estimated Treatment Height	Treatment Type
XXII	Single Floor Basement Foundation	basement	single	1,400.00	6 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXIII	Single Floor Basement Foundation	basement	single	1,200.00	5 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXIV	Single Floor Basement Foundation	basement	single	1,300.00	4 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXV	Single Floor Basement Foundation	basement	single	2,200.00	2 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXVI	Single Floor Basement Foundation	basement	single	1,200.00	2 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXVII	Residential Basement Foundation (Wet Floodproofing Only)	basement	n/a	2,600.00	3 Feet of Waterproofing	Fill Basement and Add Utility Room
XXVIII	Residential Basement Foundation (Wet Floodproofing Only)	basement	n/a	1,200.00	3 Feet of Waterproofing	Fill Basement and Add Utility Room
XXIX	Multi-Floor Basement Foundation	basement	multi	1,900.00	5 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXX	Multi-Floor Basement Foundation	basement	multi	2,300.00	4 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXXI	Multi-Floor Basement Foundation	basement	multi	1,400.00	4 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXXII	Multi-Floor Basement Foundation	basement	multi	4,300.00	3 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXXIII	Multi-Floor Basement Foundation	basement	multi	1,700.00	3 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXXIV	Multi-Floor Basement Foundation	basement	multi	2,600.00	2 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room
XXXV	Multi-Floor Basement Foundation	basement	multi	1,200.00	2 Foot Lift	Elevation on Foundation Walls, including fill basement and add utility room

Table 3: Recommended Plan Structures

Structure Identifier	Cluster	Structure Type	Land Use	Treatment Type	Treatment Description	Stream Name	Reach	Station	Ground Elevation	Foundation Type	Foundation Height	First Floor Elevation	Number of Stories	Basement	Square Footage (Feet)
291Raise	North Riverside Drive	VI	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	30872	502.9	Multi-Floor Crawl Space	6.9	509.8	1.5	Full	1320
334Raise	North Riverside Drive	II	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	502.9	Multi-Floor Crawl Space	7.2	510.1	1.5	Full	1008
344Raise	North Riverside Drive	II	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	503.1	Multi-Floor Crawl Space	7.0	510.1	1.5	Full	927
369Raise	North Riverside Drive	XXI	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31982	504.4	Multi-Floor Crawl Space	5.7	510.1	1.5	Full	1680
367Floodproof	North Riverside Drive	XXVIII	Residential	Floodproof	1% Wet Floodproofing	Upper Rockaway	Reach2	32459	506.3	Multi-Floor Crawl Space	3.0	509.3	1.5	Full	1699
139Raise	North Riverside Drive	VII	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	29983	504.8	Multi-Floor Slab on Grade	3.5	508.3	2	Full	3346
209Raise	North Riverside Drive	IV	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	30872	504.2	Multi-Floor Slab on Grade	5.6	509.8	2	Full	1209
217Raise	North Riverside Drive	IV	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	30872	504.3	Multi-Floor Slab on Grade	5.6	509.8	2	Full	1060
225Raise	North Riverside Drive	IV	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	30872	504.2	Multi-Floor Slab on Grade	5.6	509.8	2	Full	1119
353Raise	North Riverside Drive	XX	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	504.7	Multi-Floor Slab on Grade	5.4	510.1	2	Full	1927
359Raise	North Riverside Drive	XXXI	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	504.4	Multi-Floor Slab on Grade	5.7	510.1	2	Full	1302
364Raise	North Riverside Drive	XXXIII	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	504.5	Multi-Floor Slab on Grade	5.6	510.1	2	Full	1869

Structure Identifier	Cluster	Structure Type	Land Use	Treatment Type	Treatment Description	Stream Name	Reach	Station	Ground Elevation	Foundation Type	Foundation Height	First Floor Elevation	Number of Stories	Basement	Square Footage (Feet)
314Raise	North Riverside Drive	VI	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	30872	503.3	Single Floor Slab on Grade	6.5	509.8	1	Full	1157
366Raise	North Riverside Drive	XXV	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	504.5	Single Floor Slab on Grade	5.6	510.1	1	Full	2220
106Raise	Southwest	XVII	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	502.9	Multi-Floor Slab on Grade	7.2	510.1	2	Full	1244
121Raise	Southwest	XVIII	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	504.7	Multi-Floor Slab on Grade	5.4	510.1	2	Full	2721
169Raise	Southwest	XXIV	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	504.8	Multi-Floor Slab on Grade	5.3	510.1	2	Full	1359
137Raise	Southwest	XXX	Non-Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	503.7	Multi-Floor Slab on Grade	6.4	510.1	2	Full	2204
127Floodproof	Southwest	XIV	Non-Residential	Floodproof	4% AEP Dry Floodproofing	Upper Rockaway	Reach2	31440	505.0	Multi-Floor Slab on Grade	3.0	508.0	2	No	3453
126Raise	Southwest	IX	Non-Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	502.7	Single Floor Slab on Grade	7.4	510.1	1	No	1142
150Raise	Southwest	XXII	Residential	Raise	1% AEP Elevation	Upper Rockaway	Reach2	31440	502.4	Single Floor Slab on Grade	7.6	510.1	1	Full	1382
96Floodproof	Southwest	XI	Non-Residential	Floodproof	10% AEP Dry Floodproofing	Upper Rockaway	Reach2	31440	504.7	Single Floor Slab on Grade	3.0	507.7	1	No	2096
117Floodproof	Southwest	XII	Non-Residential	Floodproof	10% AEP Dry Floodproofing	Upper Rockaway	Reach2	31440	503.9	Single Floor Slab on Grade	3.0	506.9	1	No	3605
122Floodproof	Southwest	XIII	Non-Residential	Floodproof	10% AEP Dry Floodproofing	Upper Rockaway	Reach2	31440	503.2	Single Floor Slab on Grade	3.0	506.2	1	No	1193
133Floodproof	Southwest	XV	Non-Residential	Floodproof	2% AEP Dry Floodproofing	Upper Rockaway	Reach2	31440	506.0	Single Floor Slab on Grade	3.0	509.0	1	No	4375

Phased Implementation

During the design and implementation phase, the project will be implemented in phases by cluster based on flood risk: Phase 1 will consist of structures in the North Riverside Cluster and Phase 2 for the Southwest Cluster (Figure 2). Starting with Phase 1, all structures within each cluster will be surveyed to confirm base flood elevations, low openings and first floor elevations, which will be used to confirm the eligibility of structures within the cluster using hydrology and hydraulic modeling and economic modeling for the study area. USACE will also coordinate with homeowners for temporary access for surveys and investigations, and to determine the willingness of each homeowner to participate in the project.

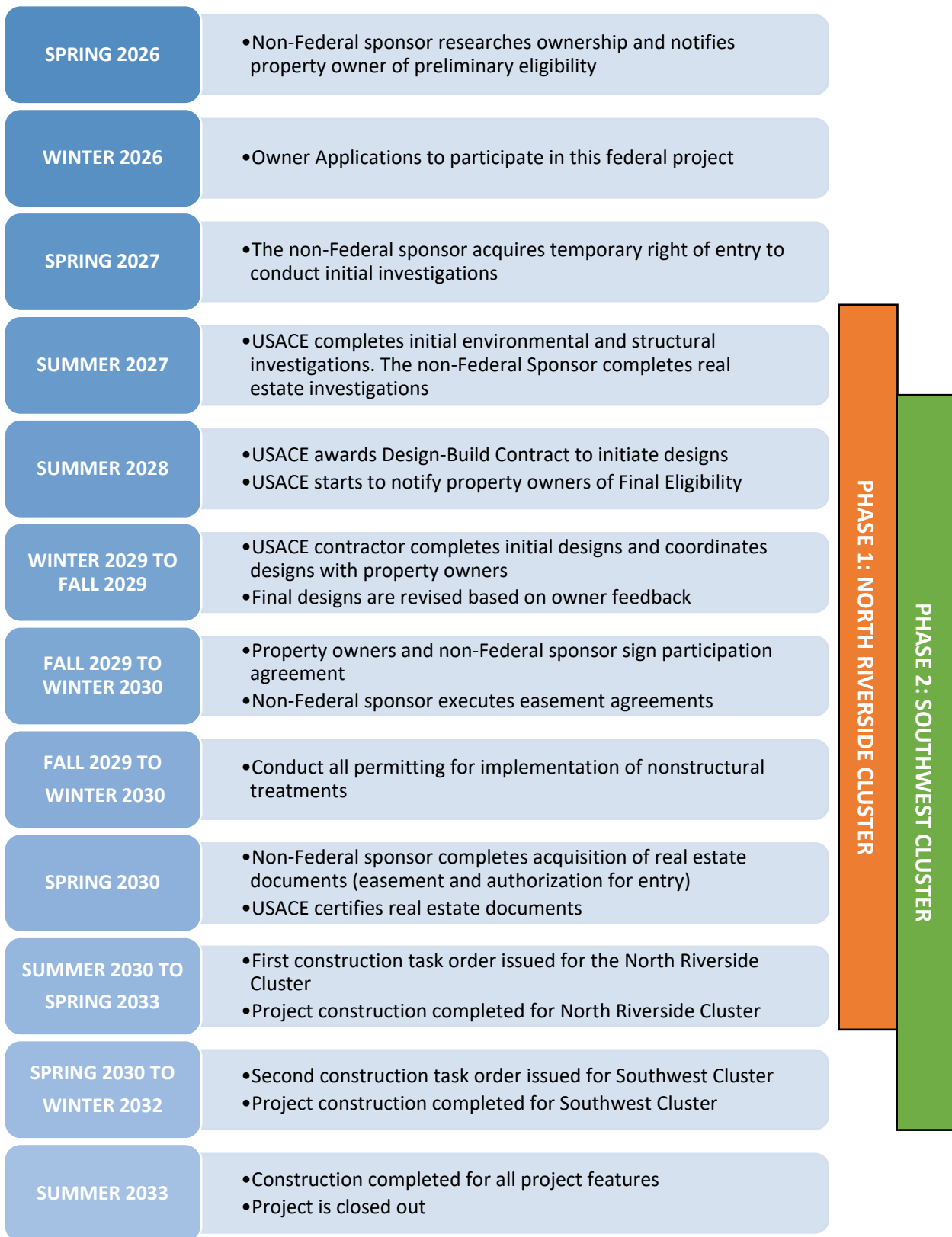


Figure 2: Phased Implementation Approach

Once all eligible structures in a cluster have been identified and participation agreements from homeowners are documented, USACE will develop preliminary designs and cost estimates for that phase of the project. Subsequent phases of the project will be completed in the same manner with any remaining funding remaining for this project, not to exceed \$15 million in federal funds under the CAP Section 205 program. This phased implementation approach is intended to address identified uncertainties during the public review period concerning flooding of individual structures, modeled base flood elevations in hydrology and hydraulic modeling, economic assumptions in the study, the elevation and low opening of structures, and to conduct an appropriate level of engineering analysis to confirm the eligibility of structures.

3.4 ELIGIBLE PROJECT COSTS

USACE Guidance for Nonstructural Project Planning and Implementation (CECW-ZA 2024) details eligible project costs including all of the following items:

- Costs of elevation and foundation retrofitting;
- Design costs;
- Costs for obtaining required permitting;
- Administrative cost for the non-Federal sponsor to coordinate and acquire necessary real estate agreements;
- Costs associated with structures attached to the main building;
- Raising of mechanical equipment;
- Utility connections that meet existing code;
- Vent construction for flood water entry and exit;
- Special access requirements and improvements;
- Tree removal or site restoration;
- Measures related to meeting Federal statutes such as the Endangered Species Act and the National Historic Preservation Act;
- Any temporary site protection measures during site work;
- And allowable relocation assistance funds for displaced tenants in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law (PL) 91-646, 84 Stat. 1894 (42 USC 4601) (URA), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of PL 100-17, 101 Stat. 246-256.

Additionally ineligible project costs are identified in the guidance including costs that would otherwise be the responsibility of the property owner including specific modification, improvements, or repairs to the property, bringing a structure into compliance with the current building or housing code, or costs beyond elevating a structure above the design first floor elevation. No additions to the habitable spaces of the structure will be permitted in the performance of elevation work. No federal funds will be used to restore, replace, or repair the structure.

3.5 EXECUTION / RECORDATION OF EASEMENT

The Recommended Plan includes up to 25 structures located on 25 properties. Assuming 100 percent participation rate, 25 easements would be acquired. Owners will also be expected to sign a Participation

Agreement with the non-Federal sponsor, NJDEP, prior to providing the easement. The Participation Agreement will document the owner voluntarily elected to participate in the project and outline actions and steps that must be taken by the property owner prior to commencement of the nonstructural treatment, including the requirement to sign an easement. The perpetual restrictive easement for residential elevation and model participation agreements are included as Enclosures 5 and 6 of the Guidance for Nonstructural Project Planning and Implementation. The non-Federal Sponsor is responsible for acquiring all Land, Easements, Rights-Of-Way, Relocation, and Disposal Areas (LERRD), including these easements, which will require title searches, recording executed easements, and mortgage subordinations on properties where applicable.

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 easement. USACE policy requires that as a condition of participation in a nonstructural floodproofing or elevation project, the property owner must agree to provide an easement to the non-Federal sponsor without additional compensation for that property interest. These easements will allow for installation of the nonstructural measures and provide rights for inspection of project features by the non-Federal sponsor.

3.6 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.

All properties require inspections for suitability for project participation. Although there is a standard Temporary Easement for Exploration, the use of Rights-of-Entry not conferring a real property interest is anticipated for the inspection of properties for eligibility.

A standard Perpetual Restrictive Easement for Residential Elevation/Basement In-Fill) will be acquired in accordance with CECW-ZA memorandum dated 22 Jul 24, subject: Guidance for Nonstructural Project Planning and Implementation (“NS Guidance”). This easement will only cover the lands occupied by the structure to be raised (not the entire parcel) to include the right of ingress and egress over and across other portions of the property for Operation & Maintenance (O&M) activities such as inspections and monitoring once construction is complete. The easement will be recorded in the county land records and will run with the land. Once recorded, the easement agreement will provide notice to subsequent owners of the rights and restrictions associated with the nonstructural treatment. A sample deed restriction is included as Enclosure 7 of the Guidance for Nonstructural Project Planning and Implementation.

Currently, no standard estate exists for non-structural commercial floodproofing activities. A nonstandard estate will be developed to address floodproofing requirements for commercial properties to include construction and operation and maintenance activities. The nonstandard estate will generally follow the NS

Guidance requirements. Upon project authorization, a draft nonstandard Perpetual Restrictive Easement for Floodproofing will be prepared for HQ USACE review and approval in accordance with CEMP-CR memorandum dated 11 Jan 19, subject: Real Estate Policy Guidance Letter No. 31-Real Estate Support to Civil Works Planning, and CENAD-PDR memorandum dated 23 Jan 24, subject: Requesting Approval of a Nonstandard Estate or Policy Deviation. HQUSACE approval of any nonstandard estate is required before project use

In accordance with the NS guidance, a participation agreement is required for all residential elevation participants and outlines the responsibilities of both the NFS and the property owner before and after construction is complete. The NS Guidance includes a model Participation Agreement for this purpose. For this report, it is assumed that commercial dry floodproofing activities will similarly require a formal participation agreement defining comparable roles and responsibilities. While this agreement is not a real estate interest, it is a necessary project participation document required per the NS Guidance and essential for project implementation.

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

Implementation 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 and will likely involve a design-bid-build acquisition approach. 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 contracts for each cluster. 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. Contractors will be required to hold insurance against damages to the structure during construction.

In coordination with USFWS, any tree removal in the project area would be conducted during the species inactive roosting season, which is November 16 to March 31, of any given year. If there is the need for tree removal outside of the inactive roosting season, a survey will be conducted, which protocols are further described in Appendix B. During any time of year, the project may not remove any trees within 0.25 miles of a known hibernaculum, disturb hibernating Northern long-eared bat, Tricolored bat, and Indiana bat as well as NJDEP species of the Little brown bat and Eastern small-footed myotis or alter the entrance or interior environment of a known hibernaculum. To date there are no known hibernacula within the project boundary.

Structures proposed for elevation raising are potentially suitable for bat roosting. Therefore, if implementation of a nonstructural measure from April 1 to November 15, they will be inspected (as possible/practicable) less than or equal to 5 days before construction begins for evidence of bat occupancy (e.g., live or dead bats, guano, staining at entry points) (Appendix B). If evidence of bat occupancy is observed or suspected at any point (including during construction), construction would immediately pause and the further coordination with USFWS would occur for further guidance.

SECTION 5.0 IMPLEMENTATION STRATEGY FOR NONSTRUCTURAL MEASURES

This Final 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 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

The non-Federal sponsor is responsible for ensuring the operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the project for each participating structure. 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'. The non-Federal sponsor will be responsible for completing physical inspections of structures with implemented nonstructural treatments on a rotating schedule, every 5 years of 10 percent of the structures in the project. The non-Federal sponsor's physical inspection will be used to determine compliance with requirements for participation.

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 and easement 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.