

NY Rising

Community Reconstruction Committee Plans



Executive Summaries



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FOREWORD

Introduction

In the span of approximately one year, beginning in August 2011, the State of New York experienced three extreme weather events. Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy wreaked havoc on the lives of New Yorkers and their communities. These tragic disasters signaled that New Yorkers are living in a new reality defined by rising sea levels and extreme weather events that will occur with increased frequency and power. They also signaled that we need to rebuild our communities in a way that will mitigate against future risks and build increased resilience.

To meet these pressing needs, Governor Andrew M. Cuomo led the charge to develop an innovative, community-driven planning program on a scale unprecedented and with resources unparalleled. The NY Rising Community Reconstruction (NYRCR) Program empowers the State's most impacted communities with the technical expertise needed to develop thorough and implementable reconstruction plans to build physically, socially, and economically resilient and sustainable communities.

Program Overview

The NYRCR Program, announced by Governor Cuomo in April of 2013, is a more than \$650 million planning and implementation process established to provide rebuilding and resiliency assistance to communities severely damaged by Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy. Drawing on lessons learned from past recovery efforts, the NYRCR Program is a unique combination of bottom-up community participation and State-provided technical expertise. This powerful combination recognizes not only that community members are best positioned to assess the needs and opportunities of the places where they live and work, but also that decisions are best made when they are grounded in rigorous analysis and informed by the latest innovative solutions.

One hundred and two storm-affected localities across the State were originally designated to participate in the NYRCR Program. The State has allocated each locality between \$3 million and \$25 million to implement eligible projects identified in the NYRCR Plan. The funding for these projects is provided through the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program.¹

¹ Five of the 102 localities in the program—Niagara, Herkimer, Oneida, Madison, and Montgomery Counties—are not funded through the CDBG-DR program.

Forty-five NYRCR Communities, each comprising one or more of the 102 localities, were created and led by a NYRCR Planning Committee composed of local residents, business owners, and civic leaders. Members of the Planning Committees were identified in consultation with established local leaders, community organizations, and in some cases municipalities. The NYRCR Program sets a new standard for community participation in recovery and resiliency planning, with community members leading the planning process. Across the State, more than 500 New Yorkers represent their communities by serving on Planning Committees. More than 400 Planning Committee Meetings have been held, during which Planning Committee members worked with the State's NYRCR Program team to develop community reconstruction plans and identify opportunities to make their communities more resilient. All meetings were open to the public. An additional 125-plus Public Engagement Events attracted thousands of community members, who provided feedback on the NYRCR planning process and proposals. The NYRCR Program's outreach has included communities that are traditionally underrepresented, such as immigrant populations and students. All planning materials are posted on the NYRCR Program's website (www.stormrecovery.ny.gov/nyrcr), providing several ways for community members and the public to submit feedback on materials in progress.

Throughout the planning process, Planning Committees were supported by staff from the Governor's Office of Storm Recovery (GOSR), planners from New York State (NYS) Department of State (DOS) and NYS Department of Transportation (DOT), and consultants from world-class planning firms that specialize in engineering, flood mitigation solutions, green infrastructure, and more.

With the January 2014 announcement of the NYRCR Program's expansion to include 22 new localities, the program comprises over 2.7 million New Yorkers and covers nearly 6,500 square miles, which is equivalent to 14% of the overall State population and 12% of the State's overall geography.

The NYRCR Program does not end with this NYRCR Plan. Governor Cuomo has allocated over \$650 million of funding to the program for implementing projects identified in the NYRCR Plans. NYRCR Communities are also eligible for additional funds through the program's NY Rising to the Top Competition, which evaluates NYRCR Communities across eight categories, including best use of technology in the planning process, best approach to resilient economic growth, and best use of green infrastructure to bolster resilience. The winning NYRCR Community in each category will be allocated an additional \$3 million of implementation funding. The NYRCR Program is also working with both private and public institutions to identify existing funding sources and create new funding opportunities where none existed before.

The NYRCR Program has successfully coordinated with State and Federal agencies to help guide the development of feasible projects. The program has leveraged the Regional Economic Development Council's State Agency Review Teams (SARTs), comprised of representatives from dozens of State agencies and authorities, for feedback on projects proposed by NYRCR Communities. The SARTs review projects with an eye toward regulatory and permitting needs, policy objectives, and preexisting agency funding sources. The NYRCR Program is continuing to work with the SARTs to streamline the permitting process and ensure shovels are in the ground as quickly as possible.

On the pages that follow, you will see the results of months of thoughtful, diligent work by NYRCR Planning Committees, passionately committed to realizing brighter, more resilient futures for their communities.

The NYRCR Plan

This NYRCR Plan is an important step toward rebuilding a more resilient community. Each NYRCR Planning Committee began the planning process by defining the scope of its planning area, assessing storm damage, and identifying critical issues. Next, the Planning Committee inventoried critical assets in the community and assessed the assets' exposure to risk. On the basis of this work, the Planning Committee described recovery and resiliency needs and identified opportunities. The Planning Committee then developed a series of comprehensive reconstruction and resiliency strategies, and identified projects and implementation actions to help fulfill those strategies.

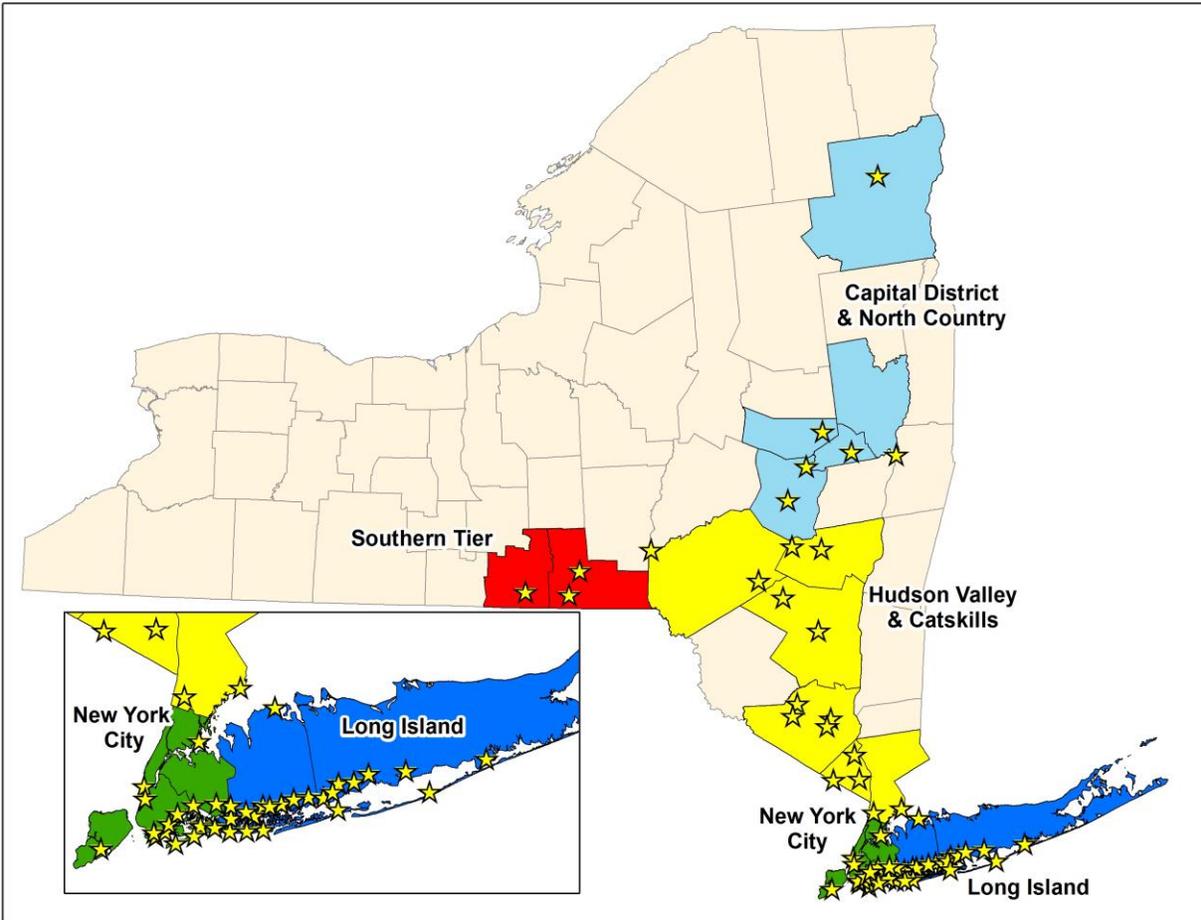
The projects and actions set forth in this NYRCR Plan are divided into three categories. The order in which the projects and actions are listed in this NYRCR Plan does not necessarily indicate the NYRCR Community's prioritization of these projects and actions. **Proposed Projects** are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding. **Featured Projects** are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. **Additional Resiliency Recommendations** are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects. The Proposed Projects and Featured Projects found in this NYRCR Plan were voted for inclusion by official voting members of the Planning Committee. Those voting members with conflicts of interest recused themselves from voting on any affected projects, as required by the NYRCR Ethics Handbook and Code of Conduct.

While developing projects for inclusion in this NYRCR Plan, Planning Committees took into account cost estimates, cost-benefit analyses, the effectiveness of each project in reducing risk to populations and critical assets, feasibility, and community support. Planning Committees also considered the potential likelihood that a project or action would be eligible for CDBG-DR funding. Projects and actions implemented with this source of Federal funding must fall into a Federally-designated eligible activity category, fulfill a national objective (meeting an urgent need, removing slums and blight, or benefiting low to moderate income individuals), and have a tie to the natural disaster to which the funding is linked. These are among the factors that the Governor's Office of Storm Recovery will consider, in consultation with local municipalities and nonprofit organizations, when determining which projects and actions are best positioned for implementation.

The total cost of Proposed Projects in this NYRCR Plan exceeds the NYRCR Community's CDBG-DR allocation to allow for flexibility if some Proposed Projects cannot be implemented due to environmental review, HUD eligibility, technical feasibility, or other factors. Implementation of the projects and actions found in this NYRCR Plan are subject to applicable Federal, State, and local laws and regulations, including the Americans with Disabilities Act (ADA). Inclusion of a project or action in this NYRCR Plan does not guarantee that a particular project or action will be eligible for CDBG-DR funding or

that it will be implemented. The Governor's Office of Storm Recovery will actively seek to match projects with funding sources.

In the months and years to follow, many of the projects and actions outlined in this NYRCR Plan will become a reality helping New York not only to rebuild, but also to build back better.





Long Island



Baldwin
**NY Rising Community
Reconstruction Plan**



March 2014
NY Rising Community
Reconstruction Program



Executive Summary

Overview

The hamlets of Baldwin and Baldwin Harbor – with a combined land area of approximately 4.7 square miles and a population of more than 32,000 – are close-knit, ethnically diverse communities located along the south shore of Long Island’s Middle Bay in Nassau County, New York. Baldwin and Baldwin Harbor extend from Middle Bay and Baldwin Bay north to the Southern State Parkway, crossing over the Merrick Road and Sunrise Highway corridors. These unincorporated hamlets within the Town of Hempstead (TOH) include a mix of upland and waterfront single-family home neighborhoods with different architectural styles and tree-lined streets. Ample retail stores and shops cluster around the train station and along Grand Avenue. In 2007, CNN Money ranked Baldwin #25 in a list of the best places to live in the United States.

On October 29, 2012, life changed dramatically for many community residents and business owners. New York and the entire Tri-State region were devastated by Superstorm Sandy, the largest storm of the 2012 Atlantic Ocean hurricane season. The south shore of Long Island, including Baldwin and Baldwin Harbor, suffered massive storm damage, power outages, sewer line overflows, and utility and transportation disruption. Superstorm Sandy’s destruction came on the heels of Hurricane Irene, which struck the community a year prior, on August 26, 2011, causing significant flooding, wind damage, and power outages. Directly or indirectly, the lives and well-being of virtually everyone in the region were, and continue to be, affected by the aftermath of both storms.

The NY Rising Community Reconstruction (NYRCR) Program was established by New York State (NYS) to provide rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through the creation of a NYRCR Plan, the program empowers communities to identify resilient and innovative reconstruction projects that take into account current damage, future threats, and economic opportunities. For the purposes of this planning effort, Baldwin and Baldwin Harbor were combined to create the NYRCR Baldwin Community (Community).

The NYRCR Baldwin Community is eligible for up to \$10.6 million of U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) funding (\$3.0 million for Baldwin and \$7.6 million for Baldwin Harbor).

Residents, business owners, first responders, and local employees from the Community actively participated in the NYRCR Program over a period of seven months, beginning in September 2013. These stakeholders considered their goals and aspirations for the future to develop a NYRCR Plan that honors the unique qualities and assets of the Community, that seeks to creatively reduce potential storm- and climate change-related impacts, and that leverages these investments to enhance existing assets and create new ones, improve quality of life, and support other needs and opportunities that can ultimately benefit the Community as a whole. The result of their efforts is this NYRCR Plan, which presents a series of strategies and projects that respond to the Community’s critical issues and contribute to building a more resilient, safe, and sustainable future for the NYRCR Baldwin Community.

The geographic scope of the NYRCR Plan includes both hamlets and extends north from Middle Bay in a narrow strip up to the Southern State Parkway. Its eastern edge is defined by Brookside Avenue until it intersects with Forest Avenue, and from there follows Milburn Creek south into Baldwin Bay. The Community’s western edge extends north from Parsonage Cove up to Silver Lake Park, where it cuts west along Foxhurst Road to Parkview Place, and continues north along the streets forming Baldwin’s existing boundary. The geographic scope of NYRCR Baldwin is shown in Figure ES-01.

Storm Impacts

Recent storm events brought significant damage to homes, businesses, infrastructure, and the natural environment. The two most powerful storms had different impacts on the Community in terms of both type and magnitude. In August 2011, Hurricane Irene’s heavy rain and wind caused flooding and downed trees resulting in impassable roads and

power outages. Flooding was concentrated in the residential neighborhoods south of Merrick Road, while heavy winds and power outages affected the entire Community.

In October 2012, Superstorm Sandy caused a 10-foot storm surge at high tide, which inundated waterfront neighborhoods that generally lie between 5- and 10-feet above sea level. The majority of the flooding was in homes and businesses south of Atlantic Avenue and via the two canal systems of Parsonage Cove to the west and Baldwin Bay to the east. The Community faced severe problems with power outages, heavy debris, and immobility due to damaged and flooded roads and compromised power lines.

More than 2,500 housing units were reported to be damaged, and although the degree of damage varied, many homes were inundated by an average of three-feet of water. Major roads and evacuation routes were blocked to residents and first responders. Many trees – which contribute to the Community’s character – were significantly damaged or felled by the strong winds. Power outages for most residents lasted 16 days and also caused disruption to cellular communications. A state of emergency was declared for portions of the community near Barnes Avenue to facilitate the cleaning out and decontamination of homes and other affected areas since the sewer main leading to the Bay Park Sewage Treatment Plant was breached and sewage backed up at manholes and basement drains into private residences.

While nearly all of the Community’s commercial corridors are located on high ground, a small number of businesses were flooded by Superstorm Sandy; other businesses suffered due to power outages and reduced commercial activity as a result of the storm. Gas stations could not pump fuel without backup power. Oakwood Beach Club’s beach eroded during Superstorm Sandy, although its pools and clubhouse remain.

Critical Issues

Recent storm events uncovered a variety of critical issues with the natural and built environment of the Community, along the south shore of Long Island, throughout vast utility service areas, and in

the broader region. These issues directly and indirectly impacted homes, businesses, sanitary sewers, stormwater drainage systems, energy infrastructure, public facilities, and natural resources. The following critical issues were identified during the NYRCR planning process, which directly informed the formulation of the strategies and projects of the NYRCR Plan:

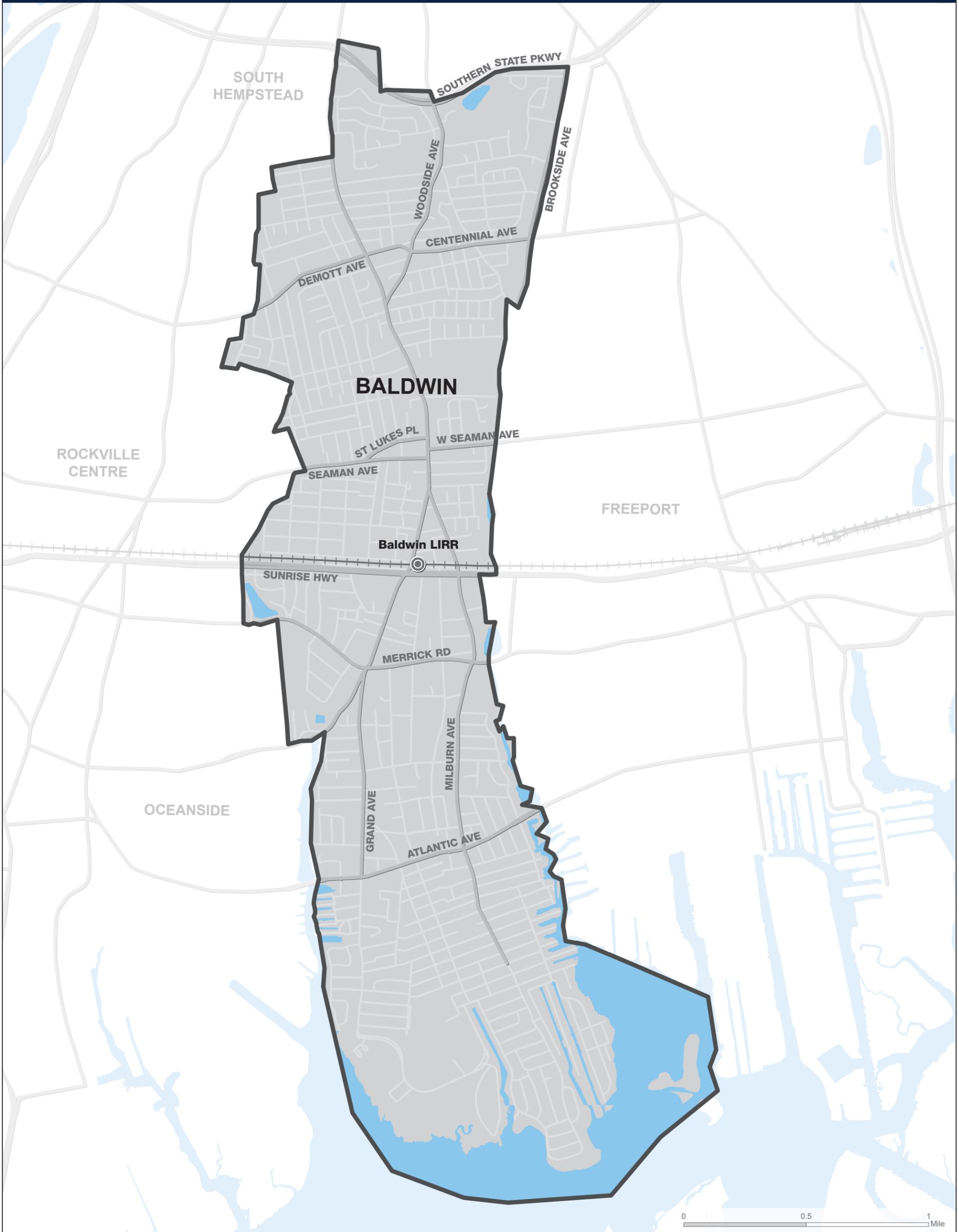
- Economic Challenges;
- Energy Infrastructure;
- Flooding and Drainage;
- Housing in High Risk Areas;
- Information, Communication, and Resources;
- Regional Connections;
- Resilient Planning, Design, and Construction; and,
- Shoreline Protection.

Although local issues are paramount, it is imperative to recognize the Community’s relationship to its neighboring communities and to the region beyond. Communities on Long Island’s south shore have similar patterns of development, interconnected infrastructure systems and road networks, overlapping municipal service provision areas, and a common shoreline. This dynamic demands a regional perspective of the challenges facing the Community so that local solutions can take into account and leverage regional considerations for reconstruction, recovery, and resiliency. Through a comprehensive review of regional plans and studies, meetings with neighboring communities, and sessions with the Town of Hempstead, a series of regional considerations was developed and used to expand upon local projects as well as to inform the development of shared projects with neighboring communities.

Community-Driven Process

The NYRCR Program provided the Community with a unique opportunity to participate in a community-driven planning effort. Nine Community representatives dedicated their time, passion, and expertise as members of the NYRCR Planning Committee (Committee), which guided the development of the NYRCR Plan. The Committee played an integral role every step of the way by: providing overall direction and guidance; generating material; reviewing,

Figure ES-01: Geographic Scope



Legend

- NYRCR Boundary
- Long Island Rail Road
- LIRR Station
- Water
- Main Roads
- Local Roads

Data Sources

ESRI, NOAA,
US Census,
Nassau County,
NYS DO
Created March 2014



Vision for a Resilient Future

The Vision for the NYRCR Baldwin Community is to make balanced investments in community infrastructure and create a sustainable and resilient community that values diversity, quality of life, natural resources, and economic development while maintaining a positive relationship to the water.

Goals for the Future

The NYRCR Baldwin Plan strives to:

- Support local business resilience by encouraging business continuity, crisis management planning, and technology and financial resilience.
- Acknowledge the hazards and vulnerabilities associated with future storms to encourage thoughtful, sustainable redevelopment.
- Rebuild homes and commercial buildings that are resilient in design and location.
- Develop innovative and natural solutions to coastal storm surges and erosion management.
- Enhance public open space so it serves multiple purposes, such as recreation, resilience, and refuge.
- Protect fresh water resources and improve stormwater management.
- Leverage Baldwin's civic pride, diversity, and high quality of life to rebuild the residential, commercial, and services communities.
- Ensure that proper health and social services are accessible to all residents on a daily basis and in emergency scenarios.
- Provide emergency infrastructure to all first response facilities and improve communication network redundancy.
- Ensure public safety during and after major natural events.

revising, and responding to components of the plan; and, deliberating on the initiatives that will bring the greatest recovery and resiliency value to the Community.

The Committee held eight official meetings over the course of seven months, from September 2013 to March 2014, including participating in two joint Committee meetings with the neighboring NYRCR Communities of Bellmore/Merrick, Freeport, Seaford/Wantagh, and Massapequas to explore shared issues and opportunities for collaboration and cooperation. In addition to guidance from the Committee, more than 260 residents and stakeholders participated in three Public Engagement Events or shared their opinions and ideas through online surveys, business surveys, and key informant interviews.

Through a combination of input received from the community during Public Engagement Events and the work of the Planning Committee, a Vision Statement and list of goals were developed to reflect the Community's aspirations for the future. These statements provide the foundation of the NYRCR Plan and have been used to guide the development of the Community's strategies and projects, as well as to serve as an ongoing reminder of what the Community aims to achieve.

Assessment of Risks and Needs

Hurricane Irene and Superstorm Sandy exposed certain vulnerabilities related to the Community's ability to mitigate and respond to major storm events, climate change, and sea level rise. As part of developing the NYRCR Plan, an inventory of community assets was compiled and evaluated to determine each asset's potential of being damaged or destroyed by a future storm surge or flooding event. By analyzing potential hazards, as well as levels of exposure and vulnerability to possible storm impacts, a measure of risk was calculated for each asset. In addition, the community asset locations were combined with NYS Department of State hazard maps that illustrate a full range of coastal risks and consider both the frequency and impact of flooding. This quantitative and spatial analysis, in addition to local knowledge from stakeholders gathered throughout the process, helped to highlight assets and geographic areas requiring attention, and served as a basis for the generation of project ideas.

Flooding is a significant risk for the Baldwin Harbor area of NYRCR Baldwin, with large tracts of housing being in the extreme or high flood risk areas or at risk of being cut off by street flooding. The latter particularly affects Baldwin Harbor Middle School and Meadow Elementary School. In addition, Parsonage Creek and Milburn Creek on the west and east edges of the Community carry flood water and storm surge deeper into the Community, as far north as Merrick Road to Silver Lake Park and Milburn Creek Park, causing more localized flood risk in those areas even during regular high tide and rainfall events. Pump stations which support these neighborhoods also lack protection.

Three of NYRCR Baldwin's Parks and the Oakwood Beach Club are subject to extreme or high flood risk. These assets, highlighted as being of importance to the community, suffered damage in both Superstorm Sandy and Hurricane Irene and are at risk of future storm damage. In total, there are more than 1,600 assets in the high and extreme flood risk areas. Through the Community Engagement process, approximately 35 key assets were identified, and the risk assessment process helped identify which of those assets had increased potential for storm damage.

The risk assessment was paired with an exploration of resiliency-related needs and opportunities, many of which were identified by committee members and the public at Committee meetings and Public Engagement Events. Risks, needs, and opportunities were organized by six categories that relate to all aspects of life in the Community: housing, infrastructure, natural and cultural resources, economic development, health and social services, and community planning and capacity building. The Community identified the following key needs and opportunities:

- Improve disaster and resiliency preparedness among Community residents and businesses;
- Improve communication/notification systems and disaster response by government authorities and utility service providers;
- Provide access to disaster support services and supplies in the Community for residents and businesses;

- Designate and maintain critical evacuation routes that are clearly labeled;
- Improve access to support services for seniors and socially vulnerable populations;
- Rebuild or renovate damaged housing and housing in high risk areas to storm-resistant standards;
- Expand and diversify the tax base with commercial development, particularly around and near the Long Island Rail Road (LIRR) station;
- Prepare workforce to meet regional employment projected demand in both skilled and unskilled professions;
- Mitigate the impacts of stormwater and tidal flooding through enhanced natural systems and infrastructure;
- Improve mobility for cars, pedestrians, and first-responders in the Community during storm events and on a day-to-day basis; and,
- Protect, acquire, maintain, upgrade, and/or restore public and private parks, open spaces, and natural assets in the Community to better manage stormwater, to protect habitat and wildlife, and for possible recreational uses.

Strategies for Reconstruction and Resilience

Strategies included here are designed to support the two main goals of reconstruction and resiliency. Reconstruction focuses on restoring, repairing, or rebuilding what was damaged or destroyed by Superstorm Sandy. Resiliency is about strengthening the ability of NYRCR Baldwin to rebound quickly when confronted with challenges of all kinds in the future. These strategies address and balance regional concerns, an analysis of problem areas, community feedback on local issues, and iterative development by the Committee. The four Reconstruction and Resilience strategies for the Community are listed below:

- Improve Stormwater Management and Drainage Systems;
- Improve Transportation and Communication Connectivity;

- Establish Programs and Policies for Resilient Planning and Design; and,
- Enhance the Community's Natural and Cultural Resources.

Proposed and Featured Projects

The projects that resulted from this extensive planning process support the Reconstruction and Resilience Strategies as well as the vision and goals for the Community. The projects included in the NYRCR Plan are organized into three categories, which are:

- **Proposed Projects** are discrete projects that are affordable within the Community's allocation of Community Development Block Grant Disaster Recovery (CDBG-DR) assistance.
- **Featured Projects** are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other funding resources. Featured projects also may include regulatory reforms and other programs that do not involve capital expenditure.
- **Additional Resiliency Recommendations** are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Table 01 on the following page lists the 21 Proposed and Featured Projects organized by strategy. The projects have not been ranked or prioritized.

Table 01: Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Establish Programs and Policies for Resilient Planning, Design, and Housing	Downtown and Commercial Corridor Resiliency Plan	This project is a resiliency study to plan for the long-term future of the commercial corridors in Baldwin and the area of Downtown Baldwin.	Proposed	No
Improve Stormwater Management and Drainage Systems	Silver Lake Park Drainage Improvements	A comprehensive drainage study will be undertaken to assess the flow controls at these basins to identify the cause of flooding in this area during regular rainfall events and guide the design of drainage improvements and improvements to the park for the Community.	Proposed	No
Enhance the Community's Natural and Cultural Resources				
Improve Transportation and Communication Connectivity	Baldwin Community Assistance Centers	Community Assistance Centers are places for residents to gather information about emergency preparedness under normal conditions. After a storm, these centers would become a place to gather, collect and distribute resources, charge cell phones, access the internet/TV, and seek comfort.	Proposed	No
Improve Stormwater Management and Drainage Systems	Green Infrastructure: NYRCR Baldwin Tree Planting Subsidy Program	Reintroduce a varied version of the TOH Tree Planting Program for Baldwin residents only to replace trees that have been brought down by storms and plant additional trees.	Proposed	No
Improve Stormwater Management, Drainage Systems	East Baldwin Road Raising	Road raising and associated drainage improvements along Washington Place, Hayes Place, Van Buren Place and Jackson Place.	Proposed	No
Improve Transportation and Communication Connectivity				
Enhance the Community's Natural and Cultural Resources	Baldwin Park Water Promenade	The project involves the strategic implementation of both natural and structural storm protection features along the shoreline to create a promenade and minimize further erosion and damage.	Proposed	No
Enhance the Community's Natural and Cultural Resources	Oakwood Beach Restoration	Assessment, design, and construction for the restoration of the privately-owned Oakwood Beach and Club and appurtenances for use by the entire Community.	Proposed	No

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Transportation and Communication Connectivity	Public Communication and Education Gap Analysis	Create a single source for comprehensive information and emergency assistance. It would establish a communication network that more effectively links the local government, emergency management agencies, residents, businesses and non-profit organizations.	Proposed	Yes
Establish Programs and Policies for Resilient Planning and Design	Business Continuity Program	Staff person to assist businesses in creating business continuity plans. Identify business assistance funding.	Proposed	Yes
Improve Stormwater Management and Drainage Systems	South Shore Stormwater System Modeling and Analysis	Hydrologic and hydraulic (H&H) model to determine the causes of localized flooding issues across the catchment and identify measures to prevent the flooding.	Proposed	Yes
Improve Transportation and Communication Connectivity	Lifeline Corridor Study and Guidelines	Study will be undertaken to identify best practices and develop design guidelines for resilient streetscapes. The guidelines will present design options for Merrick Road.	Proposed	Yes
Establish Programs and Policies for Resilient Planning and Design	Home Heating Upgrades	Incentivize the conversion of home heating systems from fuel oil to electric heat pumps, solar thermal, or natural gas in extreme and high risk areas. Amend building and planning regulations to phase out the use of fuel oil tanks south of Merrick Road, and incorporate temporary-intermediary regulations to require proper anchoring requirements based on anticipated inundation levels.	Featured	No
Improve Transportation Communication and Connectivity	Lifeline Network: Priority Local Road Streetlight Retrofit	Installation of solar photovoltaic (PV) powered LED streetlights with battery backup on utility poles along Merrick Road in Baldwin.	Featured	No
Establish Programs and Policies for Resilient Planning and Design				

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Stormwater Management and Drainage Systems	Green Infrastructure: Pilot Project Implementation at Steele Elementary School	Project proposes the study, design, and construction of a 0.4 acre-foot infiltration basin in combination with bioswales at Steele School.	Featured	No
Improve Transportation Communication and Connectivity				
Improve Stormwater Management and Drainage Systems	Tidal Check Valve Installation and/or Replacement	Project includes the inspection of outfalls to determine the condition and appropriateness of tidal check valves. Also includes the installation of 25 tidal check valves, where they would be most effective in addressing flooding.	Featured	No
Establish Programs and Policies for Resilient Planning and Design	Improve Resilience of Community Marinas	Emergency preparedness guidelines, recommendations and education to increase resiliency of marinas and docks.	Featured	No
Establish Programs and Policies for Resilient Planning and Design	Strategic Adaptation for Coastal Development	Identify long-term retreat and resilience options for Baldwin to protect future residents and business from higher occurrence and more intense storms/surges. Work with flood insurance providers to study existing models and assumptions. Use a combination of climate change and sea level rise forecasts and actual events to develop triggers for changes to zoning, planning, and building regulations.	Featured	No
Establish Programs and Policies for Resilient Planning and Design	Neighborhood Preservation Guidelines	Creation of new residential design guidelines for improving architectural quality and functionality in newly raised homes.	Featured	Yes

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Transportation and Communication Connectivity	Public Communication and Education Gap Analysis – Phase 2	This project is Phase 2 of the proposed project 'Public Communication and Education Gap Analysis' and includes the implementation of the gap analysis recommendation. Topics covered may include garage and parking design, stairway and entryway design, mechanical systems, home appliance placement, structural reinforcement, materials recommendations, and resilient landscapes.	Featured	Yes
Establish Programs and Policies for Resilient Planning and Design	Street-end Bulkhead Replacement/Upgrades	This project will inspect and identify the bulkheads at street ends and canal ends that fall under the Town of Hempstead ownership which require raising or replacement to improve resiliency as a result of recent storms. The project will identify, design, and construct up to 1,000 linear feet of bulkhead.	Featured	No
Improve Stormwater Management and Drainage Systems	West Baldwin Road Raising and Drainage Improvement Study	Study includes assessment and determination of works needs to alleviate the continual and severe flooding issues.	Featured	No
Improve Transportation and Communication Connectivity		Area includes Grand Boulevard, Hayes Street, Van Buren Street and Byrd Place.		

**Barnum Island/Oceanside/
the Village of Island Park/Harbor Isle
NY Rising Community Reconstruction Plan**



NY Rising Community Reconstruction Program

March 2014





Source: URS

Executive summary



Executive summary

Barnum Island, Oceanside, the Village of Island Park, and Harbor Isle are neighboring communities in the southern portion of the Town of Hempstead, Nassau County, New York. Island Park is an incorporated village with its own elected government, and Barnum Island, Oceanside, and Harbor Isle are unincorporated hamlets of the Town of Hempstead. Together, they make up the NY Rising Community Reconstruction (NYRCR) Barnum Island/Oceanside/the Village of Island Park/Harbor Isle Community (Community).

The Planning Area encompasses the Census-Designated Place (CDP) boundaries of Barnum Island, Oceanside, the Village of Island Park, and Harbor Isle. The Community is a less-than-50-minute train ride from New York City on the Long Beach Branch of the Long Island Rail Road (LIRR). The Community is bounded by Rockville Centre on the north, Freeport and Baldwin Harbor on the east, the City of Long Beach and a barrier island to the south, and Bay Park and East Rockaway on the west.

The Community is eligible for up to \$36.6 million in Community Development Block Grant – Disaster Recovery (CDBG-DR) funding through the NYRCR Program. The eligible funds consist of \$4 million for Barnum Island, \$22.2 million for Oceanside, \$7.4 million for the Village of Island Park, and \$3 million for Harbor Isle.

Storm impacts

The landfall of Superstorm Sandy on October 29, 2012, devastated the Community. The storm's tidal surge flooded nearly all of Barnum Island, the Village of Island Park, and Harbor Isle, which together occupy the southernmost portion of the Community, and flooded nearly two-thirds of the land area of Oceanside.

The storm hit during a full-moon (i.e. most extreme) high tide. The combination of high tide and storm surge pushed into Reynolds Channel, forcing its way across the Hog Island Channel and Wreck Lead waterfronts and up California Place Canal, Bedell

Creek, Grand Canal, Powell Creek, and other inland waterways. Some of the Community's most severe flooding occurred in inland areas as a result of the tidal surge's overbanking of interior waterways.

In Oceanside, the areas south of Waukena Avenue along Hog Island Channel and Bedell and Powell Creeks were inundated with as much as four-feet of water. Oceanside's Long Beach Road commercial corridor and Lawson Boulevard were under four to six feet of water. Homes and businesses in neighborhoods near Grand Canal and Bedell Creek experienced up to six feet of water as tidal surge worked its way into these inland communities.

In Barnum Island, the worst flooding occurred near the California Place Canal and along Wreck Lead, with six- to eight-feet of water flooding homes and waterfront businesses.

In the Village of Island Park, tidal waters came from the Hog Island Channel (across Little Beach), Wreck Lead, California Place Canal, and Island Park Channel. Almost all areas of the Village received more than two-feet of water, destroying personal belongings, mechanical systems, flooring and walls. The area between Long Beach Road and Nassau Lane experienced six- to eight-feet of floodwater.

In Harbor Isle, water reached up to two-feet in height throughout the community, with the most flooding at the Wreck Lead and Hog Island Channel shorelines, which experience six- to eight-feet of water.

In addition to flooded homes and businesses, the Community experienced major breakdowns in critical transportation systems, power, and sewer infrastructure.

During the storm, the Austin Boulevard, Lawson Boulevard, and Long Beach Road evacuation routes – together with other major streets – were impassable. These closures blocked late evacuation of the Community and Long Beach, preventing escape and complicating emergency response.



Barnum Island/Oceanside/the Village of Island Park/Harbor Isle

Figure 2: Geographic scope





A nine-foot wall of water washed over the Bay Park Sewage Treatment Plant, knocking out power and causing more than 100 million gallons of raw sewage to flow into adjacent waterways and to back up into the basements of homes in the Community. The plant went offline at approximately 10:00p.m. on October 29, 2012 and remained so for approximately 58 hours. After the implementation of an emergency recovery effort, power was restored and service reestablished at approximately 6:00a.m. on November 1, 2012.

Approximately 8,100 homes in the Community lost power, and it took more than four weeks for service to be fully restored. A break in a natural gas main cut off gas supply, and reestablishing service took up to three weeks. Thus, Community residents suffered through much of November without heat or electricity. Communications systems also failed after the storm,

leaving people in the dark, cold, and without a way to communicate their needs.

Firehouses and emergency service facilities were also heavily damaged. The Oceanside Fire Department Hose Company No. 1 and the Southside Hose Company No. 2 were flooded, which damaged six fire trucks. The Village of Island Park Firehouse flooded, damaging the structure and destroying equipment and five emergency response vehicles.

In Oceanside, Schools 4, 8, 9E, and 9M were flooded. Classes for School 8 were moved to School 6 for several weeks while repairs were made. Francis X. Hegarty Elementary School in the Village of Island Park was flooded and forced to close for repairs for the remainder of the school year. The Island Park Library flooded and was closed for repairs until July 2013.



Damage to Barnum Island open space and marinas due to Superstorm Sandy

Source: Jim Mooney, East Rockaway, NY



Critical issues

The effects of Superstorm Sandy highlighted a number of ways that the Community can bolster its resilience for future storm events. The NYRCR Barnum Island/Oceanside/the Village of Island Park/Harbor Isle Planning Committee (Committee) identified improved emergency response capabilities, access to power, and protection from flooding as some of the major needs.

The following critical issues were identified in the planning process:

- Vulnerable public facilities, including schools, municipal buildings, and firehouses. These facilities were hit hard by Superstorm Sandy, and they remain vulnerable to future storm events.
- Limited emergency transportation routes. Barnum Island, the Village of Island Park, and Harbor Isle are all on an island. During a flood, Austin Boulevard and Long Beach Road are the only routes to safety from the island. Oceanside also has limited routes to safety in an emergency, and two of its major egress routes, Lawson Boulevard and Long Beach Road, are subject to flooding.
- Access to power during and after an emergency. Power and natural gas outages were widespread and long lasting during and after Superstorm Sandy.
- The inability of stormwater to drain. Stormwater systems have been damaged in major storms, and about 100 stormwater outfalls are situated below the high-tide line. Tidal water blocks drainage and backs up into the stormwater system, causing flooding during normal rainfall and high-tide events and catastrophic system failures during major storm events.
- Constant threat of flooding due to low elevation. Bay and creek-front shorelines and interior “bowls” that are lower than the surrounding land area are particularly susceptible to flooding during high tides and even ordinary storm events.

- Threatened marshland. The marshes surrounding the Community have been significantly reduced and degraded by development and environmental contamination over the last century. Superstorm Sandy inflicted new damage on these marshes. The remaining marshes and shoreline areas need protection and enhancement to restore their storm buffer capacity and other environmental functions.

Working together to rebuild stronger, smarter, and safer

The NYRCR Plan was developed through a public process that built a shared vision for the Community and reflects the residents’ and the Committee’s respect for local diversity, pride in the unique location, appreciation of natural assets, and commitment to home-grown businesses. The ultimate goal of the Plan is to rebuild in a manner that increases resilience, sustainability, and offers greater prosperity to ensure the area’s long-term success. The Committee, with input from the public, developed the following vision statement:

Enhance the quality of life and chart a course towards the future by creating solutions to rebuild and revitalize two communities that are enriched by the diversity of their residents. Facilitate positive, innovative change that will provide an environment that is SAFE and an infrastructure that is RESILIENT, so that each community can thrive, sustain itself in the face of adversity and preserve its uniqueness and charm.

The Community’s vision statement and the NYRCR Plan were shaped in a public engagement process that consisted of nine Planning Committee meetings, three Public Engagement Events, regular subcommittee meetings, and a Community survey.

All nine Planning Committee meetings were open to the public and attended by as many as 40 members of the public.



Due to the large geographic area of the Community, the Committee split into two geographic-based subcommittees to address project details. One subcommittee represented the areas of Barnum Island, the Village of Island Park, and Harbor Isle; the other subcommittee represented Oceanside. Six subcommittee meetings were held during the course of the planning process to facilitate open dialogue about Community-specific needs, risks, strategies, and projects.

Three Public Engagement Events were held to share the work of the Committee with the public and solicit the public's feedback. A fourth Public Engagement Event is scheduled for after the release of the NYRCR Plan to present the Plan to the public.

The first Public Engagement Event, held in October 2013, was a project open house attended by more than 75 residents, who shared their knowledge, experience, and recommendations to help shape the Plan's emerging vision and strategies.

The second Public Engagement Event was held in November 2013 and was attended by more than 180 people. The meeting used small-group facilitated breakout sessions to gain insights into how the Community experienced Superstorm Sandy and provide feedback on the strategies that the Committee had proposed to help the Community become more resilient.

The third Public Engagement Event was held in March 2014 to review the projects and recommendations under consideration for the Plan. Display boards illustrated potential projects, and participants completed project feedback forms so that public input could inform the Committee as the list of projects became further refined.

A public information meeting will be held in Spring 2014 to share the work of the Committee and the NYRCR Plan with the public.

In addition to meetings, the public engagement process included a survey that was available at the Oceanside and Island Park libraries and online at the Community Reconstruction Program website from October 2013 through February 2014.



2nd Public Engagement Event
Source: Sustainable Long Island



3rd Public Engagement Event
Source: Sustainable Long Island



Blueprint for implementation

The Community suffered severe damage during Superstorm Sandy, and to a lesser extent Hurricane Irene, and many parts of the Community experience flooding during both regular high tide and storm events. The planning process identified a set of strategies to reduce the risk of future flooding to enable the Community to rebuild stronger, smarter, and safer. The NYRCR Plan recommends sustainable and resilient approaches to support existing residents and businesses and attract new visitors, residents, and businesses to enjoy the Community's considerable assets. These strategies will be implemented by a set of projects with a goal of reducing the risks of future tidal and storm flooding and address the needs that the Community identified to become more resilient.

The NYRCR Plan includes three categories of projects to address critical Community needs: Proposed Projects, Featured Projects, and Additional resiliency recommendation.

- **Proposed Projects:** Proposed Projects are designed to be fully funded through the NYRCR Program using the Community's allocation of CDBG-DR funding.
- **Featured Projects:** Featured Projects are innovative projects in which an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding, and regulatory reforms that do not involve capital expenditures.
- **Additional resiliency recommendations:** Additional resiliency recommendation are projects and actions that the Committee would like to highlight, would be funded from sources other than CDBG-DR funding, and are not categorized as Proposed or Featured Projects.

All of the projects included in the NYRCR Plan are important to the Community. The following is a list of Proposed and Featured Projects and Additional resiliency recommendation, organized by strategy. The order of appearance is not a reflection of project priority or ranking.



Oceanside Road at Davison Road

Source: LiRo Group



Table 1: Table of projects

Strategy	Project name	Project category
Reduce the risk of flooding to critical facilities and emergency service facilities, such as police and fire departments, schools, and other facilities that serve vulnerable populations	Construct resiliency improvements to schools and emergency response facilities, and expand emergency response resources	Proposed
	Construct a new Village of Island Park Village Hall	Featured
Implement progressive stormwater management systems and infrastructure upgrades to decrease flooding in areas that consistently flood during storm events and high tides	Install tidal backflow prevention devices	Proposed
	Complete a stormwater drainage system analysis and implement identified high-priority improvements	Proposed
Protect shoreline areas from tidal surge through a combination of structural, nonstructural and hybrid shoreline stabilization techniques	Install a first phase of perimeter flood safeguards along Grand Canal, Bedell Creek, Powell Creek, Wreck Lead, and California Place Canal	Proposed
	Install tidal barriers at public street ends and Landgraf Park in the Village of Island Park	Proposed
	Construct a second phase of perimeter flood safeguards and raise the roadways adjacent to California Place Canal	Featured
Leverage the economic potential of the area's waterfront location and proximity to New York City	Develop a plan to create a waterfront destination revitalization and transit-oriented development zone for downtown Island Park and the Wreck Lead waterfront	Proposed
	Prepare a plan to revitalize the Oceanside industrial waterfront	Featured
Restore, enhance, and improve natural areas, including local beaches, marshes, parks, and other open spaces, to provide recreation opportunities and enhance the natural environment	Restore Little Beach, Masone Beach, and Harbor Isle Beach	Proposed
	Improve Oceanside Park and its shoreline	Proposed
	Conduct a marsh restoration study and implement a restoration pilot project for Garrett Marsh east of Barnum Island	Proposed
	Conduct a marsh restoration study for Simmons Hassock Marsh, and complete restoration of Garrett Marsh and Simmons Hassock Marsh	Featured
Implement an emergency response system that engages in emergency planning, response, and communications at the Community level	Create and begin implementation of an emergency transportation lifeline safety plan for Barnum Island, the Village of Island Park, and Harbor Isle	Proposed
	Create and begin implementation of an emergency transportation lifeline safety plan for Oceanside	Featured
	Construct an emergency staging area for Barnum Island, the Village of Island Park, and Harbor Isle	Featured

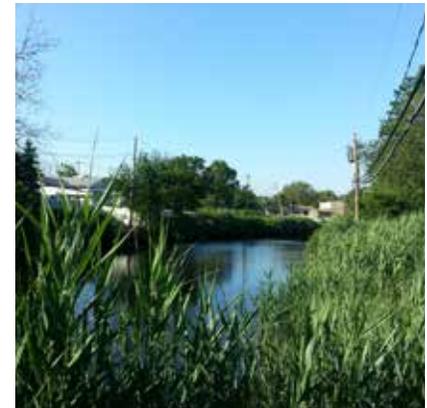
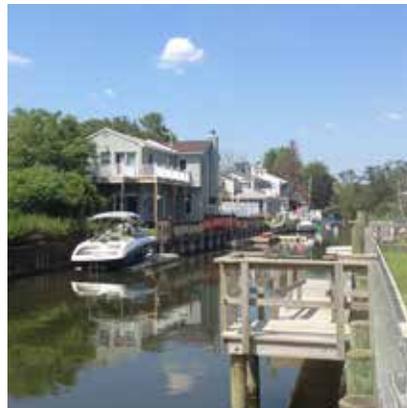


NY RISING COMMUNITY RECONSTRUCTION PROGRAM

BAY PARK AND VILLAGE OF EAST ROCKAWAY

NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014



Executive Summary

The Village of East Rockaway and the community of Bay Park in the Town of Hempstead are home to more than 12,000 people. One of Long Island’s oldest communities, East Rockaway began as a port along the Mill River’s deep channel. Bay Park was largely developed in the 1900s with a community of modest summer homes, which became a year-round community of homeowners along West Hempstead Bay. The waterfront locations of both communities, central to their history, has become a major source of vulnerability. This was made acutely apparent during Superstorm Sandy, when the storm surge pushed seawater into the Mill River, and Bay Park’s several creeks and inlets, overflowing shoreline banks, canals, and bulkheads into the low-lying areas of land within both communities. In all, more than 1,600 housing units were flooded, with 24% of the homes in East Rockaway and 83% of those in Bay Park sustaining damage. Flooding, which has occurred with greater frequency since Superstorm Sandy, has directly affected the quality of life throughout the community and property values have suffered. In Bay Park, many homes remain vacant. The 2013 median sales price for homes in Bay Park and East Rockaway decreased more than 13% from the previous year, prior to Superstorm Sandy.

Superstorm Sandy’s impact extended well beyond the area’s homeowners. As home to the Bay Park Sewage Treatment Plant (Bay Park STP), one of Nassau County’s most important pieces of infrastructure, Bay Park was severely impacted after the facility’s electrical system flooded, rendering the facility inoperable and causing



White Cannon Point, East Rockaway

sewage to backup in some of the community’s homes and businesses. Superstorm Sandy also exposed the vulnerability of downtown East Rockaway, the commercial center for both communities, to storm surge. Many of Downtown’s businesses establishments, which flooded during Superstorm Sandy were only able to reopen after several months.

In September 2013, the NY Rising Community Reconstruction Planning Committee (Committee), a group of Bay Park/East Rockaway residents and civic leaders, convened with the goal of creating a plan to help Bay Park and the Village of East Rockaway rebuild from the damage caused by Superstorm Sandy and prepare for a more resilient future. Since that time, the Committee has worked closely with a team of professional consultants, representatives of New York State,



Grand Canal, Bay Park

and several Nassau County and Town of Hempstead agencies to develop this NYRCR Bay Park/East Rockaway Plan.

The NYRCR Bay Park/East Rockaway Plan features a series of projects identified as having the greatest benefit in increasing Bay Park and East Rockaway’s resilience to future climate related events. These projects will be implemented with \$6,656,000 in Community Development Block Grant-Disaster Recovery (CDBG-DR) funds allocated to the NYRCR Bay Park/East Rockaway Community (Community). The NYRCR Bay Park/East Rockaway Plan is community-based, the product of a robust public engagement effort involving consensus-building amongst both residents and business owners. Finally the NYRCR Bay Park/East Rockaway Plan is comprehensive, addressing six recovery support functions: Community Planning

Bay Park and the Village of East Rockaway

& Capacity Building; Economic Resilience; Health & Social Services; Housing; Infrastructure; and, Natural & Cultural Resources.

With a fundamental focus on implementation, the NYRCR Program planning process incorporated extensive discussions with the Village of East Rockaway, Town of Hempstead and Nassau County, to confirm that relevant agencies have confidence in each project's ability to be implemented. The Committee also coordinated with agencies operating at a regional level, including the U.S. Army Corps of Engineers (USACE), and maintained an ongoing dialogue with parallel resiliency efforts, especially Rebuild by Design. As a result, the projects featured in the NYRCR Plan are supportive and complimentary of these other efforts, rather than duplicative or counterproductive.

The Committee had six meetings, and all were posted on the program website and open to the public. Additionally, three Public Engagement Events were held, (with a fourth to come after the release of this NYRCR Plan,) in which the public was invited to learn about the Committee's work to date and to provide feedback on past and future work. These Public Engagement Events were heavily advertised to attract a diverse set of members from the Community.

The NYRCR Bay Park/East Rockaway Plan is aimed at not only addressing short-term needs in the aftermath of Superstorm Sandy, but the long-term resilience of the two communities as well. The Plan includes a menu of projects that can be implemented in the short, medium and long term.



Public engagement event #1



Public engagement event #2

As part of the planning process, the Committee created a vision statement that identifies the Community's goals for the NYRCR planning process.

The vision for the communities of Bay Park and East Rockaway as a whole is one that thrives in the face of future storm events where the small-town quality of life, walkable neighborhood character, and surrounding natural features are preserved and enhanced.

"Proposed Projects" are projects proposed for funding through the Community's allocation of CDBG-DR funding. "Featured Projects" are projects and actions that the Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. "Additional Resiliency Recommendations" (see Section V-A: *Additional Resiliency Recommendations*) are projects and actions that the Planning Committee would like to highlight.

The nine Proposed and nine Featured projects included in the NYRCR Plan for Bay Park/East Rockaway address each of the six strategies that emerged from the public engagement process and technical analysis:

- A: *Protect the coastline from flooding;*
- B: *Address recurring stormwater drainage issues;*
- C: *Harden municipal infrastructure and improve capability to respond to storm events;*
- D: *Improve the overall quality of life to maintain housing values and give people a reason to stay and invest in the community;*
- E: *Strengthen and protect the local economy; and,*
- F: *Leverage improvements to the Bay Park STP.*

The Proposed and Featured projects identified for each of these strategies are geographically identified on pages 10-11.

Strategies

A: Protect the coastline from flooding

Though Superstorm Sandy was an unprecedented event, the sources and causes of flooding observed during Superstorm Sandy are regularly reflected on a smaller scale during high tide events, rainstorms, and nor'easters, not only in Bay Park and East Rockaway, but in other communities along the south shore of Long Island as well. Nuisance flooding, which occurs approximately twice a month on spring tide and moon tides, is expected to increase as a result of anticipated increases in general sea level and frequency of extreme events such as high wind induced surges. The bay shoreline of the Town of Hempstead provides incomplete protection against tidal inundation above 7-8 feet.

In recognition of the complexity of the technical and implementation issues involved in addressing the shoreline, much of which is privately owned, the Bay Park/East Rockaway NYRCR Plan includes an ambitious and regional Proposed Project: the **South Shore Shoreline Improvement Program Study (A1)**. The study would look at methods for making coordinated improvements to achieve a contiguous shoreline in the Town of Hempstead. The goal would be to investigate mechanisms for funding, streamlining the permitting process, and creating options for incentivizing bulkhead repairs and living shoreline improvements. The NYRCR Committee recognizes the importance of this issue to the other communities along the South Shore, and their assumption is that the solutions derived from this Program could serve as a model to address conditions in those communities as well.

B: Address recurring stormwater drainage issues

Many roads in East Rockaway and Bay Park experience recurring flooding as the stormwater drainage system does not operate properly at lower elevations. Siltation of the pipes from recurring tidal flows has reduced the ability of the system to function at its intended capacity, which is already insufficient to handle current and future conditions.

The **East Rockaway/Bay Park Drainage Improvements (B1)** project includes a multi-phase suite of interventions that address the two areas that are subject to the most frequent flooding events: Lawson Avenue and East/West Boulevards along Higbie Creek. The project will also address excess sedimentation and bulkheading along Higbie Creek. The first phase of the project will entail a Hydrology and Hydraulic Study of the drainage system to help to identify specific plans for the subsequent phases of the project. The subsequent phases will improve drainage conditions for the two areas with a variety of interventions which may include installing check valves on outfall pipes, raising roads and re-grading surrounding properties, repairing bulkheads, and dredging water bodies such as Higbie Creek to remove excess sedimentation.

The **Green Infrastructure Implementation Program (B2)** includes measures to reduce minor localized flooding and reduce stormwater runoff through green infrastructure. This would include the reduction of impervious surfaces on streets, parking lots and public properties as well as other measures to encourage green infrastructure on private property.

C: Harden municipal infrastructure and improve capability to respond to storm events

The **Harden the East Rockaway Department of Public Works (DPW) Garage and John Street Recreation Center (C1)** Proposed Project would protect East Rockaway's key facilities that sit within the floodplain through dry floodproofing and movable flood barriers. The resilience of the Community's facilities and infrastructure is critical to the area's ability to mobilize, communicate and respond to future disaster events.

The **Expand Mobile Disaster Response Capacity (C4)** Featured Project would supplement this effort by purchasing a coordinated mobile emergency response unit to help the Village to perform the necessary life safety rescues required in another flood emergency.

A second Proposed Project intended to improve the community's administrative capacity to rebuild after Superstorm Sandy and follow through on long-term recovery measures is the funding of a **Local Disaster Recovery Manager (C2)**. The Local Disaster Recover Manager (LDRM) will coordinate and manage the overall long-term recovery and redevelopment of the Bay Park/East Rockaway NYRCR Community, provide administrative and grant writing support for multiple federally-funded projects and programs, and ensure that Federal funds are used properly. It is the Committee's intent that the LDRM would provide grant-writing services for the Village of East Rockaway.

Proposed and Featured Projects

Strategy A: Protect the coastline from flooding

A-1	South Shore Shoreline Improvement Program Study	Proposed
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Strategy B: Address recurring stormwater drainage issues

B-1	East Rockaway – Bay Park Drainage Improvements	
B-1.1	Sub-project 1: East Rockaway – Bay Park Drainage Hydrology and Hydraulic Study	Proposed
B-1.2	Sub-project 2: Lawson Ave (part 1)	Proposed
B-1.3	Sub-project 3: Lawson Ave (part 2)	Proposed
B-1.4	Sub-project 4: West Blvd (part 1)	Proposed
B-1.5	Sub-project 5: West Blvd (part 2)	Featured
B-1.6	Sub-project 6: Road Raising of East Boulevard and connecting streets	Featured
B-2	Green Infrastructure Implementation Program	Featured

Strategy C: Harden municipal infrastructure and improve capability to respond to storm events

C-1	Harden East Rockaway Department of Public Works (DPW) Garage and John Street Recreation Center	Proposed
C-2	Local Disaster Recovery Manager (LDRM)	Proposed
C-3	Microgrid network for backup power supply	Proposed
C-4	Expand Mobile Disaster Response Capacity in East Rockaway	Featured
C-5	Install Solar Panels at Schools	Featured

Strategy D: Improve the overall quality of life

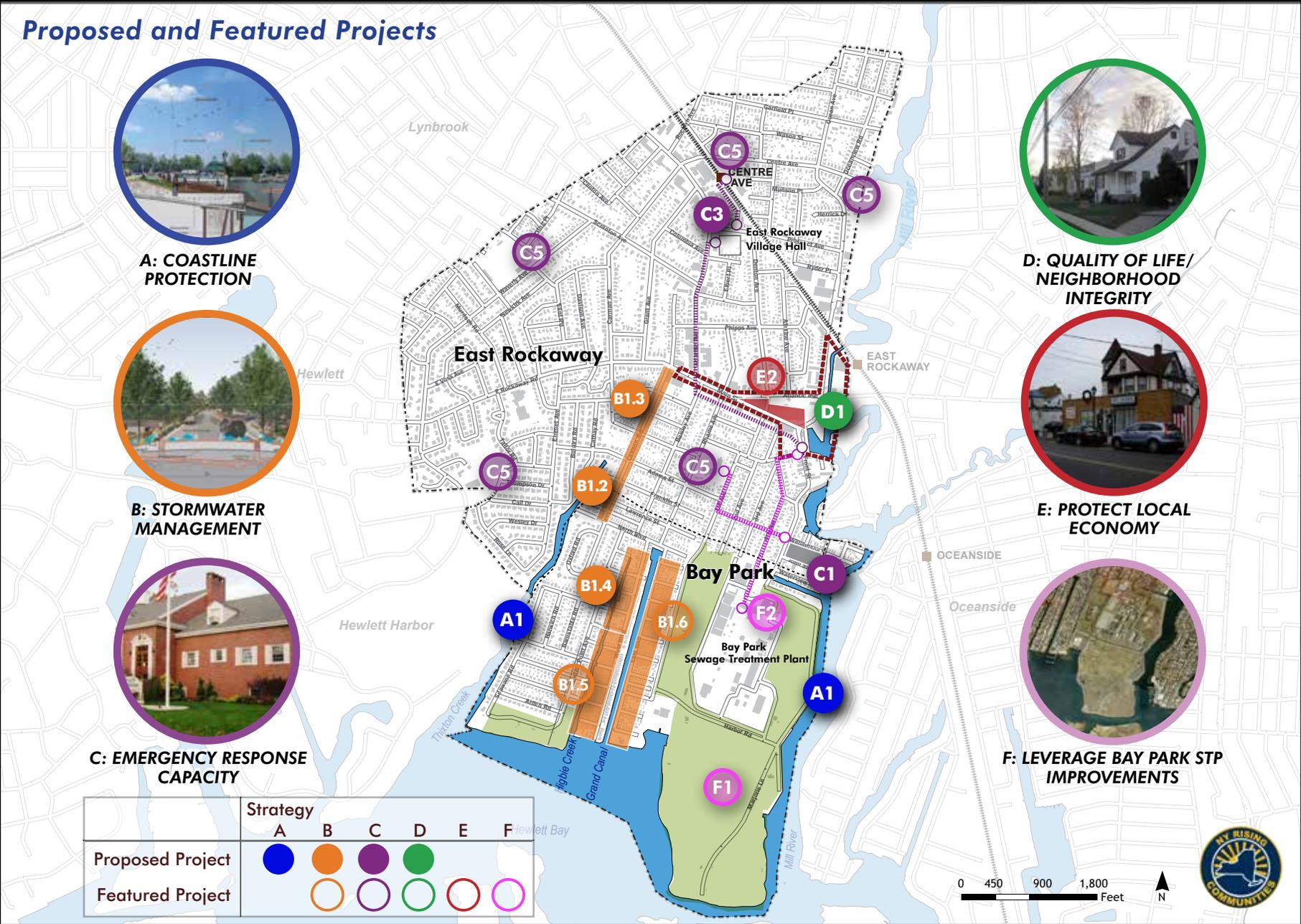
D-1/E-1	Downtown Resiliency and Redevelopment Strategic Plan	Proposed
D-2	Neighborhood Home Improvement Assistance Program	Featured

Strategy E: Strengthen and protect the local economy

E-2	Program for Floodproofing of Downtown Businesses	Featured
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Strategy F: Leverage improvements to Bay Park STP

F-1	Repairs to Bay County Park	Featured
F-2	Microgrid network for backup power supply at Bay Park STP	Featured



Bay Park and the Village of East Rockaway

The NYRCR Plan includes two projects to address the resiliency of the electrical grid. The **Microgrid Network for Backup Power Supply (C3)** Proposed Project would create a microgrid network centered around the Village Hall in East Rockaway and would provide backup power to nearby critical and community facilities. The **Install Solar Panels at Schools (C5)** project would install solar panels on the roofs of three schools within the East Rockaway Union Free School District, including Centre Avenue School, Rhame Avenue School, and East Rockaway High School.

D: Improve the overall quality of life to maintain housing values and give people a reason to stay and invest in the community

The economic stress, blight, and displacement caused by Superstorm Sandy have the potential to substantially impact the neighborhoods. In the short term, Superstorm Sandy has reduced home values and weakened the economic base. In the long-term, there is the risk of losing middle-income housing to lot consolidation and high-end development. The **Downtown Resiliency and Redevelopment Strategic Plan (D1)** is a Proposed Project that will develop a plan to protect downtown East Rockaway from flooding. This plan would identify solutions for both economic development and flood protection, serving as a redevelopment plan to guide future zoning changes. This Proposed Project would leverage the area surrounding the Talfor Boat Basin as a unique waterside destination to diversify and strengthen the commercial base and provide new housing opportunities. The **Neighborhood Home**

Improvement Assistance Program (D2) is a Featured Project that would provide gap funding for resiliency costs not covered by either traditional lending practices or government assistance.

E: Strengthen and protect the local economy

Superstorm Sandy exposed downtown East Rockaway's vulnerability to tidal and stormwater flooding. Protecting downtown East Rockaway from inundation from the Mill River presents a complex set of long-term challenges. The Downtown Resiliency and Redevelopment Strategic Plan (D1) addresses this challenge as well. The **Program for Floodproofing Downtown Businesses (E2)** is a Featured Project that would incentivize the floodproofing of buildings by providing local businesses in downtown East Rockaway with a tax credit or stipend to utilize permanent dry floodproofing improvements, raise building utilities, or implement other resilient flood protection measures.

F: Leverage improvements to Bay Park STP to provide needed local amenities

Nassau County is in the process of repairing, upgrading and hardening the Bay Park STP. The burdens placed on the local community by the presence of the Bay Park STP were recognized by not only the NYRCR Committee, but the larger NYRCR Community as well. As such, the NYRCR Committee identified the opportunity to leverage the \$810 million investment planned for the Bay Park STP to increase the overall resiliency of the host community, as an important element of the NYRCR Plan.

The NYRCR Plan includes **Repairs at Bay County Park (F1)** as a Featured Project, advocating for Nassau County to provide further improvements to the southern and western areas of Bay County Park in Bay Park. This would entail the relocation of ball fields to allow construction staging and phasing for Bay Park STP and the Park concurrently. Such phasing will allow for the redesign of the existing ball fields as passive recreational space, and provide residents with access to the canal for fishing. Also included as a Featured Project is the establishment **Microgrid Network for Backup Power Supply at Bay Park STP (F2)**. This project would use the plant as a hub to provide a backup power supply during storm events to the plant and nearby critical facilities in the NYRCR Community.

Picture to right: Homes in Bay Park

Bellmore/Merrick **NY Rising Community** **Reconstruction Plan**



March 2014
NY Rising Community
Reconstruction Program





Executive Summary

Overview

The hamlets of Bellmore and Merrick—with a combined land area of approximately seven square miles and a population of over 38,000—are desirable “bedroom” communities located along the south shore of Nassau County in Long Island, New York. These unincorporated hamlets within the Town of Hempstead include a mix of upland and waterfront single-family home neighborhoods with a wealth of community amenities, such as waterfront parks, a golf course, easy access to Jones Beach, two Long Island Rail Road (LIRR) stations, and numerous local retail and commercial businesses. Both hamlets lie immediately adjacent to the East Bay, an embayment of the South Shore Estuary, and are composed of peninsulas and canals that allow access for boats and maritime activity.

On October 29, 2012, life changed dramatically for many community residents and business owners. New York and the tri-state region were devastated by Superstorm Sandy, the largest storm of the 2012 Atlantic Ocean hurricane season. The south shore of Long Island, including Bellmore and Merrick, suffered massive storm damage, power outages, and utility and transportation disruption. Superstorm Sandy’s destruction came on the heels of Hurricane Irene, which struck the community just a year prior on August 26, 2011, causing significant flooding, wind damage, and power outages. Directly or indirectly, the lives and well-being of virtually everyone in the region were, and continue to be, affected by the aftermath of both storms.

In response, the NY Rising Community Reconstruction (NYRCR) Program was established by the New York State (NYS) to provide rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. This program empowers communities to identify resilient and innovative reconstruction projects that consider current damage, future threats, and economic opportunities—all of which are contained in the NYRCR Bellmore/Merrick Plan (NYRCR Plan). For the purposes of this planning effort, Bellmore and Merrick were combined to create the NYRCR Bellmore/Merrick Community (Community).

The geographic scope of the NYRCR Plan includes the entirety of both hamlets, bordered by Meadowbrook State Parkway and the Village of Freeport to the west, Camp and Beltagh Avenues to the north, the hamlet of Wantagh to the east, and the South Shore Estuary to the south. The Community is eligible to receive up to \$12.1 million (\$5.7 million for Bellmore and \$6.4 million for Merrick) of U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) funds for the implementation of projects proposed in its NYRCR Plan.

Residents, business owners, first responders, and local employees from the Community actively participated in the NYRCR Program over a period of seven months beginning in September 2013. These stakeholders considered their goals and aspirations for the future to develop an NYRCR Plan that honors the unique qualities and assets of the Community, that seeks to creatively reduce potential storm- and climate change-related impacts, and that leverages these investments to support other needs and opportunities that can ultimately benefit the Community as a whole. The result of these efforts is this NYRCR Plan, which presents a series of strategies and projects that respond to critical issues, and contribute to building a more resilient, safer, and sustainable future for the NYRCR Bellmore/Merrick Community.

Storm Impacts

Recent storm events brought significant damage to homes, businesses, infrastructure, and the natural environment. The two most powerful of these storms had different impacts on the Community in terms of both type and magnitude. In August 2011, Hurricane Irene’s heavy rain and wind caused flooding and felled trees resulting in impassable roads and power outages. Flooding was concentrated in the residential neighborhoods south of Merrick Road, while heavy winds and power outages affected the entire Community.

In October 2012, Superstorm Sandy caused a storm surge at high tide of over ten feet, which inundated waterfront neighborhoods that generally lie between five and ten feet above sea level. Large swaths of land were flooded and the Community faced severe problems with power outages, heavy debris, and

immobility due to damaged and flooded roads and compromised power lines. More than 3,000 housing units were reported to be damaged, and although the degree of damage varied, many homes were inundated by several feet of water. Major roads and evaluation routes were blocked by felled trees and flooding, preventing access by residents and first responders. Power outages for many residents lasted 16 days and also caused disruption to cellular communications. Some business establishments were directly impacted by flooding and storm damage while others suffered due to power outages and reduced commercial activity as a result of the storm. Gas stations could not pump fuel without backup power. The Town of Hempstead's Norman J. Levy Park and Preserve in Merrick was badly damaged by surge and flood waters washing away paths and dislocating fishing pier pilings. The Town of Hempstead Department of Sanitation facility and nearby Merrick Senior Center suffered over \$3 million in damage from flooding.

Critical Issues

The recent storm events uncovered a variety of critical issues with the natural and built environment in the Community, along the south shore of Long Island, throughout vast utility service areas, and in the broader region. These issues directly and indirectly impact homes; businesses; sanitary sewer, stormwater, and energy infrastructure; public facilities; and natural resources. The following critical issues were identified during the NYRCR planning process, which directly informed the formulation of the strategies and projects of the NYRCR Bellmore/Merrick Plan:

- Flooding and Drainage;
- Energy Infrastructure;
- Housing in High Risk Areas;
- Information, Education, and Communication;
- Regional Connections;
- Resilient Planning, Design, and Construction; and
- Shoreline Protection.

While local issues are paramount, it is important to recognize the Community's relationship to its neighbors and to the region beyond. Communities on

Long Island's south shore have similar patterns of development, interconnected infrastructure systems and road networks, overlapping municipal service provision areas, and a common shoreline. Weaving local and regional efforts together allows for building back in ways that are stronger, better and smarter than before. The plan is tailored to the specific needs of the Community but contains projects of regional interest and also identifies actions or projects that benefit the Community and adjacent neighbors. More information about Storm Impacts and Critical Issues can be found in Section I.

Community-Driven Process

The NYRCR Program provided the Community with a unique opportunity to participate in a community-driven planning effort. The NYRCR Planning Committee (Committee), composed of eleven community representatives, dedicated their time, passion, and expertise to guide the development of the NYRCR Plan. The Committee played an integral role in the planning process by: providing overall direction and guidance; generating material; reviewing, revising, and responding to components of the plan; and deliberating on the initiatives that will bring the greatest recovery and resiliency value to Bellmore and Merrick. The Committee held eight official meetings over the course of seven months, from September 2013 to March 2014. In addition, the Committee participated in two joint Committee meetings with the neighboring NYRCR Communities of Baldwin, Seaford/Wantagh, Massapequas, and Freeport. These joint Committee meetings explored shared issues and opportunities for collaboration and cooperation.

Through a combination of input received from the community during the Public Engagement Events and the work of the Planning Committee, a Vision Statement and list of goals were developed to reflect the Community's aspiration for the future. These statements provide the foundation of the NYRCR Plan, were used to guide the development of strategies and projects, as well as serve as an ongoing reminder of what the Community aims to achieve.

NYRCR Bellmore/Merrick Plan Vision Statement

The NYRCR Bellmore/Merrick Plan proactively implements measures to make our south shore community more resilient, now and in the future. While being mindful of our natural waterways, we will update infrastructure and invest in new projects so that the whole community will benefit, protecting our beloved communities and way of life. The Plan strives to:

- Develop innovative and natural solutions to coastal storm surges and erosion management;
- Ensure public safety during and after major natural events;
- Ensure proper health and social services are accessible to all residents, on a daily basis and in emergency situations;
- Support local business resilience by encouraging business continuity;
- Refurbish fresh water resources and improve stormwater management;
- Enhance and maintain all accessibility and maneuverability in all coastal evacuation routes; and
- Enhance public open space so it serves multiple purposes, such as recreation, resilience, and refuge.

The strategies and projects outlined in the NYRCR Plan will ultimately impact the quality of life for those who live, work, and play in the Community. As such, input from residents, business owners, and community leaders has been an important component of the planning process. Community residents and other stakeholders participated in three Public Engagement Events to review the evolving work of the Committee, and to contribute their ideas, thoughts, and suggestions to the planning process. In addition, a Community website was set up on the NYRCR website (<http://www.stormrecovery.ny.gov>) to post planning materials, including items from Public Engagement Events and online surveys, to give community members an opportunity to provide feedback. A detailed summary of the community-driven process can be found in Section V.

Assessment of Risks and Needs

Hurricane Irene and Superstorm Sandy exposed certain vulnerabilities related to the Community's ability to mitigate and respond to major storm events, climate change, and sea level rise. As part of developing the NYRCR Plan, an inventory of community assets was compiled and evaluated to determine each asset's potential of being damaged or destroyed by a future storm surge or flooding event. By analyzing potential hazards, as well as levels of exposure and vulnerability to possible storm impacts, a measure of risk was calculated for each asset. In addition, the community asset locations were combined with NYS Department of State hazard maps that illustrate a full range of coastal risks, and consider both the frequency and impact of flooding. This quantitative and spatial analysis, in addition to local knowledge from stakeholders gathered throughout the NYRCR process, helped to highlight assets and geographic areas requiring attention, and served as a basis for the generation of project ideas.

In Bellmore and Merrick, several assets in the community are located in high and extreme risk zones, including two fire stations, four schools, three marinas, the Merrick Senior Center, two sanitary sewage pump stations, a Town of Hempstead Department of Sanitation facility, and sections of the Merrick Road and Sunrise Highway commercial corridors, including the section of Merrick Road adjacent to the Meadowbrook State Parkway, which is a key County evacuation route. In addition to these individual assets, over 4,200 residential parcels are located in high and extreme risk areas. Detailed information of these analyses can be found in Section II: Assessment of Risk and Needs.

The risk assessment was paired with an exploration of resiliency-related needs and opportunities, many of which were identified by Committee members and the public at Committee meetings and Public Engagement Events. Risk, needs, and opportunities were organized by six categories that relate to all aspects of life in the Community: community planning and capacity building, economic development, housing, health and social services, infrastructure, and natural and cultural resources. The Community identified the following key opportunities:

- Upgrades to drainage systems to better mitigate flooding from high tides and major storms;
- Increases to energy safety, resilience, sustainability and independence;
- Improvements to communication, education and access to resources in the Community;
- Enhancements to parks, preserves and green spaces that aid or develop storm protection, stormwater management, community building, and recreational opportunities; and
- Expansion of community education and awareness programming around coastal living, climate change, and sea level rise.

Strategies for Reconstruction and Resilience

Strategies included here are designed to support the two main goals of reconstruction and resiliency. Reconstruction focuses on restoring, repairing, or rebuilding what was damaged or destroyed by Superstorm Sandy. Resiliency is about strengthening the ability of NYRCR Bellmore/Merrick to rebound quickly when confronted with challenges of all kinds in the future. These strategies address and balance regional concerns, an analysis of problem areas, community feedback on local issues, and iterative development by the Committee. Reconstruction and Resiliency Strategies for the Community are listed below and described in detail in Section III of the NYRCR Plan:

- Improve Stormwater Management and Drainage Systems;
- Establish Programs and Policies for Resilient Planning and Design;
- Enhance Communication, Education, and Awareness;
- Improve Transportation Access and Connectivity;
- Invest in Resilience Enhancements for Energy Infrastructure; and
- Plan for Business Continuity and Growth.

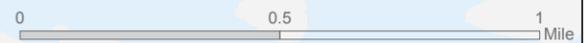
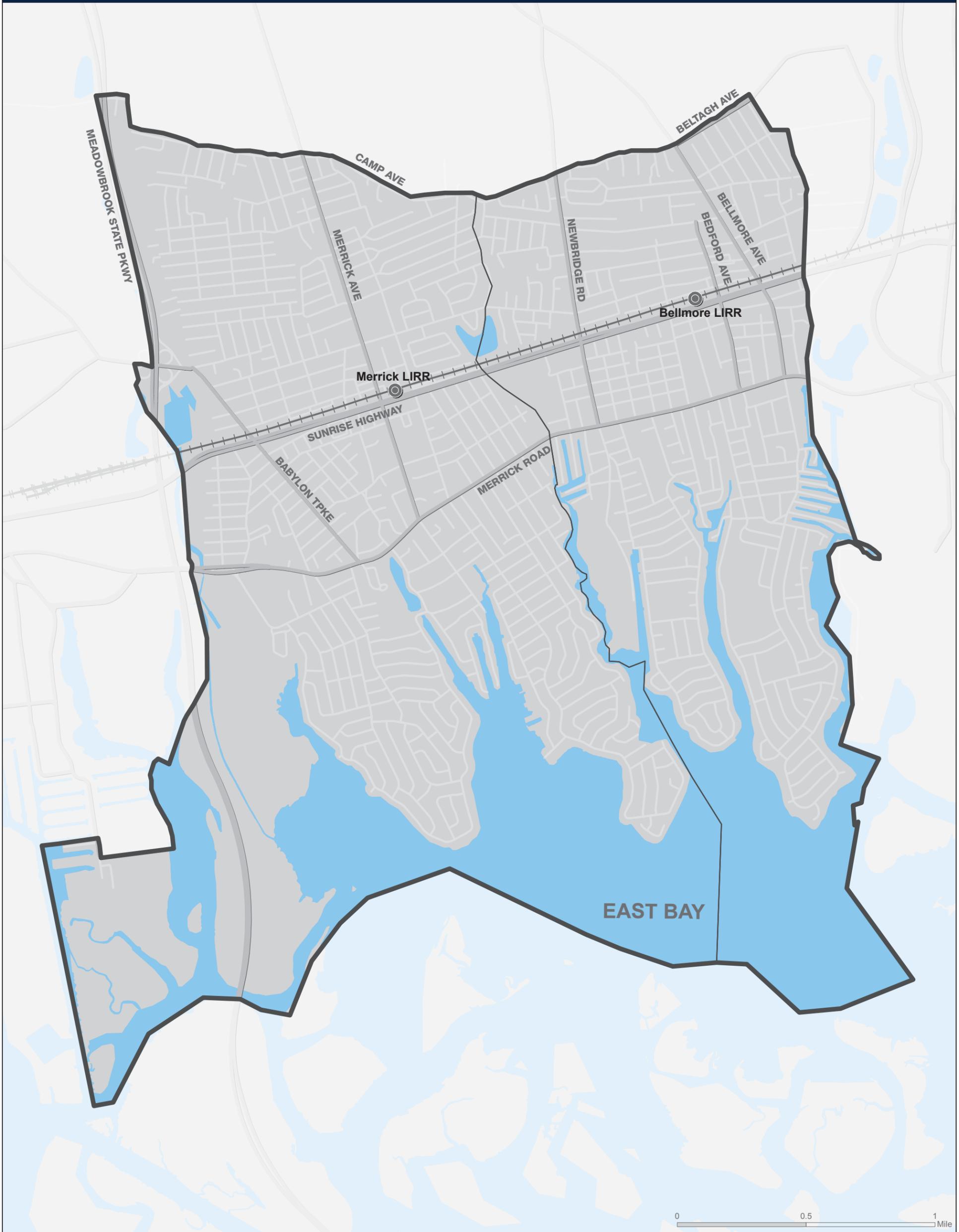
Proposed and Featured Projects

The projects that resulted from this extensive planning process support the Reconstruction and Resiliency Strategies as well as the vision and goals for the Community. The projects included in the NYRCR Plan are organized into three categories, which are:

- **Proposed Projects** are discrete projects that are affordable within the Community's allocation of Community Development Block Grant Disaster Recovery (CDBG-DR) assistance.
- **Featured Projects** are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other funding resources. Featured projects also may include regulatory reforms and other programs that do not involve capital expenditure.
- **Additional Resiliency Recommendations** are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Table 01 on the following page includes the Proposed and Featured Projects organized by strategy. The projects have not been ranked or prioritized. Detailed descriptions of each project can be found in Section IV of the NYRCR Plan and Additional Resiliency Recommendations can be found in Section V.

Figure ES-01: Geographic Scope



Legend

- NYRCR Boundary
- Water
- Long Island Rail Road
- Main Roads
- LIRR Station
- Local Roads

Data Sources

ESRI, NOAA,
US Census,
Nassau County,
NYS DOS
Created March 2014



Table 01: Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Stormwater Management and Drainage Systems	Bellmore/Merrick Stormwater Drainage, Outfall, and Bulkhead Repair	Assess the entire Bellmore/Merrick drainage system south of Merrick Road, including the 230 outfalls and related bulkheads. Tidal check valves will be installed on 25 critical and appropriate outfalls.	Proposed	N
Improve Stormwater Management and Drainage Systems; Establish Programs and Policies for Resilient Planning, Design, and Housing	Southwest Merrick Masterplan and Flood Mitigation Pilot Project	Creation of a Masterplan to re-envision the Town of Hempstead parcels. A newly reconfigured site would provide enhanced flood mitigation for the amenities on-site as well as for Merrick Road. Shoreline stabilization or green infrastructure pilot project upon Masterplan completion.	Proposed	N
Improve Stormwater Management and Drainage Systems	Meadowbrook Corridor Improvements Pilot Study	This project would include the reconstruction of five stormwater outfalls currently entering Freeport Creek. And reconnecting the Creek with the natural floodplain. A floating wetland pilot and drainage study would also be conducted for East Meadow Pond to improve water quality and reduce future flooding. A daylighting study for Freeport Creek would examine the potential benefits of uncovering the current underground portion of the Creek.	Proposed	N
Enhance Communication, Education, and Awareness; Improve Transportation Access and Connectivity	Bellmore Merrick Community Assistance Centers	Community Assistance Centers are places for residents to gather information about emergency preparedness under normal conditions. During and after a storm, these centers would become a place to gather, collect and distribute resources, charge cell phones, access the internet/TV, and seek comfort.	Proposed	N
Enhance Communication, Education, and Awareness	Public Communication and Education Gap Analysis	Evaluate existing communication and educational processes and uncover additional needs. Identify public/private partnership opportunities for ongoing communication and education needs.	Proposed	Y

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Enhance Communication, Education, and Awareness	Business Continuity Program	Staff person to assist businesses in creating business continuity plans. Education for Chambers of Commerce and other business organization. Identify business assistance funding.	Proposed	Y
Improve Transportation Access and Connectivity	Lifeline Corridor Study and Guidelines	Best practices and guidelines for Resilient Streetscapes, such as green infrastructure, drainage practices, redundant and safe power, resilient street trees and street design.	Proposed	Y
Improve Transportation Access and Connectivity; Invest in Resilience Enhancements for Energy Infrastructure	Key Intersection Street Light Retrofit	Installation of LED/PV streetlights on utility poles along Merrick Road in Merrick and Bellmore	Proposed	N
Establish Programs and Policies for Resilient Planning, Design, and Housing	Downtown and Commercial Corridor Resiliency Plan	Study to address opportunities for commercial and/or residential redevelopment out of extreme and high risk zones. Identify microgrid opportunities with alternative power distribution. Identify stormwater and green infrastructure opportunities for new development.	Proposed	N
Improve Stormwater Management and Drainage Systems	South Shore Stormwater System Modeling and Analysis	Hydrologic and hydraulic (H&H) model to determine the causes of localized flooding issues across the catchment and identify measures to prevent the flooding	Proposed	Y
Improve Transportation Access and Connectivity; Invest in Resilience Enhancements for Energy Infrastructure	Resilient Streetscape Implementation	Underground 19 miles of utility lines, install new PV/LED street lights and new emergency evacuation signage	Featured	N
Improve Stormwater Management and Drainage Systems	Bellmore Road Raising: Army, Navy, Marine and Shore Road	Road raising and associated drainage improvements at Shore Rd, Walters Ct, Horace Ct, Army Pl, Navy Pl, Marine Pl, Surf Dr, Riviera La, Malibu Rd, Driftwood La, Seaview La, and May Ct.	Featured	N

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Stormwater Management and Drainage Systems	Bellmore Road Raising: Kopf-Boundary Road Area	Road raising and associated drainage improvements at North Rd, Kopf Rd, Clubhouse Rd, Alder Rd, Beach Ave, Short St, Barbara Rd, and Boundary Rd.	Featured	N
Establish Programs and Policies for Resilient Planning, Design, and Housing	Marina and Dock Resilience Guidelines	Emergency preparedness guidelines, recommendations and education	Featured	N
Improve Stormwater Management and Drainage Systems	Merrick Road Raising: George Court to Leslie Lane	Road raising and associated drainage improvements at George Ct, Helen Ct, Leonard La, Edward La, Leslie La, and Julian La.	Featured	N



NY Rising Community Reconstruction Program

NY Rising Community Reconstruction Plan



MARCH 2014



Executive Summary

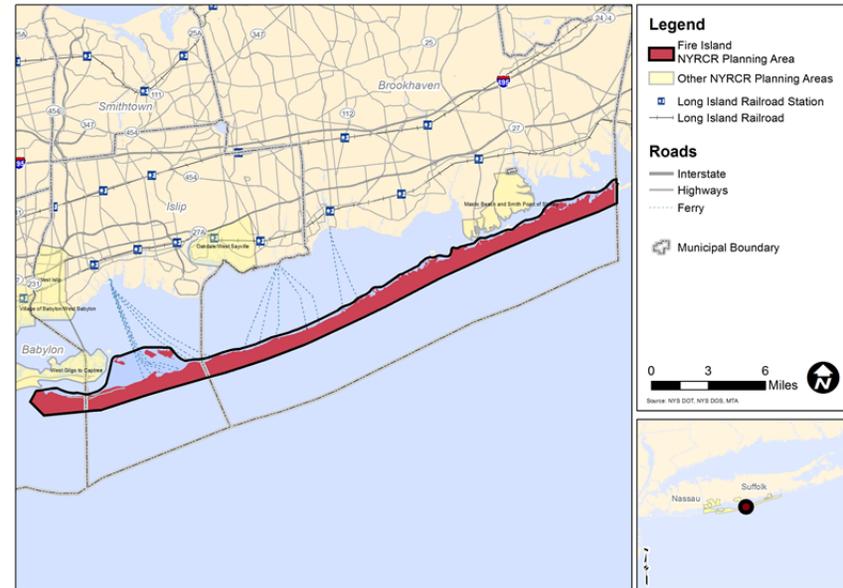
Overview of NY Rising Community Reconstruction Community: Fire Island



Fire Island Lighthouse
Photo Credit: Consultant Team

NY Rising Community Reconstruction (NYRCR) Fire Island (Community) is one of eight NYRCR Communities identified within Suffolk County. The geographic scope of the NYRCR Fire Island Community includes the western tip of Robert Moses State Park eastward approximately 30 miles to the municipal Town boundary of Brookhaven and Southampton, including the Cupsogue Beach County Park on the east side of Moriches Inlet.

With the exception of a number of bay islands within the Towns of Islip and Brookhaven and the three large public parks (Robert Moses State Park at the west end of Fire Island and Smith Point County Park and Cupsogue Beach County Park at the east end of the Fire Island), the bulk of the NYRCR Fire Island Community lies within the boundary and jurisdiction of the Fire Island National Seashore (FINS). Within this area is all of the Community “in-holdings” or privately-owned real estate within the outer beach portions of the Towns of Islip and Brookhaven.



A total of up to \$3 million has been allocated for resiliency projects within this Community.

The Fire Island “neighborhoods” are distinct and discrete Villages and hamlets totaling 4,000 homes in all, from Kismet on the west end to Davis Park on the east. Each Village or hamlet averages less than 1% of Fire Island’s total land area. All the rest of this special island – more than 80% – consists of spectacular beaches, dunes, and undeveloped parkland and visitor facilities. FINS contains the Otis Pike Wilderness area, a unique “Sunken Forest,” a historic lighthouse, recreational facilities including nature trails and waterfront access for canoeing, boating and fishing, campgrounds and the marinas at Watch Hill and Sailors Haven. Residents and visitors alike get to the island by ferry across the Great South Bay.



There are no paved roads on Fire Island, although there is an emergency access route through the sand for essential service and emergency vehicles.

Fire Island has a rich maritime history that predates the European colonization of Long Island. Much of this history is celebrated at the museum at the base of the Fire Island Lighthouse. Native Americans hunted and fished in the vicinity long before Colonists established settlements and expanded salt hay harvesting, waterfowl hunting and shell fishing as their primary industries. The booming growth of New York Harbor after the Civil War also saw the development of the U.S. Life Saving Service (USLSS), the pre-cursor of the U.S. Coast Guard (USCG), which maintains a base at the western end of the island at Robert Moses State Park.

Today, land use on Fire Island consists mostly of residences with some institutional and community facilities and small commercial businesses. Other than two bridges which terminate at parking areas at the western (Robert Moses Causeway to Robert Moses State Park) and the eastern ends (William Floyd Parkway to Smith Point County Park), Fire Island is only accessible by boat.

The impact of Superstorm Sandy on Fire Island was significant. The barrier beach was battered on both the ocean and the bay sides by storm surges and high tides which eroded protective beaches and dunes. A study conducted by the United States Geological Survey (USGS) after Superstorm Sandy found that "beaches and dunes lost more than half of their pre-storm volume... leaving the area more vulnerable to future storms." In several places, floodwaters washed

completely over the island. The overwash scoured the primary travel route westward, towards Robert Moses Causeway, residential walkways and critical infrastructure. And, in one place, a new inlet was created, thereby preventing the evacuation of vehicles and pedestrians eastward, toward William Floyd Parkway.

Waterfront infrastructure such as freight and recreational docks, and bulkheads were destroyed. A helipad was damaged. Low-lying infrastructure, especially the electrical components of drinking water pump stations, the sewage treatment plant in Ocean Beach, and communication facilities, was damaged. Approximately 1,600 homes were damaged. And, some commercial areas were so severely damaged they required emergency rebuilding in time for the next peak season. In total, over 62,000 cubic yards of material were removed from the island, enough to cover a football field three stories high.

Fire Island faces unique challenges in its efforts to recover and rebuild after Superstorm Sandy. The FINS is one of the treasures of the New York Metropolitan region, as well as one of the most unique sites within the United States National Park System. The U.S. National Park Service's stewardship has helped preserve and protect Fire Island's unique ecosystem. This barrier island is also home to 17 distinct communities. These communities range in size, structure, and composition, with many experiencing large influxes of part-time residents and visitors during the summer season. Despite this fluctuating seasonal population, recovery efforts have been collaborative in nature, in which residents have chosen to focus on critical, Island-wide issues ahead of individual needs.



The constructive dialogue now taking place among Island communities has been one of the most beneficial outcomes stemming from the NYRCR process.

NYRCR Program: A Community-Driven Process

The NYRCR Fire Island Committee expressed concern for a variety of resiliency issues relating both to protecting the life and safety of Community members in the face of storm events and fostering stewardship of the unique barrier island landscape. Some of the most significant and widespread issues included:

- Creating a mechanism for enhanced communication, collaboration and regional planning among the many Fire Island interests and the Long Island mainland;
- Sustaining commercial, recreational and tourism assets and functions;
- Developing a comprehensive island-wide ocean and bay shoreline management strategy;
- Maintaining safe access to all communities;
- Ensuring that municipalities and first responders, including fire departments, have the necessary resources to prepare for and protect the public, property and the natural environment during and after disasters; and
- Mitigating repetitive flooding

These critical issues inform every aspect of the plan.

The NYRCR Fire Island Planning Committee (Committee) spent significant time and effort in developing a vision for their community's resilient future. This final vision was informed by public input from community members. The Community Vision Statement represents a consensus assessment of the direction this Community wishes to move towards, and is as follows:

As an integral component of the Fire Island National Seashore, the communities of Fire Island are united in their determination to strengthen and preserve this unique, dynamic barrier island for future generations.

We recognize Fire Island's critical importance to the entire region – as Long Island's first line of defense against destructive storm surges, a precious natural resource and ecosystem, and an engine for the Long Island and New York State economy.

Working collaboratively, we will partner with governmental agencies on every level to ensure the island's resiliency and sustainability, and to secure Fire Island's future.



All strategies and projects identified were measured against the Community Vision Statement to ensure that recommended actions would help the community achieve its desired goals.

The Public Engagement Process did not end with the development of the Community Vision Statement. In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths in good times and bad. Five Committee meetings have been held. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr).

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making that informed the development of this Plan.

Engagement activities included in-person and web-based opportunities for participation. Three open-house style events were held during the development of the plan and a fourth will present this final document.

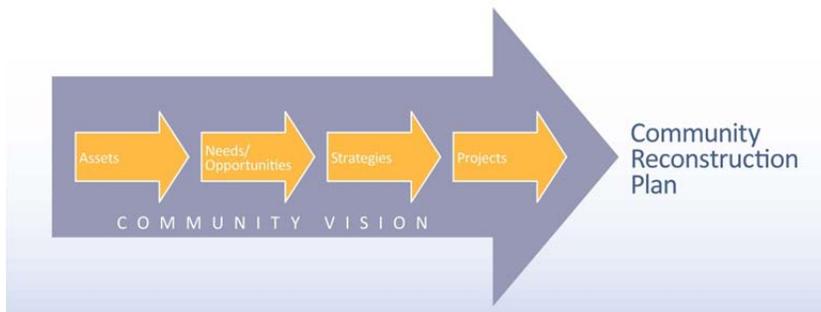
The Fire Island Community is unique in that many of the residents and employees and virtually all of the visitors are not on Fire Island in the winter and are dispersed throughout the metropolitan region. Therefore in order to reach as broad a segment of the Fire Island

Community as possible, Online Public Meetings were held in conjunction with the initial three public engagement events to allow anyone to provide feedback on the process through the internet. The overall format for the online events provided a digital open house which could be attended at any time 24 hours a day, seven days a week for a ten-day timeframe. The Online Public Meeting provided identical stations to the in-person meeting and resulted in thousands of comments from hundreds of people which were summarized for the Committee's review and consideration in the planning process.

Younger members of the community were invited to participate in a web-based "Next Generation" survey to gather feedback on proposed projects that would likely affect their futures in the Community. The NYRCR Fire Island website (<http://stormrecovery.ny.gov/nyrcr/community/fire-island>) served as a repository for downloadable versions of all public information and event notifications. E-mail comments and requests for information could be sent to the State and comment forms were available at Committee meetings and public engagement events to provide an opportunity for the public to contribute their feedback.



NYRCR Final Plan: A Blueprint for Resiliency



An asset inventory was conducted for the Community to identify assets, both built and natural, which are critical to the safety, resiliency, and character of the Community. The identified assets were evaluated in detail to understand their value to the community, and the level of risk or potential for damage, during future storm events. Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. Potential strategies were developed to address these needs and opportunities.

Projects were developed in order to respond to the identified needs and opportunities and execute the strategies in order to increase the Community's resiliency. Three tiers of projects were identified.

- **Proposed Projects** are projects proposed for funding through the NYRCR Fire Island Community's allocation of up to \$3 million of CDBG-DR funding.
- **Featured Projects** are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.
- **Additional Resiliency Recommendations** are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

It is important to note that there is no priority order or ranking of projects aside from the project tier.

The need to maintain safe access to all communities is addressed by a strategy to ensure safe and reliable evacuation routes for both emergency personnel and the general public. A Proposed Project was developed to repair and increase resiliency of the island's primary vehicular east-west emergency access route. Additional Resiliency Recommendations that also support this strategy include repairs and improvements to walks in several communities.

The need to protect the shoreline and reduce flooding is addressed by a strategy to develop a comprehensive island-wide shoreline management program. Two Proposed and one Featured Project would approach bayside shoreline problems and solutions in a more comprehensive fashion, reduce future vulnerability, mitigate repetitive flooding and improve the natural functioning of storm



protective wetlands, dunes and beaches. Additional Resiliency Recommendations in individual communities were also developed to support this strategy.

The Committee realized that many issues related to resiliency cannot be solved on an individual Village or hamlet level. Shoreline protection has to be looked at comprehensively so one community's improvements do not jeopardize neighboring shorelines. Water systems need to be interconnected so damage in one area can be addressed by another undamaged source. Emergency response needs to be coordinated so that neighboring forces can lend aid and equipment. The strategy to create a mechanism for enhanced communication, collaboration, and regional planning will address these types of issues and provide better coordination of essential services, and increased public awareness regarding resiliency and emergency preparedness.

The Proposed Project to implement this strategy is the development of a Fire Island Planning Forum to bring all voices to the table and address Fire Island-wide issues in a comprehensive way. This forum would be an ongoing entity that could seamlessly address issues as they arise, and before they grow into larger concerns.

An Additional Resiliency Recommendation associated with this strategy is an Education Campaign for homeowners, renters and visitors on stewardship and emergency response procedures.

The following table presents all Proposed and Featured Projects by Strategy:



NYRCR Fire Island Resiliency Projects		
Strategy	Project Name	Project Category
Create a mechanism for enhanced communication, collaboration and regional planning among the many Fire Island interests and the Long Island mainland	Fire Island Planning Forum	Proposed
Preserve local home values by minimizing risk of storm damage and flood insurance rates	Employ Local Disaster Recovery Manager (LDRM)	Proposed
Enable municipalities to track structures, damage to structures, permits, etc.	Implement an Enhanced GIS Emergency Management System	Proposed
Enhance communications to improve the ability to communicate vital information not only on the beach but to the off-island agencies that may be assisting	Emergency Communication Systems	Proposed
Support businesses before and after an event	Enhance Revive FI Campaign	Proposed
Ensure Fire Department personnel have proper access, rescue and fire suppression equipment for rescue operations and addressing other hazards (hazardous materials, restricted access, etc.).	Air Compressor – Kismet Fire Department	Proposed
	Back-up Power Generation for Critical Facilities	Proposed
Keep emergency access route passable for emergency vehicles	Emergency Access Route	Proposed
Develop a comprehensive island-wide shoreline management strategy that includes natural restoration and engineered stabilization techniques	Engineering and design study for bayside shoreline management with regulatory coordination and pilot projects (Phase 1)	Proposed
	Bayside Shoreline Management Implementation (Phase 2)	Proposed
	Bayside Shoreline Management Implementation (Phase 2)	Featured
Identify bayside assets and redundancy for resource and emergency access	Make Docks More Resilient - Freight and passenger dock repairs and improvements (Phase 1 – Design)	Proposed
	Make Docks More Resilient - Freight and passenger dock repairs and improvements (Phase 2 – Construction)	Proposed
	Make Docks More Resilient - Freight and passenger dock repairs and improvements (Phase 3 – Construction)	Featured



NY RISING COMMUNITY RECONSTRUCTION PROGRAM

THE FIVE TOWNS

NY RISING COMMUNITY RECONSTRUCTION PLAN

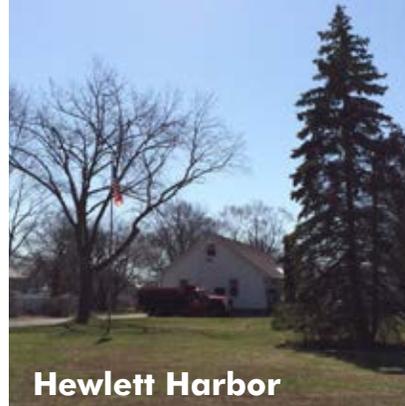
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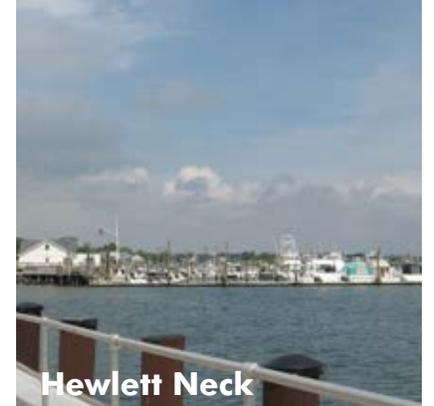
Cedarhurst



Hewlett



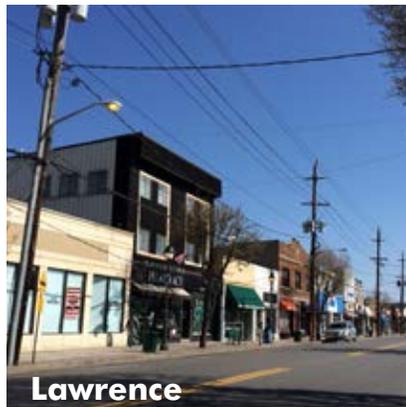
Hewlett Harbor



Hewlett Neck



Inwood



Lawrence



Meadowmere Park



Woodmere

Executive Summary

The Five Towns NYRCR Community (Community) is home to approximately 49,700 residents and is a grouping of Villages and Hamlets located on the South Shore of Long Island, in western Nassau County. The Community is made up of a total of eight Villages and Hamlets, including the Villages of Cedarhurst, Lawrence, Hewlett Harbor, and Hewlett Neck, and the Hamlets of Hewlett, Inwood, Meadowmere Park, and Woodmere. The Hamlets are unincorporated parts of the Town of Hempstead (Town) and are under the administrative jurisdiction of the Town.

The informal moniker “The Five Towns” came into use during the 1930s and originally referred to Hewlett, Woodmere, Lawrence, Cedarhurst, and Inwood. The name is derived from the five stops along the Long Island Railroad (LIRR) which passes through the Community and also refers to the communities of the founders of the Five Towns Community Chest, which was established in 1932. The Five Towns area was first settled in the 1750s, but the area remained sparsely populated until completion of the South Side Railroad in 1869 (later the Far Rockaway branch of the LIRR). The South Side Railroad opened the area to suburban development and allowed for commuting to New York City. The Community is largely surrounded by water, including Jamaica Bay and Hempstead Bay.

During Superstorm Sandy, the storm surge from the Atlantic Ocean traveled over the Far Rockaway peninsula and through the Jones Inlet, Rockaway Inlet, and Reynolds Channel

into Jamaica Bay and Hempstead Bay. The surge affected the Five Towns Community with tidal flooding and widespread backups within the stormwater system. Documented storm surge varied from six feet to 11 feet in each of the Villages and Hamlets in the Five Towns, inundating low lying areas with tidal water and causing backups in the stormwater system. As a result, rainwater runoff caused overflows of the stormwater system and led to flooding even in areas that were beyond the extent of the storm surge. Stormwater flooding, which has occurred with greater frequency since Superstorm Sandy, has directly affected the quality of life throughout the community and property values have suffered. The 2013 median sales price for homes in the Five Towns Community decreased over 21% from the 2011 Census American Community Survey and prior to Superstorm Sandy.

Superstorm Sandy also underscored the tenuousness of the Community’s connections to the surrounding region. The Bay Park Sewage Treatment Plant (Bay Park STP), one of Nassau County’s most important infrastructure assets, was severely damaged during Superstorm Sandy, which caused the facility to lose power and go offline during the storm. As a result, the sewer systems in the Village of Hewlett Harbor, Woodmere, and Hewlett backed up into the streets and the basements of some homes. Superstorm Sandy also exposed the vulnerability to storm surge of several sections of commercial corridors in the Five Towns Community. Many businesses that flooded

during Superstorm Sandy were only able to reopen after several months.

In September 2013, a committee of residents and civic leaders from the Five Towns (“NYRCR Committee”) convened with the goal of creating a plan to help the Community rebuild from the damage caused by Superstorm Sandy and prepare the area for a more resilient future and with the following vision statement:

The vision for the Five Towns is for a future in which these eight distinct communities will be better prepared, no matter the disaster, and for an improved system of cooperation and collaboration between the Villages and Hamlets to build upon their shared resources.

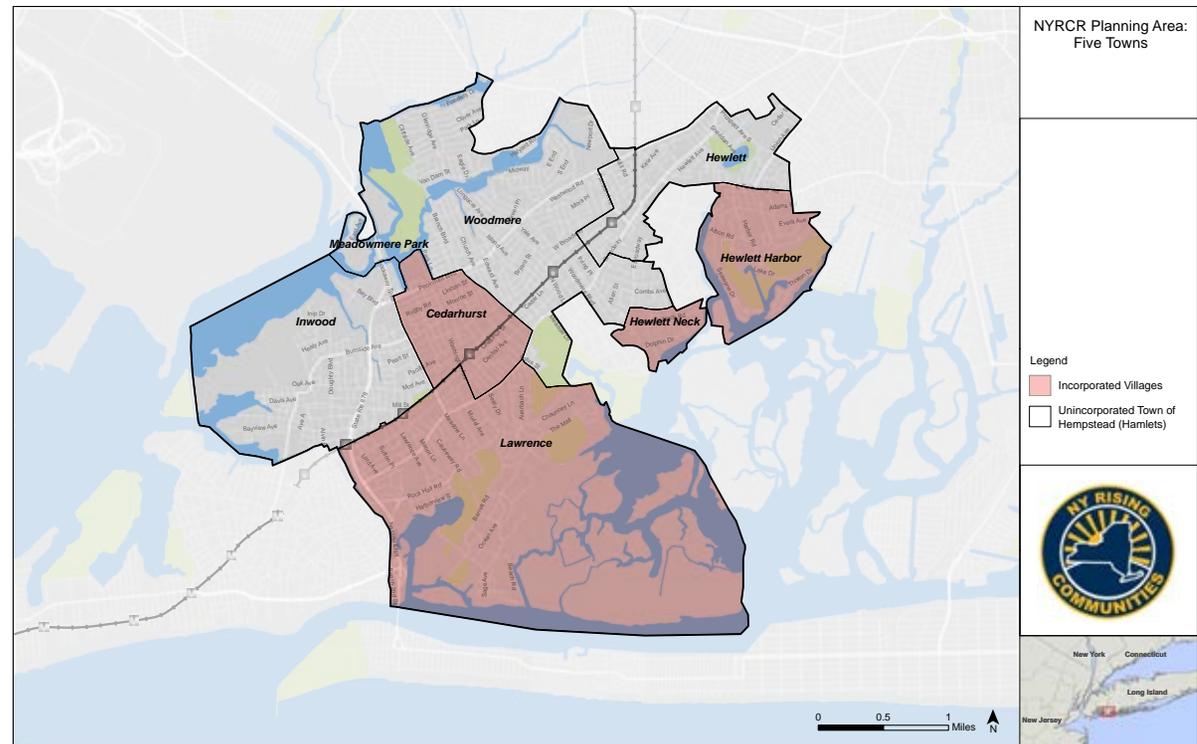
Since that time, the NYRCR Committee has worked closely with a team of professional consultants, representatives of NY Rising, and the New York State Department of State to develop this NY Rising Community Reconstruction (NYRCR) Plan

The NYRCR Plan features a series of projects identified as having the greatest benefit in increasing the Five Towns Community’s resilience to future climate related events. These projects will be implemented with up to \$27,600,000 in Community Development Block Grant-Disaster Recovery (CDBG-DR) funds allocated to the Community through the NYRCR Program. The NYRCR Plan was created through a community-based planning process,

which included a robust public engagement effort involving consensus-building amongst both residents and business owners. Finally, the NYRCR Plan is comprehensive, addressing six recovery support functions: Community Planning and Capacity Building; Economic Development; Health and Social Services; Housing; Infrastructure; and Natural and Cultural Resources.

With a fundamental focus on implementation, the NYRCR planning process incorporated extensive discussions with officials and agencies from local Villages, the Town of Hempstead, Nassau County, and New York State to confirm that relevant agencies have confidence in the project’s ability to be implemented. The NYRCR Committee also coordinated with agencies operating at a regional level, including the U.S. Army Corps of Engineers (USACE), and conducted an ongoing dialogue with parallel resiliency efforts, especially Rebuild by Design. As a result, the projects featured in the NYRCR Plan are supportive and complimentary of these other efforts, rather than duplicative or counterproductive.

The NYRCR Plan is aimed at not only addressing short term needs in the aftermath of Superstorm Sandy, but also the long-term resilience of the NYRCR Community. The NYRCR Plan includes a menu of early action projects; medium-term projects that can be implemented within two to five years; and long term actions that require resources beyond the NYRCR funding allocation and are largely addressed through planning projects and advocacy initiatives.



Map of Incorporated Villages and Unincorporated Hamlets

To that effect, three key strategies emerged from the public engagement process and technical analysis.

1. Increase the resilience to extreme weather in high risk coastal areas by addressing coastal protections and stormwater infrastructure.

The coastline is the first and most critical line of defense in protecting the NYRCR Community from inundation associated with Sandy-like storms. Though Superstorm Sandy was an unprecedented event, the sources and causes of flooding that occurred during Superstorm

Sandy are regularly reflected on a smaller scale during high tide events, rainstorms, and nor’easters. Flooding overwhelms stormwater infrastructure systems not only in the Five Towns Community, but in other communities along the South Shore as well. The shoreline of Hempstead Bay provides incomplete protection against tidal inundation above seven to eight feet.

2. Increase the emergency response capacity of facilities on high ground by building on the strong network of civic, health, and social service organizations in the Five Towns.

Emergency Response Capacity recognizes that there is a corridor along high ground within the Five Towns and many of the civic, health and social service organizations that provided disaster response services after Superstorm Sandy are along this corridor. The goal of this strategy is to preserve and enhance these key assets that are above the FEMA flood zones so that emergency supplies, evacuation centers, power supplies, and emergency management structures are pre-positioned out of danger and can act effectively in a storm. Many of these improvements can be accomplished in the short term.

3. Improve access to evacuation routes from high risk areas by creating a resilient corridor along Rockaway Turnpike and Nassau Expressway.

This strategy is predicated on the need for a carefully developed plan for the Rockaway Turnpike/Nassau Expressway Corridor that addresses coastal protections, evacuation routes, and the impact of future flooding risks on economic assets in the Five Towns. These roads failed to serve as effective routes for evacuation and recovery during Superstorm Sandy because sections of Rockaway Turnpike flooded. In addition, the tidal surge of Superstorm Sandy that flowed into Hook Creek and Motts Creek—the two creeks that cross under Rockaway Turnpike—was the primary cause of flooding in the Five Towns Communities of Cedarhurst, Woodmere, Hewlett, and parts of Inwood. Finally, there are also areas of intense peak hour traffic congestion at intersections such as Rockaway Turnpike and Peninsula Boulevard.

There are 21 **Proposed** and 13 **Featured** projects included in the NYRCR Plan for the Five Towns Community. While these address one or more of the above three key strategies, they are catalogued by each of the individual eight communities. The Planning Committee, understanding that while many site-specific projects provide local protection, they do not address the full extent of coastal protections necessary to protect the region against another Superstorm Sandy-type event. The Committee also recognized that some projects that have been identified by the process do not fit within any one community, but rather provide shared benefit to multiple communities within the Five Towns or the broader region. In the case of these long-term projects and projects with shared or regional benefit, the Five Towns Planning Committee has agreed to make a shared contribution that recognizes the importance of addressing long-term issues at a scale larger than each individual community.

Regional and Shared Projects

1. The South Shoreline Improvement Program Study

[Proposed Project]

A study that would look at methods for making coordinated improvements to achieve a contiguous shoreline in the Town of Hempstead. In seeking to address the complexity of the technical and implementation issues involved in dealing with the shoreline (much of which is privately owned), this project is ambitious in nature. The goal would be to investigate mechanisms for funding, streamlining the permitting process, and creating options for incentivizing bulkhead repairs and living

shoreline improvements. The NYRCR Committee recognizes the importance of this issue to the other communities along the South Shore, and their assumption is that the solutions derived from this Program could serve as a model to address conditions in those communities as well.

2. Rockaway Turnpike/Nassau Expressway Resilience Corridor Study

[Proposed Project]

This study would fund a regional study of flood protection alternatives along Rockaway Turnpike with a scope that would include the following objectives: analyzing construction of floodgates at Hook Creek and Motts Creek and elevation of Rockaway Turnpike and Nassau Expressway; conducting a traffic management study to decrease congestion in evacuation routes; studying opportunities for economic development in retail/commercial zones that would be protected by flood mitigation. The study would culminate with a Conceptual Plan for the Rockaway Turnpike/Nassau Expressway that increases resiliency while spurring economic development and relieving traffic congestion on this regional transportation corridor.

Lawrence High School Hardening and Protection

[Proposed Project]

This will include the evaluation and implementation of solutions to prevent future damage and interruption of service that would build upon the \$8.5M in repairs completed to date. A flood prevention wall would be constructed around Lawrence High School. The purpose of the wall is to provide additional

protection to the building foundation in storm events.

Five Towns Community Center Upgrades

[Phase 1: Proposed Project]

This project would harden the Five Towns Community Center while developing a Disaster Response Plan. This Phase would expand available resources for the community center to serve as a community assistance and warming/cooling center, and purchase of a permanent generator to continue full operations during power outages.

[Phase 2: Featured Project]

This includes additional capital improvements such as upgrades to showers and bathrooms and the installation of laundry facilities. These actions should enable the center to provide even more impactful relief services after a storm.

Microgrid Feasibility Study and Action Plan

[Proposed Project]

This project would include a review of available technologies, funding sources and financing, and regulatory barriers and incentives. A conceptual design for the microgrid or other technology would be completed as part of this project, including the identification and analysis of potential microgrid sites.

Cedarhurst:

1. Cedarhurst Stormwater Infrastructure Upgrades

[Phase 1: Proposed Project]

This project includes a hydrologic and hydraulic (H&H) study on the existing stormwater system. Installation of check valves, wet weather pumps, and water storage tank.

[Phase 2: Featured]

Following the completion of the H&H Study, the recommended improvements would be implemented, including repairs and upgrades to stormwater pipes, drains, and catch basins. The improvements are intended to increase the capacity of the stormwater disposal system in Cedarhurst.

2. Cedarhurst Removable Flood Walls for DPW Facility

[Proposed Project]

This Project would provide removable flood walls to protect the two buildings on the DPW site.

3. Cedarhurst Village Hall Disaster Response Plan

[Proposed Project]

This project includes both the creation of a Disaster Response Plan to increase the Village's capacity and continuity of operations following storm events, as well as the installation of backup generators to ensure ongoing operations and communications during primary power outages.

5. Cedarhurst Repair of Berm along Municipal Property

[Featured Project]

This project would repair the berm along the western boundary of the municipal property.

Hewlett:

1. Hewlett Stormwater Infrastructure Upgrades

[Phase 1: Proposed Project]

This project includes a hydrologic and hydraulic study on the existing system to determine deficiencies within Hewlett and implementation of upgrades to the stormwater pipes, drains, and catch basins primarily in the area of Kew Road from Stevenson Road to Quay Ave, as well as E. Broadway near Franklin Ave.

[Phase 2: Featured Project]

This project would provide additional upgrades to the stormwater infrastructure in Hewlett in the area of Broadway, from Burton Avenue to Piermont Avenue, including north-south roadways in between, south along Woodside Drive and Cedar Avenue. Phase 2 would improve capacity and system efficiency.

Hewlett Harbor:

1. Hewlett Harbor Stormwater Infrastructure Upgrades

[Phase 1: Proposed Project]

This project involves the implementation of the recommendations of Hewlett Harbor's ongoing engineering study. This project also includes flood protections at Village Hall which is comprised of re-grading the Village Hall property and directing stormwater into green infrastructure detention areas. The village intends to implement flood mitigation through further green infrastructure practices where feasible, based upon the determinations of the engineering study.

[Phase 2: Featured]

This project would provide additional upgrades to the stormwater infrastructure in Hewlett Harbor, per the forthcoming recommendations of the ongoing engineering study. Phase 2 would improve capacity and system efficiency, while addressing the study's recommendations that cannot be addressed within the allocation for Phase 1.

Hewlett Neck:

1. Hewlett Neck Stormwater Infrastructure Upgrades

[Phase 1: Proposed Project]

This project would improve the stormwater capacity of Woodbine Ditch with enhanced green infrastructure measures, including a bioswale extending from approximately Smith Lane to Woodbine Ditch.

[Phase 2: Featured Project]

This project would provide additional upgrades to the stormwater infrastructure in Neck in the area of Hewlett Neck Road, from Browers Point Branch to Adams Lane, including north-south roadways in between. Phase 2 would improve capacity and system efficiency.

2. Harden Underground Street Light Infrastructure

[Proposed Project]

This project includes the installation of underground electrical lines (in protective casing) and removal of above ground lines, replacing the current street signage with retro-reflective street signs and raising them.

Inwood:

1. Inwood Stormwater Infrastructure Upgrades

[Phase 1: Proposed Project]

This project includes a hydrologic and hydraulic (H&H) study on the existing stormwater system. Check valves and swirl separators would be installed on outfalls to prevent tidal flows from entering the storm sewer system and improve the quality of water entering into the Bay, including runoff from Bayswater Boulevard, a particular area of concern.

[Phase 2: Featured Project]

This project would complete all recommendations unable to be completed in Phase 1, including improvements along Chestnut Road, Davis Avenue, Maple Road and Prospect Place. These upgrades should provide further improvement of system capacity and efficiency.

3. Inwood Buccaneers Facility Repair

[Featured Project]

This project would repair the facility by installing a new HVAC system with elevated utilities to provide heating and cooling for the entire facility (approximately 3,000 sq. ft.), replacing drywall and portions of stud walls that suffered water damage (approximately 800 sq. ft.).

4. Inwood Country Club Dam Repair

[Featured Project]

This project includes the repair of the existing dam that is located within the country club. The breached dam is causing the neighborhood around the country club to flood during high tide and heavy rains.

Lawrence:

1. Lawrence Stormwater Infrastructure Upgrades

[Proposed Project]

This project aims to conduct additional Hydrologic and Hydraulic studies to determine deficiencies and implement the recommended infrastructure improvements, including pipe and catchment upgrades, check valves and swirl separators.

2. Dike at the Isle of Wight Repairs and Elevation

[Proposed Project]

This project involves repairing the Dike at the Isle of Wight and raising it using sheet pile core system. The objective of this project is to repair the pipe in the dike and increase the height of the dike by 4 feet (using sheet pile) to protect the adjacent residential neighborhood from large storm surge events.

3. Mesivta Ateres Yaakov Community Assistance Center

[Featured Project]

This project would include facilities enhancements to make them optimally suited for providing the services typically required following a storm event.

4. Lawrence Cedarhurst Fire Department: Mobile Command Unit

[Featured Project]

This project includes the purchase of a Mobile Communications Unit that would help to improve coordination of operational response

for Nassau County Fire Departments during widespread emergencies.

5. Achiezer Community Resource Center: Mobile Command Unit

[Featured Project]

This project would improve the capacity of Achiezer by purchasing a generator-powered mobile communication center for telephone and satellite communications.

Meadowmere Park:

1. Meadowmere Park Microgrid

[Proposed Project]

This project would provide backup power to a critical facility during periods of primary power outage, and create the first 'node' of a future 'community grid' that would supply backup power to homes in the Meadowmere Park community.

2. Meadowmere Park Bulkhead Repair Program

[Proposed Project]

This project is intended to fill the gap not covered by the NY Rising Housing Recovery Program. It includes repairing and replacing bulkheads as necessary. Bulkheads would be elevated up to 18" above their current elevation, to approximately 7' above the base flood elevation.

3. Meadowmere Park Home Elevation Program

[Proposed Project]

This project is also intended to fill the gap not covered by the NY Rising Housing Recovery Program. The project would provide for elevations of approximately 15 homes.

4. Meadowmere Park Fire Department Building Upgrades

[Proposed Project]

This project would work in partnership with the Meadowmere Park Microgrid project to fund building repairs to the Fire Department to improve the capacity to assist the community during disaster events.

5. Meadowmere Park Footbridge Hardening

[Proposed Project]

This project would harden the existing wooden footbridge while maintaining the footbridge's character and use exclusively for pedestrian access.

Woodmere:

1. Woodmere Stormwater Infrastructure Upgrades

[Phase 1: Proposed Project]

This project includes a hydrologic and hydraulic (H&H) study on the existing stormwater system deficiencies and the subsequent implementation of repair and upgrades to stormwater pipes, drains, and catch basins. Phase 1 would include improvements along Derby, Church, Barnard and Arbuckle Avenues.

2. Woodmere Stormwater Infrastructure Upgrades

[Phase 2: Featured Project]

This project would complete all recommendations unable to be completed in Phase 1, north and south of Mott's Creek. Upgrades along the south side of the Creek include Ibsen Street, Howard Ave, Island Ave, Jefferson Street, King Street, Lowell Street and Moore Street, as well as Lakeside Drive, Rica Lane, Midway, Norman Way, Donald Lane and Saddle Ridge Road. Along the north side of the creek, upgrades include those along Golf Drive and north-south corridors that connect to Golf Drive. These upgrades would provide further improvement of system capacity and efficiency.

The Five Towns: Proposed and Featured Projects

Cedarhurst

- 1 Cedarhurst Stormwater Infrastructure Upgrades: Phase 1 [Proposed]
- 2 Removable Flood Walls for DPW Facility [Proposed]
- 3 Cedarhurst Village Hall Disaster Response Plan [Proposed]
- 4 Cedarhurst Stormwater Infrastructure Upgrades: Phase 2 [Featured]
- 5 Cedarhurst Repair of the berm along Municipal Property [Featured]

Hewlett

- 6 Hewlett Stormwater Infrastructure Upgrades: Phase 1 [Proposed]
- 7 Hewlett Stormwater Infrastructure Upgrades: Phase 2 [Featured]

Hewlett Harbor

- 8 Hewlett Harbor Stormwater Infrastructure Upgrades: Phase 1 [Proposed]
- 9 Hewlett Harbor Stormwater Infrastructure Upgrades: Phase 2 [Featured]

Hewlett Neck

- 10 Hewlett Neck Stormwater Infrastructure Upgrades: Phase 1 [Proposed]
- 11 Harden Underground Street Light Infrastructure [Proposed]
- 12 Hewlett Neck Stormwater Infrastructure Upgrades: Phase 2 [Featured]

Inwood

- 13 Inwood Stormwater Infrastructure Upgrades: Phase 1 [Proposed]
- 14 Inwood Stormwater Infrastructure Upgrades: Phase 2 [Featured]
- 15 Inwood Buccaneers Facility Repairs [Featured]
- 16 Inwood Country Club Dam Repairs [Featured]

Lawrence

- 17 Lawrence Stormwater Infrastructure Upgrades [Proposed]
- 18 Dike at the Isle of Wight Repairs and Elevation [Proposed]
- 19 Mesivta Ateres Yaakov Community Assistance Center [Featured]
- 20 Lawrence Cedarhurst Fire Department: Mobile Command Unit [Featured]
- 21 Achiezer Community Resource Center: Mobile Command Unit [Featured]

Meadowmere Park

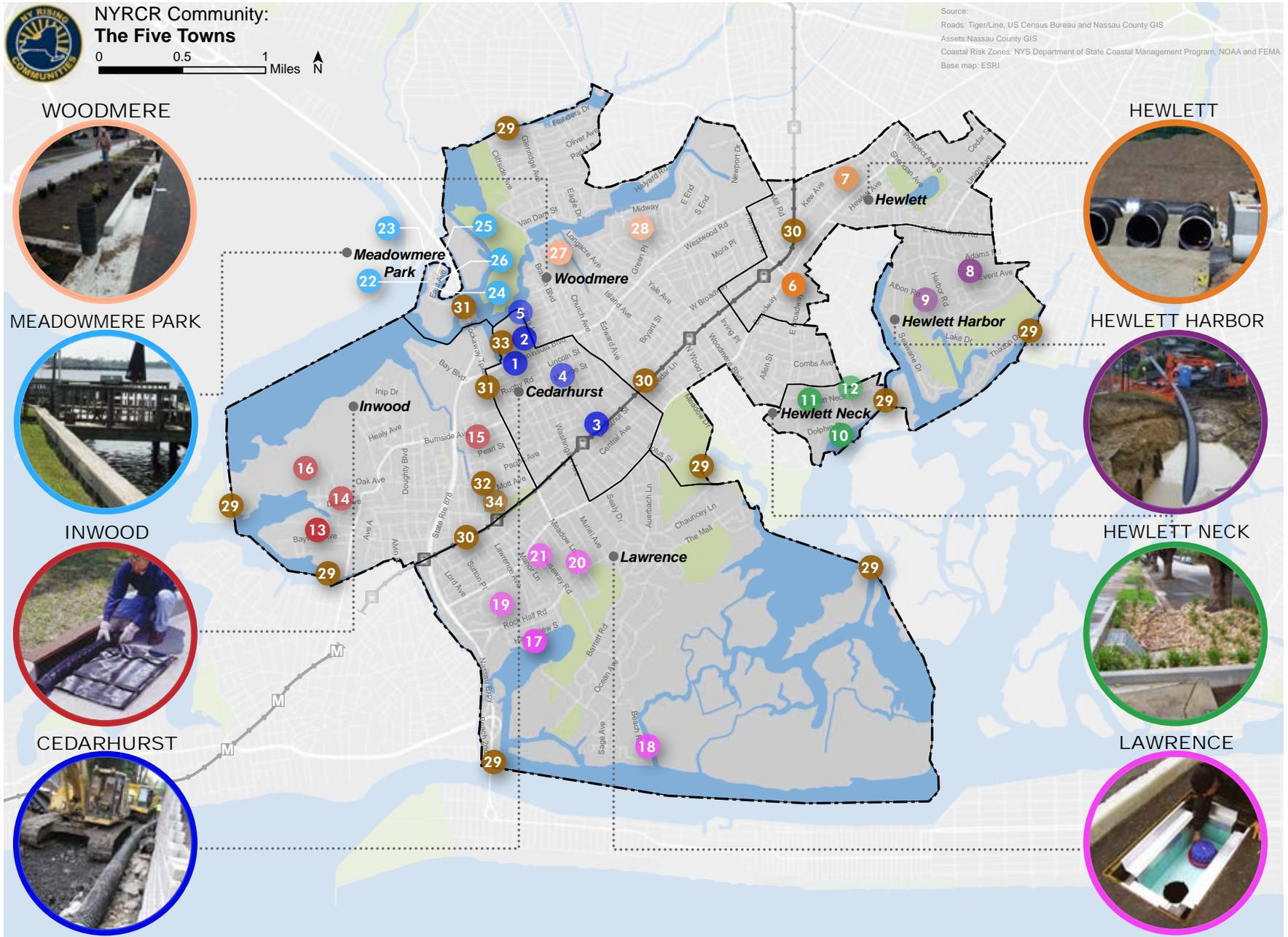
- 22 Meadowmere Park Microgrid [Proposed]
- 23 Meadowmere Park Bulkhead Repair Program [Proposed]
- 24 Meadowmere Park Home Elevation Program [Proposed]
- 25 Meadowmere Park Fire Department Building Upgrades [Proposed]
- 26 Meadowmere Park Footbridge Hardening [Proposed]

Woodmere

- 27 Woodmere Stormwater Infrastructure Upgrades: Phase 1 [Proposed]
- 28 Woodmere Stormwater Infrastructure Upgrades: Phase 2 [Featured]

Regional and Shared Projects

- 29 South Shoreline Improvement Study [Proposed]
- 30 Microgrid Feasibility Study and Action Plan [Proposed]
- 31 Rockaway Turnpike/Nassau Expressway Resilient Corridor Study [Proposed]
- 32 Five Towns Community Center Upgrades: Phase 1 [Proposed]
- 33 Lawrence High School Hardening and Protection [Proposed]
- 34 Five Towns Community Center Upgrades: Phase 2 [Featured]





Freeport NY Rising Community Reconstruction Plan



March 2014
NY Rising Community
Reconstruction Program



Executive Summary

Overview

New York State (NYS) established the NY Rising Community Reconstruction (NYRCR) Program to provide rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through the creation of a Village of Freeport (Freeport) NY Rising Community Reconstruction Plan (NYRCR Plan), the NYRCR Program empowers the community to identify resilient and innovative reconstruction projects that consider current damage, future threats, and economic opportunities. Freeport's residents, business owners, first responders, and workers actively participated in the preparation of this NYRCR Plan from September 2013 until the end of March 2014. The State has allocated up to \$17.8 million of U.S. Department of Housing and Urban Development (HUD) funds through its Community Development Block Grant – Disaster Recovery (CDBG-DR) to NYRCR Freeport (Community) for implementation of these programs and actions.

Freeport is an incorporated village located in the Town of Hempstead (Town) on the south shore of Nassau County's (County) mainland on Long Island, New York. Its shoreline borders Middle Bay, an embayment of the South Shore Estuary. The geographic scope of the NYRCR Plan includes the entire incorporated area of Freeport. Its eastern border is formed by Meadowbrook State Parkway and the unincorporated hamlet of Merrick; Babylon Turnpike and the unincorporated hamlet of Roosevelt are to the north; Baldwin Bay, the unincorporated hamlets of Baldwin Harbor and Baldwin, and Milburn Creek form its western border; Middle Bay is to the south. Lands beyond the municipal boundary located to the southeast include private landholdings in the Town and the County's Cow Meadow Park and Preserve, which are addressed in the NYRCR Plan to the extent that Freeport provides municipal services.

Freeport is an industrious, sea-oriented, and artistic community with Colonial American roots dating to its settlement as an oystering community in the 1640s. By the late 1800s, it grew into a popular seaside resort and was incorporated as a village in 1892. Today, Freeport covers approximately four-and-a-half square miles of land and maintains its own municipal electric and water utilities, police, and fire

departments. Its government is made up of a mayor and four trustees, with one trustee serving in the capacity of deputy mayor.

A bedroom community of New York City, Freeport is home to more than 43,000 people. Freeport includes an attractive mix of inland and waterfront single-family neighborhoods interspersed with higher density condominiums, co-ops, apartments, and assisted living facilities offering residents a variety of housing options to suit a diverse range of household types and incomes. Freeport's canals and tributaries are lined with recreational boats, marinas, charter and commercial fishing fleets, restaurants, and maritime businesses. Its residents enjoy a wealth of amenities, including waterfront parks, the famous Nautical Mile, a Long Island Rail Road (LIRR) station, the Freeport Recreation Center, easy access to the barrier islands and Jones Beach State Park, and numerous retail and employment centers.

Storm Impacts

Hurricane Irene and Superstorm Sandy brought significant damage to public infrastructure, homes, businesses, and the estuary's environment. Both storms had different impacts on Freeport in terms of the type and intensity of damages. In August 2011, Hurricane Irene brought 13 inches of torrential rain, a storm surge that exceeded seven feet, and wind gusts up to 90 miles per hour, which caused flooding and downed trees that resulted in impassable roads and power outages. Flooding was primarily concentrated south of Merrick Road, while heavy winds and power outages affected the entire area.

In October 2012, Superstorm Sandy, an extraordinary large and slow moving storm with wind gusts up to 80 miles per hour, made landfall on a high astronomical tide that brought with it a storm surge height of 7.85 feet above the normal astronomical tide level. Located directly across from Jones Inlet, the shoreline of the Village of Freeport, and specifically the Nautical Mile, suffered a direct hit from the surge, which inundated large swaths of low-lying lands. With only one inch of rainfall, the majority of the storm's damage came from the high winds and the powerful surge, which flooded roads, compromised power lines, and caused boats and other debris to damage structures. First responders and residents could not

access evacuation routes and local roads. Freeport Electric contained the breadth and duration of power outages to three days or less, while surrounding areas that depended on Long Island Power Authority (LIPA) suffered outages for up to three weeks. Power outages also disrupted communication networks, hampering rescue and recovery efforts.

The Freeport Building Department determined more than 4,000 of Freeport's housing units and 130 homes were unsafe for habitation. Some businesses sustained flooding and storm damage, while others suffered power outages and reduced economic activity. Fortunately Freeport's gas stations had power restored more quickly than those in surrounding communities; but increased demand and limited production and distribution left many people unable to obtain gas for their vehicles. Tourist destinations such as the Nautical Mile and waterfront parks were badly damaged by floodwaters and electrical fires.

In addition to the storm damages, several vulnerabilities within Freeport were exposed. These issues directly and indirectly impact homes, businesses, sanitary sewer service, stormwater drainage systems, energy infrastructure, critical public facilities, and natural resources. The following were identified as Critical Issues during the NYRCR planning process, and directly informed the development of the strategies and projects presented in the NYRCR Freeport Plan:

- Flooding and drainage;
- Homeownership in higher risk areas;
- Shoreline protection;
- Energy infrastructure;
- Business continuity;
- Information, communication, and access to resources;
- Regional connections; and
- Resilient planning and design.

While local issues are the focus of the NYRCR Plan, it is helpful to recognize Freeport's regional context and relationship to neighboring communities and to the region. Communities on Long Island's south shore have experienced similar patterns of development, share interconnected infrastructure systems

and road networks, overlapping municipal service areas, and a common shoreline. These commonalities call for a regional perspective in addressing the challenges facing Freeport. Collectively, the local solutions can take into account and leverage regional considerations for reconstruction, recovery, and resiliency. Through a compilation and evaluation of regional plans and studies, meetings with neighboring communities, and sessions with Village, County, and State officials, regional considerations were identified and used to expand upon local projects and develop projects that could potentially be shared with neighboring communities.

Community-Driven Process

The NYRCR Planning Committee (Committee), which consists of fourteen dedicated community members and municipal liaisons, considered the Community's goals and aspirations for the future and aligned the Community goals with the goals of this NYRCR Plan in order to develop a NYRCR Plan. The NYRCR Plan seeks to creatively reduce potential storm- and climate change-related impacts, and leverage proposed investments from this NYRCR Plan by addressing other identified needs and opportunities in Freeport. Thus, while the NYRCR Plan addresses risks identified in this document, the same projects, if thoughtfully conceived, can also address long-standing future needs. The NYRCR Plan moves from asset identification to risk assessment to presenting strategies and projects that respond to critical issues, and which contribute to building a more resilient, safer, and sustainable future for the Community.

The Committee Co-Chairs and Committee Members met more than six times individually and joined two meetings with the neighboring NYRCR Communities of Baldwin/Baldwin Harbor, Bellmore/Merrick, Seaford/Wantagh, and Massapequas to guide the development of the NYRCR Plan. The Committee played an integral role throughout the planning process, providing overall direction and guidance; generating material; reviewing, revising, and responding to components of the NYRCR Plan; and deliberating on the initiatives that will bring the greatest recovery potential and resiliency value to the Community.

In addition to guidance from the Committee, more than 125 residents and stakeholders participated in three Public Engagement Events or shared their opinions and ideas through online surveys, business surveys, and key informant interviews. The strategies and projects outlined in the NYRCR Plan will ultimately impact the quality of life for those who live, work, visit, and play in the Community. As such, input from residents, business owners, and community leaders has been an important component of the planning process. The three Public Engagement Events provided Community residents the opportunity to participate in the shaping of the NYRCR Plan Vision Statement and goals, which helped to guide the planning process; community assets, needs,

opportunities and risks; and the projects put forth by the Committee to bolster reconstruction and improve community-wide resilience.

NYRCR Plan Development

Assessment of Risks and Needs

Hurricane Irene and Superstorm Sandy exposed certain vulnerabilities related to the Community's ability to mitigate for and respond to major storm events, climate change, and sea level rise. As part of developing the NYRCR Plan, an inventory of community assets was compiled and evaluated to determine each asset's potential of being damaged or destroyed by a future storm surge or flooding event. By analyzing potential hazards, as well as levels of exposure and vulnerability to possible storm impacts, a measure of risk was calculated for each asset. In addition, the community asset locations were combined with NYS Department of State (DOS) hazard maps that illustrate a range of risks and consider both the frequency and impact of flooding. These quantitative and spatial analyses, in addition to local knowledge gathered from stakeholders throughout the process, helped to highlight assets and geographic areas requiring attention and served as a basis for the generation of project ideas.

In Freeport, thousands of community assets are located in NYS DOS-identified high and extreme risk zones. Specific assets of concern to Committee Members and members of the Community include the Nautical Mile; Sea Breeze Park; the Department of Public Works (DPW) central garage, communication center, and fuel stations; Freeport Electric's Power Plant II; one school; three sanitary sewer lift stations; many marinas; the Industrial Park, and sections of the Merrick Road; Sunrise Highway; South Main Street; and Atlantic Avenue commercial corridors, including the section of Merrick Road adjacent to the Meadowbrook Parkway, a key County evacuation route. In addition to these individual assets, more than 3,600 homes are located in high and extreme risk areas. Detailed information on these analyses can be found in Section II of the NYRCR Plan.

NYRCR Freeport Plan Vision Statement

The Village of Freeport draws upon our independence, nautical commerce, and rich cultural past to create a resilient future with the economic, social, and recreational outlets that build upon our strong sense of community. The NYRCR Plan strives to:

- Revitalize the local economy and create opportunities for growth;
- Connect vulnerable and seasonal economic drivers with less vulnerable growth locations;
- Leverage and build upon infrastructure investments to maximize economic development potential;
- Build on a legacy of self-support, exploring new ways to deliver public amenities;
- Enhance parks and cultural assets so they serve multiple purposes, including recreation, resilience, and refuge;
- Provide a range of housing types for all Freeport residents that are resilient in design and location;
- Ensure proper health and social services are accessible to all residents on a daily basis and in emergency scenarios; and,
- Improve social resilience by establishing connectivity between communities and services.

The risk assessment was paired with an exploration of reconstruction and resiliency-related needs and opportunities, many of which were identified by Committee Members and the public at Committee Meetings and Public Engagement Events. Risks, needs, and opportunities were organized into six categories that relate to various aspects of life in the Community: community planning and capacity building, economic development, health and social services, housing, infrastructure, and natural and cultural resources. The Community identified the following key needs and opportunities:

- Improved communication, education and access to resources in the Community;
- Modernized workforce training and business centers for new and growing industries;
- Diversified housing choices for existing and future residents;
- Expanded community education and awareness programming centered around coastal living, climate change, and sea level rise;
- Increased energy safety, resilience, sustainability, and independence, building on Freeport Electric's strong foundation; and,
- Expanded and improved parks, preserves, and green spaces that aid or enhance storm protection and stormwater management, foster a sense of place and community, and improve recreational opportunities.

Strategies for Reconstruction and Resilience

Strategies included here are designed to support the goals of the NYRCR Program – reconstruction and resiliency. Reconstruction focuses on restoring, repairing, or replacing what was damaged or destroyed by Superstorm Sandy and Hurricane Irene. Resiliency is about strengthening the ability Freeport to rebound quickly when confronted with similar challenges in the future.

Reconstruction and Resilience Strategies for the Community are listed below and are described in detail in Section III of the NYRCR Plan:

- Invest in resilience enhancements for critical assets;

- Establish programs and policies for resilient planning and design;
- Improve transportation access and connectivity;
- Plan for business continuity and growth; and
- Improve stormwater management and drainage systems.

Proposed and Featured Projects

The projects that resulted from this extensive planning process support the Reconstruction and Resilience Strategies as well as the vision and goals for the Community. The projects included in the NYRCR Plan are organized into three categories:

- **Proposed Projects** are discrete projects that are affordable within the Community's allocation of Community Development Block Grant Disaster Recovery (CDBG-DR) assistance.
- **Featured Projects** are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other funding resources. Featured projects may also include regulatory reforms and other programs that do not involve capital expenditure.
- **Additional Resiliency Recommendations** are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Table 01 on the following page lists Proposed and Featured Projects for NYRCR Freeport. The projects have not been ranked or prioritized. Detailed descriptions of each project can be found in Section IV of the NYRCR Plan and Additional Resiliency Recommendations can be found in Section V.

Figure ES-01: Geographic Scope



Legend

- NYRCR Boundary
- Long Island Rail Road
- LIRR Rail Station
- Water
- Main Roads
- Local Roads

Data Sources

ESRI, NOAA,
US Census,
Nassau County,
NYS DOS
Created March 2014



Table 01: Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Invest in Resilience Enhancements for Critical Assets	Relocation Feasibility Analysis: Move Freeport Department of Public Works Away from Extreme Risk	Study opportunities to relocate DPW out of the SFHA while minimizing impact on existing neighborhoods - provide concept design for recommended solution and possible site acquisition.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Freeport Electrical Cable Channel Crossing Improvements	The project would extend the buried portion of the cables beyond the boat yard to protect the lines from freed boats and debris during storm surges.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Outage Management System	The system upgrade creates a web-based reporting and response system for outages or issues with essential services (power, water mains, gas). It would link directly to existing systems and enables asset protection before an event, incident mitigation during an event, and faster incident management and service restoration after an event.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Protection for Freeport's Power Plant II: Phase I: Study, Design, and Proof of Concept	This project would seek to study protection options, design flood protection, and identify further funding from NYS and US grant programs to implement and construct the design. A proof of concept would be constructed along the most vulnerable portion of the site.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Downtown Microgrid Phase I: Financial and Engineering Feasibility Study	This project seeks to identify funding and financing methods for the development of the microgrid - including State and Federal grant programs, capital budgeting, and contributions from benefitting private entities. In addition, it will explore preliminary engineering feasibility concepts for the development of the microgrid, examine costs and identify necessary construction.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Downtown Microgrid Phase 2: Redundant Energy Supply at Power Plant I	This project would purchase a dual-fuel (diesel/natural gas) generator with black-start capability and replace an outdated diesel generator at Freeport Power Plant I.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Backup Power for Sewer Lift Stations	This project seeks to install permanent backup natural gas generators at each of the Village of Freeport's three sewer lift stations located in a SFHA.	Proposed	N

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Transportation Access and Connectivity	Community Assistance Centers	Community Assistance Centers are places for residents to gather information about emergency preparedness under normal conditions. After a storm, these centers would become a place to gather, collect and distribute resources, charge cell phones, access the internet/TV, and seek comfort. This project would install backup power generation, dynamic electronic notification and alert signage, and additional charging and wifi capacity at each center. In addition, a Local Disaster Recovery Manager would be hired for two years.	Proposed	N
Establish Programs and Policies for Resilient Planning and Design	Operation SPLASH: Resilience Education Center	This project seeks to fortify and protect Operation SPLASH with innovative flood protection design and infrastructure (two passive self-closing flood barriers, sewage backflow preventers, and personnel door barriers). In addition, partnerships with Nassau County higher education institutions will be sought to raise awareness of climate related risks on the South Shore and promote environmental stewardship. Finally, surveillance cameras will be installed at high points along the coast and the video feeds will be displayed at Operation SPLASH as a scientific monitoring, community awareness, and educational tool.	Proposed	N
Plan for Business Continuity and Growth	Nautical Mile Buoyant Architecture	This project will design and construct a buoyant building along the Nautical Mile to demonstrate the ability to economically and resiliently maintain a coastal economy. In addition to improving resilience of coastal structures, this allows buildings and neighborhoods to maintain their character, retain access for elderly and disabled populations, prepare for sea level rise, and in some cases reduce the cost of construction to comply with new building elevation requirements.	Proposed	N

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Plan for Business Continuity and Growth	Modernize the Industrial Park Study	<p>This project seeks to outline implementation steps for the formation of a local nonprofit development authority that is committed to transforming the Industrial Park into a modern, environmentally conscious, and resilient business center.</p> <p>The study will also propose design guidelines for safe, affordable, and environmentally conscious light industrial and commercial development. Short-term and long-term goals, strategies, actions, and design concepts will be developed.</p>	Proposed	N
Plan for Business Continuity and Growth	Business Continuity Program	<p>This program would help small businesses create their own business continuity plans, and provide a custom roadmap for businesses to continue operations under adverse conditions. This includes planning assistance and access to alternate spaces and facilities and grant assistance.</p>	Proposed	Y
Improve Stormwater Management and Drainage Systems	Meadowbrook Corridor Stormwater System Modeling, Analysis, and Pilot	<p>This project would include the reconstruction of five stormwater outfalls currently entering Freeport Creek and reconnecting the Creek with the natural floodplain.</p> <p>A floating wetland pilot and drainage study would also be conducted for East Meadow Pond to improve water quality and reduce future flooding.</p> <p>A daylighting study for Freeport Creek would examine the potential benefits of uncovering the current underground portion of the Creek.</p>	Proposed	Y
Improve Transportation Access and Connectivity	Lifeline Corridor Study and Pilot Implementation: Merrick Road Corridor	<p>Merrick Road is an important lifeline for many people, businesses and institutions. Due to the importance of the road, it is proposed that a study and subsequent pilot projects to improve its post-storm functionality take place. Based on the findings and results, the Lifeline Project could then be applied to additional streets that are critical at the neighborhood and community level.</p> <p>The study will identify best practices and develop design guidelines for resilient streetscapes and implement a pilot project.</p>	Proposed	Y

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Invest in Resilience Enhancements for Critical Assets	Downtown Microgrid Phase 3: Redundant Distribution Surrounding Microgrid	Phase 3 of the Downtown Microgrid project involves the installation of four new underground circuits on the streets that border of the microgrid. These circuits increase redundancy and replace outdated circuits, while increasing capacity.	Featured	N
Invest in Resilience Enhancements for Critical Assets	Protection for Freeport Electric's Power Plant II Phase 2: Construction	This project would seek to construct the recommended design of protection options from Phase 1 of the Protection for Freeport Electric's Power Plant II project. Further funding from NYS and US grant programs for construction is required.	Featured	N
Establish Programs and Policies for Resilient Planning and Design	Convert Home Heating to Natural Gas in Extreme and High Risk Areas	This project will develop policy recommendations and an incentive program to convert home heating oil to natural gas in extreme and high risk areas. Temporary regulations to require proper anchoring of tanks in risk areas will be developed and incorporated. A deadline for all structures in extreme, high and moderate risk areas to convert to natural gas and/or other heat/hot water supply will be established.	Featured	N
Improve Stormwater Management and Drainage Systems	Regional Stormwater Drainage Cleanout, Survey, and Verification	This project seeks to clean out all storm drains in the Freeport area. While they are being accessed, it is recommended that a comprehensive survey is conducted to document and verify all missing stormwater infrastructure from the local data inventory. The data collected will feed into the hydraulic and hydrologic model to analyze the current drainage system and identify critical drainage projects. This will include the implementation of green infrastructure projects and will quantify the benefits of green infrastructure solutions.	Featured	N
Invest in Resilience Enhancements for Critical Assets	Street Tree Maintenance and Guidelines	This project seeks to recommend policy changes to identify roads for tree trimming, maintenance and/or replacement with more resilient trees.	Featured	N

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Stormwater Management and Drainage Systems	Green Infrastructure Plan	This Plan seeks to identify green infrastructure opportunities based on feasibility, level of impact, funding and street reconstruction schedules. Opportunities to manage stormwater on public and private properties will also be identified and recommended.	Featured	N
Improve Stormwater Management and Drainage Systems	Green Infrastructure Plan Implementation: Main Street Improvements	This project builds on the existing "Building a Better Freeport" plan, which recommends street improvement projects along North Main Street. This project would operate in tandem with the proposed improvements, ensuring that any pedestrian improvements incorporate bioswales or open channel infiltration areas to the extent possible. It also recommends reconstruction of areas along South Main Street that have been improved recently but missed opportunities to incorporate green infrastructure.	Featured	N
Establish Programs and Policies for Resilient Planning and Design	Public Bulkhead Repair	Publicly-owned bulkheads will be replaced at an appropriate height and with modern materials that are more resilient to erosion and wind. The reconstruction of the bulkheads will provide coastal protection in public areas, helping to maintain Freeport's open space and recreational areas. In addition, the bulkheads can reduce flooding impacts on local streets, helping to maintain access during and after flood events.	Featured	N
Improve Transportation Access and Connectivity	Key Intersection Streetlight Retrofit Pilot Project	This project seeks to provide solar powered lighting with backup power leading to key intersections, to ensure these roads always stay lit in the event of a power outage and residents can follow these lit streets toward safer areas and critical resources. In addition to providing solar power and backup energy for street lights, traffic signals at each of these intersections will also be provided.	Featured	N

Table 01 (cont'd): Proposed and featured projects

Strategy	Project Name	Short Description	Category	Regional
Improve Transportation Access and Connectivity	Key Intersection Signage	This project provides wayfinding and destination signage to guide people toward critical assets, assistance centers and information after storms and during power outages. This will enhance route clarity and orient residents toward streets that should be used after future emergencies.	Featured	N
Improve Transportation Access and Connectivity	Public Communication and Education Gap Analysis	This project would begin with a gap analysis to determine additional emergency community needs in the region. Findings would guide the creation of a central website with a community-driven communication component, and eventually include education and outreach activities.	Featured	Y
Establish Programs and Policies for Resilient Planning and Design	Regional Transit Oriented Development, Access and Parking Study	This study will identify opportunities to combine parking areas and develop structured parking facilities in key areas, and provide recommendations on their best use based on community need. Guidelines for the design of resilient, sustainable and aesthetically pleasing parking structures will be identified. This study will also develop a concept for local public transportation that connects Freeport's key business, retail and recreational areas.	Featured	N
Establish Programs and Policies for Resilient Planning and Design	Neighborhood Preservation Guidelines	This project seeks to undertake a planning study and make recommendations to revise Freeport zoning, planning, and building code regulations for resilient design. The study will work with Freeport planning and building agencies to ensure that needs specific to the Community's rebuilding efforts are not omitted or overlooked.	Featured	N

Lido Beach/Point Lookout Community Reconstruction Plan



NY Rising Community Reconstruction Program

March 2014



Executive Summary

A. Overview

The NY Rising Community Reconstruction (NYRCR) Program was established to provide additional rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through the NYRCR Program, New York State is assisting communities to rebuild better and safer based on community-driven plans that consider current damage, future threats to community assets, and the community's economic future. There are 13 communities in Nassau County participating in the NYRCR Program and all but one of the communities is located on the South Shore of Long Island. These coastal communities were hit hard by Superstorm Sandy.

The communities of Lido Beach and Point Lookout are located on a Barrier Island along the South Shore of Nassau County (Figure ES-1). Lido Beach and Point Lookout are two hamlets in the Town of Hempstead. Both communities were heavily damaged by Superstorm Sandy. Through the NYRCR Program, the NYRCR Lido Beach/ Point Lookout Community (Community) has been allocated up to \$6 million (\$3 million each for Lido Beach and Point Lookout) for the implementation of resiliency projects identified in this plan. The geographic scope of the Community includes all of Lido Beach—from its border with the City of Long Beach at Maple Boulevard to the shared border of Point Lookout at the Town Park at Malibu—and all of Point Lookout—from the Town Park at Malibu on the west to Jones Inlet on the east. The communities are bounded by Reynolds Channel to the north and the Atlantic Ocean to the south.

Storm impacts

Superstorm Sandy struck New York on October 29, 2012. It was the largest storm to land ashore in New York's history. A high water mark of 10.2 feet was recorded by the U.S. Geological Survey in the Lido Dunes neighborhood of Lido Beach. Floodwater from the bayfront met floodwater from the ocean in both communities. Lido Boulevard, a major thoroughfare and the primary evacuation route for Point Lookout, Lido Beach, and the adjacent City of Long Beach was covered by more than a foot of water. Flooding was

exacerbated by additional water forced through the storm drain outfalls on the bay back through the stormwater system and onto neighborhood streets.

Homes, businesses, and critical facilities throughout Lido Beach and Point Lookout sustained flood damage. According to the Federal Emergency Management Agency's Disaster Housing Assistance Program, residents reported more than \$10.5 million in damages to homes. The Lido Towers, a five-story condominium on the oceanfront, was flooded up to the ceiling of the first floor and suffered foundation damage.

Critical facilities throughout both communities were damaged by the storm. The Long Beach Elementary School/Pre-K Center, Long Beach Middle School, and School District Offices, all located in Lido Beach, were damaged by floodwater, which forced schools to close for several weeks and children to be bussed to schools off the island. The District Offices were heavily damaged and are still closed. All three fire stations in the Community sustained damage. Flooding at the Lido–Point Lookout Fire District Lido Beach Fire Station reached a depth of 4 feet inside the building. The Point Lookout Rescue Company, located on Reynolds Channel, was so heavily damaged by flooding that it has been decommissioned by the Fire District.

Power was disrupted throughout both communities, resulting in the loss of electricity to homes. Both communities were without electricity for nearly 2 weeks and without natural gas for several days. Cellular communication was intermittent as a result of damage to communication equipment. Effectively, Lido Beach and Point Lookout were isolated for almost 2 weeks following the storm.

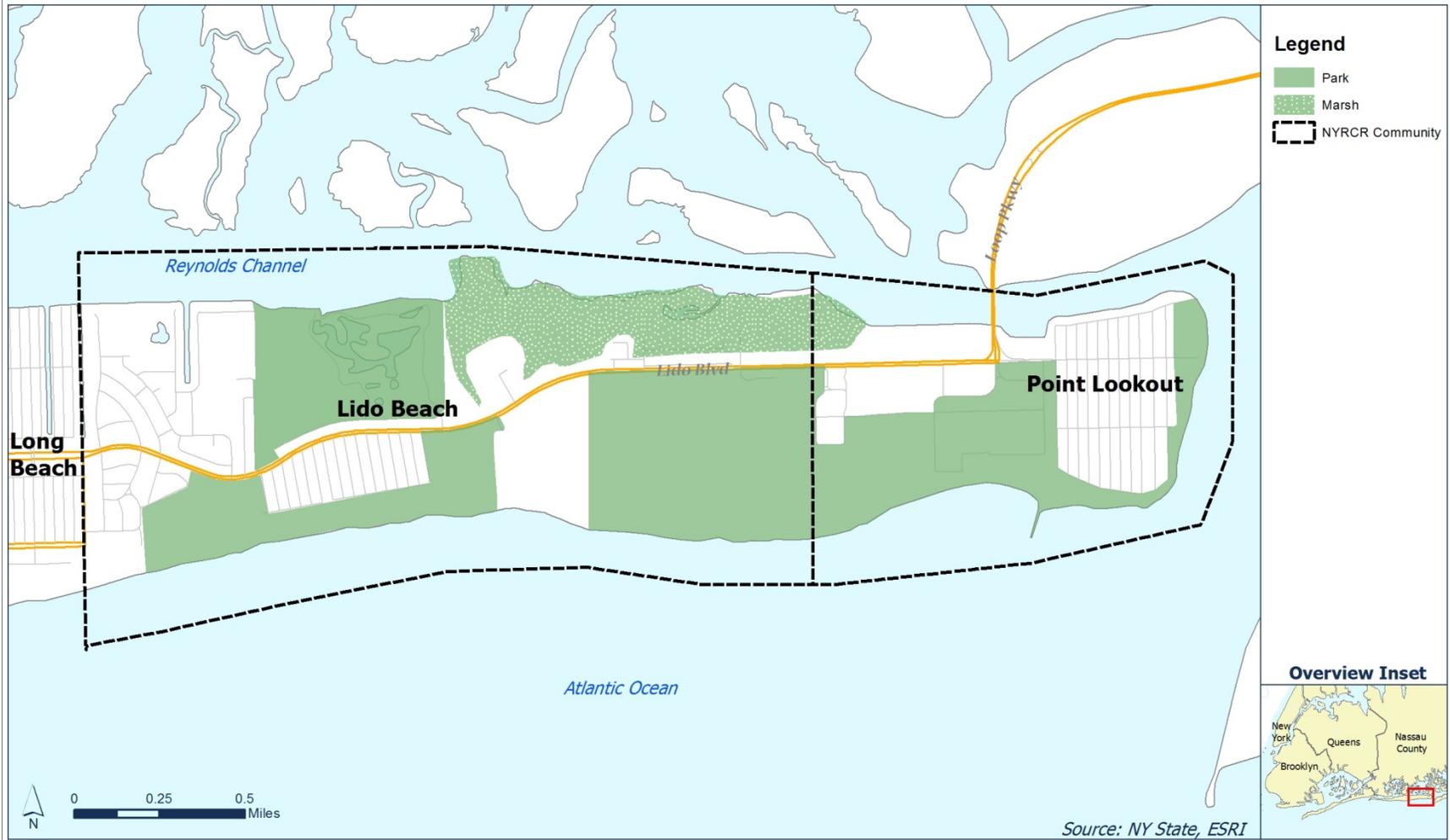
Superstorm Sandy impacted the local economy by damaging commercial areas, including the waterfront along Reynolds Channel in Point Lookout and the Town Parks along the oceanfront. Some businesses were closed for nearly a year after the storm.

Natural areas in both communities also suffered damage due to the storm. Reynolds Channel, located along the bayfront of both communities, was reported by the U.S. Army Corps of Engineers to have at least 40 vessels sunk in its waters as a result of Superstorm Sandy. The Lido Beach Passive



Lido Beach and Point Lookout

Figure ES-1: Geographic Scope of the Lido Beach and Point Lookout NYRCR Plan



Nature Preserve, the last salt marsh on the Barrier Island, suffered shoreline erosion and was littered with debris deposited by floodwater. On the oceanfront, the primary frontal dune at Lido Beach was completely destroyed from Maple Boulevard to Biarritz Street. The dunes were also breached in several locations by the storm surge from Lido Beach down to Point Lookout, allowing floodwater to enter neighborhoods. Superstorm Sandy also accelerated erosion along the unprotected northeastern and southeastern tips of Point Lookout.

Critical issues

The aftermath of Hurricane Irene and Superstorm Sandy highlighted the need to address several issues facing the community to improve the resiliency of infrastructure and critical facilities and to enhance emergency preparedness. Critical facilities, including schools and fire stations, and the stormwater system infrastructure were heavily damaged and remain vulnerable to damage from future storm events. Natural resources, such as the marsh and the dunes, also require protection to enhance their resiliency to future events.

Schools, municipal buildings in Town Parks, and fire houses were hard hit by Superstorm Sandy and remain vulnerable to future storm events. The Lido–Point Lookout Fire District has been working to repair facilities and to improve resiliency to future events.

Access to power and cellular communication during and after an emergency was identified as a critical issue for Lido Beach and Point Lookout. Power and cellular outages were widespread during and after Superstorm Sandy. Lack of power and the inability to communicate increased the isolation of residents during response efforts.

The inability of stormwater to drain is a major issue for both communities. Stormwater systems have been damaged in major storm events, including Superstorm Sandy. In addition, stormwater outfall drains located on the bayfront are open, allowing tidal water to flow back into the stormwater system, forcing water through the system and onto streets. The backflow into the stormwater system causes flooding during normal rainfalls and high-tide events and catastrophic system failures during major storm events.

A critical issue facing both communities is the ability for residents to access evacuation routes. Evacuating prior to a storm event is the first step to

protecting the health and safety of residents. Lido Boulevard is the only evacuation route for Lido Beach and Point Lookout residents. Lido Boulevard was impassable during and after Superstorm Sandy as a result of flooding because the stormwater system was unable to drain floodwaters. Residents were unable to evacuate and were forced to remain on the island without electricity or cellular communication.

Coastal erosion and storm damage to natural protective systems has increased the vulnerability of both communities to future storm events. The loss of the primary frontal dune on the western end of Lido Beach and dune breaches increase the vulnerability of both communities to storm surge and flooding. Superstorm Sandy accelerated coastal erosion at the northeastern tip of Point Lookout. A stone and rubble revetment protects most of the shoreline of Point Lookout along Jones Inlet; however, the revetment does not continue up to and around the northern end of the community, leaving residences vulnerable to coastal erosion. The Lido Beach Passive Nature Preserve also experienced erosion of its shoreline as a result Superstorm Sandy. The marsh is the last remaining salt marsh on the Barrier Island, provides habitat for shorebirds, and functions as an area of floodwater conveyance and storage. The dunes, the northern tip of Point Lookout, and the marsh areas need protection and enhancement to restore their storm buffer capacity and other environmental functions.

B. Working together to rebuild stronger, smarter, and safer

The NYRCR Planning Committee, with input from the public, developed goals for enhancing resiliency of Community assets that were aligned with the Community's core values. The Community developed the Vision Statement in Figure ES-2 to guide the development of its goals.

Public outreach

The Community Vision Statement and NYRCR Plan recommendations were shaped in a public engagement process that included 11 Planning Committee Meetings, 3 Public Engagement Events, and outreach through a variety of mediums and methods.

The three Public Engagement Events were held from October 2013 through March 2014 to share project information and solicit feedback from the

NYRCR Lido Beach and Point Lookout Vision Statement

Point Lookout and Lido Beach will continue to be vibrant, island residential communities that provide a healthy environment and resilient infrastructure and maintain a high quality of life for residents and visitors by preserving natural resources, providing beautiful beaches and other recreational opportunities, and maintaining a working waterfront.

Figure ES-2: NYRCR Lido Beach/Point Lookout Vision Statement

Community to shape NYRCR Plan recommendations. The three Public Engagement Events were each attended by 40 to 45 members of the public.

The first Public Engagement Event, held October 15, 2013, in Lido Beach, was designed to provide an overview of the NYRCR Program, while engaging community members in a small group forum for a discussion about a community vision, community assets, vulnerabilities, and strategies for making the Community more resilient.

At the second Public Engagement Event, held November 4, 2013, in Lido Beach, a small group discussion format was used to conduct three interactive sessions to gather information on the effects of Superstorm Sandy and identify projects for achieving resiliency, and for residents to select innovative strategies to pursue. The public identified locations of flooding events, discussed issues with post-storm communication due to damaged cellular communications equipment and intermittent coverage, and provided information about disaster recovery immediately after Superstorm Sandy. The public also recommended additional strategies for resolving the recovery issues they identified during the event.

An open house format at the third Public Engagement Event, held February 20, 2014, in Point Lookout, provided nine project stations that included project boards staffed by subject matter experts in civil engineering and coastal protection and Planning Committee Members to answer questions. The project boards contained illustrations, benefit analyses, maps, and prompts for the public to facilitate obtaining feedback on the projects.

The final Public Engagement Event, to be held in spring 2014, will present the final NYRCR plan to the Community.

C. Blueprint for implementation

Goals and associated strategies were developed through the Planning Committee Meetings, the three Public Engagement Events, an online survey, an asset inventory, a risk assessment, and a needs and opportunities analysis for Lido Beach and Point Lookout. Strategies guided the development of projects to increase the resiliency of assets and reduce future risk to storm events. Metrics such as resiliency, time frame, and technical feasibility were used to develop a series of capital projects, feasibility studies, policy recommendations, and regional cooperation initiatives for recovering and rebuilding from the impacts of Superstorm Sandy and Hurricane Irene. The Plan includes three sets of projects to address critical community needs: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. NYRCR projects are classified in the following ways:

- **Proposed Project:** Proposed Projects are proposed for funding through a Community's allocation of Community Development Block Grant–Disaster Recovery (CDBG-DR) funding.
- **Featured Project:** Featured Projects are innovative projects for which an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding and regulatory reforms and other programs that do not involve capital expenditures.
- **Additional Resiliency Recommendations:** Additional Resiliency Recommendations are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

All of the projects included in the NYRCR Plan are important to the Community. Projects for NYRCR Lido Beach and Point Lookout are listed below in Table ES-1 by strategy (some of the projects fit multiple strategies and are listed more than once). The order of appearance is not a reflection of project priority or ranking.

Table ES-1: Table of Projects

Reconstruction and Resiliency Strategy	Project Name	Short Description	Project Category
Increase protection from coastal storms	Revetment Repair/Reconstruction	Construct sections of rock revetment at northeast end of Point Lookout for protection of homes, businesses, and recreational facilities	Proposed Project
Increase protection from coastal storms	Repair Dunes & Construct Dune Walkovers	Fill breaches and repair dunes to prevent tidal surge from flooding streets, homes, and businesses; construct walkovers to provide beach access	Proposed Project
Improve stormwater drainage	Tidal Backflow Prevention and Stormwater Treatment	Prevent tidal water from infiltrating low-lying areas at stormwater outfalls that are partially or fully submerged during high tides and storms, causing flooding. Reduce contaminants discharged from outfalls.	Proposed Project
Improve stormwater drainage	Drainage Improvements (Phase 3A)	Comprehensive stormwater study to identify improvement areas to reduce flooding along evacuation routes, primary roadways, low-lying areas, and economic corridors Section 3A (along Lido Boulevard from Maple Boulevard to Harrogate Street, Lido Beach) will be the first phase of construction.	Proposed Project
Improve stormwater drainage	Alternative Stormwater Opportunities	Conduct an analysis of the stormwater management system in the vicinity of the Town Parks and Nickerson Beach. Design and construct stormwater management systems at key project locations in Town Parks based on recommendations of stormwater management system study.	Featured Project
Improve stormwater drainage	Encourage Stormwater Capture during Sidewalk Replacement	Install stormwater management system under sidewalks when sidewalks are replaced	Featured Project
Increase resiliency of critical facilities	Critical Facility Resiliency	Provide resiliency enhancement to emergency service buildings and secure critical facilities with resiliency enhancements and flood protection	Proposed Project
Meet communication needs pre-event Promote evacuation	Evacuation Education and Outreach Program and Lifeline Safety Plan	Develop a Lifeline Safety Plan and establish a program for providing regular education and outreach about emergency evacuation; includes development of a reverse 911 system for the Lido–Point Lookout Fire District	Proposed Project
Increase resiliency of salt marsh to coastal erosion	Shoreline and Marsh Restoration and Open Space Protection	Provide stabilization of the shoreline of the Lido Beach Passive Nature Preserve and Tidal Salt Marsh with creation of natural habitat	Featured Project



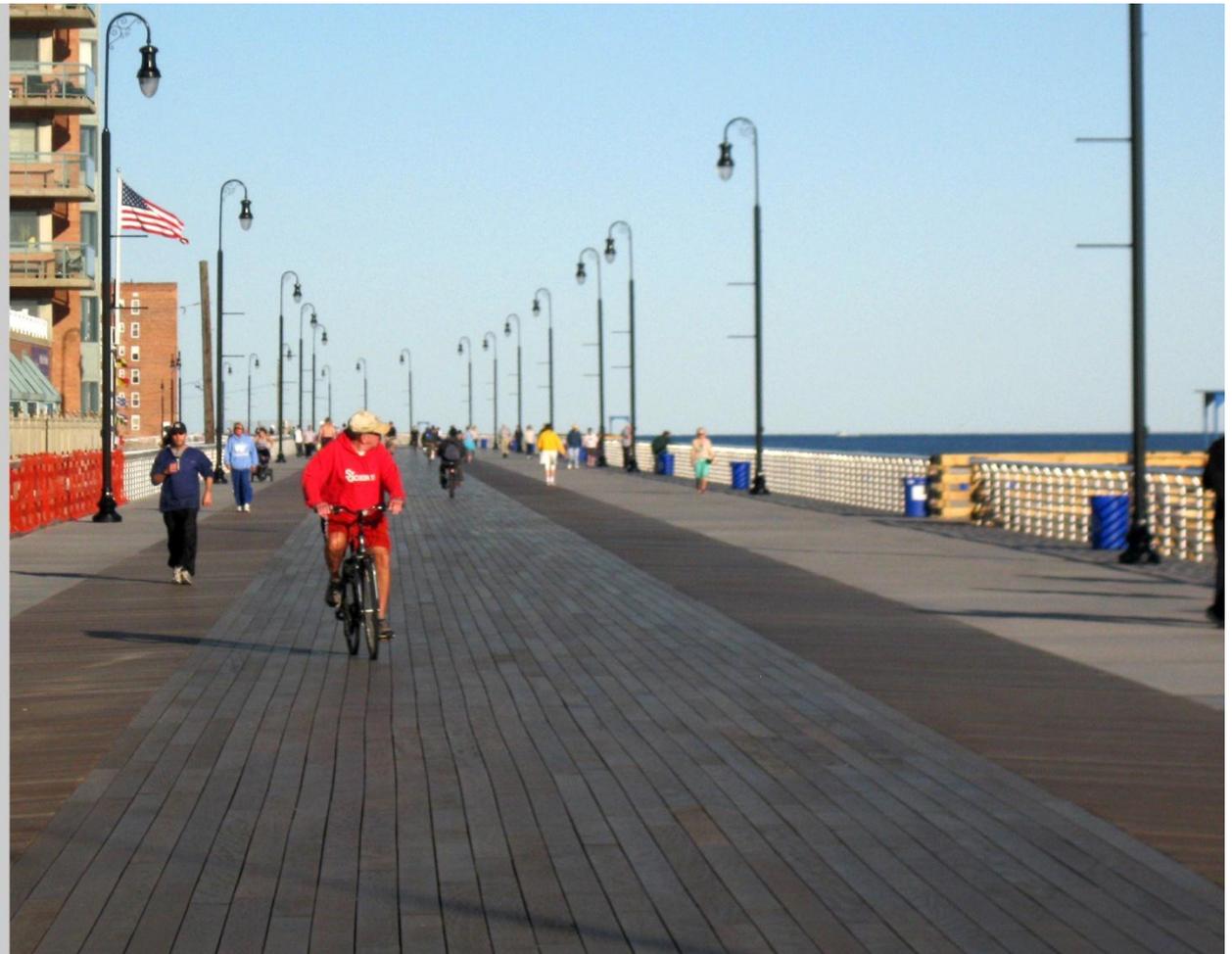
Long Beach

NY Rising Community Reconstruction Plan



NY Rising Community Reconstruction Program

March 2014



Executive Summary – NYRCR Long Beach Community

A. Overview

The City of Long Beach, NY, is located on the Barrier Island on Long Island's South Shore in Nassau County and is a 50-minute train ride from New York City. With approximately 33,275 residents year round and over 55,000 in the summer, the City shares the barrier island with the Village of Atlantic Beach and East Atlantic Beach to the west and Lido Beach and Point Lookout to the east.

The NY Rising Community Reconstruction (NYRCR) Long Beach Community was allocated up to \$25 million in Community Development Block Grant-Disaster Recovery (CDBG-DR) funding through the NYRCR Program. The NYRCR Planning Committee (Committee) identified the municipal boundary of the City of Long Beach as the geographic scope of the NYRCR Long Beach Plan (see Figure ES-1).

Storm impacts

Historically, the City of Long Beach has faced damaging winds, repetitive flooding, and storm surge. Superstorm Sandy (and to a lesser degree Hurricane Irene in 2011) brought a tremendous amount of destruction to Long Beach. Superstorm Sandy made landfall in New York on October 29, 2012, and was the largest storm in New York State's recorded history.

Superstorm Sandy devastated Long Beach, causing damage to homes, businesses, and key infrastructure, just as the economy was beginning to recover from the recession of 2008. The storm hit at a full moon high tide, with storm surge that rode on top of this extra high tide. The City was completely inundated by the storm. As water came from the Atlantic Ocean on one side of the barrier island, it was met by storm inundation from the bayfront. Residents were without electricity, drinking water, and sewer for more than two weeks, and approximately nine fires broke out across the City because of the storm. Many residents lost their vehicles, and City emergency apparatus and other vehicles were also destroyed.

Damages have been estimated at approximately \$200 million for City facilities and infrastructure, according to the City of Long Beach. In contrast, the damages from Hurricane Irene to the City of Long Beach were slightly

more than \$2 million. These numbers do not include damages to other sectors of the City (homes and businesses); total damages to all of Long Beach from Superstorm Sandy are likely over \$1 billion.

According to the United States Geological Survey (USGS), the City of Long Beach sustained a storm surge of 17.48 feet. Streets were flooded with 3 to 10 feet of water and covered by 4 to 6 feet of sand. The U.S. Army Corps of Engineers estimates that approximately 294,000 cubic yards of sand was lost from City beaches as a result of Superstorm Sandy.¹ The massive amount of debris collected after the storm in Long Beach was temporarily staged at Nickerson Beach in nearby Lido Beach prior to being removed to upstate landfills by barge.²

Sixty-eight percent of Long Beach's housing stock sustained heavy or strong damage related to Superstorm Sandy (10,554 housing units).³ Heavy damage is defined as more than 50% damage to the unit and strong damage is defined as 20% to 50% damage to the unit. In the City, 10,331 housing units were flooded: 1,337 units had greater than 4 feet of flooding, and 3,908 units had between 1 and 4 feet of flooding.⁴

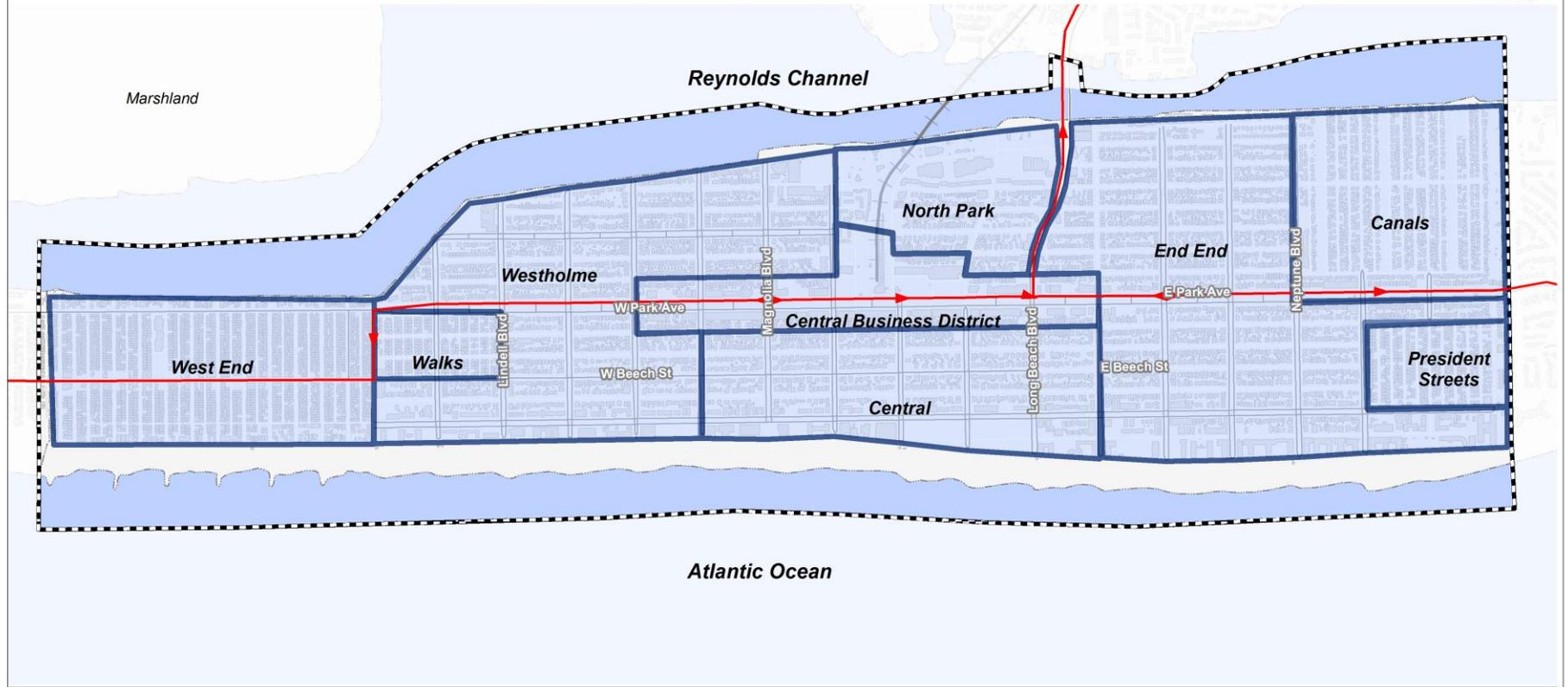
The storm damaged much of the City's infrastructure, including the sewer and water lines, wells, pump/lift stations, roads, parking lots, electrical systems, traffic signals, fire hydrants, sidewalks, and curbs. In the City's industrial area on the north shore, the Water Purification Plant and storage tower, Water Pollution Control Plant, electrical substations, and a major gas pipeline were damaged and required emergency repairs that took several weeks. The Water Pollution Control Plant was out of service for 7 days and the Water Purification Plant was shut down for about 2 weeks with periodic outages during repairs.

In addition, government facilities, bulkheads, dunes, pedestrian walkovers in the West End and East End, and the historic 2.2-mile Boardwalk, which was originally constructed in 1907, were also damaged. Beach pass booths and lifeguard stands were destroyed and the lifeguard headquarters was pulled out to sea. In total, 54 City-owned facilities (including the Water Purification Plant, playgrounds, wells, etc.) were damaged.

Figure ES-1: NYRCR Long Beach Community Geographic Scope

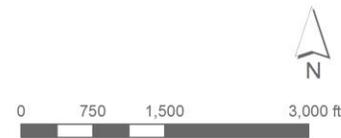
NY Rising Community Reconstruction Program

Source: Nassau County, USGS, NOAA, City of Long Beach



Legend

- Evacuation Routes
- Neighborhoods
- Community



Facing the reality of the storm’s devastation, Long Beachers did what they always do. They came together. At first light following the storm, residents were already checking in on neighbors, helping each other dig out cars and begin the weighty process of discarding all of their flood-drenched worldly possessions. Residents who were dealing with their own damaged homes and businesses found the time to help others—removing sand, debris, cooking on portable grills to provide meals, and going door to door to check on neighbors. Within hours, local establishments, that were devastated themselves, had morphed into gathering places, food pantries, and donation centers. Within days, well organized groups of local volunteers were helping to gut and muck out homes for anyone who needed it. The Ice Arena, the Martin Luther King, Jr. (MLK) Center, and other community gathering spaces became ad hoc places to receive needed information, hot meals, clothing, and supplies.



Boardwalk destruction by Superstorm Sandy
Source: NYRCR Long Beach Planning Committee



Rebuilt Boardwalk
Source: Sustainable Long Island

Critical issues

Although Long Beach has made tremendous progress in its recovery from Sandy, it still has a long way to go to regain its pre-storm condition and to protect against future storms. The City of Long Beach faces several critical issues, identified during the NYRCR planning process with key input from the Committee and the public, as it continues to recover from Superstorm Sandy.

One of the key challenges is that almost the entire City is located within the Federal Emergency Management Agency regulated floodplain, demonstrating a high degree of flood risk. Stormwater flooding is a frequent hazard as the City is relatively flat, has a high degree of impervious surface coverage, and has a high water table. While the oceanfront is being addressed through a massive U.S. Army Corps of Engineers project, the north shore (bayfront) of Long Beach has areas that repetitively flood and are not protected with uniform bulkheading or other similar protective measures.

Key health and social service assets are still in need of mitigation to prevent future flooding and to ensure that they remain operational during future hazard events. Some businesses and homeowners continue to struggle following Superstorm Sandy.

Access to power during and after an emergency was also identified as a critical Community issue. The City also has emergency operation and management needs. Designated community assistance centers, where residents can gather in emergency situations for help, news updates, and mutual support, are needed.

B. Working together to rebuild stronger, smarter, and safer

The ultimate vision for Long Beach (shown in Figure #ES-2), which is shared by the Committee and the Community, is to rebuild and redevelop in a manner that addresses resiliency, sustainability, and greater prosperity to ensure Long Beach's long-term success. This vision entails actions that protect homes, businesses, and facilities damaged by Superstorm Sandy, while providing a blueprint for enhanced economic development, recreation, and community services.

NYRCR Long Beach Vision Statement

Develop a vibrant, resilient, sustainable and green community that protects and enhances the safety, health, environment, diversity, culture and economy of current and future residents and guests of Long Beach.

Figure ES-2: NYRCR Long Beach Vision Statement

Public outreach

The NYRCR Long Beach public engagement process included 12 Planning Committee Meetings, 3 Public Engagement Events, and online surveys to provide an understanding of risk to community assets, to obtain feedback on the NYRCR Long Beach Plan, and to gather additional ideas for strategies, projects, and actions. Each Planning Committee Meeting was open to the public, and audience participation was encouraged. The Public Engagement Events took place at strategic intervals and varied locations, and were accompanied by online surveys for those not able to attend. The purpose of

these events was to obtain feedback from the public on the Committee's work to date.

The Public Engagement Events were advertised through traditional means (e.g., mainstream media, flyers, and lawn signs) and social media. The first Public Engagement Event, held in October 2013, was attended by more than 100 residents. The second Public Engagement Event, held in November 2013, organized participants into facilitated focus groups to further discuss the strategies that were included in the NYRCR Long Beach Conceptual Plan, which had been submitted in late October 2013. Over 50 residents attended this event. The third Public Engagement Event, held in February 2014 and attended by more than 100 residents, involved a review of the Projects under consideration for the NYRCR Plan. The event had an open house format with two short orientations. Project Evaluation Guides were provided for participants to indicate their input for each project. A fourth Public Engagement Event for the NYRCR Planning Program will be scheduled for the late spring of 2014.

C. Blueprint for implementation

Strategies, associated goals, projects, and actions were developed from the Planning Committee Meetings, the Public Engagement Events, review of the asset inventory and risk assessment, and response to the needs and opportunities assessment for Long Beach.

During the development of the NYRCR Plan, the Committee brainstormed many potential actions and strategies that would help Long Beach become more protected and resilient in the short term as well as longer-term actions and strategies to help in revitalization efforts. Because of the enormity of Superstorm Sandy's impact on Long Beach, the Committee focused mostly on resiliency measures needed for protection against storms.

Potential projects and actions were examined for feasibility as Proposed or Featured Projects in the NYRCR Plan.

The Proposed and Featured Projects include:

- Capital projects, such as perimeter structural defenses for coastal protection and resilient construction;

- Plan, policies, and programs that increase awareness and information; and
- Market-based methods, such as accruing points for the Community Rating System (National Flood Insurance Program), to reduce flood insurance premiums.

The projects in the NYRCR Plan are classified as Proposed Projects, Featured Projects, and Additional Resiliency Recommendations, which are defined as follows:

- **Proposed Projects:** Proposed Projects are designed to be fully funded through the NYRCR Program using the Community's allocation of CDBG-DR funding.
- **Featured Projects:** Featured Projects are innovative projects in which an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding, and regulatory reforms and other programs that do not involve capital expenditures.
- **Additional Resiliency Recommendations:** Additional Resiliency Recommendations are projects and actions that the Committee would like to highlight, would be funded from sources other than CDBG-DR funding, and are not categorized as Proposed or Featured Projects.

Projects for NYRCR Long Beach are listed below in Table#ES-1 by strategy (some of the projects fit multiple strategies and are listed more than once). The order of appearance is not a reflection of project priority or ranking.



Table ES-1: Table of Projects

Strategy	Project Name	Project Category
Strategy #1 – Employ appropriate techniques to mitigate ocean and bay storm surge and stormwater flooding to protect Long Beach’s infrastructure, people, and assets while positioning for resilient redevelopment	Bulkheading – North Shore	Proposed Project
	Drainage Improvements	Proposed Project
	Critical Facility Resiliency	Proposed Project
	Park Avenue/Beech Street Streetscape Drainage Study and Infrastructure Improvements	Proposed Project
	Parking Garage for Emergency Vehicles	Proposed Project
	Protection of Wells and Sewer Pump/Lift Stations	Proposed Project
	Park Avenue Complete Streets Phase 2	Featured Project
	Stormwater Project Phase 2/Stormwater Force Main Project	Featured Project
	North Shore Protection of Critical Utilities	Featured Project
	Canal Gates in East End	Featured Project
Strategy #2 – Protect critical Long Beach health and social services assets and increase the capacity to provide needed emergency and community services before, during, and after disasters	Critical Facility Resiliency	Proposed Project
	Protection of Community Centers	Proposed Project
	Protection of Public Housing Units	Proposed Project
	Protection of Senior Housing Units	Proposed Project
Strategy #3 – Implement measures to make Long Beach economic generators more resilient, while also facilitating enhancement of key commercial areas and the redevelopment of underutilized areas to stimulate economic growth	Park Avenue/Beech Street Streetscape Drainage Study and Infrastructure Improvements	Proposed Project
	Park Avenue Complete Streets Phase 2	Featured Project
	Bayfront Revitalization Plan	Featured Project
Strategy #4 – Increase Long Beach’s capacity to facilitate and foster actions that lead to greater resiliency, emergency preparedness, and sustainability	Establish an Office of Emergency Management and Hire a Local Disaster Recovery Manager	Proposed Project
	Bayfront Revitalization Plan	Featured Project
Strategy #5 – Restore and enhance natural resources for both resiliency and recreation purposes while also protecting important cultural resources	Drainage Improvements	Proposed Project
	Stormwater Project Phase 2/Stormwater Force Main Project	Featured Project
Strategy #6 – Encourage and facilitate housing resiliency and sustainability measures while striving to maintain the character of Long Beach	Protection of Public Housing Units	Proposed Project
	Protection of Senior Housing Units	Proposed Project
	Revolving Loan Fund for Elevating Homes	Featured Project



The background of the entire page is a photograph of a scenic lake. In the foreground, there is a sandy and gravelly shoreline with some dry, yellowish-brown grasses. The lake's water is a deep blue. In the middle ground, a small wooden bridge spans across the lake. The far shore is lined with a dense forest of trees, mostly without leaves, suggesting a late autumn or winter setting. The sky is a clear, bright blue. Bare tree branches are visible in the upper corners of the frame, framing the scene.

The Massapeguas NY Rising Community Reconstruction Plan



March 2014
NY Rising Community
Reconstruction Program



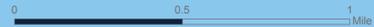
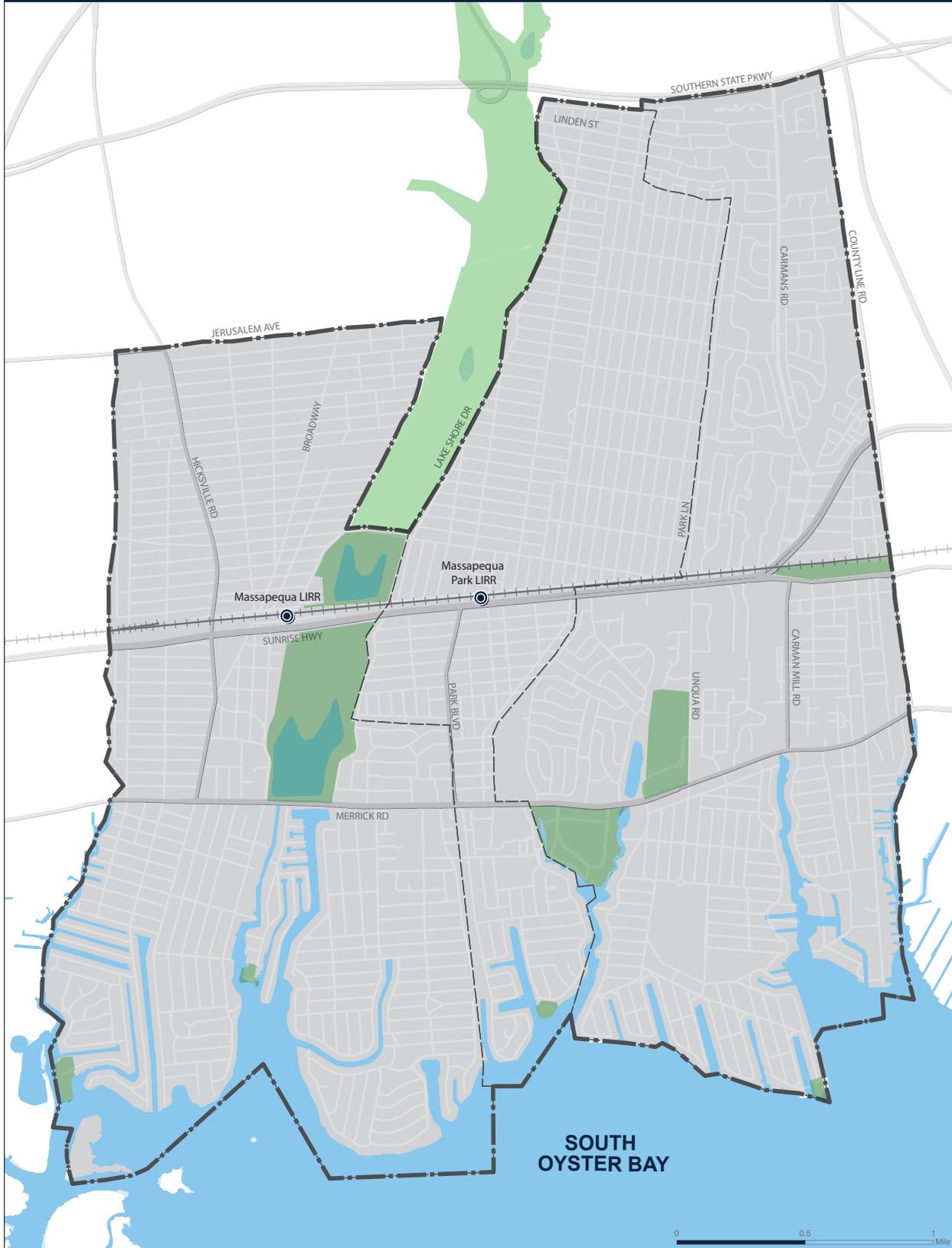
Executive Summary: The Massapequas

Massapequa, Massapequa Park, and East Massapequa comprise the NY Rising Community Reconstruction (NYRCR) Massapequas Community (Community). The Hamlet of Massapequa, which includes Massapequa and East Massapequa, is in the Town of Oyster Bay, and Massapequa Park is in an independent incorporated village. The Community is on the south shore of Long Island in Nassau County. These bedroom communities with a population of nearly 58,000 and an area of 9.3 square miles are best known for their waterfront homes on peninsulas jutting into South Oyster Bay, charming shopping streets near Long Island Rail Road (LIRR) stations, and the Westfield Sunrise Shopping Center. Other assets include nine public schools, two libraries, and nine parks and reserves of varying sizes. They are bounded to the north by Jerusalem road and the Southern State Parkway, to the east by County Line Road, and to the west by Seaford Creek.

The NYRCR Program is funded by the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program. NYRCR Massapequas has been allocated up to \$26.0 million (Massapequa I \$14.4 million, Massapequa II \$8.7 million, and Massapequa Park \$3.0 million).

In late October 2012, Superstorm Sandy devastated the Community destroying homes and businesses, particularly south of Merrick Road. When the storm arrived on October 29, the Community suffered the impacts of storm surge and flooding. Since the storm exceeded the Federal Emergency Management Agency's (FEMA) 100-year flood zones, the Community was unprepared for the extent of the flooding brought on by the storm. Within the Community, more than 4,000 housing units were damaged by the flood; trees, power lines, and utility poles were downed; and major roads and evacuation routes were flooded, blocking both residents and first responders. For some residents, the power outages lasted as long as 16 days and cellular communication was significantly disrupted. Gas stations with fuel were unable to pump without back up power. Coastal parks were severely damaged as well with heavy debris and erosion. Directly or indirectly, the lives of everyone in the region were, and continue to be, affected by the storm's aftermath.

Geographic Scope



Legend

- NYRCR Boundary
- Long Island Rail Road
- LIRR Station
- Water
- Main Roads
- Local Roads
- Existing Parks and Open Space

Data Sources

ESRI, NOAA,
US Census,
Nassau County,
NYS DOS
Created March 2014



In response to the storms that have impacted New York State (NYS) in recent years, the NY Rising Community Reconstruction (NYRCR) Program was established to provide support to communities impacted by the storm. Superstorm Sandy, as well as Hurricane Irene, exposed many vulnerabilities of the Community related to its ability to mitigate and respond to major storm events, climate change, or sea level rise. Although recovery and reconstruction started in the immediate aftermath of the storm and continue to this day, the overall success of these reconstruction efforts will depend upon whether they merely restore the pre-storm status quo or leverage the opportunity that the NYRCR Program has provided the Community to determine its own resilient future. The program provided an opportunity for the residents and business owners of the Community to actively participate in planning for a stronger future—to reflect, to learn, and to build back better and stronger in all areas and aspects of life.

The NYRCR Massapequas Plan (NYRCR Plan), which developed out of seven months of community stakeholder engagement, reflects the goals and aspirations of the Community for the future. It honors the unique qualities and assets of the Community while ensuring that NYRCR Massapequas will be safer, more resilient, and more sustainable in the face of storm- and climate change-related impacts. The NYRCR Plan presents a series of strategies and projects that respond to critical issues and ensure that the Community builds back better.

NYRCR Massapequas Critical Issues

- Inconsistent Shoreline
- Drainage
- Communication
- Housing
- Economics
- Regional Connections
- Resilient Planning, Design, and Construction

The NYRCR Massapequas Plan

- Considers goals and aspirations for the future.
- Honors the unique qualities and assets of the Community.
- Directly and creatively reduces potential storm- and climate change-related impacts.
- Leverages investments to support other Community needs and opportunities.
- Benefits the Community as a whole.

While local issues are paramount, it is imperative to recognize NYRCR Massapequas' relationship to its neighboring communities and the broader region. Communities on Long Island's south shore have similar patterns of development, interconnected infrastructure systems and road networks, overlapping municipal service provision areas, and a common coastline. This dynamic demands a regional perspective on the challenges facing the Community so that local solutions can take into account and leverage regional considerations for reconstruction, recovery, and resiliency. Through a thorough review of regional plans and studies, meetings with neighboring communities, and sessions with town and village officials, a series of regional considerations was developed and used to expand upon local projects as well as to inform the development of shared projects with neighboring communities.

Regional Considerations

- Infrastructure Investment
- Water Resources
- Emergency Preparedness and Response
- Energy Prices
- Equitable and Supportive Communities
- Housing
- Governance
- Transit-Oriented Development (TOD)

Community-Driven Process

All of the material presented in the NYRCR Plan has been developed collaboratively by residents of the NYRCR Massapequas Community, NYS Planners, and NYS-provided Consultants. The NYRCR Program provided the Community with an unprecedented opportunity to participate in a bottom-up planning effort. There were eight key steps to the process (see sidebar) that took place between September 2013 and March 2014.

Key Steps/Milestones to the NYRCR Planning Process

Organize for Action
Inventory Assets
Determine Needs and Opportunities
Prepare and Present Concept Plan
Conduct Risk Assessment
Engage in Regional Planning Process
Develop Strategies for Investment & Action
Deliver Final NYRCR Plan

Community representatives played an integral role every step of the way providing overall direction and guidance; generating material; reviewing, revising, and responding to components of the plan; and deliberating on the initiatives that will bring the greatest recovery and resiliency value to NYRCR Massapequas. Fourteen community representatives dedicated their time, passion, and expertise as NYRCR Planning Committee (Committee) Co-Chairs and Members. The Committee met seven times as a group and twice more with Committees from neighboring NYRCR Communities to guide the development of the NYRCR Plan. More than 150 residents and stakeholders participated in three public engagement events and shared their opinions and ideas through online surveys, business surveys, and key informant interviews. At public engagement events, community members provided feedback on the Vision and Values, Community Assets, Needs and

Opportunities, Strategies, and Projects. The Vision and Goals of the Community developed primarily at the first public engagement event are as follows:

Vision for a Resilient Future

The vision for NYRCR Massapequas is to rebuild an attractive, sustainable, and resilient waterfront community for generations of residents to enjoy with robust residential neighborhoods, vibrant business districts, exemplary leadership, a well-managed coastal zone, and the capacity to effectively manage adverse storm and environmental conditions.

Community Goals

Community Planning & Capacity Building

- Emergency preparedness plans in place to safeguard people and property
 - Fully equipped local emergency shelters
 - Designated shelters for pet owners
 - Evacuation during power outages
 - Traffic light plan for mobility during extended power outages
 - Distribution of filtered water and food during extended power outages
 - Plan to prevent flood damage to vehicles
 - Clear and effective lines of communication and coordination between agencies and with public before, during, and after emergencies
- Revitalize neighborhoods
- Improve parks, community centers, recreation and open space opportunities
- Improve mobility (transit, auto, pedestrians, bicycles, and boaters)

Economic Development

- Beautify commercial areas
- Enhance and revitalize local businesses
- Private facilities that provide critical goods or services have backup power generation

Health & Social Services

- Proximity to medical facility
- Community centers that serve the needs of residents young and old generally and during emergency situations

Housing

- Effectively protect homes from future storm impacts
- Post storm security for neighborhoods after evacuation
- Maintain property values
- Affordable flood insurance
- Provide a range of housing options

Infrastructure

- Storm resistant power distribution
- Effective backup power systems
- Improve stormwater management
- Enhance shoreline and flood protection
- Uninterrupted mobile phone service
- Provide emergency infrastructure

Natural and Cultural Resources

- Prevent erosion of parks
- Examine and improve canal hydraulics
- Protect the community from future storm threats, sea level rise, while strengthening and protecting our natural resources

NYRCR Plan as Blueprint for Implementation

The NYRCR Plan focused both on addressing existing needs of and mitigating potential future risks in the Community. The planning and engagement process identified the needs and opportunities of the Community for each of six Recovery Support Functions: community planning and capacity building, economic development, health and social services, housing, infrastructure, and natural and cultural resources. In addition, an inventory of the Community's critical assets and potential risk to those assets from future storms was documented. Detailed information of these analyses can be found in Section II and served to underpin the recovery and resiliency strategies which led to development of projects.

Five strategies were identified in order to support the two main goals of reconstruction and resiliency. Reconstruction focuses on restoring, repairing, or rebuilding what was damaged or destroyed by Superstorm Sandy and Hurricane Irene. Resiliency is about strengthening the ability of NYRCR Massapequas to rebound quickly when confronted with challenges of all kinds in the future. These strategies, which were developed iteratively by the Committee, address and balance regional concerns, an analysis of problem areas, and community feedback. Reconstruction and Resilience Strategies for the Community are listed below and described in detail in Section 3 of the NYRCR Plan:

- Improve transportation and communication connectivity;
- Invest in hard infrastructure and generators to prepare for future storm events;
- Use green Infrastructure and waterfront parks to absorb floodwater and stormwater;
- Plan for business continuity and growth; and
- Provide resiliency resources to existing and future residents.

The strategies will be executed by projects which were identified and refined through the planning and engagement process. The projects included in the NYRCR Plan are organized into three categories, which are as follows:

- **Proposed Projects** are discrete projects that are affordable within the Community’s allocation of Community Development Block Grant Disaster Recovery (CDBG-DR) assistance.
- **Featured Projects** are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other funding resources. Featured projects also may include regulatory reforms and other programs that do not involve capital expenditure.
- **Additional Resiliency Recommendations** are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Listed below are the Proposed and Featured Projects organized by strategy. The projects have not been ranked or prioritized. Detailed descriptions of each project can be found in Section IV of the NYRCR Plan and Additional Resiliency Recommendations can be found in Section V.

Table 01: Projects to Improve Transportation and Communication Connectivity

Project Name	Project Description	Category	Regional
Lifeline Road Network Study	This study will determine the critical 25–30 mile access routes, or “lifeline roads”, within the community to ensure that evacuation and emergency service routes are maintained as safe, secure, and passable before, during, and after major storm events.	Proposed	N
Signage (Lifeline Road Network)	This project will develop and install ‘Lifeline Network’ signage along lifeline roads to direct residents to Community Resource Centers—community centers and other centralized public locations with back-up power.	Proposed	N
Street Lighting (Lifeline Road Network)	In order to maintain functionality during power outages, this project will retrofit streetlights and signals along lifeline roads to operate on solar power and with back-up battery power. Priority will be given to Merrick Road, Sunrise Highway, and intersections.	Proposed	N
Roadway Elevation (Lifeline Road Network)	This project will elevate approximately one mile of key streets susceptible to tidal flooding or storm surge, particularly those south of Merrick Road.	Proposed	N
Regional Lifeline Transportation Network	This is a regional study in conjunction with NYRCR Communities of Baldwin, Freeport, Bellmore/Merrick, Seaford/Wantagh, and the Massapequas developing a “Lifeline Network” of resilient streetscape design, such as redundant power and improved drainage systems, to provide maximum accessibility in and out of residential neighborhoods for first responders and residents before, during, and after a storm.	Proposed	Y

Table 02: Projects to Invest in Hard Infrastructure and Generators to Prepare for Future Storms

Project Name	Project Description	Category	Regional
Flood Diversion and Control	This project will address flooding throughout the Community by evaluating the condition of existing sumps (drainage basins), determining where improvements can be made through removal of built-up debris, fine soil, and vegetation, and strategically locating structural and natural drainage features to divert flood waters into designated catchment areas.	Proposed	N
Permanent Generators for Critical Community Facilities	This project will ensure that critical facilities, including emergency shelters, have backup power during and after major storm events by installing permanent generators on the roofs or upper floors of critical assets and evacuation sites to prevent flood damage during storm events. Note: McKenna Elementary (used by the Red Cross) and Massapequa Park Village Hall already have generators in place.	Proposed	N
Emergency Preparedness and Disaster Action Planning	This project will better protect the community by creating a network for checking on and contacting seniors and other vulnerable groups in the event of an emergency, purchasing and installing tidal gauges to better prepare for storms and initiate evacuation, and purchasing additional resources such as 5-ton army fire response vehicles, communication equipment, a muscle wall mitigation system, additional sand bags, chain saw, large portable water pumps, heavy duty boat trailers and an emergency boat for Bay Constables.	Featured	N
Emergency Parking	This project designates safe areas outside of flood zones to be used by residents in evacuation zones for off-street parking and storage during emergencies and major storm events.	Featured	N

Table 03: Projects to Use Green Infrastructure and Waterfront Parks to Absorb Floodwater and Stormwater

Project Name	Project Description	Category	Regional
Green Infrastructure Pilots	This study will develop potential infiltration and open channel bio-swale pilot approaches for three project types: public realm (roads), private realm (parking lots) and open space (parks and preserves). Possible Pilot locations include: Broadway (tree pits and right of way swales), Birch Lane Elementary (infiltration pond), McKenna Elementary School & Nassau County Police Academy (infiltration pond), and John Burns Town Park (wetlands or pond).	Proposed	N
Redesign of Parks and Open Space Plan	The study will create a plan that ensures that parks and open spaces in the community serve to increase resilience, enhance economic development, improve the quality of life, and add value to the surrounding homes. Unique projects will focus on improvements to Alhambra Park, Bayfront Park, and Colleran Park.	Proposed	N
Alhambra Park	The project will redesign the waterfront park by installing a new playground, permeable parking area, gazebo, kayak-launching area, and a new bulkhead in the recently expanded and remediated Alhambra Park. Additionally, the development of walking paths with permeable paving around bio-swales and storm water retention ponds, and the installation of energy-efficient lighting and signage would make the park more environmentally sustainable and better able to withstand future storm damage.	Proposed	N
Bayfront Park	The project will repair defensive infrastructure along the water's edge (rip-rap or bulkhead to-be-determined) to address damage from Superstorm Sandy. Additionally, the Town will add walkways with permeable paving around bio-swales and stormwater retention ponds, rest area for cyclists, fitness stations, an expanded pier and energy efficient lighting.	Proposed	N
Colleran Park	The project will stabilize the shoreline with bulkhead and riprap to prevent further erosion. With a beach landing, the park will also be linked to the proposed regional Blueway, and the existing Bethpage Bikeway.	Proposed	N
South Shore Stormwater System Modeling and Analysis	The project will be a hydrologic and hydraulic (H&H) model to provide a catchment-wide understanding of where stormwater run-off is coming from, how water much there is, specific areas where the current system is inadequate, and what regional improvements could be made.	Proposed	Y
Massapequas South Shore Shoreline Conditions Analysis and Restoration	The project will include a survey of the existing shoreline conditions to identify opportunities to increase the efficiency of the existing drainage system and recommend innovative materials and techniques to help minimize coastal erosion and flooding. The shoreline survey will focus on critical areas prone to flooding and on inspection of all existing edge conditions along the coastline, including bulkheads, rip-rap, and natural conditions.	Proposed	N

Table 04: Projects to Plan for Business Continuity and Growth

Project Name	Project Description	Category	Regional
Business Continuity Program	The program ensures that businesses have the capability to maintain essential functions during a range of potential emergencies and could be implemented immediately. The assistance provided by a Business Continuity Program would include planning assistance, access to alternative spaces or facilities, communications provisions, and provisions for vital records backup and management.	Proposed	Y
Commercial Redevelopment (Eastern Massapequa)	The study will identify costs and benefits for a new LIRR station at an Eastern Massapequa location and its potential to attract new development. Feasibility factors include infrastructural impediments such as power transmission and sewage management. Possible programs could include a full service medical hospital with emergency care and expanded housing options for seniors, first time home buyers, and the local workforce.	Featured	N
Downtown Master Plan	This project will develop a Downtown Master Plan that includes the provision of incentives to stimulate the redevelopment of vacant, abandoned, and underused properties with strategies such as streamlined approval processes and updated land use regulations.	Featured	N
Transit-Oriented Development Infill Study	This study will consider the potential for transit oriented infill development near the Massapequa and/or Massapequa Park Long Island Rail Road (LIRR) stations, as well as the potential for a new station in Eastern Massapequa near the Westfield Sunrise Shopping Center, an area that is currently underserved by transit. The study should include housing options for seniors and first time home buyers as well as housing alternatives to residents who want to relocate from extreme and high risk zones. Building structured parking could act as emergency parking during a flood event.	Featured	N

Table 05: Projects to Provide Resiliency Resources to Existing and Future Residents

Project Name	Project Description	Category	Regional
Public Communication and Education Gap Analysis	This project will evaluate existing emergency communication systems and determine additional needs, with an emphasis on coordination across multiple jurisdictions allowing community members to communicate with each other, and emergency readiness education. This initial study will provide recommendations for addressing gaps in communication and education and will identify potential public/private partnerships to implement the study's recommendations.	Proposed	Y
Voluntary Acquisition Program	A voluntary property acquisition pilot would assist homeowners with severely damaged properties along canals, with waterfront access, or in low-lying areas through an incentivized housing acquisition program. All damaged properties will be purchased above pre-storm values and could be used for redevelopment as resilient green housing or to be reestablished as ecological features.	Featured	N
Emergency Cell Phone Service	This project proposes to work with local cellular service providers and regulatory agencies to expand service areas and equip cell towers with emergency backup power. Cell phone networks should be improved and protected for operation under normal and emergency circumstances.	Featured	N
Integrated Communication Network	This project will improve local disaster action planning for emergency preparation and readiness, evacuation, recovery efforts, and coordinated services across the region by promoting a single source for comprehensive information and emergency assistance and developing non-digital systems for sharing community news in the event of an emergency.	Featured	N



Executive Summary

Overview of NY Rising Community Reconstruction Community: Village of Mastic Beach and Smith Point of Shirley

NY Rising Community Reconstruction (NYRCR) Village of Mastic Beach and Smith Point of Shirley (Community) is one of eight NYRCR Communities identified within Suffolk County. The Community is referred to in the NYRCR Plan as Mastic Beach and Smith Point of Shirley.

Mastic Beach and Smith Point of Shirley are located on a peninsula in the southern portion of the Town of Brookhaven in Suffolk County, surrounded by Bellport Bay, Narrow Bay, and Moriches Bay and the Forge River. Pattersquash Creek and John's Neck Creek flow into Narrow Bay, and Lons Creek and Home Creek are tributaries of the Forge River. In the interest of brevity, the New York Rising Community Reconstruction (NYRCR) Community name has been shortened to "Mastic Beach and Smith Point of Shirley" throughout the remainder of this document.

The Village of Mastic Beach is approximately 4.8 square miles with elevations ranging from zero to approximately 35 feet above sea level (NAVD 88). The incorporated Village of Mastic Beach was only two years old when Sandy hit, yet Village personnel played a major role in the storm response and cleanup efforts. They continue to serve the residents of the Village of Mastic Beach by addressing their post-Sandy needs. Smith Point of Shirley is the peninsula west of William Floyd Parkway and south of Neighborhood Road.

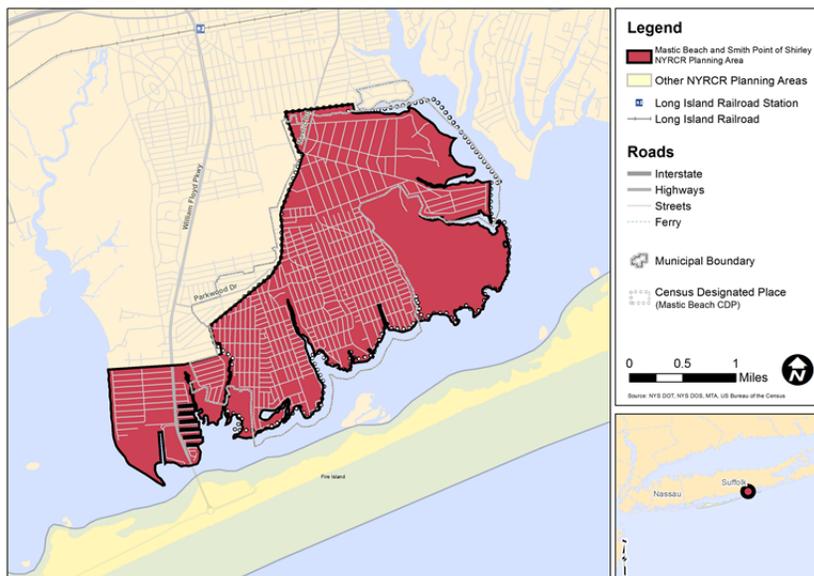
Neighboring communities include the hamlets of Mastic and Moriches and the northern portion of the hamlet of Shirley. A total of \$3 million has been allocated for resiliency projects within this Community.

Housing lots in Mastic Beach and Smith Point of Shirley were first advertised in the 1920's through an ad in a Brooklyn newspaper. As of 2010, the U.S. Census Designated Place (CDP) of Mastic Beach had a population of 12,930 residents and approximately 4,231 households. The average household size was 3.41 individuals, considerably higher than the household size in Suffolk County of 2.93 individuals. According to the 2010 Census, 80% of housing units are owner-occupied and 20% renter-occupied. According to members of the NYRCR Committee, many rental units are not permitted and are therefore not reported. Committee members indicated that as much as 40 percent of the housing units are rentals.

On October 29, 2012, Superstorm Sandy slammed into Mastic Beach and Smith Point of Shirley, bringing rain, wind, and record-high storm surge that flooded much of the Community. In addition to flooding, trees were downed, power was lost, and homes damaged. Mastic Beach First Assistant Fire Chief Carlo Grover reported that over 100 emergency rescues were made – some by boat – as seawater inundated the Community. The Village's seniors, including residents with disabilities, presented additional concerns during the initial response to the storm. Village officials reported that some senior citizens were trapped in their homes for days following the storm.



Mastic Beach and Smith Point of Shirley - NY Rising Community Reconstruction Plan



Suffolk County reported that between 60 and 80 homes in Mastic Beach and Smith Point of Shirley were deemed either unlivable or condemned due to structural damage. Many hundreds more homes were damaged to such an extent that residents could no longer occupy them. Since Mastic Beach and Smith Point of Shirley do not have sewers, floodwaters wreaked havoc with residential on-site wastewater systems. The inundation of septic systems rendered many of them inoperable, presenting significant health and safety issues for the Community. Not only were these systems not functioning, but they were also releasing thousands of gallons of raw untreated wastewater into the Community and local waterways.

In addition to wastewater and septic issues, the Community faced a serious problem with fuel oil and propane tanks that broke free and spilled their contents during the storm. Further, many of the fugitive tanks burst or ignited, adding the danger of fire to that of flooding and water pollution.

These documented effects, combined with the first-hand experiences shared by residents at multiple well-attended public engagement events led to the identification of several critical issues facing the Village. These issues served to define needs, opportunities, strategies, and eventually projects that would help make the Community more resilient and sustainable.

Critical issues in Mastic Beach and Smith Point of Shirley include:

- Residential flooding;
- A lack of economic and development opportunities;
- Better coordination of emergency communication systems;
- Limited emergency evacuation routes and preparedness procedures;
- Environmental and human health exposure to wastewater from septic systems and fuel oil from residential storage tanks;
- Loss of tidal wetlands, beaches, and other natural resources due to the erosive effects of Superstorm Sandy and degraded water quality; and
- Limited access to medical and emergency services.



Mastic Beach and Smith Point of Shirley - NY Rising Community Reconstruction Plan

NYRCR Program: A Community-Driven Process

The Mastic Beach and Smith Point of Shirley NYRCR Planning Committee (Committee) spent significant time and effort in developing a vision for their community's resilient future. This vision was based on establishing a series of goals that could act as targets or waypoints for the community on its journey towards resiliency. This final vision was informed by public input from community members. The Community Vision Statement represents a consensus assessment of the direction this Community wishes to move towards, and is as described below.

The Mastic Beach and Smith Point of Shirley Community wishes to protect and enhance the safety and quality of life of its residents. We want to develop a sustainable local economy that is built on our natural and cultural resources. We need to protect our assets by increasing our resilience to climate change and our capacity to withstand future storms.

To achieve our vision, we will:

- ***Utilize our natural and cultural resources as economic assets to retain and attract young people, visitors, and appropriate businesses.***
- ***Revitalize our downtown by expanding housing and retail choices and increasing its function as a village center.***
- ***Protect our housing stock, infrastructure, and other critical assets from future storms and the effects of climate change.***

All strategies and projects identified were measured against the Community Vision to ensure that recommended actions helped achieve the community's desired goals.

The Public Engagement Process did not end with the development of the Vision Statement. In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths in good times and bad. Eleven Committee meetings have been held as of March 15, 2014. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr).

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making that informed the development of this Plan. Engagement activities included several in-person and web-based opportunities for participation:

- Three open-house style events were held during the development of the Plan and a fourth will present this final document;
- Residents were encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects in conjunction with Public Engagement Event 3;
- Younger members of the community were invited to participate in a web-based "Next Generation" survey to gather feedback on proposed projects that would likely affect their futures in the Community;
- The NYRCR Mastic Beach and Smith Point of Shirley website (<http://stormrecovery.ny.gov/nyrcr/community/mastic-beach-and-smith-point-shirley>) served as a repository for downloadable

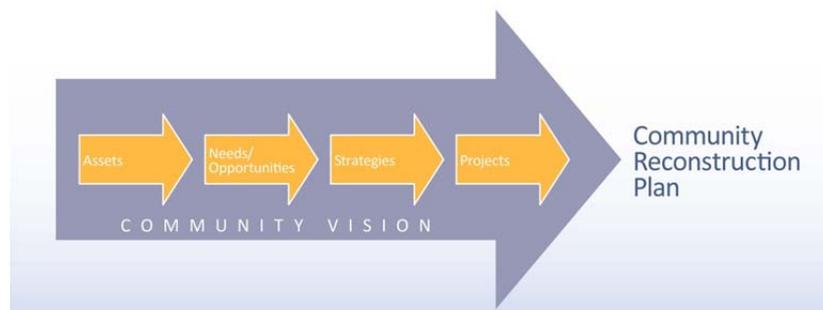


Mastic Beach and Smith Point of Shirley - NY Rising Community Reconstruction Plan

versions of all public information and event notifications. The website includes an area to accept public comment;

- Planning information was disseminated through local print media to keep the Community informed and to respond to media inquiries;
- E-mail comments and requests for information could be sent to the State's e-mail address at: info@stormrecovery.ny.gov; and
- Comment forms were available at Committee meetings and public engagement events and on the State's website to provide an opportunity for the public to contribute their feedback, which were then passed along to the Committee.

NYRCR Plan: A Blueprint for Resiliency



An asset inventory was conducted for the Village to identify assets both built and natural, which are critical to the safety, resiliency, and character of the Village. The identified assets were evaluated in

detail to understand their level of risk, or potential for damage, to future storm events. Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. For every need or opportunity, potential strategies were generated for each resiliency issue. The list of strategies spanned an array of methodologies and timeframes, from preparedness to retrofits, from immediate procedural improvements to long-range capital investment programs.

Projects are the path to executing the strategies and meeting the Community's need for resiliency. Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. Proposed Projects are projects that are under consideration for Community Development Block Grant Disaster Recovery funding using the Community's \$3 million allocation. It is important to note that there is no priority order or ranking of projects aside from the project tier. The following table presents all Proposed Projects by Strategy:



Mastic Beach and Smith Point of Shirley - NY Rising Community Reconstruction Plan

NYRCR Mastic Beach and Smith Point of Shirley Resiliency Projects

Strategy	Project Name	Short Description	Estimated Cost
Restore and rebuild waterfront attractions, educational and recreational opportunities	Elevate/Repair Violets Cove Building after Acquisition	Elevate and repair the main building of the Violet's Cove property after acquisition from Suffolk County.	\$1,400,000
	Construct Resilient Landscape for Violets Cove Property after Acquisition	Make improvements to the property to make it flood resilient including installation of a naturalized landscape with green infrastructure to survive flooding after acquisition from Suffolk County.	\$780,000
	Construct Resilient Amenities for Violet's Cove Building after Acquisition	Make improvements to the property to allow the temporary docking of transient vessels at the facility after acquisition from Suffolk County. Incorporate educational opportunities with a small nature center	\$98,000
Enhance public access to and uses of the waterfront	Construct Phase 1 of Greenway/ Blueway Trail	Phase 1 of this project would include the design and construction of phase 1 of a "greenway" and "blueway" trail network.	\$231,000
Enhance and develop commercial district	Economic & Market Analysis	Identify opportunities for niche businesses and improvements to the business district and broader Community needed to attract investment.	\$125,000
Provide inland and coastal flood protection	Flood Reduction Study of Smith Point of Shirley	Conduct engineering evaluation of measures to reduce flooding for properties north of Suffolk County's Smith Point Park North.	\$125,000
	Prepare Stormwater Management Plan and Construct Improvements	Inventory drainage collection and recharge components. Recommend green infrastructure improvements and property acquisitions for storage and recharge, and possible dual use for parks during dry weather.	1,000,000
Improve safety and communication during and after a storm event	Emergency Communication System and Education Program	Design and install fixed equipment to operate local emergency radio system on the VHF band. Equipment includes fixed repeater stations to amplify the signal throughout the Community, installation of an antenna fixed to an existing or newly constructed tower.	\$95,000
	Local Emergency Preparedness Plan	Develop a local emergency preparedness plan that can be implemented by the Village and local emergency service providers in coordination with the plan in place by Suffolk County.	\$35,000



Mastic Beach and Smith Point of Shirley - NY Rising Community Reconstruction Plan

NYRCR Mastic Beach and Smith Point of Shirley Resiliency Projects (cont'd)

Strategy	Project Name	Short Description	Estimated Cost
Improve safety and communication during and after a storm event <i>continued</i>	Install Solar Streetlights with Battery Backup	Design and install 200 solar streetlights at key intersections, primary roadways, park entrances, and places used during emergencies.	\$600,000
	Engage Local Disaster Recovery Manager	Engage a full-time Local Disaster Recovery Manager for two years to coordinate implementation of recovery and resilience projects and prepare funding applications for additional projects.	\$300,000
Protect the environment and human health from wastewater pollution	Design Wastewater Collection and Treatment System	Prepare engineering designs and construction documents for a wastewater collection and treatment system for the commercial district of Mastic Beach (Neighborhood Road and Mastic Road).	\$1,200,000
Strategy	Project Name	Short Description	Estimated Cost
Restore and protect wetlands, creeks, and beaches	Restore and Protect Selected Wetlands and Replenish Four Beaches	A submerged rock breakwater to reduce wave velocity and retain the sand would protect tidal wetlands damaged by the storm due to the erosive action of waves. The rock structure would be seeded with oysters to function as a "living breakwater." Invasive and exotic wetland plant species would be replaced with natives. Wetlands denuded by waves and sand scour would be replanted.	\$720,000



Oakdale/West Sayville NY Rising Community Reconstruction Plan

Executive Summary

Overview of NY Rising Community Reconstruction Community: Oakdale/West Sayville

NY Rising Community Reconstruction (NYRCR) Oakdale/West Sayville Community (Community) is one of eight NYRCR Communities in Suffolk County. The Community is composed of two distinct hamlets, Oakdale and West Sayville, both located along the South Shore of Long Island in the Town of Islip, Suffolk County, New York. Up to \$3 million has been allocated for resiliency projects within this Community.

Oakdale and West Sayville are situated between the Connetquot River to the west, Green's Creek to the east, and the Great South Bay to the south. Adjoining communities include Great River, Bohemia, and Sayville. A small portion of the NYRCR Community located east of Green's Creek is situated in the hamlet of Sayville.



The Communities are linked in several ways. They are adjoining coastal communities with shared histories and common institutions. The

institutions include the fire department, ambulance company, school district (partially), and several religious and fraternal organizations. The combined population within the Oakdale and West Sayville U.S. Census Designated Place population in 2010 was about 13,000. The 2010 Census reported a total of 5,400 housing units.



The Jacob Ockers House is part of the history and identity of both Oakdale and West Sayville and their mutual connection to the Great South Bay. While the house is located in Oakdale, Jacobs Ockers operated the world famous Bluepoints Clam and Oyster Company a short distance away in West Sayville. The house has been restored to how it appeared in 1911, when occupied by the Jacob Ockers family.

(Photo credit: T. Marquardt)



Oakdale/West Sayville NY Rising Community Reconstruction Plan

The effects of Superstorm Sandy on Oakdale and West Sayville were significant. At the highest point of inundation, much of Oakdale south of Montauk Highway was flooded. Flooding was equal to the expected impacts of a Category Two hurricane, despite the fact that Superstorm Sandy was not at hurricane level when it made landfall on Long Island. The area of inundation in Oakdale was over one square mile and extended a mile inland along Edgewood Avenue.

Further to the east in Oakdale, the West Oak Recreation Club (WORC), a seasonal residential community, experienced extensive inundation. Many of the dwellings were damaged and property was destroyed. In West Sayville, the streets along the waterfront were flooded including West Avenue, Shore Road, and Clyde Street.



Flooded roads and properties during Superstorm Sandy, east of Green's Creek

(Photo credit: M. DeAngelis)

Along Green's Creek, flooding occurred on both sides of the creek affecting properties in both West Sayville and Sayville. Flooded roads on the Sayville side included West Lane, Anita Drive, Palmer Circle, Sunset Drive, and Montauk Highway (Main Street). Throughout the communities, a high number of trees and power lines were down. In many cases, roads were impassable to homeowners, police, fire rescue, and other emergency responders.

Widespread damage occurred to many coastal facilities including docks, marinas, and bulk heading. The Town of Islip reported damage to the West Avenue Dock in West Sayville including damage to decking, the parking lot, electrical and water supplies, and a need for dredging due to increase sedimentation from bay bottom movement and the undermining of solid fill piers.

Communications were also severely affected by Superstorm Sandy. Both landline and cellular services were unavailable for different periods of time. This was a major issue to the Community and a significant impediment to response efforts during the storm and recovery efforts afterward.



Oakdale/West Sayville NY Rising Community Reconstruction Plan



Damage and debris following Superstorm Sandy at the Snapper Inn Restaurant, Oakdale

(Photo credit: R. Remmer)

Superstorm Sandy also affected the availability of gasoline and diesel fuel. This was both a local issue as well as a regional one. Locally, many area fuel stations were without electric power and were unable to operate fuel-dispensing pumps. Later, after power was restored, supplies were quickly exhausted. “Gas lines” (hours-long lines of people waiting to fuel their cars) were common for over a week until the Suffolk County Executive issued an order mandating rationing by license plate number. The local supply issue was exacerbated by the closure of the ports where fuel is typically delivered by barge or tanker.

The Oakdale and West Sayville communities identified a variety of resiliency issues relating both to protecting the life and safety of community members in the face of future storm event and to the strength of the local economy and its ability to bounce back following a disruptive disaster event. Some of the most significant and widespread issues identified included:

- Lack of storm preparedness and communication of risk to all members of the community including vulnerable populations;
- Need for evacuation routes and pre-stocked shelters within the community;
- Reduction of repetitive flooding of roads and properties from tidal surges and severe rainfall events to protect life safety and property;
- Need for hazard mitigation measures for utilities that are critical in the aftermath of an event—electric, gas, and communications;
- Improved development in Oakdale along Montauk Highway to strengthen the business district, increase the tax base, create jobs, and grow the local economy;
- While the visible damage for the businesses along Montauk Highway in Oakdale was not devastating, the economic damage was substantial;
- Better access to the waterfront and reinforcement of the maritime heritage;
- Protection of the natural environment and utilization of resiliency techniques that work with, rather than against, natural processes; and
- An overall regional focus to the planning process including to transportation, power, communications, and economic issues.



Oakdale/West Sayville NY Rising Community Reconstruction Plan

NYRCR Program: Community-Driven Process

The development of a Community Vision Statement was a critical early step for the NYRCR Oakdale/West Sayville Planning Committee. It was a means of introducing the Committee to the planning process and to enable them to look beyond the immediate recovery from Superstorm Sandy. The process to develop the Statement was as important as the Statement itself. It was a process that involved all members of the Committee with direct input from the Community. This was accomplished at the first Public Engagement Event held by the Committee in the first month of the Committee's deliberations. The Statement served as a benchmark for all strategies and projects later identified in the development of the Final Plan.

Community Vision Statement

Oakdale and West Sayville will be communities with a "greener" and more sustainable future with hazard resistant buildings and infrastructure and well-functioning natural systems that can prevent or minimize damage to life and property and the disruption of critical services. The rich history of the communities, the spectacular public and private spaces, emphasizing the importance of the health of our waterways and coastal proximity will guide future development with downtown identities which will focus on the essential character and charm of Oakdale and West Sayville.



NYRCR Oakdale/West Sayville Public Engagement Event

(Photo credit: Consultant team)

The Public Engagement Process did not end with the development of the Vision Statement. In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths in good times and bad. Ten Committee meetings have been held as of March 31, 2014. All Committee meetings were open to the public with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr).

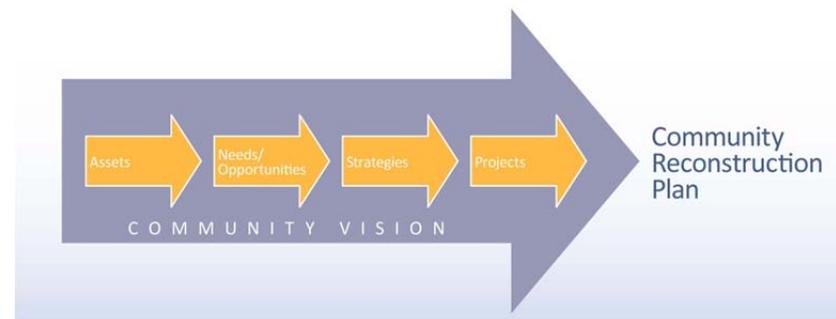
- The community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making that informed the development of this Plan. Engagement activities included several in-person and web-based opportunities for participation:



Oakdale/West Sayville NY Rising Community Reconstruction Plan

- Three open-house style events were held during the development of the plan and a fourth will be held to present this final document. In total, hundreds of residents attended the events;
- Residents were encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects in conjunction with Public Engagement Event #3;
- Younger members of the community were invited to participate in a web-based “Next Generation” survey to gather feedback on proposed projects that would likely affect their futures in the Community; and
- The NYRCR Oakdale/West Sayville website (<http://stormrecovery.ny.gov/nycrcr/community/oakdale-west-sayville>) served as a repository for downloadable versions of all public information and event notifications. The website includes an area to accept public comment.
- Planning information was disseminated through local print media to keep the Community informed and respond to media inquiries;
- E-mail comments and requests for information could be sent to the State’s e-mail address at: info@stormrecovery.ny.gov; and
- Comment forms were available at Committee meetings and public engagement events and on the State’s website to provide an opportunity for the public to contribute their feedback.

NYRCR Final Plan: A Blueprint for Resiliency



An asset risk assessment was conducted for the Community to identify those resources, both built and natural, which are critical to the safety, resiliency, and character of the Community and establish the potential for future damage to the assets (risk.) Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. For every need or opportunity, potential strategies were generated for each resiliency issue. The list of strategies spanned an array of methodologies and timeframes, from preparedness to retrofits, from immediate procedural improvements to long-range capital investment programs.



Oakdale/West Sayville NY Rising Community Reconstruction Plan



West Sayville/Oakdale Fire Department

(Photo credit: T. Marquardt)

Projects are the path to executing the strategies and meeting the Community's need for resiliency. Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations.

Proposed Projects are projects that are proposed for funding through the Community's allocation of Community Development Block Grant Disaster Relief (CDBG-DR) funding. **Featured Projects** are innovative projects consisting of an initial study or discrete first phase of the project for CDBG-DR funding or other identified funding; and regulatory reforms and other programs that do not include capital expenditures. **Additional Resiliency Recommendations** are projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects. It is important to note that there is no priority order or ranking of projects aside from the project tier, which is derived solely from the requirements of the

Community Development Block Grant – Disaster Recovery (CDBG-DR) program established by the Federal government.

An example of a Proposed Project recommended by the Committee is the raising of roads elevations in Extreme Risk Areas. The project implements a strategy to protect infrastructure improvements in the Community through the protection of a high value asset, secondary roads.

The following table presents a summary of the Proposed and Featured Projects for the NYRCR Oakdale/West Sayville Community by Strategy.



Oakdale/West Sayville NY Rising Community Reconstruction Plan

NYRCR Oakdale/West Sayville Resiliency Projects		
Strategy	Project Name	Project Category
Investigate conservation and management measures to protect and improve the natural environment	Living Marsh-Grand Canal Levee Improvement	Proposed
Reduce inflow of tidal surges	Check Valves on Drainage Outfalls	Proposed
Provide low- impact recreational opportunities and public access to the waterfront while restoring degraded shorefront areas	Public Access to Waterfront/Coastal Restoration	Proposed
Increase opportunities that can provide economic growth and resiliency that also improves access to and awareness of environmental assets	Multimodal Transportation/Tourism Development	Proposed
Invest in infrastructure improvements at the community and neighborhood level while addressing individual needs	Infrastructure Hardening/Raising Roads	Proposed
Ensure emergency shelters are located within the community	Emergency Shelter Hardening	Proposed
Ensure storm preparedness and resiliency of community residents	Annual Education/ Coordination Program	Proposed
Develop a sustainable and energy conscious community	Community Sustainability/Energy Conservation	Proposed
Increased awareness of and access to resources for hazard mitigation, preparedness and response	Enhanced GIS Emergency Management System	Proposed
Plan for resiliency at the community and neighborhood level while addressing individual needs	Electrical System Isolation Switch-Smart Meter-Feasibility Study	Proposed
Support the growth of the business district	Oakdale Central Business District Master Implementation Plan	Proposed
	Oakdale Central Business District Revitalization	Featured
Seek to provide wastewater treatment facilities to protect water quality and promote economic growth.	Waste Water Collection and Treatment System (Sewers)	Featured

Seaford/Wantagh NY Rising Community Reconstruction Plan



March 2014
NY Rising Community
Reconstruction Program





Executive Summary

Overview

The NY Rising Community Reconstruction (NYRCR) Program was established by the State of New York to provide rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. This program empowers communities to identify resilient and innovative reconstruction projects that consider current damage, future threats, and economic opportunities. For the purposes of this planning effort, Seaford and Wantagh were combined to create the NYRCR Seaford/Wantagh Community (Community).

With the completion of this Seaford/Wantagh NY Rising Community Reconstruction Plan (NYRCR Plan), the Community is eligible to receive funds to support the implementation of projects and activities identified in its NYRCR Plan. New York State (NYS) Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) funding to the Community. The total of up to \$11.2 million includes \$7.9 million for Seaford and \$3.3 million for Wantagh.

The geographic scope of this NYRCR Plan consists of the unincorporated hamlets of Seaford and Wantagh, located in the Town of Hempstead on the south shore of Nassau County, Long Island, New York. The Community is bordered by Bellmore to the west, Jerusalem Avenue and North Wantagh to the north, Tackapausha Nature Preserve and Massapequa to the east, and East Bay and South Oyster Bay to the south. The geographic scope of NYRCR Seaford/Wantagh is shown in Figure ES-01.

Seaford and Wantagh, with a combined population of more than 34,000, are bedroom communities composed mainly of single-family homes with primary business and commercial districts along the major thoroughfares of Merrick Road and Sunrise Highway. These two hamlets are located within the Town of Hempstead and have a wealth of community amenities, including several parks (Cedar Creek Park, Wantagh Park, Seamans Neck Park, Twin Lakes Preserve, and Mill Pond Park); easy access to East Bay, South Oyster Bay, and Jones Beach; two Long

Island Rail Road (LIRR) stations; high quality schools; libraries; fire departments; police precincts; and the Cedar Creek Water Pollution Control Plant.

Storm Impacts

Coastal communities like Seaford and Wantagh are subject to a higher degree of exposure to the damage caused from weather events like hurricanes due to their proximity to the water. The magnitude of damage from Superstorm Sandy was greater than Hurricane Irene, but both storm events brought significant damage to homes, businesses, infrastructure, and the natural environment.

In August 2011, Hurricane Irene's heavy rain and wind caused flooding and downed trees, resulting in impassable roads and power outages. Flooding was concentrated in the residential neighborhoods south of Merrick Road, while heavy winds and power outages affected the entire Community.

In October 2012, Superstorm Sandy caused peak storm surge at high tide of 8- to 10-feet, which inundated waterfront neighborhoods that generally lie between 5- and 10-feet above sea level. Large swaths of land were flooded and the Community faced severe problems with power outages, heavy debris, and immobility due to damaged and flooded roads and compromised power lines. More than 2,000 housing units were reported to be damaged, and although the degree of damage varied, the majority of homes damaged by floods were inundated with one- to four-feet of water. Downed trees and power lines, floodwaters and debris blocked major roads and evaluation routes. Power outages for most residents lasted up to 16 days and also caused disruption to cellular communications. Some business establishments were directly impacted by flooding and storm damage, while others suffered due to power outages and reduced commercial activity as a result of the storm. Gas stations could not pump fuel without backup power. In addition to pollution due to debris, the surge waters lifted home heating oil tanks from their foundations, causing oil to spill out and enter the waters and the air, as well as remain in the ground and ruin existing vegetation.

Critical Issues

Recent storm events uncovered a variety of critical issues with the natural and built environment in the Community, along the south shore of Long Island, throughout vast utility service areas, and in the broader region. These issues directly and indirectly impact: homes; businesses; sanitary sewer, storm-water, and energy infrastructure; public facilities; and natural resources. The following critical issues were identified during the NYRCR planning process, which directly informed the formulation of the strategies and projects of the NYRCR Seaford/Wantagh Plan:

- Flooding and Drainage;
- Energy Infrastructure;
- Shoreline Protection;
- Information and Communication;
- Housing Risk and Destabilization;
- Economic Challenges;
- Regional Connections; and
- Resilient Planning and Design.

While local issues are paramount, it is important to recognize the Community's relationship to its neighbors and to the region beyond. Communities on Long Island's south shore have similar patterns of development, interconnected infrastructure systems and road networks, overlapping municipal service provision areas, and a common shoreline. Weaving local and regional efforts together allows for building back in ways that are stronger, better and smarter than before. The plan is tailored to the specific needs of the Community but contains projects of regional interest and also identifies actions or projects that benefit the Community and adjacent neighbors.

Community-Driven Process

The NYRCR Program provided the Seaford/Wantagh Community with an unprecedented opportunity to participate in a community-driven planning effort. The NYRCR Planning Committee (Committee), composed of eight community representatives, dedicated their time, passion, and expertise to guide the development of the NYRCR Plan. The Committee played an integral role in the planning process by: providing

overall direction and guidance; generating material; reviewing, revising, and responding to components of the plan; and deliberating on the initiatives that will bring the greatest recovery and resiliency value to NYRCR Seaford/Wantagh. The Committee held nine official meetings over the course of seven months, from September 2013 to March 2014. In addition, the Committee participated in two Joint Committee Meetings with the neighboring NYRCR Communities of Baldwin, Bellmore/Merrick, Massapequas, and Freeport to explore shared issues and opportunities for collaboration and cooperation.

Through a combination of input received from the community during Public Engagement Events and the work of the Planning Committee, a vision statement and list of goals were developed to reflect the Community's aspiration for the future. These

Vision for a Resilient Future

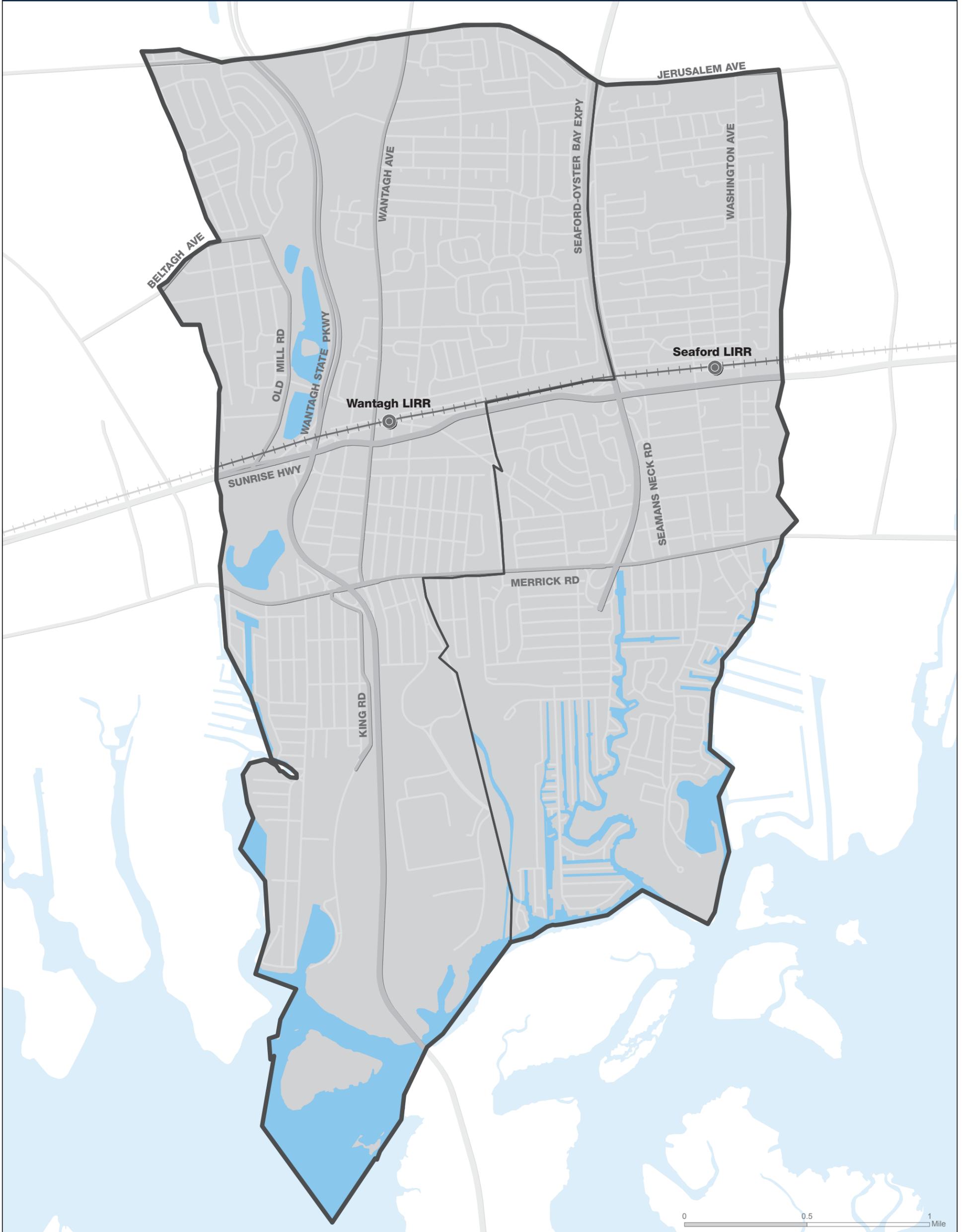
The vision for the Seaford/Wantagh NY Rising Community Reconstruction Plan is to support a resilient, stable waterfront community that values its quality of life and relationship to the water, and that is equipped to handle future natural events through sound investment in infrastructure, economic development, natural resources, and communication.

Goals for the Future

The NYRCR Seaford/Wantagh Plan strives to:

- Foster innovative and natural solutions to coastal storm surges and erosion management.
- Protect fresh water resources and improve stormwater management
- Provide emergency infrastructure to all first response facilities and improve communication networks before, during, and after emergency events.
- Ensure public safety during and after major natural events.
- Improve resilience of key community facilities and infrastructure.
- Redevelop commercial areas that are more resilient in their design and location.

Figure ES-01: Geographic Scope



Legend

- NYRCR Boundary
- Water
- Long Island Rail Road
- Main Roads
- LIRR Station
- Local Roads

Data Sources

ESRI, NOAA,
 US Census,
 Nassau County,
 NYS DOS
 Created March 2014



statements provide the foundation of the NYRCR Seaford/Wantagh Plan. They have been used to guide the development of the NYRCR Plan's strategies and projects and should serve as an ongoing reminder of what the community aims to achieve.

The strategies and projects outlined in the NYRCR Plan will ultimately impact the quality of life for those who live, work, and play in the Community. As such, input from residents, business owners, and community leaders has been an important component of the planning process. Community residents and other stakeholders participated in three Public Engagement Events to review the evolving work of the Committee, and to contribute their ideas, thoughts, and suggestions to the planning process. In addition, a Community website was set up on the NYRCR website (www.stormrecovery.ny.gov/nyrcr) to post planning materials, including items from Public Engagement Events and online surveys, to give all residents an opportunity to provide feedback.

Final Plan as Blueprint for Implementation

Assessment of Risks and Needs

Hurricane Irene and Superstorm Sandy exposed certain vulnerabilities related to the Community's ability to mitigate and respond to major storm events, climate change, and sea level rise. As part of developing the NYRCR Plan, an inventory of community assets was compiled and evaluated to determine each asset's potential of being damaged or destroyed by a future storm surge or flooding event. By analyzing potential hazards, as well as levels of exposure and vulnerability to possible storm impacts, a measure of risk was calculated for each asset. In addition, the community asset locations were combined with NYS Department of State (DOS) hazard maps that illustrate a full range of coastal risks and consider both the frequency and impact of flooding. This quantitative and spatial analysis, in addition to local knowledge from stakeholders gathered throughout the process, helped to highlight assets and geographic areas requiring attention, and served as a basis for the generation of project ideas.

In Seaford and Wantagh, several assets in the community are located in high and extreme risk zones; including one sewer pump station, three parks, three marinas, five marine businesses, one community center, one fire station, and sections of the Merrick Road commercial corridors. Of particular concern is the section of Merrick Road adjacent to the Seaford-Oyster Bay Expressway, a key County evacuation route. In addition to these individual assets, more than 2,600 residential parcels are located in high and extreme risk areas. Detailed information of these analyses can be found in Section II: Assessment of Risk and Needs.

The risk assessment was paired with an exploration of reconstruction- and resiliency-related needs and opportunities, many of which were identified by Committee Members and the public at Committee Meetings and Public Engagement Events. Risk, needs, and opportunities were organized by six categories that relate to all aspects of life in the Community: community planning and capacity building, economic development, health and social services, housing, infrastructure, and natural and cultural resources. The Community identified the following key needs and opportunities:

- Improved communication, education and access to resources in the Community to prepare and respond to storm events;
- Improved guidance on how to incorporate resilient measures into building designs and business operations;
- Address low-lying streets suffering from routine flooding during high tides and/or heavy rainfall that can become impassable during major storm events;
- Create a region-wide stormwater management program to bring together multiple levels of jurisdiction to address flooding issues;
- Strengthen and better utilize parks to address flooding risks and issues; and
- Increase energy system resilience to prevent massive power outages and better secure the safety of roadways for transportation.

Reconstruction and Resiliency Strategies

Strategies included here are designed to support the two main goals of reconstruction and resiliency. Reconstruction focuses on restoring, repairing, or rebuilding what was damaged or destroyed by Superstorm Sandy and Hurricane Irene. Resiliency is about strengthening the ability of NYRCR Seaford/Wantagh to rebound quickly when confronted with challenges of all kinds in the future. These strategies address and balance regional concerns, an analysis of problem areas, community feedback, and iterative development by the Committee. Reconstruction and Resiliency Strategies for the Community are listed below and described in detail in Section III of the NYRCR Plan:

- Invest in Resilience Enhancements for Critical Assets;
- Improve Stormwater Management and Drainage Systems;
- Improve Transportation Access and Connectivity; and
- Establish Policies for Resilient Planning and Design.

Proposed and Featured Projects

The projects that resulted from this extensive planning process support the Reconstruction and Resiliency Strategies as well as the vision and goals for the Community. The projects included in the NYRCR Plan are organized into three categories, which are:

- **Proposed Projects** are discrete projects that are affordable within the Community's allocation of Community Development Block Grant Disaster Recovery (CDBG-DR) assistance.
- **Featured Projects** are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other funding resources. Featured projects also may include regulatory reforms and other programs that do not involve capital expenditure.

- **Additional Resiliency Recommendations** are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Table 01 lists these Proposed and Featured Projects, organized by strategy. The projects have not been ranked or prioritized. Detailed descriptions of each project can be found in Section IV of the NYRCR Plan and Additional Resiliency Recommendations can be found in Section V.

Table 01: Proposed projects, featured projects, and additional resiliency measures

Strategy	Project Name	Short Description	Category	Regional
Improve Stormwater Management and Drainage Systems	South of Merrick Road Outfall, Bulkhead and Drainage Survey, Inspection, and Check Valve Installation	Survey and inspect the location, condition, and elevation of the Community's drainage system south of Merrick Road, including outfalls, bulkheads, underground pipes, manholes and catch basins. Install check valves in key locations.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Bulkhead Replacement/ Upgrade	Inspect and identify bulkheads on public property at street ends and canal ends that require replacement and raising. Replace bulkheads at an appropriate height and with materials that are more resilient to erosion and wind.	Proposed	N
Improve Stormwater Management and Drainage Systems	Sunrise Highway, Merrick Road, Park Ave Drainage Improvement Study and Design	Study and design improvements for stormwater management and drainage systems located along Sunrise Highway, Merrick Road, and Park Avenue. This study should consider the potential for green infrastructure solutions to meet the assessed needs. Once the likely improvements have been identified, the project will proceed into the design of the drainage improvements.	Proposed	N
Improve Transportation and Communication Connectivity	Merrick Road Streetlight Retrofits Project	Install LED streetlights with solar PV and battery backup on existing utility poles. Merrick Road will serve as the pilot for the streetlight retrofit project.	Proposed	N
Establish Programs and Policies for Resilient Planning and Design	Community Assistance Centers and Protecting Critical Community Infrastructure	Create network of Community Assistance Centers and complimentary public education program. Community Assistance Centers are places for residents to find emergency preparedness information. During and after a storm, these centers would become a place to collect and distribute resources, charge cell phones, and access the internet.	Proposed	N

Table 01 (cont'd): Proposed projects, featured projects, and additional resiliency measures

Strategy	Project Name	Short Description	Category	Regional
Invest in Resilience Enhancements for Critical Assets	Wantagh High School County Shelter Resilience Enhancement	Wantagh High School is a designated emergency shelter for Nassau County. Ensure that Wantagh High School is accessible and able to accommodate the needs of community members by assessing the facility's utilization during Sandy and implementing resiliency upgrades, including backup generation capacity.	Proposed	N
Invest in Resilience Enhancements for Critical Assets	Cedar Creek Microgrid Design	The New York State Energy Research and Development Authority (NYSERDA) is currently conducting a feasibility study for a microgrid at the Cedar Creek WPCP and surrounding facilities. Based on the results of this study, this project would fund the design of the microgrid system.	Proposed	N
Improve Transportation and Communication Connectivity	Public Communication and Education Gap Analysis	Create a single source for comprehensive information and emergency assistance. Establish a communication network that more effectively links government services with non-profit and other emergency recovery organizations. Create a physical	Proposed	Y
Establish Programs and Policies for Resilient Planning and Design	Business continuity program	Create a business continuity program that provides small businesses with a roadmap for continuing operations under adverse conditions.	Proposed	Y
Improve Stormwater Management and Drainage Systems	Seaford Creek Stormwater System Modeling, Analysis, and Pilot	Conduct Hydrologic and Hydraulic study of Seaford Creek watershed to determine sources of flooding and excess outfalls. Survey and inspect portions of stormwater drainage system. Identify priority locations for green infrastructure and appropriate installations.	Proposed	N
Improve Stormwater Management and Drainage Systems	South Shore Stormwater System Modeling and Analysis	Conduct Hydrologic and Hydraulic study of six South Shore watersheds to determine sources of flooding and excess outfalls. Survey and inspect portions of stormwater drainage system. Identify priority locations for green infrastructure and appropriate installations.	Proposed	Y

Table 01 (cont'd): Proposed projects, featured projects, and additional resiliency measures

Strategy	Project Name	Short Description	Category	Regional
Improve Transportation and Communication Connectivity	Lifeline Corridor Study and Guidelines	Study and design for infrastructure improvements along critical roads to maintain access during storm events.	Proposed	Y
Improve Stormwater Management and Drainage Systems	Sunrise Highway, Merrick Road, Park Ave Drainage Improvements	Improve stormwater management and drainage systems located along Sunrise Highway at Wantagh State Parkway, Merrick Road by Mill Pond Park, Wantagh State Parkway, Seaford Oyster Bay Expressway, and Park Avenue. Green infrastructure solutions should be incorporated where possible.	Featured	N
Improve Transportation and Communication Connectivity	Seaford Road Raising	Rebuild local streets in Seaford at higher elevation to alleviate monthly spring tide flooding.	Featured	N
Improve Transportation and Communication Connectivity	Wantagh Road Raising	Rebuild local streets in Wantagh at higher elevation to alleviate monthly spring tide flooding.	Featured	N
Invest in Resilience Enhancements for Critical Assets	Wantagh High School and Seaford High School Solar Power and Battery Storage	Seek funding through New York State "K-Solar" Initiative to expand current array of solar panels at both schools and add battery backup for storage.	Featured	N
Invest in Resilience Enhancements for Critical Assets	Wantagh Library and Seaford Library Solar Power and Battery Storage	Seek funding through New York State "Community Solar NY" Initiative to install solar PV panels and battery backup for storage.	Featured	N
Establish Programs and Policies for Resilient Planning and Design	Neighborhood Preservation Guidelines	Create new residential design guidelines for improving architectural quality and functionality in newly raised homes. Recommend changes to TOH building, planning, and zoning to encourage resilient design.	Featured	N
Establish Programs and Policies for Resilient Planning and Design	Marina and Dock Resilience Guidelines	Develop and adopt new guidelines on the siting and design of new marinas, as well as the reconstruction of existing marinas. Develop emergency preparedness and evacuation procedures for marinas, including uniform procedures for securing vessels.	Featured	N

Table 01 (cont'd): Proposed projects, featured projects, and additional resiliency measures

Strategy	Project Name	Short Description	Category	Regional
Establish Programs and Policies for Resilient Planning and Design	Home Heating Upgrades	Amend building and planning regulations to phase out the use of oil fuel tanks south of Merrick Road. This incorporates requirements and enforcement for correct tank anchoring procedures, and incentives for residents to convert to natural gas or other alternative fuel sources.	Featured	N
Invest in Resilience Enhancements for Critical Assets	Cedar Creek Hazard Mitigation Strategy	Develop a hazard mitigation strategy to mitigate damage to the Cedar Creek WPCP from future storm events. Strategic planning and redesign of the facility for flood protection help ensure that the plant will be able to continue operating under adverse conditions.	Featured	N
Invest in Resilience Enhancements for Critical Assets	Wastewater Facilities Hardening Study	Wastewater facilities must be kept in continuous operation. Identify ways to harden wastewater treatment facilities to prevent further damage from inundation.	Featured	Y
Invest in Resilience Enhancements for Critical Assets	Wastewater Facilities Odor Control Improvements	Implement improvements to the odor control systems at the Cedar Creek Water Pollution Control Plant to mitigate community nuisance.	Featured	Y
Invest in Resilience Enhancements for Critical Assets	Comprehensive Gas Station Backup Power	State mandate to install generators or other provision backup power for gas stations in critical areas to facilitate evacuations and disaster recovery.	Featured	Y
Invest in Resilience Enhancements for Critical Assets	Harden the Electrical Grid	Specific resilience measures including undergrounding overhead primary wire, elevating substations, and creating outage response system.	Featured	Y



NY RISING COMMUNITY RECONSTRUCTION PROGRAM

SOUTH VALLEY STREAM

NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014





View looking north from Rosedale Rd Bridge to edge of Brook Road Park

Executive Summary

I. Overview

South Valley Stream is a hamlet of approximately 6,000 people along the southwestern edge of the Town of Hempstead in Nassau County, NY. It is bordered to the west by the Borough of Queens in New York City, and to the north by the incorporated Village of Valley Stream. The South Valley Stream NY Rising Community Reconstruction Community (Community) consists of two unincorporated neighborhoods, North Woodmere and Mill Brook, located to the east and west of Valley Stream, respectively. Both neighborhoods are characterized by post-War single family residential neighborhoods, schools, and neighborhood parks. Green Acres Mall, the Community's major economic asset, is located on the northern end of the Community. South Valley Stream's growth was driven by

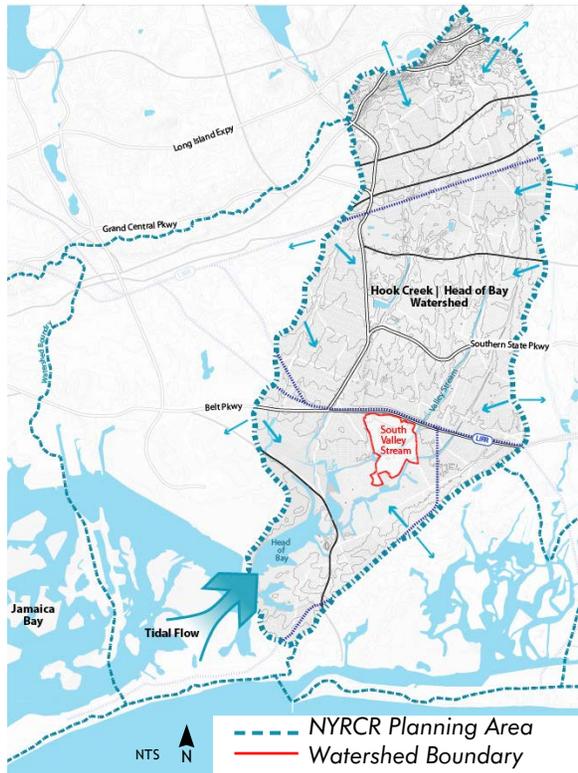
access offered by Sunrise Highway and the Long Island Railroad to the north.

Several creeks extend from Jamaica Bay northward into the South Valley Stream Community. Located south of the South Valley Stream Community, Hook Creek splits into three smaller creeks further north, all of which extend into the South Valley Stream Community. Valley Stream, the largest of these creeks, is a source of community identity and pride. However, Valley Stream, along with two other tributaries of Hook Creek (Watts Creek and Clear Stream), also increases the Community's vulnerability to flooding from tidal and precipitation storm events. The most dramatic of these events in recent memory was Superstorm Sandy. During Superstorm Sandy, the storm surge caused water levels in Jamaica Bay to rise and as a result of this also the water levels in

Hook Creek and its tributaries extending into the South Valley Stream Community. The water levels overtopped bulkheads, natural areas, and the existing floodgate at Rosedale Road, inundating both the Mill Brook and North Woodmere Neighborhoods. Flooding of the Community caused by overtopping of shoreline protection was exacerbated by stormwater accumulation as creek levels rose above stormwater outfalls, preventing the stormwater accumulated within the Hook Creek/Head of Bay regional watershed from being discharged into the creeks.

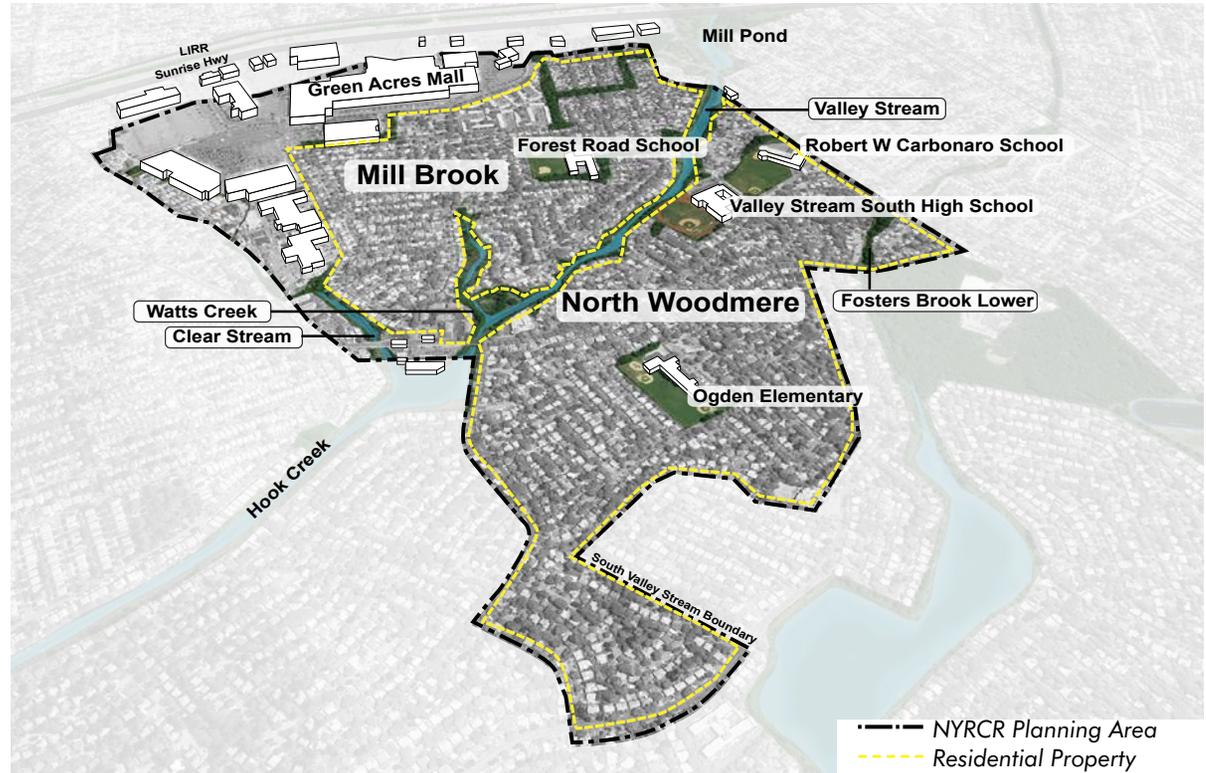
In total, more than 1,600 residential properties and 24 commercial properties within South Valley Stream were impacted by flooding during Superstorm Sandy. Since the storm, stream banks in South Valley Stream have continued to erode, and localized flooding occurs on a

South Valley Stream NY Rising Community Reconstruction Plan



Hook Creek / Head of Bay Watershed

regular basis. Beyond flooding, Superstorm Sandy severely impacted the Community's electrical network, disrupting emergency response communications and leaving residents without power for up to seven weeks. Impacts of power outages were especially felt by the Community's elderly, who were among the NYRCR Community's most vulnerable, and many of whom required power for medical treatment.



South Valley Stream NYRCR Planning Area

II. Community-Driven Process

In September 2013, a committee of South Valley Stream residents and civic leaders, the NY Rising Community Reconstruction (NYRCR) Committee convened with the goal of creating a plan to help South Valley Stream rebuild from the damage caused by Superstorm Sandy and prepare for a more resilient future.

The Committee had six meetings, and all were posted on the program website and open to the public. Additionally, three Public Engagement Events were held, (with a fourth to come after the

release of this NYRCR Plan,) in which the public was invited to learn about the Committee's work to date and to provide feedback on past and future work. These Public Engagement Events were heavily advertised to attract a diverse set of members from the Community."

The following vision statement was created through this process:

As a civically minded and culturally diverse community, we will work towards creating a resilient South Valley Stream; founded upon a diverse economy,

protected and restored natural and man-made shoreline, and environmental stewardship.

Since that time, the NYRCR Committee has worked closely with a team of professional consultants, representatives of New York State, and several Nassau County and Town of Hempstead agencies to develop this NY Rising Community Reconstruction Plan.

III. Final Plan as Blueprint for Implementation

The NYRCR Plan (the Plan) details a series of ‘Proposed’ projects identified as having the greatest benefit in increasing South Valley Stream’s resilience to future climate related events. These projects would be implemented with \$3,000,000 in Community Development Block Grant-Disaster Recovery (CDBG-DR) funds allocated to South Valley Stream. The Plan also includes several ‘Featured’ Projects that are recommended for implementation through other identified funding sources. The NYRCR Plan is community-based, the product of a robust public engagement effort involving consensus-building amongst both residents and business owners. The Plan is also comprehensive, addressing six recovery support functions: Community Planning & Capacity Building; Economic Resilience; Health & Social Services; Housing; Infrastructure; and Natural & Cultural Resources.

With a fundamental focus on implementation, the NYRCR planning process incorporated extensive discussions with the Town of Hempstead and Nassau County, to confirm

that relevant agencies had confidence in each project’s ability to be implemented. The NYRCR Committee also coordinated with agencies operating at a regional level, including the NYRCR Rockaway East Community in Queens and the U.S. Army Corps of Engineers, and maintained an ongoing dialogue with parallel resiliency efforts, including Rebuild by Design. As a result, the projects featured in the NYRCR Plan are compatible with, supportive of, and complementary to these other efforts.

The NYRCR Plan is aimed at addressing both the short- and long-term resilience needs of the two communities. The Plan includes a menu of early action projects; medium-term projects that can be implemented within two to five years; and long-term actions that require resources beyond the NYRCR funding allocation, and are largely addressed through policy changes, planning projects, and advocacy initiatives.

The four Proposed and 11 Featured Projects included in the NYRCR Plan for South Valley Stream address each of the five strategies that emerged from the public engagement process and technical analysis:

1. Manage Tidal Flow

Although Superstorm Sandy was an unprecedented event, the sources and causes of flooding observed during Superstorm Sandy occur frequently (albeit on a smaller scale) during high tide events, rainstorms, and nor’easters. Due to the low elevation of the neighborhoods immediately adjacent to the creeks and throughout the Community, the shoreline in South Valley Stream provides

incomplete protection against certain levels of tidal inundation. Inundation from tidal waters occurs in some areas of the Community on a regular basis during spring tides. This is expected to increase as a result of climate change, which is anticipated to increase both the general sea level and the frequency of extreme events such as high wind-induced surges. Increasing resilience against tidal flow is thus a key component of improving the Community’s overall resilience.

To manage tidal flow, the Plan includes three Proposed Projects with local and regional benefits. **The Bulkhead Repair and Shoreline Restoration at Brook Road Park Project (A1)** would provide much needed repairs to the only park in Mill Brook, a significant community asset, while increasing its resilience to future storm events. This project would manage tidal flow by creating a vegetative resilient buffer island at the confluence of Valley Stream and Watts Creek, replacing failing bulkhead with vegetation and a rock edge, and constructing a sculpted berm tied into the higher elevation. A central part of the proposed park project is to partially replace bulkheads that were damaged by Superstorm Sandy with a landscaped berm integrated into the park design. The berm would offer a natural design solution to improve the parks’ protection from tidal surges, while enhancing the park’s visual appeal. The new berms, in combination with the repair of adjacent bulkheads, would create a barrier between the park and tidal flows up to approximately 7 feet elevation (10-year storm). The surrounding planted edge would provide flood protection, seating, and viewing, while vegetation would filter drainage from the park into the stream.

A second Proposed Project, **Natural Shoreline Restoration along 'The Path' (A2)**, would manage tidal flow along Valley Stream by creating a terraced pathway integrated within a naturally landscaped living shoreline along the creek. This would reduce erosion of the stream bank and minimize the exposure of adjacent property to tidal flows up to approximately 7 feet elevation (10-year storm). 'The Path' includes a living shoreline and green infrastructure such as bioswales and permeable pavements. These features would retain stormwater (and thereby reduce the stormwater accumulation within the Community) would also provide natural treatment of the runoff from impervious surfaces (such as streets and parking space) prior to discharging into the creek, thereby improving the water quality of Valley Stream. The Proposed Project would also improve the aquatic and terrestrial habitat along the creek by re-introducing native species. The result would be a natural, publicly accessible open space that provides a pedestrian connection, improves natural habitat, and re-establishes the Community's link with the stream while at the same time improving resilience through flood protection.

The effectiveness of shoreline improvements increases when shoreline protection is continuous and gaps are avoided or minimized. In recognition of the complexity of the technical and implementation issues involved in addressing the shoreline, much of which is privately owned, the South Valley Stream NYRCR Plan includes a regional Proposed Project: **the South Shoreline Improvement Program Study (R1)**. The study would look at methods for making coordinated improvements to achieve continuous shoreline

protection along the Town of Hempstead South Shore. The program would seek to reduce potential gaps in consistent shoreline protection levels. These may occur where private properties remain unimproved or are improved to a lower level of protection than the rest of the shoreline. The goal of the study would be to investigate funding mechanisms, streamline permitting, and identify options for incentivizing bulkhead repairs and living shoreline improvements that would contribute to continuous shoreline improvement. The NYRCR Committee recognizes the importance of this issue to other communities along the South Shore affected by flooding, and their larger goal is that the solutions derived from this study could serve as a model to address conditions in those communities as well. Finally, the Plan includes the **Corridor Restoration and Riverbank Stabilization along Valley Stream, Clear Stream, Watts Creek, and Fosters Brook Lower (A3)** as a Featured Project that would serve as a local pilot project for the South Shoreline Improvement Program, by repairing and elevating bulkheads or restoring living shoreline, where appropriate, along water bodies in South Valley Stream. Designing a more accessible shoreline would also provide increased public access, recreational use, and connectivity to the waterfront.

2. Retain Stormwater

South Valley Stream frequently experiences flooding during storms that are much less significant than events like Superstorm Sandy. Precipitation accompanied by everyday high tides, for example, generates recurring localized flooding of many local roads where the stormwater drainage system has inadequate capacity or is not operating properly

at lower elevations. South Valley Stream is also vulnerable to major flooding during large storms, which bring greater volumes of rainfall than occurred during Superstorm Sandy. This was evident during Hurricane Irene, which brought more than three times the amount of rainfall as Superstorm Sandy, causing stormwater flooding in low-lying areas. Capturing upstream stormwater is necessary to minimize peak stormwater flows entering South Valley Stream's stormwater infrastructure system and Hook Creek's three tributaries. In recognition of the importance of community involvement and education, to increasing the resilience of South Valley Stream, the Plan proposes a **Green Infrastructure and Living Shorelines Community Education Program (B1)**. This program would include public information, workshops, and school curricula development.

In addition to the above Proposed Projects, the NYRCR Plan also includes the following five Featured Projects to address stormwater management issues. **The Hydrologic and Hydraulic Study of the Hook Creek – Head of Bay Watershed Study (R2)** would provide a regional, watershed-level understanding of the hydrology affecting South Valley Stream that would contribute to the design of more effective flood management measures. This project would also inform the development of a **County-wide Stormwater Mitigation Plan (B4)** which would provide flood management solutions at a higher level of scale that would benefit both South Valley Stream and the region. The Plan would seek to improve the capacity of the stormwater infrastructure system through **Stormwater Infrastructure Upgrades (B3)**. In addition to existing infrastructure

upgrades, the Plan proposes nature-based solutions to retain and manage stormwater. This includes incentivizing green infrastructure implementation on residential property and public rights-of-way through a **Green Infrastructure Implementation Program on Residential and Public Property (B2)** and by encouraging **Green Infrastructure and Subsurface Stormwater Retention at Green Acres Mall (B5)**.

3. Reinforce the Power Grid

The power outages during and after Superstorm Sandy in South Valley Stream underscored the importance of making the power grid more resilient. It also highlighted the role the grid plays in allowing critical community resources to operate in the event of a future disaster, stabilizing communication systems, improving operations at warming and cooling centers, and helping schools resume service more quickly after disasters. To reinforce the power grid, the NYRCR Plan includes a **Microgrid Network Pilot Project (C1)**. This Featured Project includes the development of a microgrid network storm resistance plan, to provide backup power supply sources for homeowner benefit during a disaster. Another Featured Project would establish a **Community Assistance Center at the Forest Road School (C2)** to provide a place for residents - especially the area's elderly - to go to obtain resources after a disaster, and act as a safe location during extreme heat or cold weather.

4. Strengthen Communication and Coordination

Superstorm Sandy highlighted the importance of communication and coordination among civic and social organizations to the Community's post-Sandy recovery efforts. Despite the strong emergency response efforts of groups like the Mill Brook Civic Association, such efforts were hindered by disruption of communications networks during Superstorm Sandy. The Plan includes as a Proposed Project the establishment of a local **South Valley Stream Community Emergency Response Team (CERT) (D1)**. This would improve coordination between the Mill Brook Civic Association and Nassau County Office of Emergency Management. By strengthening local communication networks, this strategy would facilitate education and awareness about disaster preparedness and emergency response and help to identify vulnerable populations.

5. Maintain and Enhance Economic Viability

The economic stress caused by Superstorm Sandy has the potential to substantially impact the stability of South Valley Stream's residential neighborhoods. This is evidenced in the decrease in home values since Superstorm Sandy. **The Resilient Home Construction Incentive Program (E1)** is included as a Featured Project in the NYRCR Plan. The Program would maintain and enhance economic viability of South Valley Stream by incentivizing resilient design practices to strengthen the housing stock against the impacts of future storm events.

South Valley Stream: Proposed and Featured Projects

A. Manage Tidal Flow

- A1 Repair Bulkheads and Restore Shoreline at Brook Road Park [Proposed]
- A2 Restore Natural Shoreline along 'The Path' [Proposed]
- A3 Corridor Restoration and Riverbank Stabilization [Featured]
 - A3a Watts Creek
 - A3b Valley Stream: North, Southeast, Southwest
 - A3c Clear Stream
 - A3d Fosters Brook Lower

B. Retain Stormwater

- B1 Develop Community Information Regarding Green Infrastructure and Living Shorelines [Proposed]
- B2 Green Infrastructure Implementation Program on Residential and Public Property [Featured]
- B3 Stormwater Infrastructure Upgrades [Featured]
- B4 County-wide Stormwater Mitigation Plan with Community Education and Awareness [Featured]
- B5 Encourage implementation of Green Infrastructure and Subsurface Stormwater Retention at Green Acres Mall, Including Sunrise Multiplex Site [Featured]

C. Reinforce Powergrid

- C1 Implement Microgrid Network Pilot Project [Featured]
- C2 Establish Community Assistance at Forest Road School [Featured]

D. Strengthen Communication & Coordination

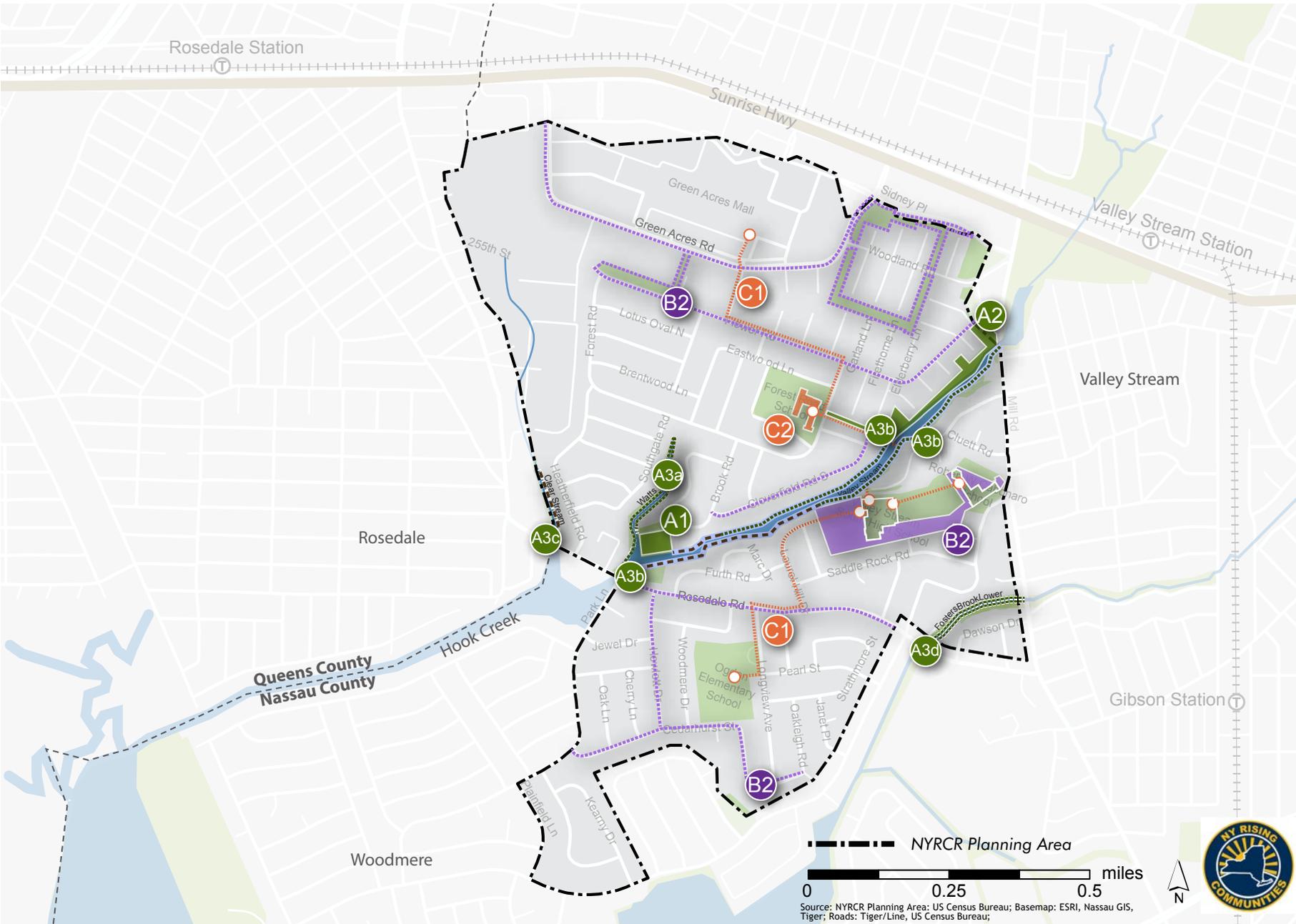
- D1 Establish A Community Emergency Response Team (CERT) [Proposed]

E. Maintain and Enhance Economic Viability

- E1 Resilient Home Construction Incentive Program [Featured]

R. Regional

- R1 South Shoreline Improvement Program Study [Proposed]
- R2 Coordinate with Hydrologic and Hydraulic study of the Hook Creek / Head of Bay Watershed [Featured]



NYRCR Planning Area

0 0.25 0.5 miles

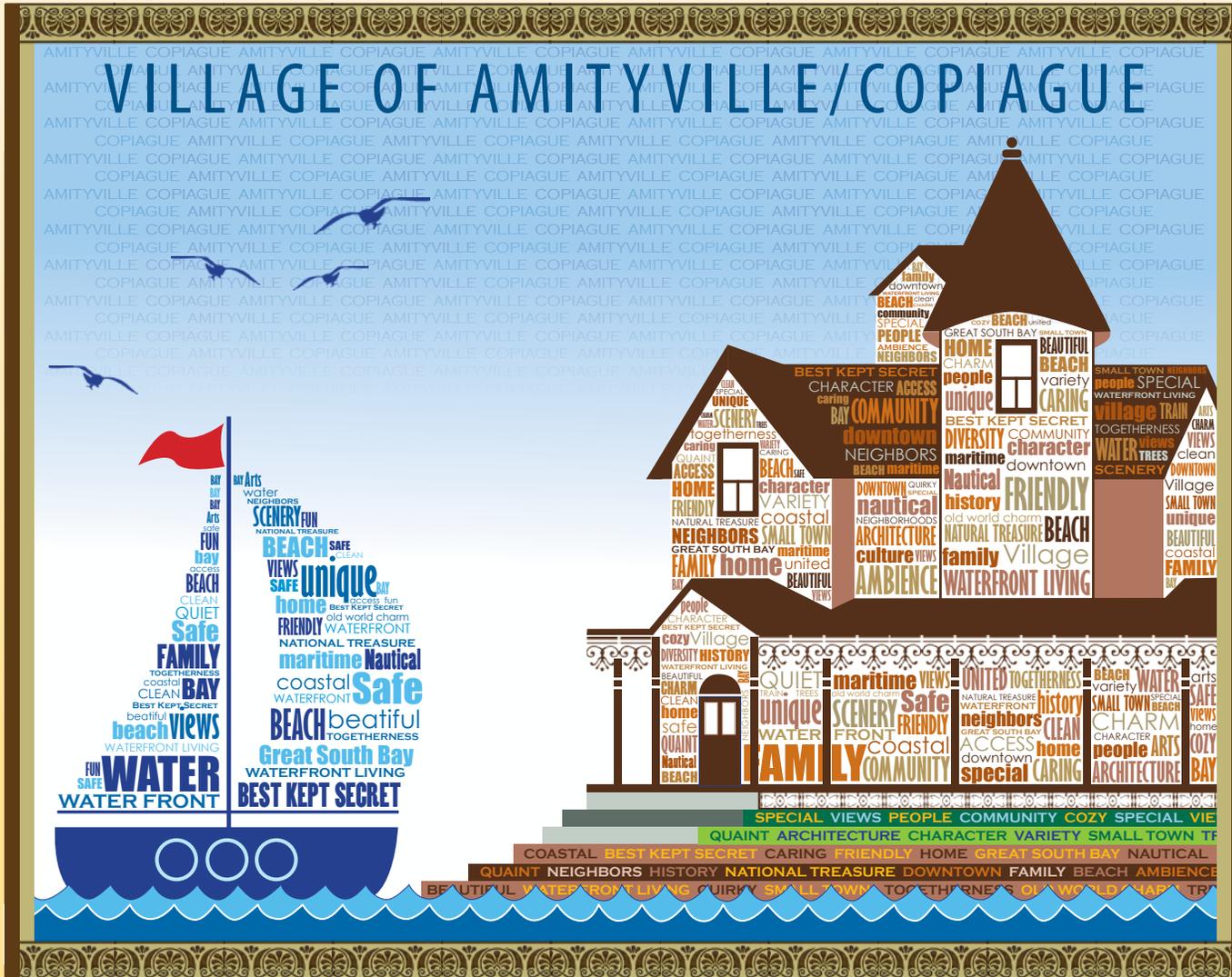
Source: NYRCR Planning Area: US Census Bureau; Basemap: ESRI, Nassau GIS, Tiger; Roads: Tiger/Line, US Census Bureau;





NY Rising Community Reconstruction Program

NY Rising Community Reconstruction Plan



MARCH 2014

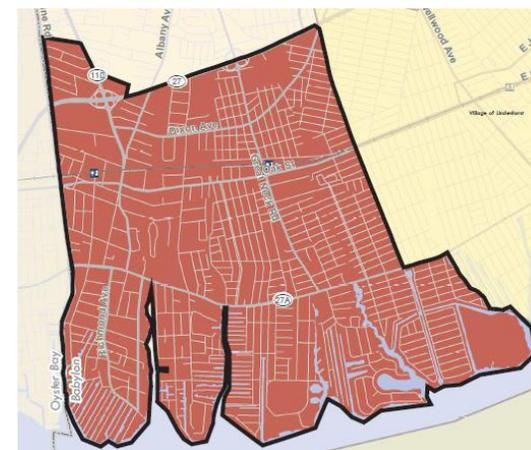


Executive Summary

Overview of NY Rising Community Reconstruction Community: Village of Amityville/Copiague

NY Rising Community Reconstruction (NYRCR) Village of Amityville/Copiague (Community) is one of eight NYRCR Communities identified within Suffolk County. The geographic scope of NYRCR Village of Amityville/Copiague (Community) follows the boundaries for the Village of Amityville and the hamlet of Copiague. The Community is bordered by Massapequa in Nassau County on the west, the Great South Bay to the south, the Village of Lindenhurst to the east and the hamlet of North Amityville to the north. The Village of Amityville and the hamlet of Copiague are suburban communities with a variety of residential neighborhoods each with their own individual character. The residential communities south of Montauk Highway (State Route 27A) are strongly influenced by their location near the water. It is there that homes, and the occasional marine-related commercial establishment, were built on several peninsulas separated by canals. A total of up to \$14.2 million has been allocated for resiliency projects within this Community, up to \$5.6 million for the Village of Amityville and up to \$8.6 for Copiague.

The Village of Amityville, meaning “friendly Village,” was formally incorporated on March 3, 1894. In the early 1900s, regular rail service and proximity to the Bay established the Village as a popular tourist destination. Copiague is an Indian word that means “sheltered harbor” or “sheltered place.” Although Copiague was a weekend and summer retreat for New York City residents, the waterfront remained undeveloped until the 1920s, at which time developers began filling waterfront areas and constructing homes. However, the Great Depression of the 1930s put an end to early development. In the 1950s and 1960s, as part of the wave of residential development after the dawn of the “suburban era,” the waterfront area of the Village of Amityville and Copiague was fully developed. Today, the population of the Village of Amityville is 9,662 and the population of Copiague is 20,732.



Map of the NYRCR Village of Amityville/
Copiague Community.
(Image credit: Jacobs Engineering Consultant Team)



Village of Amityville/Copiague NY Rising Community Reconstruction Plan

The Village of Amityville and hamlet of Copiague were severely affected by Superstorm Sandy's high winds, heavy rain, and strong tides. The houses and roads south of Montauk Highway (Merrick Road) experienced severe flooding, downed trees, and prolonged periods of power and communications failures. The devastation was especially pronounced in the neighborhoods south of Montauk Highway along the canals. Many residents lost their homes and all of their personal belongings, while many others are still making repairs with the simple goal of getting back into their homes and returning to normal. Residents were displaced for long periods of time, some of whom are still not able to return to their homes. Some homes have already been raised considerably to avoid flooding in the next storm. There are still the vacant houses, many of which have been abandoned by their owners.

The waterfronts took the biggest hit. Superstorm Sandy damaged many structures, marinas, docks, yacht/boating clubs, and other maritime businesses in the community, as well as public spaces, parks, and beaches. The Amityville Beach Pavilion experienced six feet of storm surge during the Superstorm Sandy event. From the Pavilion structure to the site's electric, plumbing, and fencing just about everything was damaged or destroyed. Tanner Park in Copiague also sustained damage.

In the Village of Amityville 914 homes and in Copiague 2,187 homes were damaged. In total, 23% of the entire housing stock in the Village of Amityville was damaged and 27% of the entire housing stock in Copiague was damaged. In Copiague, the Town of Babylon has received 185 permit requests for storm damage repairs. The Village of Amityville has processed 60 permits for storm damage repair, including building, demolition, plumbing, and repairs to docks and fences. They have also processed 15 permits specifically for elevating homes.

The most critical issue facing us in the Village of Amityville/Copiague in the post-Superstorm Sandy environment is recovery from the devastation of the event. Our community is also looking forward. We wish to maintain our quality of life as a waterfront community in a manner that is more resilient for future storms. It is critical that the community rebuild to minimize future storm damages on homes and businesses. This involves identifying ways to prevent damage to public and private property and increasing the future of resiliency of housing in the community. Mitigating repetitive flooding of homes, businesses, and roads is a critical issue. The health of the local economy is tied to its waterfront location;



The Village of Amityville and hamlet of Copiague were severely affected by Superstorm Sandy's high winds, heavy rain, and strong tides.

(Photo credit: Village of Amityville/Copiague NYRCR Planning Committee)



Our waterfront was severely damaged from Superstorm Sandy as evidenced by the devastation at the Amityville Beach Pavilion.

(Photo credit: Village of Amityville/Copiague NYRCR Planning Committee)



Village of Amityville/Copiague NY Rising Community Reconstruction Plan

therefore, protecting local assets such as our waterfront parks from future storm damage is imperative to the economic resiliency of this community.

If we want to be a more resilient community in the future, we recognize that a critical issue is ensuring that emergency and evacuation information and facilities are available to residents. This is especially critical for our special needs populations who require assistance before, during, and after emergency events. During Superstorm Sandy, certain neighborhoods were difficult to evacuate from and deliver supplies to because of weight limits on bridges; the lack of proper police, fire, highway and municipal equipment; and flooding of streets. These critical community planning issues must be addressed.

NYRCR Village of Amityville/Copiague recognizes that their infrastructure is vulnerable. Bridge weight limits several neighborhoods from reaching emergency facilities. Roadway flooding from a deficient storm sewer system, deteriorated bulkheads, and low roadway elevations impairs critical access, hampers the ability to evacuate, and allows floodwaters to damage homes and property. Superstorm Sandy highlighted regional emergency management issues beyond local control, such as the lack of fuel, power, and communications availability.

The waterfront and our many natural and cultural resources located there took the brunt of Superstorm Sandy's force. Creeks, canals and wetlands areas were flooded leaving damage and debris. Our waterfront parks and beaches were eroded and facilities such as the Amityville Beach Pavilion were destroyed. Not only do our parks and natural areas provide recreational opportunities, but they also serve as buffer to Great South Bay for the inland residential areas. Our natural and cultural resources are critical to the quality of life in our Community and must be strengthened and made more resilient.



During Superstorm Sandy, certain neighborhoods were difficult to evacuate from and deliver supplies to because of weight limits on bridges.

(Photo credit: Jacobs Engineering Consultant Team)



Mitigating roadway flooding is critical for the Village of Amityville/Copiague future resiliency.

(Photo credit: Village of Amityville/Copiague NYRCR Planning Committee)



Village of Amityville/Copiague NY Rising Community Reconstruction Plan

NYRCR Program: A Community-Driven Process

In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Village of Amityville/Copiague Community were involved in each step of the NYRCR Program. The NYRCR Village of Amityville/Copiague Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths. Eleven Committee meetings were held as of March 15, 2014. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr).

One of the first steps in the NYRCR planning process was the development of a Community Vision Statement. At the first public event, Community members viewed the draft Community Vision prepared by the NYRCR Planning Committee and provided direct feedback to ensure that their vision for a resilient future would be included. Once we felt confident that our community was well represented in the Community Vision Statement, we adopted it as final. All strategies and projects identified were measured against the Community Vision Statement to ensure that recommended actions would help our Community in achieving its desired goals.

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making process that informed the development of this Plan. Three well-attended, open-house style events were held during the development of the plan and a fourth will present this final document. Across the eight NYRCR Communities in Suffolk County, thousands of participants attended Committee meetings and Public Engagement events. Additionally, the public was encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects in conjunction with Public Engagement Event 3.

Special efforts were taken to reach out to younger members of the community. They were invited to participate in a web-based "Next Generation" survey to gather feedback on Proposed Projects that would likely affect their futures in the Community.

Community Vision Statement

The Village of Amityville and the hamlet of Copiague are small, historic, bayside communities located on the Great South Bay of Long Island that wish to maintain a safe, quiet and inviting character. We will work cooperatively to preserve the traditional continuity of our historic landmarks, maritime culture and suburban lifestyles and protect, maintain and enhance the quality of our natural resources, which are fundamental to our quality of life and are the basis of our local economy. We will plan for new and improved strategies which will eliminate potential loss of life and minimize damage caused by future natural disasters.



Village of Amityville/Copiague NY Rising Community Reconstruction Plan

NYRCR Plan: A Blueprint for Resiliency

An asset inventory was conducted for the Village of Amityville and Copiague to identify assets, both built and natural, which are critical to the safety, resiliency, and character of the Community. The identified assets were evaluated in detail to understand their level of risk, or potential for damage, to future storm events. Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. For every need or opportunity, potential strategies were generated for each resiliency issue. The list of strategies spanned an array of methodologies and timeframes, from preparedness to retrofits, from immediate procedural improvements to long-range capital investment programs.

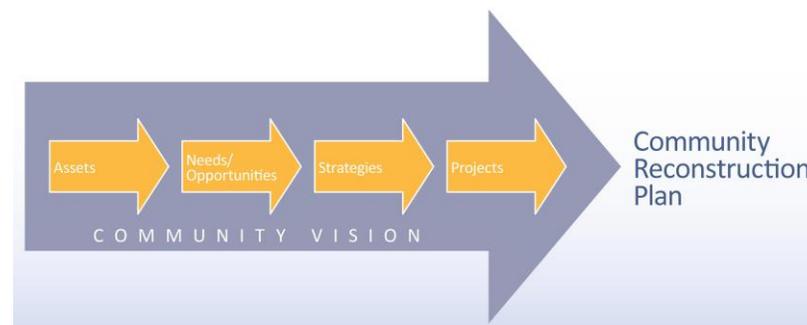
Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. Proposed Projects are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding. Two of the Proposed Projects identified by the Committee mitigate flooding through storm sewer and bulkhead improvements. One Project addresses Community safety by improving deficient bridges in Copiague while another Project makes a waterfront park more resilient in the Village of Amityville. Two Projects address Community Planning for future storm events by obtaining resiliency equipment and a generator for a local emergency evacuation center. There are no Featured Projects for the Community. Over the course of the planning process, the Committee considered a number of additional projects and ultimately decided to include these as Additional Resiliency Recommendations. Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects. It is important to note that there is no priority order or ranking of projects aside from the project tier.

The following table presents the six Proposed Projects by Strategy that were identified by the NYRCR Village of Amityville/Copiague Committee:



In the days, weeks, and months after Superstorm Sandy, our Community pulled together to rebuild, and build back better.

(Photo credit: Village of Amityville/Copiague NYRCR Planning Committee)



Community Reconstruction Planning Process
(Image credit: Jacobs Engineering Consultant Team)



Village of Amityville/Copiague NY Rising Community Reconstruction Plan

Table ES- 1: NYRCR Village of Amityville/Copiague Resiliency Projects

Strategy	Project Name	Project Category
Establish local emergency evacuation routes and facilities.	Local Emergency Evacuation Center Permanent Generator	Proposed Project
Improve emergency information, policies, procedures and tools used by local government departments (police, fire, highway, etc.)	Resiliency Equipment	Proposed Project
Mitigate repetitive flooding.	Storm Sewer and Roadway Drainage Improvements	Proposed Project
	Waterfront Resiliency Improvements	Proposed Project
Ensure access to critical facilities and evacuation routes.	American Venice Bridges Improvements	Proposed Project
Improve resiliency of waterfront parks.	Amityville Beach Pavilion Restoration & Resiliency	Proposed Project

Village of Atlantic Beach/Atlantic Beach Estates/East Atlantic Beach NY Rising Community Reconstruction Plan



NY Rising Community Reconstruction Program

March 2014



Executive Summary

The geographic scope of the NY Rising Community Reconstruction (NYRCR) Village of Atlantic Beach/Atlantic Beach Estates/East Atlantic Beach Plan encompasses the Village of Atlantic Beach and the unincorporated hamlets of Atlantic Beach Estates and East Atlantic Beach, which are all in southwestern Nassau County, NY. The geographic scope is referred to as the “Community,” and the NYRCR Village of Atlantic Beach/Atlantic Beach Estates/East Atlantic Beach Plan is referred to the “NYRCR Community Plan.”

The Community is on the western end of Long Beach Barrier Island, off the south shore of Long Island. Reynolds Channel is to the north, the City of Long Beach is to the east, and the Atlantic Ocean is to the south and west. The Village of Atlantic Beach covers one square mile; Atlantic Beach Estates, which is part of East Atlantic Beach, covers 0.9 square mile; and the remainder of East Atlantic Beach covers 0.6 square mile. The Village of Atlantic Beach is an independent, incorporated village; East Atlantic Beach and Atlantic Beach Estates are under the jurisdiction of the Town of Hempstead.

Collectively, the Community is eligible for up to \$9.0 million in U.S. Department of Housing and Urban Development Community Block Grant – Disaster Recovery (CDBG-DR) funding to implement the proposed actions (Proposed Projects, Featured Projects, and Additional Resiliency Recommendations) that are described in this NYRCR Community Plan. Of the total amount, the Village of Atlantic Beach is eligible for up to \$3.0 million, and East Atlantic Beach and Atlantic Beach Estates are together eligible for up to \$6.0 million.

Superstorm Sandy Impacts

Much of the Community was inundated by Superstorm Sandy in 2012, including oceanfront beach clubs and nearly the entire the bayside area (north of Park and Beech Streets). An estimated 1,003 of the approximately 1,900 housing units in the Community sustained damage, with 684 suffering at least 50% damage.

The storm also damaged key infrastructure assets and systems, including roads, electrical systems, drainage systems, government facilities, bulkheads, and dunes. The Atlantic Beach Rescue dock and pilings and the Village of Atlantic Beach Tennis Center were damaged. The Atlantic Beach Village Hall and Water Reclamation Plant were kept operational during and after Superstorm Sandy, though only through extraordinary provisional measures. Many of these assets had already been subjected to repetitive damage and loss during previous storm events, including Hurricane Irene, because of low elevations and inadequate mitigation and hardening.

The projects and actions described in this NYRCR Community Plan are necessary to continue the Community’s recovery from the extensive damage inflicted by Superstorm Sandy and to improve resiliency against future disaster events.

Critical Issues

The NYRCR Atlantic Beach/Atlantic Beach Estates/East Atlantic Beach Planning Committee (Committee) identified three types of critical issues that must be addressed to improve the Community’s resiliency and mitigate future risks related to storms and flooding: key infrastructure, other key assets, and hazard mitigation.

Key infrastructure, including public utilities and significant buildings, must be hardened to withstand damage. Although future storm and flooding events are inevitable, relocation or protection of key systems can improve continuity of operations for emergency services, minimize or prevent disruption of health and human services to vulnerable populations, and minimize or prevent disruption of business operations. Other key assets, which include the oceanfront beach clubs that provide the Community’s economic base, must be protected. Finally, the Committee recognized that the mitigation of hazards through improved and increased services and regional coordination is a major need.



Working Together to Rebuild Stronger, Smarter, and Safer

Early in the development of the NYRCR Community Plan, the Committee used a consensus-based approach to develop a Vision Statement that reflects the Community's goals for the future of the Community. The Vision Statement reflects an allegiance to the history and traditional character of the Community and recognition that the Community must identify proactive, innovative solutions to ensure long-term resiliency.

Public Outreach

The Committee presented the Vision Statement to Community residents at a Public Engagement Event on October 16, 2013, the first of the three Public Engagement Events to date. A fourth Public Engagement Event is planned. Attendees expressed strong support for the Vision Statement and agreed that it appropriately reflects the Community's character and aspirations.

Extensive outreach was conducted through online and in-person opportunities throughout the planning process to ensure broad public participation and awareness of this planning opportunity.

Committee Meetings were open to the public, and comment cards were available for attendees to provide input and to submit contact information to receive updates. The Committee responded to written questions from attendees during group discussions.

Participants at Public Engagement Events received exit surveys and comment cards and were asked for feedback and email addresses so they could be informed about upcoming meetings and other Public Engagement Events.

NYRCR Atlantic Beach/East Atlantic Beach/ Atlantic Beach Estates Vision Statement

We are committed to protecting our natural assets and beach community by strengthening our infrastructure and shoreline along the Barrier Island to reduce the likelihood of threats to the health and safety of our residents in the event of future storms.

The Committee used a variety of outreach methods to maximize participation at the first three Public Engagement Events. The methods were electronic and social media, email, flyers, 25 lawn signs throughout the Community, 500 door hangers, and notices printed by local media outlets. With the Committee's assistance, 4,500 flyers and/or custom letters were mailed or emailed to Community residents and organizations.

Committee Meetings and Public Engagement Events were also announced on the NYRCR website and Facebook page, both of which also served as sources for information, documents, and answers to questions about the NYRCR Community Plan.

Outreach materials were also distributed to the Committee, whose members are active in local groups, including school boards, civic associations, and sports leagues. Committee members distributed these materials to local organizations, friends, family, neighbors, and colleagues. In total, more than 4,500 flyers were delivered to Committee members, displayed at public gathering places, or distributed to local organizations and businesses in the Community and in the adjacent City of Long Beach.

As a result of the extensive outreach effort, a total of 260 Community residents attended the first three Public Engagement Events.

Blueprint for Implementation

In the early stages of the planning process, the Committee identified six strategies to reduce the Community's exposure to risk from flooding during high tide and storm events, enable the Community to rebuild smarter and stronger, and support residents and businesses by protecting the Community's considerable assets. The Committee then developed a list of proposed actions to implement the strategies.

The actions are divided into three categories: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. All categories are important to the Community. The categories are defined as follows:

- **Proposed Projects:** Projects designed to be fully funded through the NYRCR Program using the Community's allocation of CDBG-DR funds.
- **Featured Projects:** Innovative projects and actions that the Planning Committee has identified as important resiliency recommendations and

has analyzed in depth, but has not proposed for funding through the NYRCR Program.

- **Additional Resiliency Recommendations:** Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

Table ES-1 provides a list of strategies and the associated Proposed and Featured Projects. Additional Resiliency Recommendations are located in Section V, Table V-1. The strategies and project are not listed in order of importance, rank, or priority.

Table ES-1: Table of Proposed and Featured Projects

Strategy	Project Name	Project Category	Cost	Project Category
Protect critical Infrastructure to create community resiliency and sustainability to ensure continuing services needed before, during, and after disasters	Harden Water Reclamation Plant – Provide resiliency to the existing Water Reclamation Plant and three pump stations to maintain functionality during rain and hazard events.	Proposed	\$720K	Infrastructure
	Emergency Medical Services – Protect and fortify the existing Atlantic Beach Rescue Building through improved infrastructure and communication systems.	Proposed	\$460K	Infrastructure
	Complete Streets/Drainage along Beech Street – Use Complete Streets to provide phased drainage and street improvements along emergency evacuation routes through stormwater best management practices, infrastructure improvements, and traffic safety and management measures.	Proposed	\$5.5M	Infrastructure
	Solar-Powered Street Lights – Provide light-emitting diode (LED) street lighting that is solar powered to prevent loss of lighting in the event of power outages.	Proposed	\$1.3M	Infrastructure
	Install Backflow Preventers – Install backflow preventers and storm drain covers throughout the Community to mitigate flooding and prevent debris from entering drains.	Proposed	\$360K	Infrastructure
	Microgrid Power System – Conduct a feasibility study and implement a power microgrid system throughout the Community.	Featured	\$19.2M	Infrastructure
	Underground Utilities Feasibility Study – Conduct a feasibility study to determine the potential for underground utilities in areas, specifically East Atlantic Beach, that are at risk of flooding.	Featured	\$100K	Infrastructure
	Stormwater System Improvements – Study adaption of existing open spaces for floodwater catch basins.	Featured	\$10K	Infrastructure



Table ES-1 (Continued)

Strategy	Project Name	Project Category	Cost	Project Category
Increase the Community’s capacity to facilitate and foster actions that lead to greater resiliency, emergency preparedness, and sustainability	Village of Atlantic Beach Community Assistance Center – Retrofit the Tennis Center in the Village of Atlantic Beach to be used as a Community Assistance Center, including improvements to drainage and the incorporation of active and passive recreational elements.	Proposed	\$2M	Community Planning and Capacity Building
	East Atlantic Beach Community Assistance Center Feasibility Study – Evaluate and identify a location for a Community Assistance Center in East Atlantic Beach and Atlantic Beach Estates.	Proposed	\$50K	Community Planning and Capacity Building
	Atlantic Beach Village Hall – Provide upgrades and protection to Atlantic Beach Village Hall to maintain continuity of operations and protect vital records during and after storm events.	Proposed	\$400K	Community Planning and Capacity Building
	Emergency Preparedness Guidebook – Draft and disseminate an emergency preparedness guidebook in coordination with Nassau County, Town of Hempstead, and the City of Long Beach for distribution to all residents.	Featured	\$100K	Community Planning and Capacity Building
Implement measures to make the Community’s economic drivers more resilient	Assess Feasibility and Economic Impact of Perimeter Dune System – Study the cost-effectiveness and technical feasibility of a dune perimeter system on the beach clubs including benefits and risks.	Proposed	\$500K	Economic Development
	Cell Phone Tower Resiliency – Improve cell phone tower resiliency during emergencies.	Featured	\$1.6M	Economic Development
Protect critical Community health and social services assets and increase the capacity to provide needed emergency and community services before, during, and after disasters	Emergency Preparedness Guidebook – Draft and disseminate an emergency preparedness guidebook in coordination with Nassau County, Town of Hempstead, and the City of Long Beach for distribution to all residents.	Featured	\$100K	Health and Social Services
Encourage and facilitate housing resiliency and sustainability measures throughout the Community	Emergency Preparedness Guidebook – Draft and disseminate an emergency preparedness guidebook in coordination with Nassau County, the Town of Hempstead, and the City of Long Beach for distribution to all residents.	Featured	\$100K	Housing
	Identification of Vulnerable and Special-Needs Populations – Identify vulnerable and special-needs populations through a special-needs registration.	Featured	\$8K	Housing



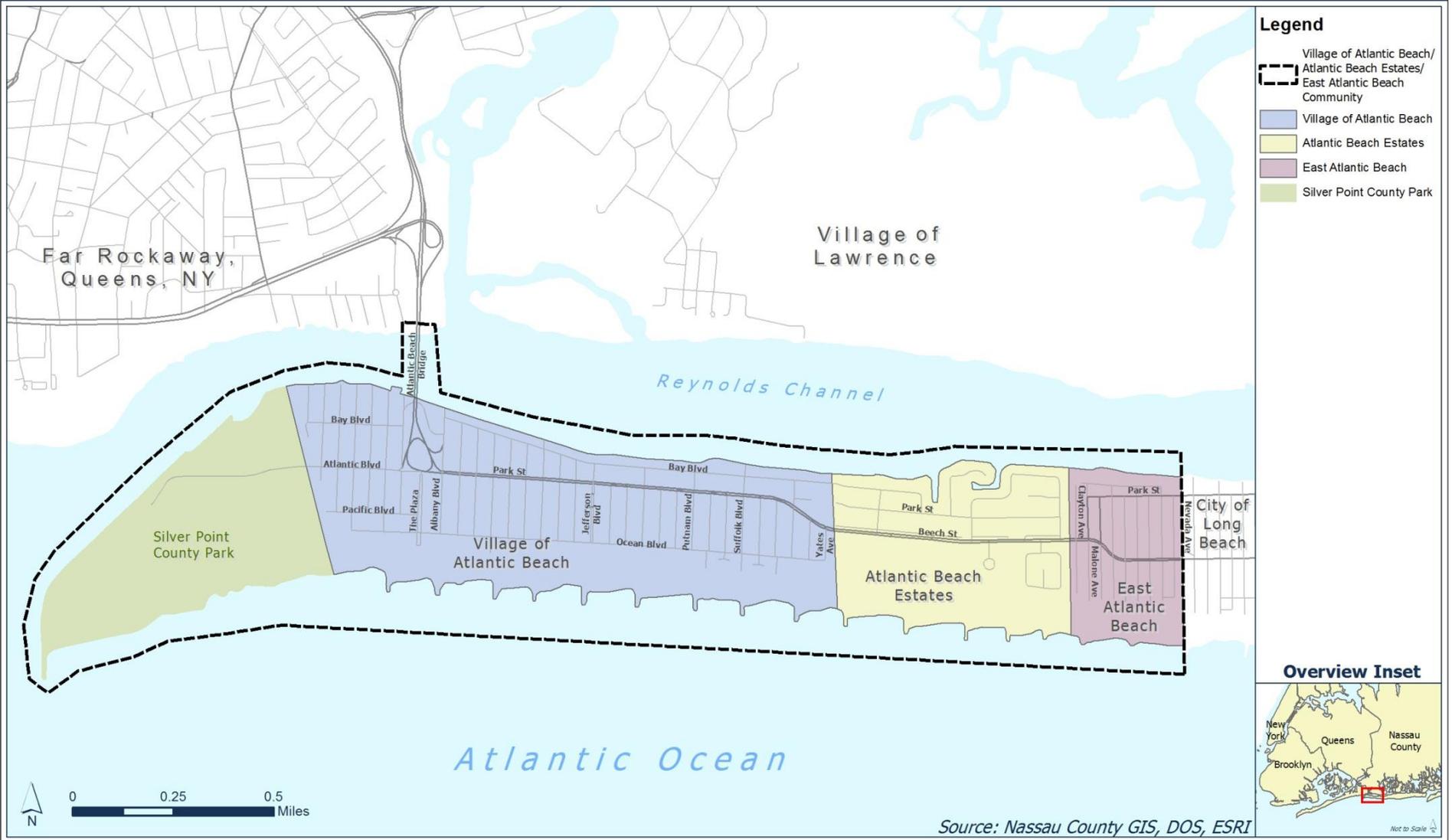
Table ES-1 (Continued)

Strategy	Project Name	Project Category	Cost	Project Category
Restore and enhance natural resources for both resiliency and recreation purposes while also protecting important cultural resources	Assess Feasibility and Economic Impact of Perimeter Dune System – Study the cost-effectiveness and technical feasibility of a dune perimeter system on the beach clubs including benefits and risks.	Featured	\$500K	Natural and Cultural Resources
	Stormwater System Improvements – Study adaption of existing open spaces for floodwater catch basins.	Featured	\$10K	Natural and Cultural Resources



Village of Atlantic Beach/Atlantic Beach Estates/East Atlantic Beach

Figure ES-1: Geographic Scope



- Legend**
- Village of Atlantic Beach/Atlantic Beach Estates/East Atlantic Beach Community
 - Village of Atlantic Beach
 - Atlantic Beach Estates
 - East Atlantic Beach
 - Silver Point County Park





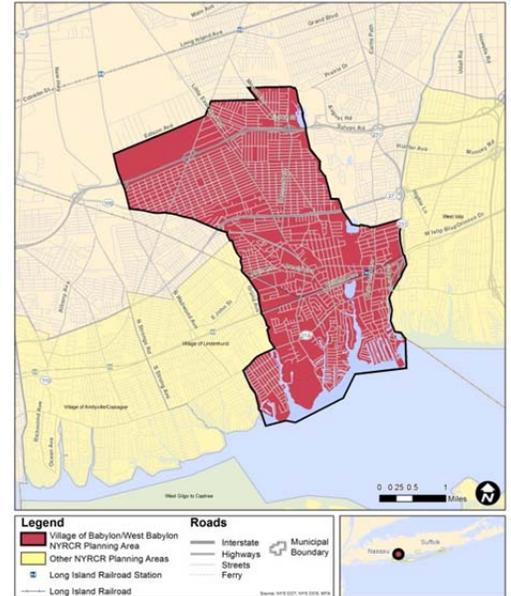
Executive Summary

Overview of NY Rising Community Reconstruction Community: Village of Babylon/West Babylon

NY Rising Community Reconstruction (NYRCR) Village of Babylon/West Babylon Community (Community) is one of eight NYRCR Communities identified within Suffolk County. The NYRCR Village of Babylon/West Babylon Community comprises the hamlet of West Babylon, a census-designated place (CDP) within the Town of Babylon, and the Incorporated Village of Babylon. The West Babylon CDP also includes Venetian Shores, a small peninsula located in the southwest corner of the Town. Although Venetian Shores is within the boundaries of the West Babylon CDP, it is served by the Lindenhurst School District and Lindenhurst Fire Department. Residents in this area also have a Lindenhurst address and zip code. In addition to Lindenhurst to the west, the Community is also bordered by North Babylon and Wyandanch to the north, West Islip to the east and the Great South Bay to the south. Up to nearly \$10.2 million has been allocated for resiliency projects within this Community.

The Babylon-West Babylon area owes its growth and success in large measure to the railroad and the waterfront. The Village of Babylon was incorporated in 1893 and is the oldest village within the Town of Babylon. Its bustling and walkable downtown district is unique to Suffolk County, making the Village a well-known regional destination. Both Babylon and West Babylon also feature waterfront parks, local marinas, historic structures, and significant amounts of preserved open space. The Long Island Rail Road (LIRR) connects points east (e.g., Montauk) and west (e.g., New York City), providing service to local residents and visitors alike. The Community’s accessibility to New York City played a large role in driving post-war growth and development in both the Village of Babylon and West Babylon and continues to attract new residents to the area. West Babylon is currently the most populous hamlet (estimated population: 43,213) within the Town of Babylon. In comparison, the Village of Babylon is much smaller, with a population of 12,166.

The Village of Babylon and West Babylon were particularly hard hit by Superstorm Sandy, with structures located along the Great South Bay and along canals experiencing the worst damage. The impact of the storm was devastating to both communities.



Emergency response, Babylon Fire Department

(Photo Credit: TJ McGurk, Babylon Fire Department)



Many dwellings and businesses located along the shore lost power and communications. Outages persisted for an extended period of time during the recovery process as Long Island faced one of the largest storm-related outages on record. Many homes and commercial buildings were inundated with a tidal surge of approximately six feet that extended well into the communities, reaching north of Montauk Highway in many locations.

Fires caused by eroded electrical wires destroyed property, posed safety concerns and strained an already taxed crew of emergency responders.

Rescue operations continued throughout the night while attempts were made to evacuate residents and provide vital services to those in need. Nursing homes along the waterfront presented significant challenges as access for vehicles and equipment was restricted by floodwaters. The NYRCR Village of Babylon/West Babylon Community was and remains fortunate to have such dedicated and experienced first responders and emergency service personnel.

When the winds finally abated and the waters calmed, residents were confronted with a level of destruction most had never experienced. Many streets remained partially flooded over the next few days as the water slowly receded into the Great South Bay. Roads were obstructed, traffic signals were not functioning, and vehicles and boats that had been destroyed during the storm were stranded in place. Homes were completely destroyed and rendered unlivable. Many were condemned, leaving residents without a home and away from the support of their community. Overall, 2,124 homes in the Village of Babylon and West Babylon were substantially damaged, with 1,990 sustaining “heavy” damage (>50%) or “strong” damage (20% to 50%).

The Community also faced a serious problem with floating hazards and debris. Residential fuel oil tanks used for home heating and boats stored at the various local marinas floated away as the floodwaters rose. The volume and mass of storm-carried debris caused damage to other structures and obstructed roadways and access routes. Without natural gas service in many areas, residents typically rely on outdoor fuel oil tanks to provide heating fuel. Many oil tanks ruptured, leaking their contents and contaminating the water and soil. Just five days after the storm, the Town of Babylon Department of Environmental Control (TOB DEC) recorded over 300 oil spills in the Town.



Local recovery center

(Photo Credit: Theresa DiPietto-Roesler & Kim Skillen)



These documented effects, combined with the first-hand experiences shared by residents at multiple well-attended public engagement events led to the identification of several critical issues facing the Community. These issues served to define needs, opportunities, strategies, and eventually projects that would help make the Community more resilient and sustainable. Critical issues include:

- Ensuring that municipalities and first responders, including fire departments, have the necessary resources to prepare for and protect the public, property, and the natural environment during and after disasters;
- Improving and strengthening communication systems before, during and after disasters;
- Establishing a service to identify temporary housing following major storm events;
- Increasing public education on disaster preparedness;
- Improving emergency evacuation preparedness and procedures;
- Implementing innovative technology to strengthen the resiliency of key assets and create redundancy in electrical power supply, i.e. microgrid system;
- Managing stormwater and water flow through the numerous lakes, ponds and stream tributaries within the Community; and
- Improving shoreline protection/resiliency.
- Improving coordination with other emergency service providers, municipalities and key institutional entities;
- Addressing storm surge on Long Island in a regional context;
- Hardening key utility and transportation infrastructure to reduce future vulnerability; and
- Ensuring continued operation of the Bergen Point Wastewater Treatment Plant.

NYRCR Program: A Community-Driven Process

The NYRCR Village of Babylon/West Babylon Planning Committee developed the following Vision Statement to guide the entire planning process and ensure that the recommended actions – included in the NYRCR Babylon/West Babylon Plan – address the critical issues they identified:



Shoreline along the Great South Bay

(Photo Credit: Consultant Team)



Waterfront commercial and recreational facilities

(Photo Credit: Consultant Team)



The residents of Babylon Village, West Babylon, and Venetian Shores are committed to developing stronger, more resilient communities by implementing innovative infrastructure projects, land use policies, “green” technology, and emergency management procedures to better prepare for natural disasters and to preserve the region’s historic and nautical character and quality of life. We will accomplish those goals through sustained economic investment, improved communication, and strong educational outreach, which will provide an ongoing example of what can be achieved when communities come together with a common purpose.

All strategies and projects identified were measured against the Vision Statement to ensure that recommended actions would not detract from the community achieving its desired goals.

The Public Engagement Process did not end with the development of the Vision Statement. In keeping with Governor Cuomo’s emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the Community, its needs, and strengths in good times and bad. As of March 26, 2014, ten Committee meetings have been held. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr).

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making that informed the development of this Plan. Engagement activities included several in-person and web-based opportunities for participation:

- The Consultant Team hosted three open-house style events during the development of the plan and will host a fourth to present this final document;
- Residents were encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects in conjunction with Public Engagement Event 3;
- Younger members of the community were invited to participate in a web-based “Next Generation” survey to gather feedback on proposed projects that would likely affect their futures in the Community;



Venetian Shores Park

(Photo Credit: Consultant Team)



**Neighbors Supporting Neighbors
Community Event**

(Photo Credit: Theresa DiPietto-Roesler & Kim Skillen)



Village of Babylon/West Babylon NY Rising Community Reconstruction Plan

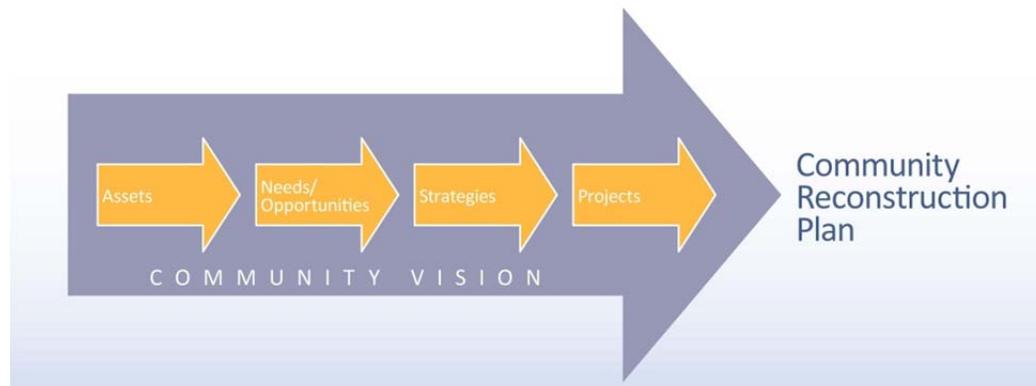
- The NYRCR Village of Babylon/West Babylon Community website (<http://stormrecovery.ny.gov/nycrcr/community/village-babylon-and-west-babylon>) served as a repository for downloadable versions of all public information and event notifications. The website includes an area to accept public comment;
- Planning information was disseminated through local print media to keep the Community informed and to respond to media inquiries;
- E-mail comments and requests for information could be sent to the State’s e-mail address at: info@stormrecovery.ny.gov; and
- Comment forms were available at Committee meetings and public engagement events and on the State’s website to provide an opportunity for the public to contribute their feedback, which were then passed along to the Committee.



Village of Babylon Municipal Dock

(Photo Credit: Consultant Team)

NYRCR Final Plan: A Blueprint for Resiliency



An asset risk assessment was conducted for the Community to identify those resources, both built and natural, which are critical to the safety, resiliency, and character of the Community and establish the potential for future damage to the assets (risk). Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. For every need or opportunity, potential strategies were generated for each resiliency issue.

Projects are the path to executing the strategies and meeting the Community’s need for resiliency. Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. Proposed Projects are projects that are under consideration for funding with the committed value of up to nearly \$10.2 million. It is important to note that there is no priority order or ranking of projects aside from the project tier, which is derived solely from the requirements of the Community Development Block Grant – Disaster Recovery (CDBG-DR) program established by the Federal government. The following table presents all Proposed Projects by Strategy:



Village of Babylon/West Babylon NY Rising Community Reconstruction Plan

NYRCR Village of Babylon/West Babylon Resiliency Projects		
Strategy	Project Name	Project Category
Strengthen And Harden Electrical Infrastructure To Protect Key Assets Within The Downtown Village Commercial District	Microgrid Engineering Feasibility Study	Proposed
Adequately Equip Municipalities and First Responders for Natural Disasters	Village of Babylon Emergency Response and Rescue Equipment and Fixed Generators	Proposed
	Village of Babylon Department of Public Works Fixed Generator	Proposed
	West Babylon Fire Department Emergency Response and Rescue Equipment	Proposed
	Town of Babylon Division of Fire Prevention Emergency Response and Rescue Equipment	Proposed
	Cedar Street Property Acquisition and Construction of Emergency Equipment Garage – Babylon Fire Department	Proposed
	West Babylon Fire Department EMS Facility	Proposed
Integrate “Green” and “Gray” Infrastructure to Holistically Manage Water Flow within the Local Watershed	Carlls River Tributary / Watershed Project (Phase I)	Proposed
	Town-wide and Village-wide Coastal Outfall Backflow Infrastructure	Proposed
Repair and Enhance Critical Shoreline Infrastructure	Araca Road (Dalton Point) Shoreline Stabilization	Proposed
	Little East Neck Road Shoreline Stabilization	Proposed
	Venetian Shores Park Shoreline Engineering Study and Pilot Constructed Dune Project	Proposed
Create Hamlet Identity for West Babylon	West Babylon Hamlet Open Space Acquisition/Stormwater Engineering Study and Pilot Green Infrastructure Project	Proposed
Strengthen Community Resiliency through the Implementation of Innovative Infrastructure Improvements	Complete Streets Engineering Study and Pilot Green Infrastructure Project	Proposed
Improve the Reliability of Communication Systems for Natural Disasters	Babylon Central Alarm – Upgrade to Communications Infrastructure	Proposed



VILLAGE OF **BAYVILLE**



NY RISING COMMUNITY RECONSTRUCTION PLAN

March 2014

NY Rising Community
Reconstruction Program

Executive Summary

The NY Rising Community Reconstruction (NYRCR) Program was established to provide rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. A Planning Committee of local residents and community leaders from the Village of Bayville (Community) was established to create this NYRCR Plan to build a better and stronger Village of Bayville. The NYRCR Plan is based on local knowledge and needs that incorporated suggestions from the broader community. New York State (NYS) has allocated up to \$3.0 million dollars to NYRCR Village of Bayville to support the advancement of resiliency and recovery projects or programs. The NYRCR Plan has established the reconstruction and resiliency goals of the Community and has identified Community-specific projects, plans, and studies that would help to achieve a more resilient Village of Bayville.

Community Overview

The Village of Bayville is situated between the Long Island Sound and Oyster Bay on the north shore of Long Island, New York. The Village is within the Town of Oyster Bay. Natural assets within the Village provide aesthetic value, environmental services, and recreational opportunities such as swimming, boating, and bird watching. These environmental assets and the Village's secure location contribute to the high quality of life and unique identity of the Village.

Surrounding waterbodies constrain access to the Village of Bayville. There are only two points of overland access: Bayville Road and West Shore Road via the Bayville Bridge. Both routes are located in the Federal Emergency Management Agency (FEMA) designated 100-year floodplain. These two routes often become impassable during extreme weather

events, leaving the community isolated from necessary services.

The residents of the Village of Bayville are working together to build back better by identifying and implementing hazard mitigation actions that will reduce flood risk, increase resiliency, and improve the overall community. This will be achieved through a strategic combination of actions, including construction of "soft" and "hard" flood protective measures, preservation of natural flood management systems, encouragement of new and existing economic development, development of community programs in collaboration with Nassau County, and continuation of the Village's success with water quality improvement.

Geographic Scope of NYRCR Plan

The geographic scope of the Village of Bayville's NYRCR Plan is coterminous with the Village's municipal boundary. The Village is bordered by Long Island Sound to the North, Oyster Bay and Mill Creek to the South, by the Village of Centre Island to the east, and by the Village of Locust Valley to the west. The geographic scope considers important assets outside of the boundary when they relate to the Village's ability to recover from flood events, e.g., the Bayville Bridge and Locust Valley High School, which is the nearest American Red Cross-designated shelter.

Description of Storm Damage

The Village faces significant flood threats due to its location encompassed by the Long Island Sound, Oyster Bay, and Mill Neck Creek. Past storms demonstrate these risks, as seen by the abnormally high tides and winds associated with nor'easters in 1992 and 1993 that flooded roads and led to power outages in the Village.

During and following astronomical high tides and storm events, including August 2011's Hurricane Irene and October 2012's Superstorm Sandy, elevated water levels in the Long Island Sound, Oyster Bay, and Mill Creek flood the Village of Bayville in the following patterns:

- ▶ The Long Island Sound waves and surge cross over the beach and into streets such as Pine Lane. The surge flows down these streets into adjacent, low lying neighborhoods, where flood waters are unable to drain.
- ▶ The Long Island Sound surges into Oyster Bay, which backs up into Mill Neck Creek and floods neighborhoods along Shore Road.
- ▶ Overflow from Mill Neck Creek floods homes and businesses within a several block span of the Presidents Streets neighborhood and extends south to Bayville Avenue.

Historically, this flooding has resulted in difficult road travel and, in some areas, roads become impassable due to standing water. The two access roads to the Village may be closed, and damage to the lift bridge on West Shore Road sometimes results in long-term closure of one of the access routes. Following Hurricane Irene, Bayville Avenue was inundated with approximately three-feet of water, and residents traveled using row boats, kayaks, and surf boards. Pine Lane residents used buckets to bail out yards and homes that were flooded with approximately one-foot of water.

During Superstorm Sandy, high winds and an astronomical high tide combined with an 11-foot storm surge to inundate Ransom/Stehli Beach in the Village's west end. Superstorm Sandy also flooded the Village's entire low-lying east end. Flooding of the east end necessitated the emergency shut-down of the natural gas service in this area. Many businesses were closed. The inundation of Bayville Avenue made the road impassable and resulted in stalled vehicles, thus blocking access when emergency personnel and utility trucks converged.

Bayville Avenue flooding prevented travel for all types of vehicles and flooded the basement of the Village's only Firehouse. The Bayville Bridge connecting the Village of Bayville and Centre Island to the Town of Oyster Bay via West Shore Road and Ludlam Avenue was disabled in an open position when it was submerged by Superstorm Sandy's floodwaters, rendering its electrical equipment inoperable. As a result this access route was closed from the day of the storm, October 29, 2012, until the bridge was restored on April 17, 2013. With only one vehicular access route remaining for the Village after Superstorm Sandy, recovery was slowed, public safety compromised, and the local economy suffered.

West Shore Road leading to the Bayville Bridge was also impassable due to inundation. Approximately 300 homes were directly affected by Superstorm Sandy. Loss of electrical power, compromised phone service, and street flooding – combined with 10-day (average) regional gas and power outages – caused a lack of heat, electricity, and potable water, and halted the provision of emergency services, supplies, and communication in the Village during and after the storm. These conditions created public health and safety hazards for residents, including socially vulnerable populations, e.g., Jones Manor Senior Housing, and first responders. As severe as these affects were, the Village recognizes that winds from Superstorm Sandy reversed direction as the storm passed out of the region, blowing water out of Oyster Bay and preventing what could have become an even worse catastrophe. It is essential to improve storm resilience to minimize these storm effects.

Critical Issues

The Critical Issues facing the Village of the Bayville as a result of these storm threats include: reducing impacts to residents, critical facilities and the natural environment from extreme weather events; enhancing economic stability; maintaining the quality of surrounding waterways; and preserving community character. Maintaining accessibility to emergency services, e.g., police, fire, EMT, hospital, supplies, and

communication before, during, and after extreme weather events is a critical issue, too.

In addition to securing the two main access routes, Bayville Road and Ludlam Avenue/Bayville Bridge/West Shore Road, many local streets in the Village's west and east ends routinely flood during extreme weather events. Low lying neighborhoods are difficult to drain, resulting in ponding water. These conditions create public health and safety hazards by halting the distribution of emergency services and supplies, as well as impairing communication, within the Village.

The Village's firehouse and ambulance are located on Bayville Avenue, an avenue which is routinely flooded during and following extreme weather events. Emergency fire and medical service vehicles are unable to travel on the flooded avenue, disrupting these important services to residents. Although the Village's housing stock and business base were not permanently diminished as a result of Hurricane Irene or Superstorm Sandy, a significant number of homes and businesses were damaged by flood waters.

Community-Driven Process

Community Vision

In order to guide development of this plan a Community Vision, incorporating input from both the Planning Committee and the local community, was created and is as follows:

“The Village of Bayville is a unique community focused on building back better by protecting our assets and natural environment from extreme weather events and natural disasters. Our goals are to enhance economic stability, maintain and improve our water quality, preserve community character, and maintain access to emergency services.”

The Committee established the following goals for the NYRCR Plan to realize this vision:

1. Enhance economic stability – ensure the retention of existing business and encourage economic development.
2. Maintain and improve water quality – improve stormwater management and collaborate with the County regarding comprehensive drainage improvements.
3. Preserve community character – reduce threats from future storm and sea level rise to protect the community and natural resources.
4. Maintain access to emergency services – secure access to the Village's two ingress/egress routes and local roads within the Village's west and east.

Summary of Public Outreach

Public engagement was a critical component in developing the NYRCR Plan. To encourage public involvement, the Planning Committee utilized social media, direct e-mailing via the Village's "eBlast" system, postings to the Village's webpage, and flyers posted in Village storefronts and public venues. In addition, notices of Planning Committee meetings, Public Engagement Events and the availability of October 2013's preliminary NYRCR Village of Bayville Conceptual Plan were posted on the NYRCR webpage. Residents could also submit comments using the "Get Involved" button on the NYRCR webpage.

Three Public Engagement Events were held at strategic points in the planning process. The purpose of the events was to inform the public of the Committee's work to date and to elicit contributions to the NYRCR Plan. Public input received at the Public Engagement Events is reflected in the NYRCR Plan, ensuring that the public's voice remains a permanent and important part of the planning process.

Final Plan as Blueprint for Implementation

A risk assessment was conducted to help identify the community assets most at risk of damage from flooding and to test the risk reduction potential of proposed management measures. The risk assessment method utilized an inventory of community assets, maps identifying flood-prone areas, and a qualitative assessment of site factors and asset vulnerabilities to generate overall risk scores. The risk assessment process first derived risk scores for community assets without application of potential risk management measures. A second risk evaluation was then performed, assuming the proposed hazard mitigation and resiliency projects (or combinations of projects) would be implemented. The difference in risk scores for the community assets, between the current condition and the “with project” condition, represents a risk reduction benefit that was a contributing factor in identifying the recommendations in the NYRCR Plan.

Needs and opportunities for Bayville were identified, with respect to flood resilience and other community critical issues, based on the local knowledge of the Planning Committee, input from the community, and data on the damages caused by Superstorm Sandy and Hurricane Irene.

To improve the resilience of the Village of Bayville, it is essential to better understand: ongoing risks; lost economic activity and investment potential due to storm damage; options for rebuilding or expanding the local economy; and opportunities to make existing assets more resilient. Development of the NYRCR Plan included a review and coordination with hazard mitigation initiatives already completed or underway in the Village of Bayville.

The Planning Committee, with input received from the community, identified several strategies to both reconstruct Bayville following recent storm-related disaster events and to increase the Village’s resilience

to future storms and climate change. Strategies at the core of Bayville’s resilience plan involve securing and strengthening this 1.5-square-mile community against future storms and extreme climate events.

Because Bayville is largely built-out (i.e., not much undeveloped land remains in the Village) the reconstruction and resilience strategies focus on improving the security of community operations and daily activities in the face of climate-related disruptions, quicker recovery from storm events, and better protection for existing development. Based on review of risks and evaluation of needs and opportunities, four strategies were identified to help achieve the Community Vision. These strategies are:

- ▶ Enhance economic stability;
- ▶ Maintain surface and groundwater quality;
- ▶ Protect residents, assets and natural environment from extreme weather; and
- ▶ Maintain accessibility to emergency services.

The NYRCR Plan identifies actions (e.g., projects, programs and studies) that will help the Village of Bayville execute these strategies. These actions are grouped into three distinct categories: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations, which are defined as follows:

- ▶ **Proposed Projects** – proposed for funding through a community’s allocation of CDBG-DR funding.
- ▶ **Featured Projects** – innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding, and regulatory reforms and other programs that do not involve capital expenditures.
- ▶ **Additional Resiliency Recommendations** – resiliency projects and actions that the Committee would like to highlight and are not categorized as Proposed or Featured projects.

The Proposed and Featured Projects below address the critical issues facing the Village of the Bayville as a result of extreme weather events. The order in which the projects are presented does not indicate ranking or priority.

The projects listed here comprise the results of the combined efforts of the NYRCR Village of Bayville

Planning Committee and contributions from the broader community. Implementation of these recommended actions will result in significant resilience improvements and better overall community health. Further information on the planning process and development of these recommendations can be found in the NYRCR Village of Bayville Plan.

Table ES-1 NYRCR Village of Bayville Proposed and Featured Projects

Strategy	Project Name	Short Project Description	Project Category
<ul style="list-style-type: none"> ▶ Maintain water quality, ▶ Maintain accessibility to emergency services 	Pump Stations	Construct a Pump Station(s) to increase resiliency through mitigating the flooding of roads, homes, and businesses in the Village's east end by controlling stormwater flow.	Proposed
<ul style="list-style-type: none"> ▶ Maintain water quality, ▶ Maintain accessibility to emergency services 	Mobile Water Pump	An engineering study to determine the optimal number(s) and size(s) of mobile pump(s) needed to restore accessibility to the Village road network and critical services after extreme storm events.	Featured
<ul style="list-style-type: none"> ▶ Maintain water quality, ▶ Maintain accessibility to emergency services 	Comprehensive Drainage System Improvements	An engineering study to assess the Village's existing stormwater drainage system and identify areas of improvement in coordination with the County.	Featured
<ul style="list-style-type: none"> ▶ Maintain accessibility to emergency services 	Bayville Bridge Equipment Protection	The mechanical and electrical equipment of Bayville Bridge, which is a draw bridge; Nassau County has applied for this project to be funded through the Federal Highway Administration (FHWA).	Featured
<ul style="list-style-type: none"> ▶ Protect residents, assets and natural environment from extreme weather events 	Pine Lane Barrier	Construct a barrier on Pine Lane, adjacent to Long Island Sound, to prevent tidal surge from flooding streets, homes and businesses in this area of the Village's east end.	Proposed
<ul style="list-style-type: none"> ▶ Protect residents, assets and natural environment from extreme weather events 	North Shore Dune Replenishment	Replenish, stabilize and construct dunes along the north shore of the Village's east end, adjacent to Long Island Sound, from the vicinity of intersection of Valley Rd/Bayville Ave east to Centre Island Sound Beach/ Centre Island Road to prevent tidal surge from flooding streets, homes and businesses.	Proposed
<ul style="list-style-type: none"> ▶ Protect residents, assets and natural environment from extreme weather events, ▶ Maintain accessibility to emergency service 	Egress Study	Conduct a study in collaboration with Nassau County to identify measures to maintain accessibility of the Village's two ingress/egress routes during and following extreme weather events.	Proposed
<ul style="list-style-type: none"> ▶ Protect residents, assets and natural environment from extreme weather events 	Citizens Auxiliary Group	Organize/formalize a group of residents that would be trained to serve to perform activities that would augment the County's existing Community Emergency Response Team (CERT).	Proposed
<ul style="list-style-type: none"> ▶ Protect residents, assets and natural environment from extreme weather events 	Public Education/ Outreach	Develop and distribute Public Education materials that contain flood preparation and evacuation information specific to students, business and socially vulnerable populations in the Village of Bayville.	Proposed
<ul style="list-style-type: none"> ▶ Protect residents, assets and natural environment from extreme weather events, ▶ Enhance economic stability 	Code Modifications	Identify improvements to the Village's Code that would include stormwater management requirements and incorporate increased resiliency measures and reduce flood damage to businesses and residences.	Featured



Executive Summary

The Village of Lindenhurst (the Village) is located along the South Shore of Suffolk County, Long Island, New York. The Village, which lies within the Town of Babylon, is bounded by Copiague to the west and West Babylon to the east. North Lindenhurst lies to the north with North Amityville to the northwest. The Village fronts the Great South Bay and features an extensive waterfront and canal system. As a result of its proximity to the water, the Village is characterized by single family residences and water-dependent uses exemplified by a concentration of marina and marine industry support services, especially south of Montauk Highway. The Village's homes, businesses, and infrastructure suffered significant damage as a result of Superstorm Sandy.

As part of the ongoing recovery from Superstorm Sandy, the Village of Lindenhurst's NY Rising Community Reconstruction Program (NYRCR) Committee (Committee) took on the responsibility of developing a plan that laid the groundwork for the Village's resilient future. The composition of the Committee included a cross-section of the Village population including municipal representatives, local residents, and members of local businesses and community organizations. The Village of Lindenhurst's NYRCR Committee Co-Chairs were selected by the State in consultation with the Village. With the entire Village involved, and with the help of New York State, the Committee has produced a pragmatic recovery and resiliency plan.

Overview

NY Rising Community Reconstruction (NYRCR) Village of Lindenhurst (Community) is one of eight NYRCR Communities identified within Suffolk County. The geographic scope of NYRCR Village of Lindenhurst corresponds to the Village of Lindenhurst's incorporated boundaries. A total of up to \$6.1 million has been allocated for resiliency projects within this Community.

The Village of Lindenhurst is a neat and tidy community. The residents and businesses here take pride in what they and their neighbors have worked so hard to create. Many of the residents have grown up in this Village and have chosen to remain here. Others have made the



The Village of Lindenhurst NYRCR boundaries correspond to the Village Boundaries.



Village of Lindenhurst NY Rising Community Reconstruction Plan

conscious decision to move here because of what the Village has to offer.

On October 29, 2012, sweeping out of the darkened skies with unexpected speed and savagery, Superstorm Sandy put every bit of the Community's toughness and caring to the test. Swollen by surging tides, miles of silt-filled canals swirled higher than anyone alive had ever seen, far beyond their banks and bulkheads into neighborhoods once thought immune from flooding. The storm drainage system, overmatched during "normal" hard rains, poured water into streets that now roiled like oily, debris-choked rivers. Most of the 1,600 homes south of Montauk Highway were swamped with up to five feet of water. Short circuits set gas-fueled fires that burned through a night of wailing sirens and flashing lights. Boats and debris battered bulkheads, docks and other structures were tossed on land, further damaging homes and property along the Bay and the canals.

While the residential neighborhoods south of Montauk Highway were hit hard, areas north of the Highway also experienced flooding from the local canals and creeks. The homes along and in the vicinity of Beacon Avenue experienced flooding from two fronts - Neguntatogue Creek, which runs through the backyards of many of these homes, and flooding from nearby canals that feed into the Great South Bay. Electrical power went down – and would stay down in significant parts of the Village for nearly two weeks. Communications systems failed due to wind damage and water inundation.

Groups sprang up in Lindenhurst almost literally out of the water, its leaders expecting to pitch in with food, water and clothing distribution for a few days. Their mantra was, **"What can we do, what can we do?"** Realtors helped each other identify the few available rentals and persuaded landlords to rent them out for less than the usual one-year minimum. Private bus and cab operators helped ferry people to relief centers and work. Restaurants served up food gratis. But the needs were so great – matched only by the donations of supplies pouring in – that a table with hot food and coffee became one of the most celebrated relief efforts on Long Island.

It was called Camp Bulldog, aptly named for this tenacious Village. Catering to homeowners without power who had their hands full mucking and tearing out their sodden houses before mold set in, Camp Bulldog stayed in operation for six months. It met a lot of needs with an increasing array of goods and services – and reliable information, something often in short supply – that eventually filled the parking lot of a park.

"We talked about fighting fires in floods, we had the tools, we practiced it. But we'd think, 'no way we'll ever have to do it.' And then we're up to our chests in five feet of water, in the dark, trying to keep a house from exploding and spreading to the next house. You know how to do it but you don't believe you're actually doing it."

-- David Collins, NYRCR
Committee Co-Chair and
Volunteer Firefighter

"The sights, sounds, and smells will stay with us for a long time. Boats flipped upside down, halfway in the road, half hanging over the canal; the endless pyramids of ruined furniture in front of house after house, a mooring buoy from the bay on a front lawn that was blocks from the water; and a child's mangled stuffed animal lying in the gutter of a deserted street."

-- Peter Verdon,
New York State
United Teachers Volunteer



Village of Lindenhurst NY Rising Community Reconstruction Plan

These documented effects, combined with the first-hand experiences shared by the Committee and residents at multiple well-attended public engagement events led to the identification of several critical issues facing the Village related to its recovery from Superstorm Sandy as well as future resiliency needs. These issues are indicative of the severe damage that the Village of Lindenhurst has suffered during Superstorm Sandy as well as the reoccurring flooding that happens on a regular basis. These issues also served to define needs, opportunities, strategies, and eventually projects that would help make the Community more resilient and sustainable. Critical issues include:

- **Reoccurring and frequent flooding in areas south of Montauk Highway** due to backflow through the damaged storm drainage system.
- **Significant amounts of debris and silt from Superstorm Sandy remain in the canals and along the bayfront** causing a hazard to navigation and blocking storm drainage outlets.
- **Critical rescue and life-safety equipment within the Village needs to be upgraded in preparation for future emergency response efforts.**
- **The Village's downtown area along South Wellwood Avenue and Hoffman Avenue has a high vacancy rate and a number of key underutilized land parcels.** The Village has had limited success in maintaining the economic vitality of its downtown core. An economic re-development initiative would add to the Community's overall resiliency by providing a diversity of land use, and housing choices for the entire Community, especially those who may choose to relocate from bayfront areas. Address these issues will help the local economy become more resistant to fluctuations of a future storm or emergency event.
- **Streams and creeks have become clogged with downed trees and other Sandy-related debris and heavily silted, limiting their stormwater drainage and retention functions and degrading water quality.**
- **The need to improve local communications** before, during and after a severe storm event is seen as a wise preemptive action that could significantly improve the resiliency of the community.
- **Shoreline features that reduce wave action and limit flooding are no longer adequate** given the damage sustained during Superstorm Sandy, sea level rise, and the more frequent and severe nature of recent storms. These shoreline features include bulkheading, and in limited instances, natural shore edges and landforms.



Grassroots rescue efforts were common in the days following Superstorm Sandy.

“They provided fellowship, a place for people to be close to each other and share their experiences. Camp Bulldog saved us in so many ways.”

-- Mary Ellen Cunningham,
NYRCR Committee Member



Village of Lindenhurst NY Rising Community Reconstruction Plan

- **Numerous properties south of Montauk Highway remain vacant** as a result of Superstorm Sandy, fragmenting neighborhoods and causing blight on the Community.

NYRCR Program: A Community-Driven Process

The Village's goal is **"building back better."** The Committee took on the responsibility of developing a plan that laid the groundwork for planning and building a more resilient future. In many ways, this plan is an extension of the grassroots volunteerism at Camp Bulldog and throughout the Village in the days immediately after the storm. During many Committee and subcommittee meetings as well as Public Engagement Events, Committee members and the public drew on their own experiences and on input from their neighbors to identify projects and policies. Based on this feedback and input the Committee began the process of formulating a future vision of a resilient Village

The Committee spent significant time and effort in developing a vision for their community's resilient future. This vision was based on establishing a series of goals that could act as targets or waypoints for the community on its journey towards resiliency. This final vision was informed by public input from community members. The Community Vision Statement represents a consensus assessment of the direction this Community wishes to move towards.

All strategies and projects identified were measured against the Community's Vision Statement to ensure that recommended actions would not detract from the community achieving its desired goals.

Public Engagement Process

In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths in good times and bad. Eleven Committee meetings have been held as of March 15, 2014. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr). Comment forms were available at Committee meetings and public engagement events and on the State's website to provide an opportunity for the public to contribute their feedback, which were then passed along to the Committee.

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the

VISION STATEMENT

The Village of Lindenhurst is a close-knit and caring community of hard-working neighbors and families who seek to protect their homes, schools, businesses, parks and waterfront resources from storms, flooding and other natural and man-made disasters. We are a coastal community and seek to improve public access to the waterfront while utilizing built and natural features to reduce flooding. We seek to encourage economic development opportunities at the waterfront as well as in our downtown. We will actively support and pursue improvements and policies that address our immediate recovery needs as well as long-term needs that lessen storm damage and improve our resiliency over time. We are strong survivors and our community will endure, prosper and be safer for all!



Tanner Park, evening of Public Engagement Event Number 2.



Village of Lindenhurst NY Rising Community Reconstruction Plan

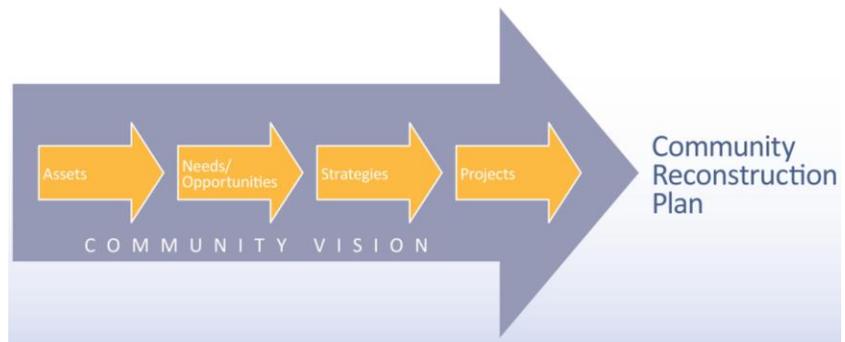
Committee and incorporated into the decision-making process that informed the development of this Plan. Three well-attended, open-house style events were held during the development of the plan and a fourth will present this final document. Across the eight NYRCR Communities in Suffolk County, thousands of participants attended Committee meetings and Public Engagement events. Additionally, the public was encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects in conjunction with Public Engagement Event 3.

Special efforts were taken to reach out to younger members of the community. They were invited to participate in a web-based “Next Generation” survey to gather feedback on Proposed Projects that would likely affect their futures in the Community.

NYRCR Final Plan: A Blueprint for Resiliency

An asset inventory was conducted for the Village to identify assets, both built and natural, which are critical to the safety, resiliency, and character of the Village. The identified assets were evaluated in detail to understand their level of risk, or potential for damage, to future storm events. Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. For every need or opportunity, potential strategies were generated for each resiliency issue. The list of strategies spanned an array of methodologies and timeframes, from preparedness to retrofits, from immediate procedural improvements to long-range capital investment programs.

Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. Proposed Projects are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding. Two of the Proposed Projects identified by the Committee involve repairs and resiliency improvements to the existing stormwater drainage system south of Montauk Highway. These projects will repair Superstorm Sandy-related damage and diminish recurring, frequent flooding. There are no Featured Projects for the Village. Over the course of the planning process, the Committee considered a number of additional projects and ultimately decided to include these as Additional Resiliency



Community Reconstruction Planning Process



Damaged storm drains are frequently a source of localized flooding.



Village of Lindenhurst NY Rising Community Reconstruction Plan

Recommendations. Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects. It is important to note that there is no priority order or ranking of projects aside from the project tier.

The following table presents the 12 Proposed Projects by Strategy that were identified by the NYRCR Village of Lindenhurst Planning Committee:

Table ES- 1: NYRCR Village of Lindenhurst Resiliency Projects

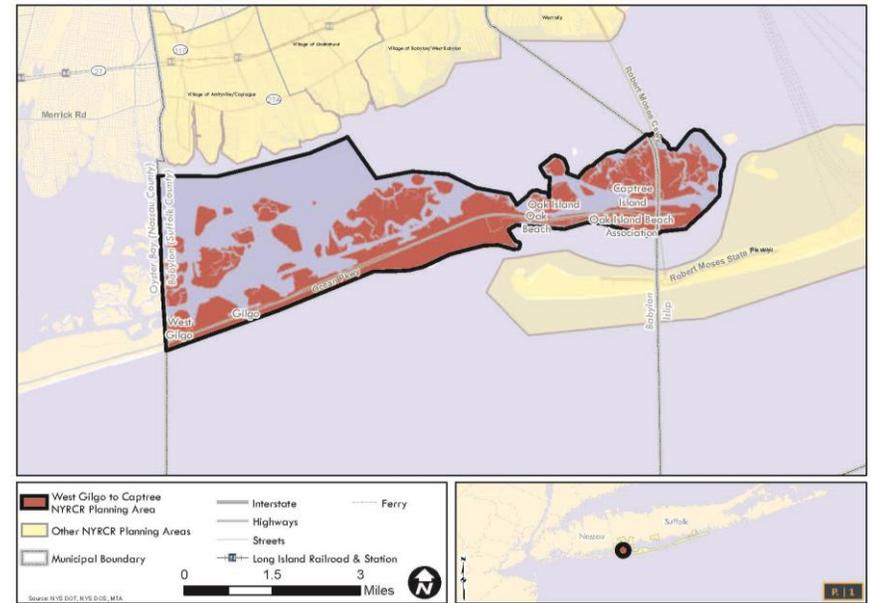
Strategy	Project Name	Project Category
Increase Emergency Preparedness through Public Awareness and Enhanced Communications Systems	Emergency Action and Preparedness Plan/ Lindenhurst Community Center Retrofit	Proposed
	Integrated Web-based, Communication and Emergency Cellphone Infrastructure Improvements	Proposed
Integrate “Green” and “Gray” Infrastructure to Holistically Manage Stormwater	Bower School Property Adaptive Re-Use Study and Acquisition	Proposed
	Shore Road Waterfront Park Natural Systems Resiliency Improvements and Preliminary Plan for Acquisition of Adjoining Properties	Proposed
	Neguntatogue Park (Lincoln Park) Natural Systems Resiliency Improvements/Creek Habitat Walk	Proposed
	Comprehensive Drainage Infrastructure Master Plan and Phase I Repairs	Proposed
	Lindenhurst Village South Storm Water Drainage System Phase II Improvements	Proposed
Improve Economic Resiliency	Village of Lindenhurst Economic Development and Action Plan	Proposed
	Regional Canal Dredging Program	Proposed
Improve Emergency Preparedness by Adequately Equipping First Responders	Emergency Equipment Purchases: High Water Evacuation Vehicle and Search & Rescue Watercraft	Proposed
Improve and Ensure Access to Residential Properties	Ground Fill/Fill Recycling Program	Proposed
Alleviate Public Safety Hazards Through Planned Tree Management	Tree Census and Resilient Planting Management Plan	Proposed



Executive Summary

The NY Rising Community Reconstruction (NYRCR) West Gilgo to Captree Community (Community) encompasses six distinct barrier beach communities: West Gilgo, Gilgo, Oak Beach, Oak Island, Oak Island Beach Association, and Captree Island. All of the communities are located on Jones Beach Island, with the exceptions of Oak Island and Captree Island, which lie just north of Oak Beach in the Great South Bay. All of the communities are located in the Town of Babylon, except for the eastern portion of Captree Island, which lies in the Town of Islip.

As part of the ongoing recovery from Superstorm Sandy, the NYRCR West Gilgo to Captree Committee (Committee) took on the responsibility of developing a plan that laid the groundwork for the barrier island Community's resilient future. The Committee was comprised of a cross-section of the Community including local residents, leaders of local community organizations, and municipal representatives. The Committee's Chair was selected by the State in consultation with the Community. With members of all six barrier island communities involved, and with the help of New York State, the Committee has produced a pragmatic recovery and resiliency plan.



Geographic scope of NYRCR West Gilgo to Captree planning area.
(Map Source: Jacobs)

Overview

The NYRCR West Gilgo to Captree Community is one of eight NYRCR Communities identified within Suffolk County. The name "West Gilgo to Captree" succinctly describes the geographic scope of the NYRCR Community from the westernmost community, West Gilgo, to the easternmost community, Captree Island. The six communities are spread out along 10 miles of barrier island coastline and on three separate islands. The communities fall within two different Towns—Islip and Babylon—and two different U.S. Census Designated Places (CDPs). Combined, the two CDPs are comprised of 417 residents in 7.8 square miles. (Census figures presumably reflect year-round residents.) Up to \$3 million has been allocated for resiliency projects within this Community.



West Gilgo to Captree NY Rising Community Reconstruction Plan

NYRCR West Gilgo to Captree is a natural and scenic refuge and a vibrant, rural seaside community barely one mile as the crow (or seagull) flies from some of the nation's most populated South Shore communities. Yet, the barrier beaches—and the unique way of life this coastal environment engenders—are a world apart.

On October 29, 2012, sweeping out of the darkened skies with unexpected speed and savagery, Superstorm Sandy put the barrier island's protective landscape of beaches, dunes, and wetlands to the test. Superstorm Sandy spared the lives of the residents, but storm surge combined with wind and wave action caused widespread flooding and erosion of shoreline protections and damaged critical communication and sanitary infrastructure. Flooding, erosion, and upheaval of Oak Beach Road, Captree Road and the eastbound lanes of Ocean Parkway left these roads impassable until sediment removal and emergency repairs could be made. Residents were left feeling isolated and vulnerable to fires and other emergencies that may require rapid response from the mainland. Within the community of Gilgo, 52 of the 57 homes suffered major flooding. Microwave and cellular communication towers and equipment were damaged either by wind or flooding, disabling communication. Power was unavailable for more than 40 days in some areas, and, with the exception of West Gilgo, the lack of electricity meant lack of fresh water. (West Gilgo has its own municipal water system, but homes in other communities are connected to small water supply systems or individual wells with no backup power.)

Storm impacts devastated natural resources as well, but reassuringly, also highlighted nature's resiliency. The Town of Babylon estimated that the section of beach from West Gilgo east to Gilgo lost over 1 million cubic yards of beach material. The storm also weakened the dune system; one year after Superstorm Sandy, in October 2013, high winds from a coastal storm caused a football field-sized section of dunes in front of Gilgo Beach to collapse, leaving the Community even more exposed and susceptible in the midst of hurricane season. Even in the face of this destruction, Superstorm Sandy provided for some natural replenishment. The influx of fresh ocean water into the Great South Bay has led to improved water quality and a revival of the bay's ecology. The marshes of Captree Island, Oak Island, and across the northern shoreline of NYRCR West Gilgo to Captree provide a tremendous benefit to the barrier islands and mainland Long Island by slowing down and absorbing wave energy and reducing flooding.



A home lifted up and moved off of its pilings as a result of Superstorm Sandy's storm surge.
(Photo Credit: NYRCR Committee)



A beach tunnel, regularly eight-feet in height, is nearly filled with sand after Superstorm Sandy.
(Photo Credit: NYRCR Committee)



West Gilgo to Captree NY Rising Community Reconstruction Plan

These documented effects, combined with the first-hand experiences shared by the Committee and residents at multiple well-attended public engagement events led to the identification of several critical issues facing the Community related to its recovery from Superstorm Sandy as well as future resiliency needs. These issues are indicative of the severe damage that the Community has suffered during Superstorm Sandy as well as the recurring flooding and resiliency issues that happen on a regular basis. These issues also served to define needs, opportunities, strategies, and eventually projects that would help make the Community more resilient and sustainable. Critical issues included:

- Commitment to conservation and rehabilitation of the natural barrier island landscape of dunes and beaches that protects inland Long Island, including the marshes of the Great South Bay;
- Evaluation and implementation of the best long-term means and methods of beach replenishment and dune restoration;
- Storm preparedness and communication of risk to all members of the barrier island communities;
- Hazard mitigation measures for utilities that are critical in the aftermath of an event—electricity, water, and communications;
- Improvements to fire mitigation and efficiency and access of fire response services, where current deficiencies pose risks following a disaster, as well as on a day-to-day basis; and
- Recognition of and attention to maintaining the unique character of the barrier island communities while making communities safer for years to come.

NY Rising: A Community-Driven Process

The Community's goal is "building back better." During many Committee meetings as well as Public Engagement Events, Committee members and the public drew on their own experiences and on input from their neighbors to formulate a future vision of a more resilient future on the barrier islands. The Community vision statement represents a consensus assessment of the direction towards which this Community wishes to move. The NYRCR Committee and residents together developed a vision statement that reflects the philosophy to be embraced in order to create a safe and resilient community 10-, 20-, and 50-years in the future. All strategies and projects identified were measured against the Community vision statement to ensure that recommended actions would not detract from the Community's ability to achieve its desired goals.



Residents enjoy Oak Beach Park on a sunny fall day. (Photo Credit: Jacobs)

COMMUNITY VISION STATEMENT:

Restore, preserve and protect the natural resources that serve to provide habitat to a biologically diverse coastal ecosystem as well as to fortify the barrier island shielding the south shore of Long Island against storms. The priority is to improve storm preparedness while striving to retain and protect the culture and assets that make the barrier beach communities unique and desirable to both residents and visitors.



West Gilgo to Captree NY Rising Community Reconstruction Plan

In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths in good times and bad. Ten Committee meetings were held as of March 15, 2014. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr). Comment forms were available at Committee meetings and public engagement events and on the State's website to provide an opportunity for the public to contribute their feedback, which was then passed along to the Committee.

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making process that informed the development of this NYRCR Plan. Three well-attended, open-house style events were held during the development of the plan and a fourth will present this final document. Across the eight NYRCR Communities in Suffolk County, thousands of participants attended Committee meetings and Public Engagement Events. Additionally, the public was encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects in conjunction with the third Public Engagement Event. Special efforts were also taken to reach out to younger members of the community. They were invited to participate in a web-based "Next Generation" survey to gather feedback on Proposed Projects that would likely affect their futures in the Community.

NYRCR Final Plan: A Blueprint for Resiliency

An asset inventory was conducted for the Community to identify assets, both built and natural, which are critical to the safety, resiliency, and character of the barrier islands. The identified assets were evaluated in detail to understand their level of risk or potential for damage to future storm events. Identification of risks to critical assets provided the framework within which resiliency strategies were developed. Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. For every need or opportunity, potential strategies were generated for each resiliency issue. The Committee revised and improved these strategies, and gradually defined their scopes into projects (see Figure ES-1). The list of projects spanned an array of methodologies and timeframes, from preparedness to retrofits, from immediate procedural improvements to long-range capital investment programs.



Oak Island Marina with Oak Island in the background. Oak Island is accessible only by boat. (Photo Credit: Jacobs)

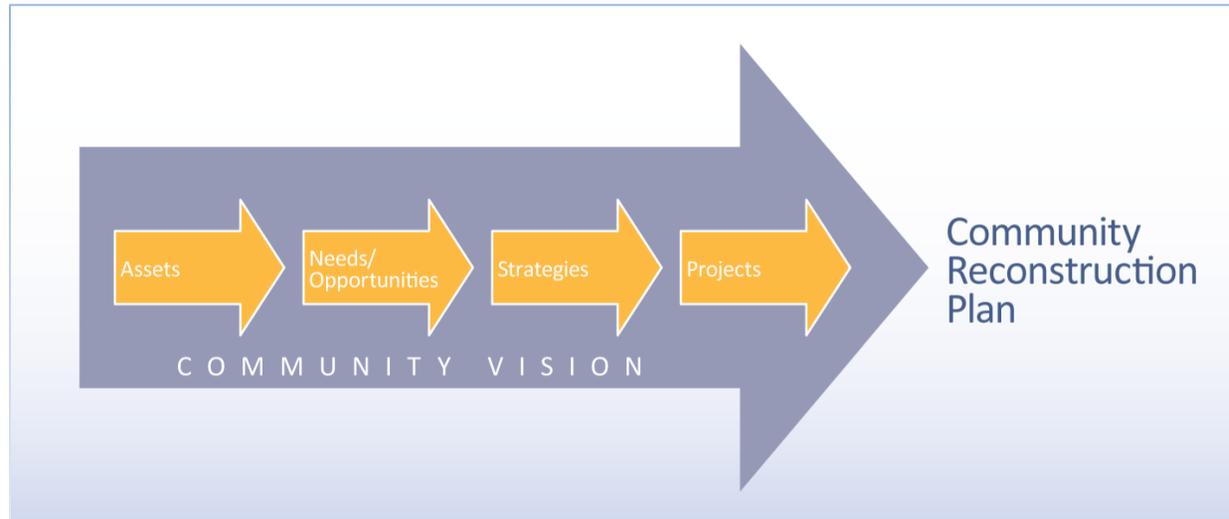
"The preeminent challenge is how to most effectively maintain the integrity of these barrier beaches."

—NYRCR West Gilgo to Captree
Committee Member



West Gilgo to Captree NY Rising Community Reconstruction Plan

Figure ES-1: What is a Community Reconstruction Plan?



Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. It is important to note that there is no priority order or ranking of projects aside from the project tier.

- *Proposed Projects* are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding.
- *Featured Projects* are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding.
- *Additional Resiliency Recommendations* are projects that the Committee would like to highlight, but which the Community will pursue independently or through other funding sources.



View from Captree State Park across Fire Island Inlet and the Robert Moses Causeway.
(Photo Credit: Jacobs)



West Gilgo to Captree NY Rising Community Reconstruction Plan

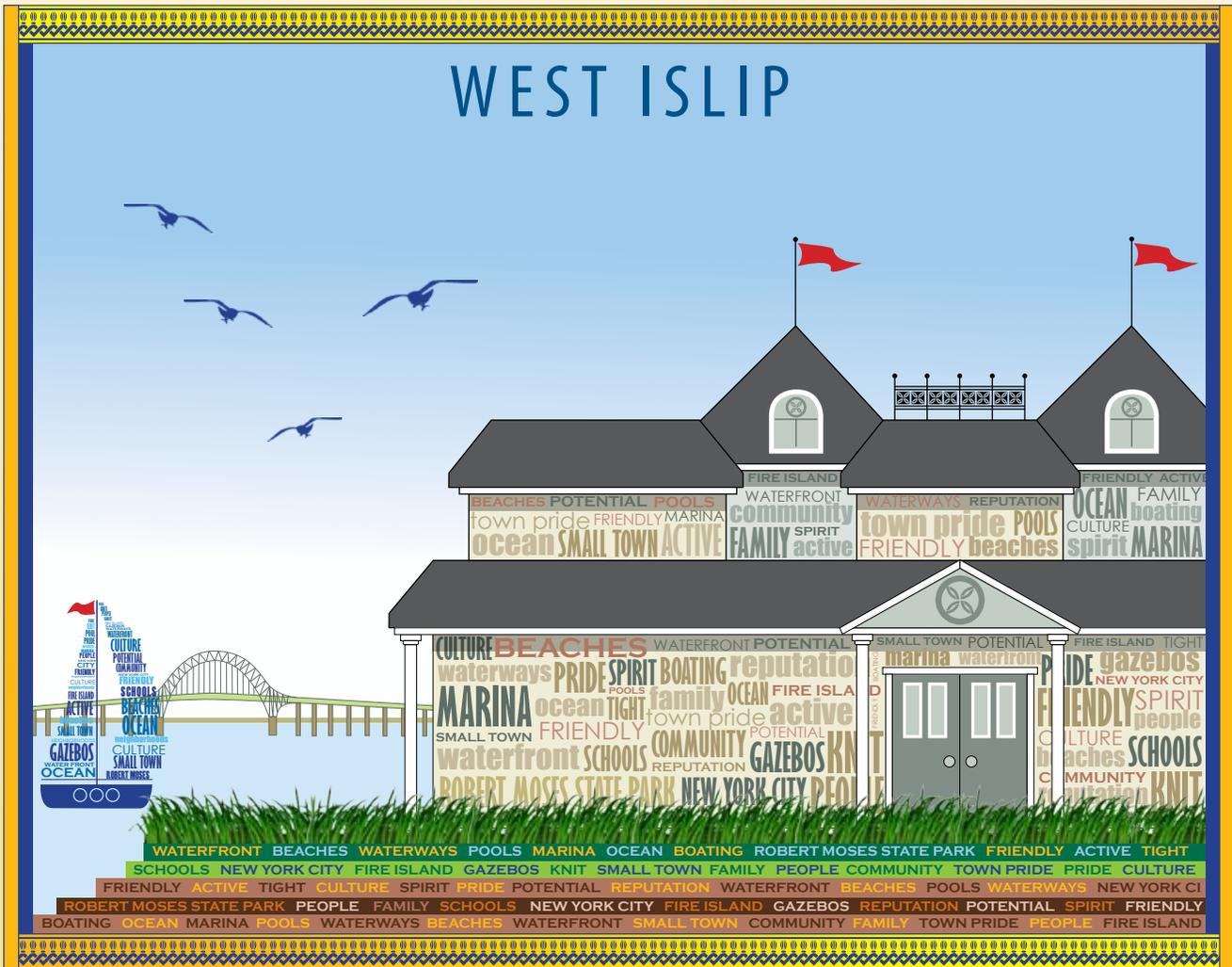
Table ES-1 below presents NYRCR West Gilgo to Captree’s Proposed and Featured Projects by strategy. In the months and years to follow, many of the projects and actions outlined in this NYRCR Plan will become a reality helping New York not only to rebuild, but also to build back better.

Table ES 1: NYRCR West Gilgo to Captree Proposed and Featured Projects		
Strategy	Project Name	Project Category
Improve communications and operations between various relevant entities during emergency management and evacuation/re-entry procedures.	Updates to Emergency Management Communications and Response Plan and Related Activities	Proposed
Mitigate power outages at key community facilities to increase resiliency.	Backup Power for Key Community Facilities	Proposed
Improve public safety services to reduce risk to residents.	Improvements to Fire Protection - Gilgo	Proposed
	Improvements to Potable Water and Fire Protection System - West Gilgo	Proposed
	Improvements to 911 GPS Data and Community Signage	Proposed
Protect shorelines to reduce flood risk and maintain evacuation routes.	Shoreline Stabilization - Oak Beach Phase I	Proposed
	Shoreline Stabilization - Captree Phase I	Proposed
Increase coastal protection through the restoration and enhancement of natural protective systems including dunes, beaches, and wetlands.	Enhancement of Wetlands	Proposed
	Strengthening of Dunes Feasibility Assessment	Proposed
	Strengthening of Dunes - Pilot Project	Featured

NY Rising Community Reconstruction Program



NY Rising Community Reconstruction Plan



MARCH 2014



Executive Summary

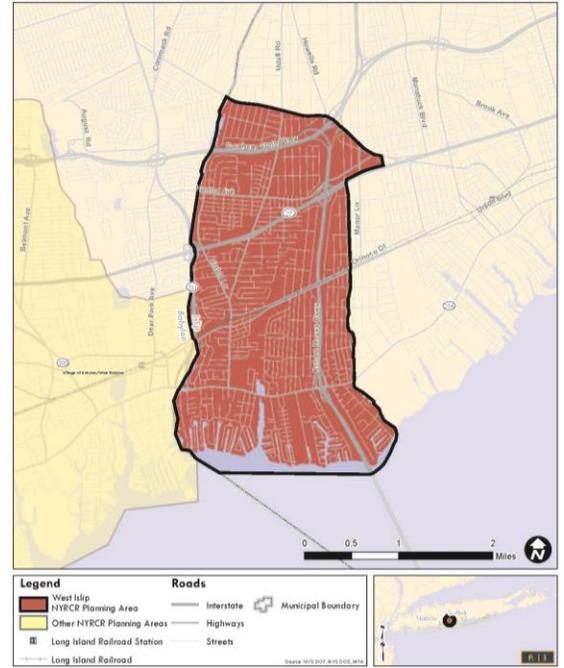
The NY Rising Community Reconstruction (NYRCR) West Islip Community (Community) is located in Suffolk County in the Town of Islip on Long Island’s South Shore. With miles of canals, sweeping views of Fire Island and Jones Beach Island, and easy access to the beach over the Robert Moses Causeway, West Islip is considered a gateway to Long Island’s rich natural and cultural resources. Superstorm Sandy’s devastating storm surge, however, also drew attention to the vulnerability of this coastal hamlet’s location and put the Community’s resiliency to the test.

As part of the ongoing recovery from Superstorm Sandy, the NYRCR West Islip Committee (Committee) took on the responsibility of developing a plan that laid the groundwork for the Community’s “better, stronger,” more resilient future. The Committee was comprised of a cross-section of the Community including local residents, leaders of local business and community organizations, and municipal representatives. With Community members throughout West Islip involved through public engagement, and with the help of New York State, the Committee has produced a pragmatic recovery and resiliency plan.

Overview

The NYRCR West Islip Community is one of eight NYRCR Communities identified within Suffolk County. West Islip is a hamlet and Census Designated Place (CDP) with a population of 28,335 people on the South Shore of Long Island. The Hamlet is bordered by Sampawams Creek and the Town of Babylon to the west and Town of Islip communities of Baywood and West Bay Shore to the north and east, respectively. The Great South Bay borders West Islip's southern shoreline. Jones Beach Island and Fire Island, barrier islands that help provide protection to West Islip from wave action and storm surge, are situated to the south across the Great South Bay. Up to \$3.1 million has been allocated for resiliency projects within this Community.

Since the 1700s, West Islip’s land area has been developed into plantations for farming, fishing, and lumbering, later into estates of wealthy landowners from New York City, and after World War II, into the suburban neighborhoods that can be seen today. Today West Islip is perfectly situated between the suburban comforts and conveniences of Long Island and the recreational amenities of the Great South Bay and



Geographic Scope of NYRCR West Islip planning area. (Map: Jacobs)

“That is West Islip: a community that helps one another, that comes together on a moment's notice and gives back like no other. A community with an abundance of pride, and that can recover and rebuild in the wake of disaster.”

—Lynn Luttenberger, NYRCR West Islip Committee Member



West Islip NY Rising Community Reconstruction Plan

the barrier beaches. Residents take full advantage of their location on the Great South Bay. Many residents enjoy fishing and boating activities and keep their boats docked in the West Islip Marina's public slips or in back yard slips on finger canals. And the oft-photographed Robert Moses Causeway is the perfect frame for a spectacular sunset. The features that make West Islip so appealing as a place to live and play—bayfront property, proximity to the ocean, and dense, suburban-style development—are also what make it so vulnerable to both regular and large-scale flood events.

On October 29, 2012, Superstorm Sandy swept out of the darkened skies with unexpected speed and savagery and her immense waves and storm surge quickly overwhelmed West Islip's canals, creeks, and shoreline protections. Many members of the Community shared that their homes and those of their neighbors were flooded with up to five feet of water. Floodwaters lifted cars off streets and boats off moorings and pushed them into homes. The Sequams neighborhood is a particularly low-lying area of West Islip and although it was equipped with two stormwater drainage pumps, floodwaters inundated the pumps' electrical controls, leaving them inoperable throughout the storm.

Residents also faced major health and safety risks. Backups from the sewer system leaking fuel from disconnected, leaking oil tanks contaminated the already foul floodwaters in and around homes. Wind gusts knocked down many trees, which in turn disrupted power lines, leaving thousands without electricity or heat, some reportedly as long as two weeks. At night, when no streetlights illuminated the roadways, residents feared for their safety and property. Looting took place by both land and water with thieves maneuvering boats up to evacuated houses.

In the wake of the storm, neighbors united to provide meals and lodging to those whose homes were too severely damaged to occupy, and donated time, labor, clothing and goods, and money to kick-start the recovery. A "rapid building assessment" conducted by the Town of Islip immediately after Superstorm Sandy estimated that in West Islip, the storm caused over \$23 million in damages to homes.

These documented effects, combined with the first-hand experiences shared by the Committee and residents at multiple well-attended public engagement events led to the identification of several critical issues facing the Community related to its recovery from Superstorm Sandy as well as future resiliency needs. These issues are indicative of the severe

"Anticipation, fear, despair, hopelessness, courage, and hope is the only way to describe the events leading up to, during, and after Superstorm Sandy . . . I will never forget the sight of neighbors rowing out of their homes or entire families leaving with nothing and no place to go. Or the National Guard trying to safeguard our homes from whatever was left from looters. Many of our residents have been able to return to their homes and some never will."

—Maria Figalora, NYRCR West Islip Committee Member



A dumpster filled with damaged materials and goods from West Islip residents' homes.

(Photo Credit: NYRCR Committee Member)



West Islip NY Rising Community Reconstruction Plan

damage that the Community has suffered during Superstorm Sandy as well as the recurring flooding and resiliency issues that happen on a regular basis. These issues also served to define needs, opportunities, strategies, and eventually projects that would help make the Community more resilient and sustainable. Critical issues included:

- Families need to be able to return to their homes quickly and to feel secure that they can make their homes more protected against future storms.
- Residents need streets that do not flood with every nor'easter, hard rain, or even very high tide.
- Residents need to feel reassured that communication systems will hold up to future storms, that procedures are in place to relay storm information, and that local governmental and non-governmental organizations are prepared for future emergencies.
- Residents want to see the public and private utilities taking measures to protect the infrastructure that is critical in the aftermath of an event—electric, gas, and communications—from floods and hurricane winds.
- The Community would like to know that recovery programs are supporting local businesses, which provide goods and services to West Islip residents and contribute to the local economy's resiliency.
- The Community has a large stake in the safety of Good Samaritan Hospital and Our Lady of Consolation's facilities to ensure that their operations continue in future storm events and that their vulnerable populations are protected¹.
- Residents are strongly in favor of sustainability, as long as progress respects and maintains West Islip's historic and cultural assets.
- The Community supports a strong regional focus on strengthening the beaches and dunes of the barrier islands that protect West Islip and the entire South Shore of Long Island.

NY Rising: A Community-Driven Process

The Community's goal is for a "better, stronger" West Islip. During many Committee meetings as well as Public Engagement Events, Committee members and the public drew on their own experiences and on input from their neighbors to formulate a future vision of a more resilient future in West Islip. The Community vision statement represents a consensus assessment of the direction towards which this Community



Flooding of residential streets and properties in West Islip in March 2013. Flooding has become a frequent occurrence in the lowest-lying neighborhoods.

(Photo Credit: NYRCR Committee Member)



A local business display welcomes visitors in downtown West Islip.

(Photo Credit: Jacobs)



West Islip NY Rising Community Reconstruction Plan

wishes to move. The NYRCR Committee and residents together developed a vision statement that reflects the philosophy to be embraced in order to create a safe and resilient community 10-, 20-, and 50-years in the future. All strategies and projects identified were measured against the Community vision statement (shown at right) to ensure that recommended actions would not detract from the Community's ability to achieve its desired goals.

In keeping with Governor Cuomo's emphasis on bottom-up planning, members of the Community were involved in each step of the NYRCR Program. The NYRCR Committee was composed of residents who could speak directly from experience of the character of the community, its needs, and strengths in good times and bad. Eleven Committee meetings were held as of March 15, 2014. All Committee meetings were open to the public, with meeting dates and times posted on the NYRCR website (www.stormrecovery.ny.gov/nyrcr). Comment forms were available at Committee meetings and public engagement events and on the State's website to provide an opportunity for the public to contribute their feedback, which was then passed along to the Committee.

The Community at-large was invited to take part in the NYRCR Program through a variety of methods. Their feedback was reviewed by the Committee and incorporated into the decision-making process that informed the development of this NYRCR Plan. Three well-attended, open-house style events were held during the development of the plan and a fourth will present this final document. Across the eight NYRCR Communities in Suffolk County, thousands of participants attended Committee meetings and Public Engagement Events. In conjunction with the third Public Engagement Event, the public was additionally encouraged to complete a web-based survey to gauge public opinion on the Proposed Projects. Special efforts were also taken to reach out to younger members of the community, who were invited to participate in a web-based "Next Generation" survey to gather feedback on Proposed Projects that would likely affect their futures in the Community.

NYRCR Final Plan: A Blueprint for Resiliency

An asset inventory was conducted for the Community to identify assets, both built and natural, which are critical to the safety, resiliency, and character of the Hamlet. The identified assets were evaluated in detail to understand their level of risk or potential for damage to future storm events. Identification of risks to critical assets provided the framework within which resiliency needs and opportunities were developed. For every need or opportunity, potential strategies were generated.

COMMUNITY VISION STATEMENT:

West Islip is a tight-knit community where multiple generations of families reside amongst a protected and resilient coastal environment. The Community enjoys the active and thriving waterfront amenities for recreation and tourism, which are healthy and robust due to a longtime commitment to careful study and maintenance of the natural resources and manmade shoreline structures. The investment in a well-defined commercial corridor sustains an array of businesses that are supported by proud local residents and visitors alike.



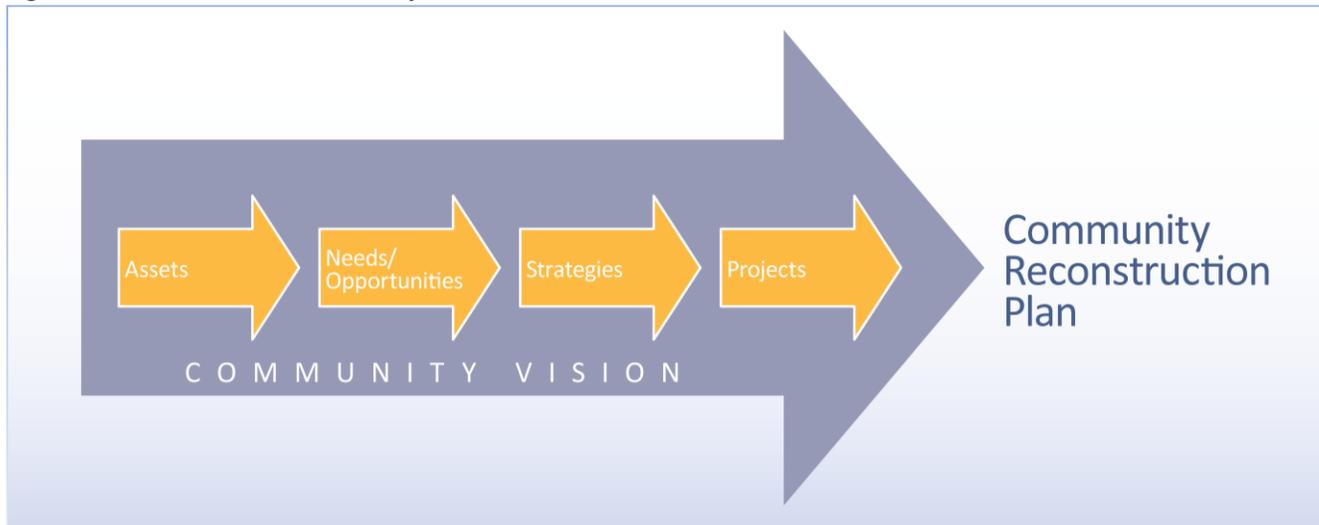
Boats moored in the West Islip Marina, a public marina that was damaged in Superstorm Sandy. (Photo Credit: Jacobs)



West Islip NY Rising Community Reconstruction Plan

Strategies are general approaches to types of projects, programs, policies, or other actions that specifically address an identifiable need or leverage an existing opportunity within the Community. The Committee revised and improved these strategies, and gradually defined their scopes into projects (see Figure ES-1).

Figure ES-1: What is a Community Reconstruction Plan?



The list of projects spanned an array of methodologies and timeframes, from preparedness to retrofits, from immediate procedural improvements to long-range capital investment programs. Three tiers of projects were identified: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. Proposed Projects are projects proposed for funding through the NYRCR Community’s allocation of CDBG-DR funding.



A boy stands on what remains of Magoon Landing’s dock in West Islip.

(Photo Credit: NYRCR Committee Member)



West Islip NY Rising Community Reconstruction Plan

Featured Projects are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding. Additional Resiliency Recommendations are projects that the Committee would like to highlight, but which the Community will pursue independently or through other funding sources. It is important to note that there is no priority order or ranking of projects aside from the project tier.

Table ES-1 below presents NYRCR West Islip’s Proposed and Featured Projects by strategy. In the months and years to follow, many of the projects and actions outlined in this NYRCR Plan will become a reality helping New York not only to rebuild, but also to build back better.

Table ES-1: NYRCR West Gilgo to Captree Proposed and Featured Projects		
Strategy	Project Name	Project Category
Increase awareness of and access to resources for hazard mitigation, preparedness and response to reduce risk.	Enhanced Electronic Mapping/ Emergency Management System	Proposed
	Recovery Manager/Grant Specialist	Proposed
Expand local resources and alternatives for residents likely to be impacted by future flooding and other storm-related risks to remove themselves from harm’s way.	Designated Parking for Flood Events	Proposed
	Local Drop-In/Distribution Center	Proposed
Improve the Community’s natural and engineered stormwater management and flood control systems to mitigate flood risk and improve water quality.	Community-Wide Drainage Plan and Phase I Improvements	Proposed
	Long-Term Flood Reduction Program - Phase II Improvements	Featured
	Long-Term Flood Reduction Program - Pump Stations	Proposed
	Long-Term Flood Reduction Program - Rehabilitation of Willetts Creek	Proposed
Increase the attractiveness and appeal of downtown West Islip to business owners and consumers alike to strengthen the local economy.	Downtown Revitalization Plan and Related Activities	Proposed
	Downtown Revitalization Streetscape Improvements	Featured
Increase public awareness of post-event healthcare resources and options.	Post-Event Health Services for Vulnerable Populations	Proposed
Increase access to recreational and natural resource amenities and programs.	West Islip Marina and Beach	Featured
Create incentives for homeowners to implement residential resiliency upgrades to reduce future risk to life and property.	Resilient Housing Assistance	Featured
	Resilient Housing Policy	Featured



New York City

Breezy Point

NY Rising Community Reconstruction Plan

MARCH 2014



NY Rising
Community Reconstruction Program



A photograph of a coastal town at sunset. In the foreground, a large American flag is partially visible on the right side, attached to a tall pole. The sky is filled with soft, colorful clouds in shades of pink, orange, and blue. In the middle ground, a paved road leads towards a row of buildings, likely houses or small businesses, situated on a sandy dune. The overall atmosphere is calm and serene.

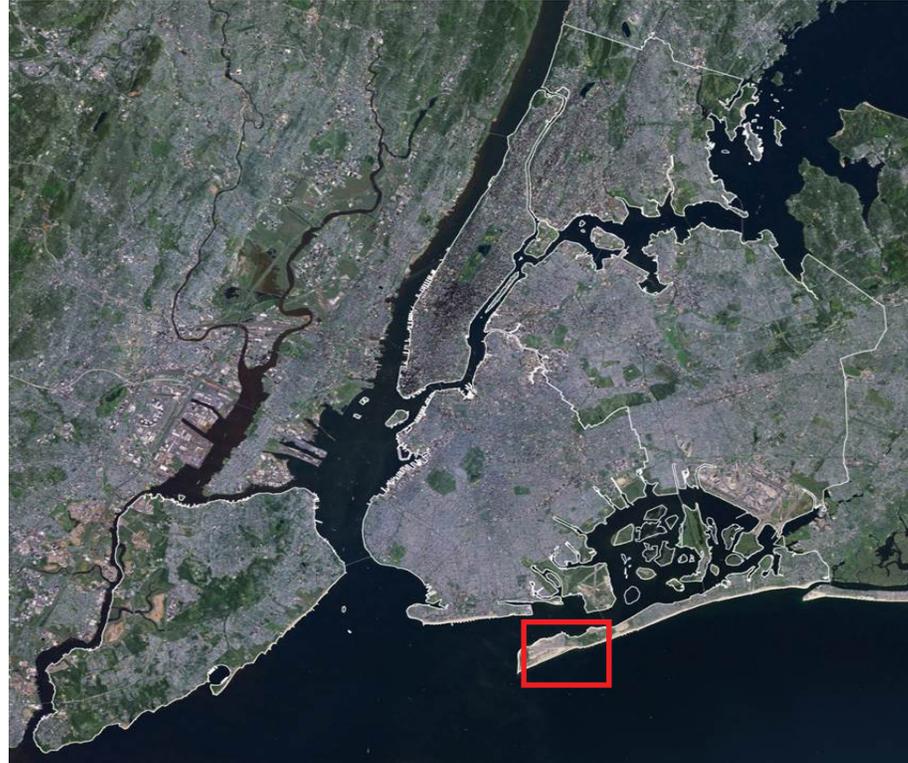
Executive summary

Executive summary

NYRCR and Breezy Point

The westernmost tip of the Rockaway Peninsula in Queens, comprised of the Breezy Point, Rockaway Point, and Roxbury communities, experienced some of the most devastating damage seen in New York City when Superstorm Sandy (Sandy) hit in October 2012. These tight-knit and well-organized communities quickly organized to support one another in the immediate aftermath of the storm, and proactively began to plan for longer term resiliency, including by commissioning a comprehensive study on coastal protection.

The NY Rising Community Reconstruction Program (NYRCR) has provided these communities, grouped together in the program as “Breezy Point,” an opportunity to leverage their capacity to invest in long-term initiatives that will protect and enhance the Community. The NYRCR program has been driven by a Planning Committee of nine Community members, including representatives from the three community associations - the Roxbury People’s Association, Point Breeze Association, and Rockaway Point Association - the Breezy Point Cooperative, and other civic leaders.



Breezy Point lies at the westernmost end of the Rockaway Peninsula.

This Plan outlines a comprehensive approach for reconstruction and reflects the results of a 7-month community-based planning process to identify strategies and projects for rebuilding and resiliency. This Plan complements and builds on the numerous other efforts already underway, led by residents, public agencies, utilities, community organizations, and building owners throughout the Rockaway Peninsula and New York City. The Governor's Office of Storm Recovery has allocated up to \$19.5 million in Federal Community Development Block Grant – Disaster Recovery (CDBG-DR) monies to fund eligible recovery and resiliency projects in the Breezy Point Planning Area.



An electrical fire consumed 135 homes in the Community during Sandy. Source: Flickr user CSondi, licensed under Creative Commons.

A community-driven process

This Plan is the product of a collaborative community-based process led by the Committee. The Breezy Point Planning Area showed among the highest levels of participation of any Community across the State in the NYRCR program.

Through three Public Engagement Events as well as 10 Committee meetings, many of which were well attended by the public, the Planning Committee gathered public feedback on critical assets, needs, opportunities, and goals. Feedback was synthesized into the Community Vision Statement and all feedback informed identifying and planning projects. Based on this feedback, the Committee developed a Plan that seeks to address the unique needs of Breezy Point, Rockaway Point, and Roxbury.

As a community located on the edge of a barrier island and along the shores of Jamaica Bay, Breezy Point shares similar coastal protection challenges with other NYRCR Planning Areas on the Rockaway Peninsula and the communities along the Bay in Brooklyn, Queens, and Nassau County. The Planning Committee participated in the Jamaica Bay Working Group to develop comprehensive and longer term protection strategies.



Sandy's impacts and the recovery

As a low-lying community surrounded by water on three sides, Breezy Point was devastated by Sandy. Residents stranded during the storm witnessed high-velocity waves and powerful winds that ripped homes off of their foundations and funneled telephone poles and other large debris through roads and pathways, puncturing building structures and anything else in their path from the Atlantic Ocean to Jamaica Bay. During the storm, an electrical fire consumed 135 homes.

Residents returned to Breezy Point to find buildings severely damaged and in many cases, completely destroyed. Flood waters destroyed basements and first floors of homes as well as vast amounts of business inventory and personal goods. During and immediately after the storm, residents organized and supported one another by providing shelter and sharing basic supplies. In the weeks and months afterwards, members of the Breezy Point Cooperative returned to rebuild their community together. Yet, more than 17 months after the Storm, homes remain severely damaged or demolished and many residents have yet to return.



Hundreds of residents gather at the Colony Theater for a NYRCR Public Engagement Event.

Critical issues

As a community there are a few central issues that drive the needs, strategies, and projects in this plan:

Coastal protection and the physical aspects of resiliency that will protect all residents from the effects of rising sea levels and potential intensification of extreme weather events.

Economic and social resiliency projects that can leverage existing Cooperative and other funding sources to enhance community capacity to respond after extreme events, with a particular focus on the most vulnerable residents, especially seniors.

Drainage and infrastructure, given the significant recurring flooding issues that are exacerbated by extreme weather events.



Community vision statement

Through the NY Rising Community Reconstruction process, Breezy Point intends to strengthen, protect, and improve the overall readiness and capacity of its communities. Breezy Point will be able to prepare for, respond to, and quickly recover from emergency events and natural disasters. With the use of modern and green technologies, our Community will be able to build more secure structures and barriers to foster a better future for all our residents, no matter what age, background, or financial situation. Breezy Point intends to meet our needs to maintain self-sufficiency for an extended period of time.

A blueprint for future resiliency

The NYRCR Plan for Breezy Point provides an outline for the implementation of the goals of the Planning Committee.

Recovery support functions

There are six Recovery Support Functions, established by President Barack Obama in 2011 through the National Disaster Recovery Framework, that structure this NYRCR Plan. These Recovery Support Functions were utilized when developing needs, opportunities, strategies and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a comprehensive resiliency strategy for the Community.



Community
Planning
& Capacity
Building



Health &
Social Services



Economic
Development



Housing



Infrastructure



Natural & Cultural
Resources

Strategies and projects

This Plan contains three strategies and 10 Proposed and Featured Projects to improve the resiliency of Breezy Point, as described below. Proposed Projects are projects that the Breezy Point Planning Committee has recommended to be funded through the NYRCR process. Featured Projects are innovative projects that may require additional funding sources for implementation, and for which the Committee has recommended funding an initial phase of implementation. The projects are not listed in any priority order.

Given the wealth of existing or planned government and citywide programs, the Plan recommends supporting other efforts by filling funding gaps or suggesting policy changes. Finally, the Committee sought to identify projects that are highly feasible and able to be implemented on a short timeline. Building on this framework, the Committee focused on creating projects that provide near-term and immediate coastal protection, strengthen community resiliency, and protect and bolster infrastructure.

Improve and expand coastal protection

- 1 **Enhanced dune walkways** (Proposed). To ensure continuous oceanside coastal protection while still allowing for beach access, this proposed project would create an uninterrupted dune along the ocean with raised pedestrian and vehicle access.
- 7 **Bayside coastal protection in Breezy Point & Rockaway Point** (Featured). This includes three discrete near-term bayside coastal protection projects along the most vulnerable areas in Breezy Point and Rockaway Point.
- 8 **Roxbury bayside protection** (Featured). This project would pursue near-term bayside coastal protection projects along the most vulnerable areas in Roxbury.
- 9 **National Park Service collaboration** (Featured). This project would collaborate with the National Park Service (NPS) to identify and strengthen key vulnerabilities on NPS property that threaten the Breezy Point Community.
- 10 **Rockaway Point Boulevard Elevation** (Featured). This project would raise and strengthen Rockaway Point Boulevard – the Community’s sole access route – and ensure accessibility during an emergency.

Strengthen community resiliency

- 2 **Housing elevation study** (Proposed). This project would evaluate housing elevation needs and strategies for the Community and create a basis for collective action.
- 3 **Multi-purpose community relief center** (Proposed). This project would create a new facility to serve as a community-based emergency recovery resource.
- 4 **Summer store relocation** (Proposed). This project would significantly improve the resiliency of the Community’s small but important “summer store” retail cluster, which is regularly flooded.

Protect and bolster infrastructure

- 5 **Repaired docks** (Proposed). This project would repair two bayside docks destroyed by Superstorm Sandy.
- 6 **Stormwater drainage improvements** (Proposed). This project would make stormwater drainage improvements in Breezy Point and Roxbury.

Breezy Point NYRCR Plan Proposed and Featured Projects



Outline of the plan

The Plan begins with a **Community Overview**, which provides an orientation to the Community, the critical issues laid bare by Superstorm Sandy, and the Planning Committee's work in the context of ongoing resiliency and recovery work.

Section II. Assessment of Risks and Needs, describes the diverse assets at risk from future storms, and describes how Planning Committee deliberation and public feedback catalogued those risks. Using the risk assessment tool developed by the NYRCR Program, this section identifies key opportunities for action that form the rationale for resiliency strategies and the related projects developed by the Planning Committee.

The following **Section III. Reconstruction and Resiliency Strategies** describes strategies developed by the Committee to respond to needs, opportunities, and risks to assets measured through the risk assessment process.

The Proposed and Featured Projects, which are the path to implementing those strategies, are described in more detail in **Section IV. Implementation - Project Profiles**.

Section V. Additional Resiliency Recommendations, the final section, describes additional resiliency recommendations strongly supported by the Community, but which lack an identified source of funding. It also describes the public engagement process in more detail, and provides additional supporting documentation for the Plan.



An envisioned multi-purpose community & relief center.

Brighton Beach, Coney Island, Manhattan Beach, and Sea Gate

NY Rising Community Reconstruction Plan



NY Rising Community Reconstruction Program

March 2014



Executive summary

A. Overview

The neighborhoods of Brighton Beach, Coney Island, Manhattan Beach, and Sea Gate, together referred to as the Southern Brooklyn Peninsula Community (Community), are the four southernmost neighborhoods within Brooklyn, in New York City. The Community is on a former barrier island that was permanently connected to the rest of Brooklyn by infill before World War II. Despite this land connection, water extends around most of the Community.

Collectively, the Community is eligible for up to \$19.3 million in U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant–Disaster Recovery (CDBG-DR) funding to implement the projects described in this NYRCR Community Plan.

The western area of the Community is a peninsula bound to the north by Coney Island Creek and to the west and south by the Atlantic Ocean. This area contains the neighborhood of Sea Gate and most of Coney Island. Sea Gate covers all land area west of West 37th Street, and Coney Island extends between West 37th Street and Ocean Parkway. The eastern area of the Community is also a peninsula. Its water boundaries are Sheepshead Bay to the north and the Atlantic Ocean to the south and east. The neighborhood of Manhattan Beach is roughly coextensive with this peninsula; its western boundaries are Corbin Place and East 12th Street.

The remaining neighborhood, Brighton Beach, lies on Brooklyn’s mainland. It covers the area between Corbin Place and East 12th Street to the east and Ocean Parkway to the west. For the purposes of this NY Rising Community Reconstruction (NYRCR) Plan (Plan), the Belt Parkway generally defines the northern land boundary of the Community. However, the NYRCR Planning Committee (Committee) elected to expand the geographic scope of the Plan to encompass two critical assets north of the Belt Parkway but adjacent to the peninsula. These two assets are the Metropolitan Transportation Authority (MTA) Coney Island Rail Yard and Coney Island Hospital.

Storm impacts

When Superstorm Sandy made landfall on October 29, 2012, the storm inflicted tremendous damage on Brighton Beach, Coney Island, Manhattan Beach and Sea Gate. Flooding was exacerbated due to the storm coinciding with a high tide. Flood levels averaged three to five feet throughout the Community. In some areas, such as along Neptune Avenue in Brighton Beach, where floodwaters reached a height of 10 feet, homes and businesses were inundated with over five feet of floodwater. Backwater inundation, or flooding from creeks and inlets, affected the Community from Gravesend Bay by way of Coney Island Creek and Rockaway Inlet by way of Sheepshead Bay.

Saltwater inundation and other flood-related damage caused major disruptions to critical building systems, including power, heat, hot water, and elevator services in nearly all high-rise buildings. These disruptions required extensive replacement of damaged wiring and electrical systems, and repair or replacement of boilers, elevators, and generators. Affected buildings included all nine of the Community’s New York City Housing Authority (NYCHA) developments, which encompass 40 medium- and high-rise buildings. Service outages persisted for weeks or—in some cases—even months after Superstorm Sandy. More than two weeks after the storm, NYCHA reported that it had yet to restore heat and hot water to nearly 6,200 public housing residents in 22 buildings in Coney Island. These outages not only inconvenienced all NYCHA residents in the affected buildings but also endangered the health and safety of residents with access and functional needs, including the elderly and the handicapped.

The neighborhood of Sea Gate took a direct hit from devastating wave action. The Sea Gate Association’s police department and community association building both sustained significant damage, and neither facility has reopened. According to HUD, more than 80% of non-seasonal housing units in census block groups in Coney Island and Sea Gate incurred some degree of damage from Superstorm Sandy.¹



Several adult-care and nursing-home facilities were damaged by Superstorm Sandy and lost functionality after the storm, including the Mermaid Manor Home for Adults, on Mermaid Avenue in Coney Island, where storm-surge flooding breached the front doors in a manner that observers described as being “like a tsunami.” In Manhattan Beach, the Menorah Center for Rehabilitation and Nursing Care sustained significant damage to its waterfront facility serving seniors, including first-floor wind and water damage.²

Superstorm Sandy damaged more than 12 public schools across the Southern Brooklyn Peninsula. Some school buildings sustained significant damage. Electrical systems at the Coney Island Library were damaged, as were many of the library’s computers, and more than 35,000 books and DVDs. The library did not reopen until a year after the storm, in October 2013.

Flooding from Gravesend Bay and Coney Island Creek flooded the MTA Coney Island Complex, which is mostly in the 100-year floodplain. The rail yard was quickly inundated with water and debris, and tracks, switches, motors, and signal equipment were damaged. Throughout the 75-acre complex, more than 190 individual switches were flooded. A combined workforce of in-house personnel and contractors washed saltwater and sand from the switches and replaced switch motors where required.

Business activity along many of the commercial thoroughfares in the Community was hampered by flood damage and the displacement of customers months after the storm. “I don’t know of one business not affected by the hurricane,” said Yelena Makhnin, Executive Director of the Brighton Beach Business Improvement District.³ Brighton Beach Avenue was inundated by storm surge, including mud and debris up to five feet deep,⁴ and only 40% of avenue businesses⁵ were open a week after Superstorm Sandy.

Critical issues

The impacts from Superstorm Sandy highlighted numerous issues in the Community regarding coastal protection and emergency preparedness; government and non-profit coordination during the disaster; and the inability of homeowners and businesses to recover after the storm. Superstorm Sandy also highlighted the vulnerabilities of key assets, including homes,

commercial corridors, schools, and cultural and civic structures. Community and Committee feedback make clear that many assets are ill-equipped to handle severe flooding and storm surge. Therefore, increasing the resiliency of these assets is an important issue for all four neighborhoods in the Community.

Beyond these concerns related to physical assets, another critical issue discussed within the NYRCR Plan was the lack of a comprehensive Community response to Superstorm Sandy. Planning Committee Members and the public reported that the storm response was inadequate. They stated that the preparation and implementation of plans to protect vulnerable populations, evacuation protocols, and disaster relief should be improved in the future.

B. Working together to rebuild stronger, smarter, and safer

The NYRCR Planning Committee developed a draft Community vision statement using a visioning exercise during a Planning Committee Meeting. Through further refinement by Community residents and business owners, the Committee developed the following vision statement for the Community:

“Our vision is to empower and rebuild the diverse communities of the Southern Brooklyn Peninsula to be prepared, vibrant, unified, and resilient in facing the common economic, social, physical, and environmental challenges in our coastal neighborhoods.”

This Vision Statement framed the work of the Committee throughout the planning process.

Public outreach

To ensure the success of the Plan, a broad Public Engagement Strategy was established and implemented. Residents and business owners in the Community were provided extensive opportunities to contribute to the



planning process, including through three Public Engagement Events and 12 Committee Meetings, which were open to the public, between September 2013 and March 2014. Committee Members and NYRCR representatives met with numerous Community groups, residents, and business leaders throughout the planning process, including representatives of NYCHA tenant associations, senior centers, business groups, and civic organizations. The Committee also performed a survey of businesses in the Community and solicited feedback at each Public Engagement Event.

The Public Engagement Events were designed to solicit feedback from the Community regarding critical assets, strategies, and potential projects. Translators were available at each Public Engagement event and event notices were translated in five languages (English, Russian, Spanish, Mandarin Chinese, and Urdu), and posted in multiple media outlets and locations throughout each neighborhood, including:

- *The Brooklyn Paper* (local community newspaper);
- *The Russian Bazaar* (local community newspaper);
- Subway stations, storefronts, Coney Island Hospital, NYCHA lobbies, and senior centers;
- Email distribution;
- NYRCR website:
<http://stormrecovery.ny.gov/nyrcr/community/brighton-beach-coney-island-manhattan-beach-and-sea-gate>;
- Twitter: @NYStormRecovery; and
- Facebook: NYStormRecovery.

The Committee Members distributed flyers about Public Engagement Events in their neighborhoods. Flyers and electronic notices were also distributed to the businesses in the Community. The Committee's engaged volunteerism formed the foundation of this planning process. The Committee considered local issues, opportunities, and communication strategies and offered the public opportunities to provide comments at the conclusion of each Committee Meeting.

C. Final plan as blueprint for implementation

In the early stages of the planning process, the Committee identified a set of strategies to reduce the Community's exposure to risk from flooding and severe weather events. The Committee subsequently refined these strategies into a list of projects that would enable the Community to rebuild smarter, stronger, and safer. These projects represent sustainable and resilient approaches to support residents and businesses and protect the Community's considerable assets.

The NYRCR Plan includes three sets of projects to address critical community needs:

- **Proposed Projects:** Projects that the Committee has proposed to be fully funded through the Committee CDBG-DR allocation;
- **Featured Projects:** Projects where cost is beyond the Committee CDBG-DR allocation and/or their implementation will require a combination of CDBG-DR funding and other sources. These projects may include the funding of a Proposed Project, as the first phase, and the Featured Project as the second phase;
- **Additional Resiliency Recommendations:** Recommendations of projects, policy or actions that will not be funded using the Committee CDBG-DR allocation

All of the Projects included in the NYRCR Plan are important to the Community. Their order of appearance in this Executive Summary is not a reflection of project priority or ranking.

Strategy: Enable more effective response to natural disasters by enhancing emergency response protocols and communication

- **Proposed Project: Public Emergency Preparedness Outreach Campaign**
Create a local public outreach campaign that uses multiple forms of media to provide targeted and specific disaster preparedness, response, and recovery information to Community residents.

Strategy: Improve facilities, infrastructure, information sharing, and the emergency capacity of social service organizations and health/mental health service providers

- **Proposed Project: Designation of Emergency Response and Recovery Centers**

Perform a location and feasibility analysis to designate emergency response and recovery centers in each neighborhood in the Community. Also create a fund to develop continuity plans and assess facility vulnerabilities for civic groups and non-profit organizations.

Strategy: Enhance coordination between civic groups and non-profit organizations with local government agencies to make the Southern Brooklyn Peninsula better prepared for future emergencies

- **Proposed Project: Southern Brooklyn Emergency Response Plan**

Create a Southern Brooklyn Emergency Response Plan to provide specific information targeted to local neighborhoods and incorporate lessons learned from Superstorm Sandy.

Strategy: Support local businesses of all scales in their efforts to fully recover from Superstorm Sandy

- **Proposed Project: Increase Resiliency of Small Businesses Throughout the Peninsula**

Establish a small business support office; offer direct assistance to merchants for floodproofing their businesses; implement Peninsula-wide streetscape enhancements, including replacing trees, installing stormwater attenuation measures, and making landscaping improvements along business corridors.

Strategy: Expand workforce development opportunities in the Southern Brooklyn Peninsula that would enhance regional resiliency and recovery

- **Proposed Project: Vocational Training Program**

Expand vocational training programs at a high school on the Southern Brooklyn Peninsula to include green and resilient building and emergency preparedness curricula.

Strategy: Explore opportunities to expand economic activities throughout the Peninsula

- **Featured Project: Mermaid Avenue Corridor Improvements**

Revitalize the Mermaid Avenue commercial corridor through streetscape and landscape improvements that would incorporate stormwater attenuation measures.

Strategy: Protect existing housing stock by making it more flood resilient

- **Proposed Project: Sewer Connection Cut-Off Valves for Owners of 1- and 2-Family Homes**

Provide financial assistance to homeowners for installation of sewer connection cut-off valves, as well as education and public outreach related to proper operation and maintenance of these devices.

- **Proposed Project: Feasibility Study for Energy Resiliency for NYCHA and Mitchell-Lama Properties**

Conduct a feasibility study on developing microgrid, smartgrid, and/or cogeneration solutions to ensure that NYCHA and Mitchell-Lama properties maintain power in storm-related events.

- **Featured Project: Implementation of a microgrid, smartgrid, and/or cogeneration solutions for NYCHA and Mitchell-Lama Properties**

Development of microgrid, smartgrid, and/or cogeneration solutions to ensure that NYCHA and Mitchell-Lama properties maintain power in storm-related events.

Strategy: Protect the shoreline and coastal communities through structural shoreline protection enhancements

- **Proposed Project: Bulkhead Replacement at Sea Gate**

Replace the bulkhead on Sea Gate Association property and along some private residential properties.

- **Proposed Project: Implementation of Cost-Effective Storm Surge Protection for Ocean Parkway and W. 25th Street**

Install a flood barrier to protect against flooding at primary under-boardwalk access points.



- **Proposed Project: Reconnaissance Study of Storm Surge Protection for Sheepshead Bay**

Evaluate a range of options to mitigate future flood events caused by flooding and storm surge in Manhattan Beach and Sheepshead Bay.

Strategy: Replace, repair, and upgrade existing infrastructure to improve its resilience to future storm events

- **Proposed Project: Installation of Resilient Streetlights**

Install new streetlights along key business corridors and road intersections, evacuation routes, and high-density housing areas throughout the Southern Brooklyn Peninsula.

- **Proposed Project: Pilot Small-Scale Renewable Power Project**

Create a small-scale renewable power project for a small- to mid-sized senior-housing or nursing home facility.

Strategy: Repair and make more resilient damaged and/or underutilized natural and cultural resources

- **Proposed Project: Community Streetscape Enhancements**

Provide funds for peninsula-wide streetscape enhancements, including replacement of trees on public property that were destroyed or damaged by Sandy, implementation of storm water attenuation measures, and landscape enhancements along selected business corridors.

- **Proposed Project: Resiliency Upgrades for Manhattan Beach Bathhouse**

Upgrade the Manhattan Beach Bathhouse by multiple methods, potentially installing solar panels, installing other renewable-energy systems, upgrading utilities, and implementing floodproofing methods.

- **Featured Project: Adaptive Reuse of the Manhattan Beach Bathhouse**

Implementation of adaptive reuse of the Manhattan Beach Bathhouse for year-round community uses.

Strategy: Educate residents and visitors about the importance of natural and cultural resources

- **Featured Project: Environmental Youth Education Program**

Partner with local non-profit organizations to provide educational materials and mini-courses for Community youth on natural and cultural resources.

Strategy: Evaluate opportunities for creating or enhancing natural shoreline protection measures

- **Proposed Project: Dune Grass Plantings and Infrastructure Improvements**

Plant beach grass along the boardwalk in Brighton Beach and Coney Island at six locations; relocate of six water utility valves from under the ocean side of the boardwalk to a less vulnerable location on the inland side of the boardwalk, and install two beach access mats.



Broad Channel



NY Rising Community Reconstruction Plan

March 2014



Executive summary

Broad
NY R



Broad Channel is an island set within Jamaica Bay in the New York City Borough of Queens, connected to the mainland of southern Queens via the Joseph A. Addabbo Bridge, and to the Rockaway Peninsula via the Cross Bay Veterans Memorial Bridge. Boasting direct water connections and a bucolic natural setting, and surrounded on both sides by the Jamaica Bay Wildlife refuge, Broad Channel is a truly unique urban experience.

This long narrow island is home to approximately 2,500 residents living in mostly single-family homes built prior to 1960 along blocks that fan out on both sides of Cross Bay Boulevard. Almost all of Broad Channel workers commute off-island, with half of the employed population traveling outside of Queens to work destinations. The island functions as a single neighborhood and is very involved with its local community centers. These centers, despite incurring significant damage from Superstorm Sandy (Sandy), became the places of refuge, services, food, and assistance in the days and weeks following the storm.

The Governor's Office of Storm Recovery has allocated up to \$6.06 million in federal Community Development Block Grant–Disaster Recovery (CDBG-DR) monies to fund eligible recovery and resiliency projects in Broad Channel. Understanding that this funding cannot solve all challenges, the NY Rising Community Reconstruction (NYRCR) Broad Channel Planning Committee (the Committee) has focused on putting forth projects that can be completed with available funds. Each project would also be connected to sustainability—either through enhanced environmental performance, sustainable products or energy sources, use of natural products or a strategy that provides economies of scale through partnerships. Finally, the Committee wants to achieve pragmatic innovative strategies that could grow to much larger initiatives. Through these pilots, the NYRCR Broad Channel Community (the Community) hopes to leverage its funding to realize a larger resiliency vision.

Recovering from the storm

The surge from Sandy swept across the island, covering everything in its path. Automobiles, boats, homes, and businesses were lost, and the recovery has been slow and challenging. Some houses were completely lost, and more than a year later, the businesses that anchor Cross Bay Boulevard are still trying to re-open. Sandy laid bare the infrastructure deficiencies of the island: inadequate sewer hook-ups, streets that flood, dependency on heating oil and propane, and larger infrastructure that is not equipped to hold back flood waters. Most importantly, Sandy dealt a huge blow to the social infrastructure of the Community. Its community centers were flooded and damaged and have been unable to make needed repairs. Even the Historical Society—the official repository of the archives and historical records of this unique island—suffered damage and lost records that cannot be retrieved.

Critical issues

Broad Channel faces an uncertain future from the threat of sea level rise and increased storm activity. Broad Channel needs to develop a strategy for protection that continues to provide access to water and integration with nature. Broad Channel is not going to grow significantly; in fact, it is at risk of losing housing, businesses, and community centers, which could lead to economic decline and a loss of community cohesion. Broad Channel's success and attraction lies in its connection to the concept of Community and the Community's connection to its waterfront. If this connection is lost, Broad Channel may undergo dramatic change. The Community is also in desperate need of infrastructure upgrades, especially related to heat and power. In order to achieve this goal, Broad Channel is looking to increase access to alternative energy to reduce its reliance on off-island energy and power sources.

A community-driven process

Community Vision Statement

*The Broad Channel community, recognizing and embracing its unique relationship with water, is focused on **short-term innovative, implementable, and sustainable** projects to protect its critical infrastructure, natural and cultural amenities, and the social and community centers that shape the fabric of this unique place. These short-term strategic actions represent the initial steps towards shaping a resilient future for a community that seeks to live in harmony with nature and in partnership with the surrounding Jamaica Bay.*

Public engagement

This NYRCR Plan is the product of a collaborative community-based process led by the Committee. Input on needs projects was gathered through three Public Engagement Events and feedback received from the public. Based on this feedback, the Committee has developed a plan that seeks to address the specific and unique needs of the Community.

The Committee recognized at the outset that this small Community is experiencing meeting fatigue, that there is a great deal of confusion surrounding the multitude of initiatives in the wake of Sandy, and that a meaningful dialogue with the Community could be achieved only through a clear explanation of how the NYRCR Program will help the Community. The first meeting—held simultaneously with the monthly civic association meeting—was well attended by the public and by local elected officials, and the Committee drove home the specific value of this effort and the opportunity for the Community. Subsequent Public Engagement Events built on this foundation and walked the Community through the Committee's mantra of innovative, sustainable, and implementable projects that would build the foundation for a resilient future.



A blueprint for future resiliency

The NYRCR Plan for Broad Channel offers a blueprint for future resiliency that is based on a considered and thorough analysis of existing conditions. This planning process has resulted in nine strategies and ten Proposed and Featured Projects to improve the resiliency of Broad Channel, as described below.

Recovery support functions

There are six Recovery Support Functions, established by President Barack Obama in 2011 through the National Disaster Recovery Framework, which structure this NYRCR Plan. These Recovery Support Functions were utilized when developing needs, opportunities, strategies, and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a well-rounded resiliency strategy for the Community.

Figure 1: Community reconstruction plan – six recovery support functions



Community Planning and Capacity Building



Health and Social Services



Economic Development



Housing



Infrastructure System



Natural and Cultural Resources



Needs and opportunities

The Committee identified needs based on the impacts from Sandy. Needs are areas where the Community aims to reduce short- and long-term risks, and increase the resiliency of physical assets as well as build strength in community-based services. The following needs were identified:

- Retain community services and emergency response
- Develop resiliency strategies for Jamaica Bay
- Retain and enhance the unique relationship with nature
- Improve and diversify infrastructure systems
- Ensure business stability by improving conditions for existing and new businesses
- Make housing more sustainable and resilient to climate change

While these needs are significant, a number of opportunities emerge to lead the Community towards resilient solutions. A nature-based approach can build off the existing wetlands and natural assets around Broad Channel. Its community facilities are networked and physically positioned to work as a relief campus. Most importantly, the Community is extremely well organized and can marshal its capacity to support initiatives and garner consensus toward implementing specific projects.

Strategies

The plan develops strategies to address the critical needs previously identified. The following strategies pilot innovative solutions for layered coastal protection, and to build community resiliency, integrate sustainability into every strategy, and focus on implementable projects:

- Improve resiliency of key emergency response, and community and cultural centers
- Protect and enhance the culture and history of Broad Channel
- Develop a regional resiliency strategy for Jamaica Bay
- Develop a layered approach to coastal protection that incorporates natural strategies
- Improve the resiliency and connectivity of the local infrastructure network
- Address localized flooding in the community
- Expand energy alternatives and diversify energy sources
- Protect vital economic corridors
- Protect housing from sea-level rise and future storm events





Innovative, implementable, and sustainable projects

Proposed and featured projects

The Proposed and Featured Projects are the product of a collaborative, community process led by the Committee with the public's input. Proposed Projects are recommended by the Committee for full funding through the NYRCR process. Featured Projects are innovative projects that may require additional funding sources for implementation, and for which the Committee has recommended funding an initial phase of implementation. The projects are not listed in any priority order.

American Legion Hall Resiliency Improvements (Proposed)

This project is a series of capital improvements to harden the facility to maximize its role as a relief center for community members. The project would ensure its safety and reliability during emergencies, including a new heating, ventilation, and air conditioning system so that the facility can act as a community heating/cooling center during extreme weather conditions.

Broad Channel Athletic Club (BCAC) Resiliency Improvements (Proposed)

This project would protect BCAC's assets and improve its capacity as a relief center through construction of a back-up generator, and storage facility to enable the BCAC to provide both indoor and outdoor relief services to the Community. This project would support the strategy of improving the resiliency of key community centers by hardening the BCAC facilities and ensure that it would be a functioning facility for community members, especially immediately following an emergency.

Broad Channel Volunteer Fire Department (BCVFD) Resiliency Improvements (Proposed)

This project would construct a new 10,000-square-foot telecommunications center. The objective of the project is to build out the second floor of a proposed new firehouse for this use to enable the BCVFD to serve as the third operation of the Broad Channel relief campus. The telecommunications center could be used by New York City Office of Emergency Management and other agencies during an emergency event.

Broad Channel Veterans of Foreign Wars Hall Resiliency Improvements (Proposed)

The project would upgrade the facility to make its entrance points and restrooms American with Disabilities Act accessible. The project would increase the accessibility for elderly and disabled populations. It would also provide an alternative location for the recovery campus facilities.

Broad Channel Historical Society Digitization (Featured)

The project would digitize the archival collection to protect its contents from future disaster events. Digitizing the collection would protect the archival assets, and increase access to the collection by creating a Virtual Museum that would be accessible to the public. The Virtual Museum would function as a community integration and educational tool for local residents and communities throughout the New York metropolitan area.

Lanark Road Stabilization, Sewer and Water Connection (Proposed)

The Proposed Project would provide sewer and water connections to the residential homes on Lanark Road, south of East 9th Road. The project would establish an in-ground sewer and water connection to the homes where one does not currently exist.

East 12th Road Boardwalk Repair and New Sewer Connection (Proposed)

This project would rebuild the boardwalk that connects residences and the Iroquois Yacht Club back to the mainland along East 12th Road. The project would construct a boardwalk and add sewer and water connections to the homes.

Cross Bay Boulevard Complete Streets Project – Phase 1 (Proposed)

This project would install permeable pavers along the sidewalk and solar-powered streetlights along the Broad Channel central business district and provide back-up generators for the businesses to ensure continued operation during power outages. The project would

introduce a sustainable complete streets pilot program that could be replicated for other business locations and would help to identify and brand the business areas on the island.

Sunset Cove Restoration Project (Featured)

This project would support the inclusion of an oyster reef and breakwater in the Sunset Cove ecosystem restoration project—an element that would enhance the resiliency of the overall project and surrounding assets as well as restore ecological activity to the area. This project would be integrated into a larger restoration project being spearheaded by the New York City Parks Department.

Relief Campus Berm – Phase 1 (Proposed)

This project would fund a berm that would protect the relief campus against a 6-foot to 7-foot storm-flood elevation as a first phase of a larger, comprehensive flood-protection strategy for a 100-year storm. The berm would be between 4 feet and 6 feet, extending between local high points on New York City Parks and Recreation Department and National Park Service property and would be planted and reinforced to extend its life during storm events.

Broad Channel wants to preserve its unique connection to nature and to Jamaica Bay while adapting to the impacts of climate change. The NYRCR Plan sets forth the initial projects that would achieve this goal by strengthening the connection with nature, introducing sustainable strategies, and strengthening the centers that help to make this place into a community.

Gerritsen Beach and Sheephead Bay NY Rising Community Reconstruction Plan



NY Rising Community Reconstruction Program

March 2014



Executive Summary

A. Overview

The NY Rising Community Reconstruction (NYRCR) Program was established to provide rebuilding and revitalization assistance to communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The NYRCR Program enabled communities to identify resilient and innovative reconstruction projects and other needed actions based on community-driven plans that consider current damage, future threats, and the community's economic opportunities.

Gerritsen Beach and Sheepshead Bay are neighboring communities located on the southern shore in Brooklyn, NY, which were severely impacted by Superstorm Sandy. Gerritsen Beach is on a peninsula with water on three sides, and Sheepshead Bay has an extensive waterfront along its southern boundary, with much of its eastern boundary adjacent to Plumb Beach Channel.

The neighborhoods have water access to Sheepshead Bay, Rockaway Inlet, Jamaica Bay, New York Harbor, and the Atlantic Ocean, and both have a long-term maritime history. The neighborhood shorelines are not protected by extensive dunes or seawalls, and the communities are built on low-lying ground. The NYRCR Gerritsen Beach/Sheepshead Bay Community (Community) has developed an NYRCR Plan that addresses repairing damage from the storms, mitigating future threats to the Community, and fostering its economic future. The State of New York has allocated up to \$13.3 million in Federal Community Development Block Grant Disaster Recovery (CDBG-DR) monies to fund eligible projects identified in this NYRCR Plan.

Storm Impacts

On October 29, 2012, Superstorm Sandy—one of the largest storms to land ashore in New York's recorded history—wreaked havoc on Gerritsen Beach and Sheepshead Bay. The storm made landfall during an extra-high full moon tide. The communities were battered by a massive storm surge, with

water levels 9 to 12 feet above normal tides. The results were widespread property and infrastructure damage, personal injury, and displacement of residents.

In New York State, Superstorm Sandy took 48 lives and severely damaged or destroyed over 300,000 homes, caused catastrophic flooding in subways and tunnels, and damaged major power transmission systems¹. Governor Andrew M. Cuomo estimated the damage to New York State to be \$42 billion. Superstorm Sandy produced the greatest damage ever experienced by Gerritsen Beach and Sheepshead Bay. Homes, business, and streets were overwhelmed by floodwater and sewage backflow. The stormwater infrastructure and conveyance system were overtaxed, which compounded the damage from direct overland flooding.

Gerritsen Beach was almost entirely engulfed in storm surge flooding. More than half the housing in Gerritsen Beach, a predominantly residential community, suffered significant damage from the 8 to 10 feet of tidal surge. The narrow courts in the "old section," south of the Gotham Avenue inlet, are at low ground elevations and were substantially flooded. Damage to housing units was most heavily concentrated in Gerritsen Beach south of Devon Avenue, where 1,378 of 1,601 (86.1%) of all housing units sustained some level of damage, including 195 units where flooding to first floor living space exceeded 4 feet.

Flooding was widespread in Sheepshead Bay, with the southern third of the community under water. Hit particularly hard were a concentration of homes known locally as "the courts." Between East 29th Street, Coyle Street, the Belt Parkway, and the waterfront, there are over 220 homes grouped in six courts that are located about 5 feet below the street level of Emmons Avenue and are not connected to city drainage infrastructure. In combination with the courts' sunken elevation relative to the surrounding neighborhood, this lack of connectivity to municipal stormwater infrastructure greatly increased the duration of floodwater on site and the resulting damage.



Multi-story and supportive housing in Sheepshead Bay was greatly affected by flooding. Damage to mechanical systems, electrical panels, and elevators, located in the basements and on the first floors, made buildings uninhabitable or greatly reduced their habitability for extended periods after the storm. Even in areas where flooding levels on the street were minimal, basement levels were deeply flooded, causing loss of contents, severe damage to building mechanical systems, and extended displacement of residents. Thus, many upper-floor units not directly flooded were uninhabitable for extended periods after the storm. Many basement-level apartments were entirely flooded, with loss of personal property and furnishings, the loss of housing for tenants, and the loss of critical rental income for property owners.

Flooding, sustained power outages, and the temporary dislocation of their customer bases led to prolonged or permanent closure of many businesses on key commercial corridors. Up to six months after the storm, as many as 40% of the businesses on Emmons Avenue remained closed. Damage occurred to mechanical systems, inventory, and building interiors and contents. Superstorm Sandy created an unprecedented quantity of debris, including large items such as boats, cars, and building materials, including a bar from Mill Basin that broke free from its foundation at Gateway Marina and floated more than a mile west before landing on residential street on the western side of Gerritsen Beach. The disaster debris was removed by the extensive efforts of volunteers and emergency responders in the weeks after the storm. Sand and other small debris infiltrated stormwater systems, impeding their function, as evidenced by the increase in nuisance flooding during high tides and small storms that have occurred since Superstorm Sandy.

More than a year after Superstorm Sandy's wrath, recovery efforts have been made but great needs remain and opportunities exist for creating a more resilient Community to avoid future devastation.

Critical Issues

Superstorm Sandy was an unprecedented event. The experience brought to light both local and city-wide weaknesses and needs, including:

- Lack of comprehensive emergency response plans to protect vulnerable populations, evacuate the public, and recover from the disaster;
- Vulnerable community assets, including homes, schools, and cultural and civic structures, which are ill-equipped to handle severe flooding and storm surge;
- Fragile local economy, for which business suffered greatly (e.g., physical damage, inventory loss, revenue decline) and not all have recovered;
- Inadequate infrastructure, such as low-lying roadways that hampered evacuation, and sewer systems failure that exacerbated flooding;
- Loss of power infrastructure for weeks after the storm; and
- Inadequate planning and processes to meet the needs of the Community's significant vulnerable populations, of which:
 - 21,495 (16%) are over the age of 65;
 - 16,140 (12%) are disabled; and
 - 70,943 (54%) speak a language other than English, with nearly 60% of foreign language speakers reporting that they speak English "less than very well." (U.S. Census, 2010, and American Community Survey)

These factors can complicate advance planning and preparedness measures at a community level and require special attention during and after an emergency, particularly in the evacuation phase.

The NYRCR Plan responds to these weaknesses, or critical issues, to recover from Superstorm Sandy and to make Gerritsen Beach and Sheepshead Bay more resilient to future storms.

B. Community-Driven Process

The NYRCR Plan was collaboratively developed by the NYRCR Planning Committee (Committee) with input from the residents, business owners, and members of civic associations of Gerritsen Beach and Sheepshead Bay. Local



uniqueness and diversity were accounted for in creating a vision, to rebuild in a manner that increases resilience, sustainability, and prosperity.

"Our vision is to restore and build upon the historic uniqueness and diversity of our waterfront communities by promoting resilient, prepared, and deeply rooted neighborhoods that will ensure a stronger, safer, and brighter quality of life for future generations."

Public Outreach

The Gerritsen Beach and Sheepshead Bay communities were provided a range of opportunities for collaboration during the planning process, which began in September 2013 and concluded in March 2014. Three Public Engagement Events (in October and November 2013, and February 2014) were held to solicit feedback from the Community on the NYRCR planning process, to help in the identification of local needs and priorities, to gather information used in the development of projects to address these needs, and to provide feedback on the proposed projects. A wide-ranging public outreach campaign was conducted using print and online media, flyer and poster distribution, e-mail, and word of mouth to inform Community residents of the meetings and opportunities to provide feedback through other methods, such as comment cards and on-line surveys.

The Committee held 12 Planning Committee Meetings between September 18, 2013, and February 27, 2014. During this extensive planning process, the Committee provided input on local issues, opportunities, and methods of public outreach; created strategies and projects that respond to the critical issues and storm effects of Superstorm Sandy; and worked with the public during Committee meetings and at the three Public Engagement Events to help them understand the planning process, and to gather valuable insights from the public on the plan development and the project proposals.

First Public Engagement Events

Public Engagement Events were held on October 7 and October 8 2013, and attended by more than 150 residents of the two Communities. The October 7th event was held in Sheepshead Bay, and the October 8th event was held in Gerritsen Beach. Both events opened with an introduction of the Committee.

An overview of the NYRCR planning process was provided, followed by a report on the Committee's progress to date. Most of the meeting time was devoted to facilitated breakout sessions at multiple tables, during which participants were asked for feedback on the Vision Statement, needs and opportunities, key strategies, community assets, and ideas for potential projects. The feedback helped guide the Committee and was incorporated into the NYRCR Gerritsen Beach/Sheepshead Bay Conceptual Plan, particularly with respect to needs and opportunities, key strategies, and project ideas.

Second Public Engagement Event

The second Public Engagement Event was held on November 20, 2013, at the Brooklyn Amity School in Sheepshead Bay and had approximately 100 public attendees. The purpose of this event was to share key elements of the NYRCR Conceptual Plan, with a focus on resiliency strategies and potential projects. The meeting format included a short presentation; small, structured working groups; and a short open house session.



Public Engagement Meeting on October 7, 2013
(Source: Elizabeth Graham)

Third Public Engagement Event

The third Public Engagement Event was held on February 27, 2014, at the Brooklyn Amity School in Sheepshead Bay and had approximately 55 attendees. The open house format included:

- A Welcome Station with program history and work to date;
- A Project Evaluation Station with an overview of the criteria, ranking, inventory process, and any other factors that went into the ranking process;
- Nineteen Project Stations, including Proposed Projects and Featured Project Boards; and
- An Exit Station at which participants could map their address and submit feedback forms.

Additionally, an electronic version of the survey was posted online and shared through social media outlets. Over 50 additional feedback forms were completed online and through additional outreach, and the information was compiled and shared with the Committee. Overall, post-meeting feedback was aligned with the feedback received during the meetings.

The final Public Engagement Event, to be held in spring 2014, will solicit additional input on the implementation of strategies and projects presented in the NYRCR Plan.

C. Blueprint for Implementation

Throughout the planning process, the Gerritsen Beach/Sheepshead Bay Planning Committee emphasized the following critical needs: identification of measures to reduce future flood impacts; repair and retrofit of homes, businesses, and key community facilities; and increasing the ability of local emergency management groups to perform pre-event planning and response activities during and after disasters. Members of the Community agreed with this identification of needs and provided valuable information that was used to help develop strategies to address them. The Committee relied on residents' specific local knowledge of, and personal experience with, the impacts of Superstorm Sandy. In many cases, this local knowledge was supplemented by the perspective of community groups, nonprofits, City and State agencies, and elected officials.

Implementation of these strategies will be pursued through a series of projects, also developed by the Committee with extensive public input, which are categorized in three groups: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations.

- **Proposed Projects:** Proposed Projects are proposed for funding through a community's allocation of CDBG-DR funding.
- **Featured Projects:** Featured Projects are innovative projects for which an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding, and regulatory reforms and other programs that do not involve capital expenditures.
- **Additional Resiliency Recommendations:** Additional Resiliency Recommendations are resiliency projects and actions the Planning Committee would like to highlight that are not categorized as Proposed or Featured Projects.

The table below provides a list of strategies, paired with the Proposed and Featured Projects that will execute them. The project list includes:

- Infrastructure enhancements to reduce direct effects of flooding
- Reconnaissance studies for large-scale flood risk reduction measures
- Retrofit measures to individual buildings
- Plans to increase local emergency response capabilities

The order of appearance is not a reflection of project priority or ranking.



Strategies and Projects

Identify methods to reduce future flood risk and damage

Reconnaissance Study for Storm Surge Reduction and Flood Barrier Systems (Proposed)

Evaluate options for reducing flooding in Gerritsen Beach, Sheepshead Bay, and the neighboring Manhattan Beach.

Identify methods to mitigate chronic sewer-related damage

Installation of Backflow Prevention Measures on City Infrastructure (Proposed)

Install valves or flap gates at stormwater outfall locations and modify catch basins to maximize capacity to prevent overflow.

Installation of Sewer Connection Cut-Off Valves (Proposed)

Install sewer connection cut-off valves in homes, businesses and community facilities.

Emmons Avenue, Complete Streets (Proposed)

This project would replace Sandy-destroyed street trees and plantings, and improve stormwater drainage infrastructure

Repair and improve Community infrastructure

Study of Street and Drainage Infrastructure Repair Needs, Gerritsen Beach (Proposed)

Identify needed repairs and modifications to streets and drainage infrastructure throughout Gerritsen Beach.

Repair and Reconstruction of Canton Court Bulkhead (Proposed)

Repair the bulkhead at the southern end of Canton Court in Gerritsen Beach.

Ensure adequate evacuation routes and advance planning

Evacuation Planning for Gerritsen Beach (Proposed)

Determine evacuation capacity of existing road network in Gerritsen Beach, where there is one road leading out of the neighborhood.

Increase community preparedness and emergency response capabilities

Identification and Retrofit of a Building for Use as an Emergency Response and Recovery Center in Sheepshead Bay (Proposed)

Designate and modify a facility for “one-stop-shop” information and resource headquarters in case of emergency.

Retrofitting of Vollies Hall and Gerritsen Beach Fire Department Station (Proposed)

Retrofit the existing emergency response and recovery centers to prevent damage to the buildings in case of another event.

Supplemental Community-Driven Emergency Response Programs (Featured)

Enhance local emergency response capabilities in Sheepshead Bay.

Foster a thriving and resilient small business community

Establish Merchants Associations (Featured)

Increase coordination and support among small businesses in Sheepshead Bay and Gerritsen Beach.

Retrofitting of Key Businesses and Community Services Assets (Proposed)

Install flood prevention measures and elevate mechanical systems of businesses and community facilities.

Installation of Backup Generators at Key Community Facilities (Proposed)

Install onsite power generation and storage equipment.

Support a resilient housing stock

Elevation and Retrofitting of Homes (Proposed)

Provide financial assistance for home elevation and/or retrofit of homes in high-risk areas to increase resiliency in future events.

Feasibility Study to Improve the Resiliency of the Courts in Sheepshead Bay (Proposed)

Identify retrofit solutions for “the courts” of Sheepshead Bay in relation to home raising and connection to City sewer system.

Homeowner Education Program (Featured)

Provide information and technical support to homeowners in high-risk areas.

Restore and improve recreational opportunities

Support the Resiliency and Maintenance of Plumb Beach (Featured)

Establish understanding of maintenance responsibilities at Plumb Beach to support the maintenance and protective features.

Construct a Resilient Comfort Station at Brigham Park (Featured)

Expand on current construction plans at Brigham Park in Sheepshead Bay to include a flood-resilient comfort station.

Howard Beach



NY Rising Community Reconstruction Plan

March 2014



Executive summary

Howard Beach is a peninsula located on the northern edge of Jamaica Bay in the New York City Borough of Queens. Nestled in between JFK International Airport, Spring Creek, and North Conduit Boulevard, the NY Rising Community Reconstruction (NYRCR) Howard Beach Planning Area includes four neighborhoods: Lindenwood, New Howard Beach/Rockwood Park, Old Howard Beach, and Hamilton Beach.

Howard Beach has roughly 20,000 residents, with incomes that range slightly higher than the New York City average. There are as many young people as seniors, with the community trending toward a larger senior population in the future. Howard Beach is a suburban-style bedroom community with a strong economic base that is concentrated in three business districts, all of which are at risk to sea-level rise and future flooding. Howard Beach has a community structure built around its

religious institutions and civic organizations. These organizations and community centers came to the aid of the NYRCR Howard Beach Community (the Community) in its time of need during the recovery from Superstorm Sandy (Sandy).

The Governor’s Office of Storm Recovery has allocated up to \$18.4 million in Federal Community Development Block Grant – Disaster Recovery (CDBG-DR) monies to fund eligible recovery and resiliency projects in Howard Beach. Recognizing that this funding cannot solve for all challenges, the NYRCR Howard Beach Committee (the Committee) has focused on a protection strategy for the edge of Howard Beach, a coordinated relief hub and satellite network built around local community organizations, and targeted improvements in the near-term to assist businesses, residents and particularly vulnerable neighborhoods.



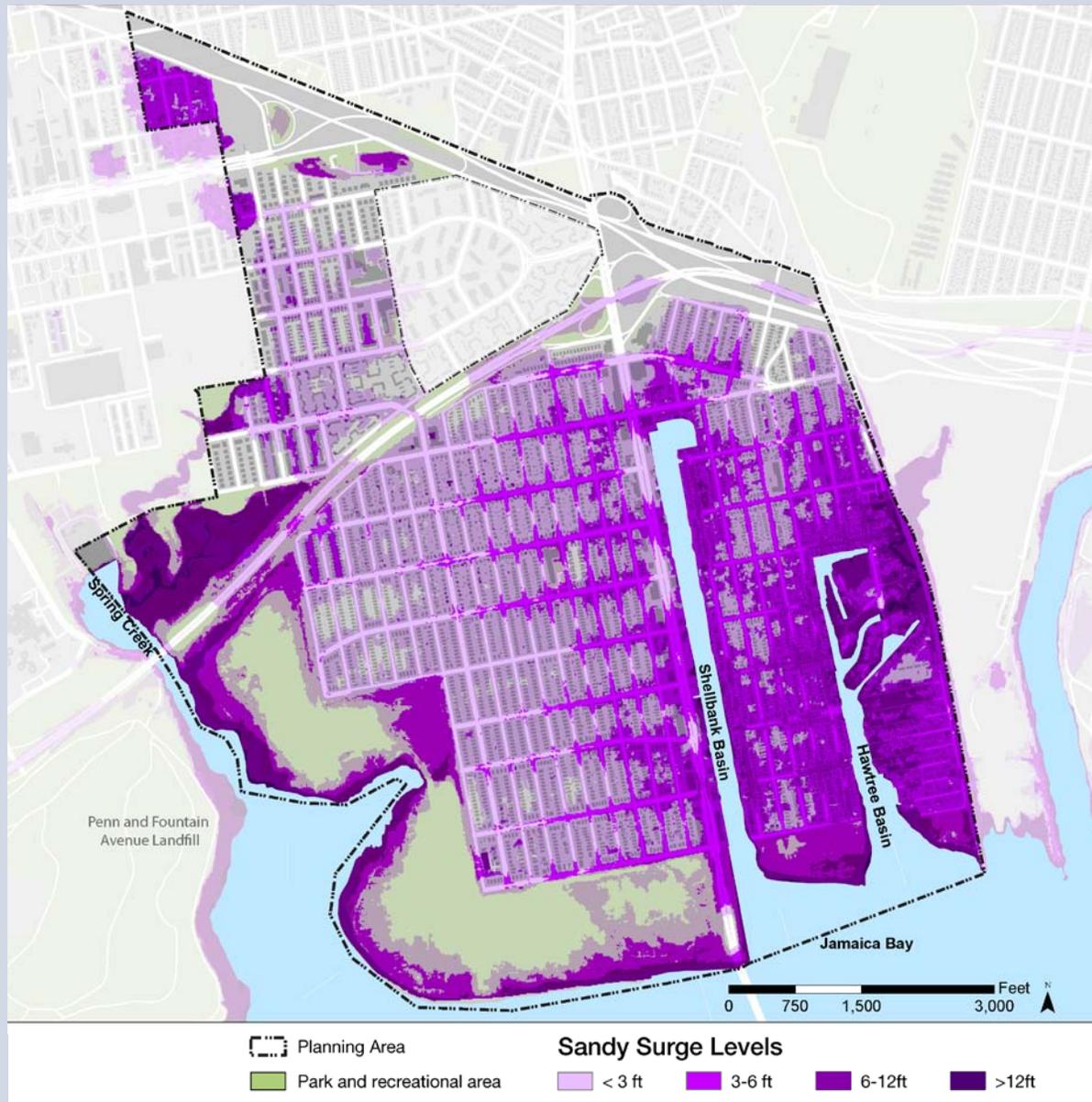
Recovering from the storm

Sandy was a rare confluence of weather patterns, creating a storm that inflicted devastating damage to communities throughout the region. Flooding was the key impact on Howard Beach and flood waters reached far out into every neighborhood, inundating places that had never previously experienced flooding. The effect of this storm has forced residents of Howard Beach to recognize that they must be more resilient to climate change and reconsider their relationship with water.

In the days following the storm, the Community realized its lack of emergency response and recovery planning, including no identification of a community gathering place. Without power and a centralized location, the local religious community, volunteer firehouse, and community organizations stepped in and provided refuge and relief. The Community's recovery reinforces the fact that resilience must focus on both physical improvements and strengthening of community networks.

Critical issues

Sandy shut off the power, backed up the sewers, flooded homes, and was particularly impactful to the vulnerable senior population in Howard Beach. The Committee wants to ensure that when the next storm or emergency hits, the Community will be prepared. Protection against flooding is paramount, but the Community must determine the optimal strategy and location for protection with the greatest



Inundation from Superstorm Sandy

Source: FEMA Modeling Task Force (MOTF) – Hurricane Sandy Impact Analysis.

likelihood for implementation. Protection must preserve the relationship with water that makes Howard Beach such an attractive place to live.

Howard Beach values its open space and natural areas. Protection measures will need to keep and increase connectivity to the waterfront and increase the value of the local natural amenities. The roads, the sewer lines, the power lines, and the subway system are all critical to the economic continuity of this community. Sandy exposed the vulnerability of the critical infrastructure of the Community. Storms like Sandy can have lasting impacts on the Community. The three business districts were all hit hard by the storm. Getting businesses back on line and preserving the continuity of the business districts is critical to staving off economic decline. Perhaps the most critical asset in Howard Beach is the Community itself. The Community revolves around its community centers. These centers need to be hardened to ensure that they can stay open, and they need to be organized as part of a larger relief network so that they can serve as the centers where the Community turns in times of crisis.

Community driven process

Community vision statement

The vision statement for Howard Beach speaks to the desire for retaining and enhancing the quality of life that already exists in this community. This community prizes its access to water and nature, shopping, good food and recreation space. The mix of youth, families, and seniors provides for a dynamic community environment. The local religious institutions provide the foundation for an active network of community organizations and community-based activities. This is a proud community that is looking to take the necessary steps to preserve its physical and social infrastructure and to protect and provide for its businesses and residents.

“To be a vibrant and sustainable community that enables residents and visitors to enjoy the bounty of its commercial strip and the natural beauty of Jamaica Bay.”

Public engagement

The Committee recognizes that a comprehensive resiliency plan in this community will be implemented only if there is broad involvement and support. To reach a wide spectrum of constituents, the Committee targeted specific groups and organizations, including businesses, civic leaders and seniors. Events were held, flyers were dropped in student backpacks, posters were plastered in stores, church bulletins carried the message, four local newspapers covered the events, and electronic invites and personal letters were sent out to the Community to encourage involvement. Three public engagement sessions were held to identify needs; refine strategies; and review and add insights and input to Proposed and Featured Projects. More than 400 people participated, providing input through comment cards, public dialogue, and voting to help the Committee select and refine the projects and the final plan.



A blueprint for future resiliency

The Committee has shaped a plan that will protect critical infrastructure against damage, strengthen the edge against future flooding and sea-level rise, and fundamentally build capacity within the Community to protect its businesses, residents, and vulnerable populations. This approach is consistent with the Committee’s mission to strengthen the foundations of its community and economic centers, and enhance its unique connection to water, nature, and active recreational opportunities.

Recovery support functions

There are six Recovery Support Functions, established by President Barack Obama in 2011 through the National Disaster Recovery Framework, which structure this NYRCR Plan. These Recovery Support Functions were utilized when developing needs, opportunities, strategies, and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a well-rounded resiliency strategy for the Community.

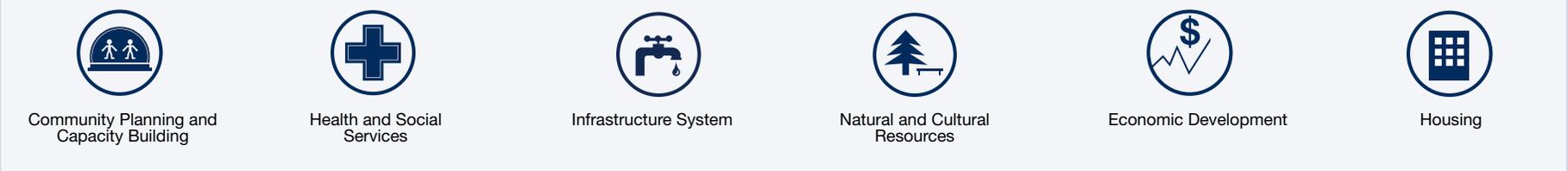
Needs and opportunities

The Committee identified needs based on impacts from Sandy. Needs are areas where the Community aims to reduce short- and long-term risks, and increase the resiliency of physical assets as well as build strength in community-based services. The following needs were identified:

- Strengthen the edge
- Enhance emergency preparedness and recovery operations
- Improve community and health services
- Develop resilient power supply
- Mitigate against sewer back-up
- Enhance economic resiliency
- Create resilient housing
- Expand and protect open space
- Protect Jamaica Bay

While the needs are significant, a number of opportunities will help lead the Community toward a resilient future. Multiple partners at the City, State, and Federal levels are already working on protection measures for multiple sections of the edge. This Committee can focus on the remaining missing piece in the protection puzzle. Agencies within the City of New York, the State of New York, and the public utilities are all taking action in response to Sandy to harden existing infrastructure against future storm impacts, allowing the Committee to focus on specific interventions that can build upon the actions being taken by others. Perhaps the most significant opportunity comes from the Community itself. A relief network requires a physical place that can serve as the center for relief efforts. The network relies upon strong, active, and coordinated groups of civic organizations and community groups. The foundation for this network is very strong in Howard Beach. Howard Beach also has a local champion that exhibits the capacity and capability to lead the recovery plan. The Committee has built upon these strengths and opportunities in developing its NYRCR Plan.

Figure 1: Community reconstruction plan – six recovery support functions





Strategies

The plan develops strategies to address the critical needs previously identified. The strategies look to strengthen the edge against future flooding and sea-level rise, harden critical infrastructure, and build capacity within the community to quickly provide relief to its businesses, residents, and vulnerable populations following an emergency.

The key strategies are:

- Protect the edge
- Provide a relief infrastructure focused on vulnerable populations
- Establish a power protection plan that integrates substation sites into the community
- Mitigate sewer back-up by protecting key assets in the network
- Mitigate localized flooding
- Develop programs to fund protection measures and technical assistance for vital economic corridors
- Protect housing by providing education and technical assistance
- Integrate improvements in park and recreational areas into resilience plans
- Increase access to isolated sections of the community
- Protect Jamaica Bay

Proposed and featured projects

The NYRCR planning process has resulted in nine Proposed and Featured Projects to improve the resiliency of Howard Beach. Proposed Projects are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding. Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. The following Proposed and Featured Projects are together the product of a collaborative, community process led by the Committee with public input.

Howard Beach Comprehensive Coastal Protection Study

Proposed Project

The project would commission a study to determine the cost and feasibility of tide gates at Shellbank and Hawtree Basins and a berm at Charles Memorial Park to fill in the missing piece in a larger comprehensive coastal protection plan for Howard Beach.

Coastal Protection – Phase 1: Charles Memorial Park Berm

Featured Project

This project would contribute funding to the on-land berm construction for Charles Memorial Park as the first phase of the coastal protection strategy for Howard Beach. This project seeks to leverage

funding and implementation partners to ensure that the comprehensive feasibility study results in a realized protection project.

Upper Spring Creek Ecosystem Restoration

Featured Project

The project would contribute to the New York City Department of Parks and Recreation project for Upper Spring Creek Park. The intention is that the Committee's allocation would fund coastal protection features, including berms situated at locations where flooding occurred in the Lindenwood neighborhood during Sandy.

Upper Hawtree Flood Protection and Drainage Improvements

Proposed Project

This project proposes targeted protection strategies and drainage improvements along the northern edge of Hawtree Basin and in Coleman Square to limit the flooding impact of full-moon tides that plague this Community. The project would combine berm, coastal protection, and drainage improvement measures to mitigate flooding problems.

Relief Center Hub

Proposed Project

The project would provide funding to an existing community facility for on-site capital improvements that harden the building. Additionally, to establish a single organization that serves as the organizer

of the relief effort, the project would provide initial staffing costs to support the staffing of the coordinator position.

Satellite Relief Centers

Proposed Project

This project would fund the creation of a network of “satellite” relief centers to provide and coordinate local relief supplies and services following a disaster, such as provision of food, water, power, health, basic medical services, and information.

West Hamilton Beach Volunteer Fire Department (WHBVFD) Resiliency Improvements

Proposed Project

The proposed project would harden the WHBVFD facility, which would support the social and physical resiliency in the community before, during, and after disasters. Hardening the facility would allow the WHBVFD to better withstand extreme conditions during an emergency and continue to serve the community.

Business Resiliency Program

Proposed Project

This program would help businesses and commercial building owners identify measures to improve the resiliency of business operations and buildings. The program would provide technical assistance to implement resiliency strategies as well as physical improvements and preparedness plans, and offer capital funding to support physical improvements.

Residential Resiliency Program

Proposed Project

This project would fund a general educational program that would offer property owners critical residential resiliency information and individualized counseling and technical assistance tailored to assist high-need home and property owners.

When coupled together, the NYRCR Plan for Howard Beach offers a blueprint for implementation that would protect the edge, provide a relief network to help the community cope with future storms, and assist local businesses, residents and neighborhoods in the near-term.

Lower Manhattan

NY Rising Community Reconstruction Plan

MARCH 2014



NY Rising
Community Reconstruction Program



Executive summary

The NY Rising Community Reconstruction (NYRCR) Plan for Lower Manhattan is driven by the idea that community resiliency following an emergency depends on the ability of both physical and social structures to bounce back after such an event. Superstorm Sandy unleashed devastating effects in Lower Manhattan, throughout New York City, and in the tri-State area – effects that persist even today, 17 months later. Visible impacts tell of the damage done to buildings and infrastructure: from temporary boilers that still heat some apartment buildings, to shuttered storefronts along Front Street in Lower Manhattan, to the lasting closure of the Montague subway tunnel. The resiliency of physical structures, however, is no more important than social resiliency and the strength of the ties that bind a community together.



Immediately after Superstorm Sandy, community organizations such as Good Old Lower East Side (GOLES) rallied volunteers for recovery efforts.

Source: Courtesy of GOLES.

Lower Manhattan and the NY Rising Community Reconstruction Plan

The Governor's Office of Storm Recovery has allocated up to \$25 million in Federal Community Development Block Grant-Disaster Recovery (CDBG-DR) dollars to fund eligible recovery and resiliency projects in the Lower Manhattan Planning Area, a mosaic of diverse neighborhoods in Manhattan south of 14th Street, from the Hudson River to the East River.

The Lower Manhattan Planning Committee is made up of 17 members of the community, including members of all three Community Boards that fall within the Planning Area, community residents, business leaders, and representatives of local non-profit organizations. The Committee faced a daunting task in collectively assessing the needs and priorities of the Planning Area, which is the single largest NYRCR Planning Area by population and covers many neighborhoods with differing demographics, character, density, and building types. Across these divergent localities, there is one constant: the high price of physical interventions and infrastructure hardening, particularly given the dense urban environment here that dates back to New Amsterdam's beginnings.

Many efforts led by public agencies, utilities, and private building owners throughout Lower Manhattan are already underway. Identifying and considering these initiatives allowed the Planning Committee to pinpoint gaps that could be filled through the NYRCR Program.

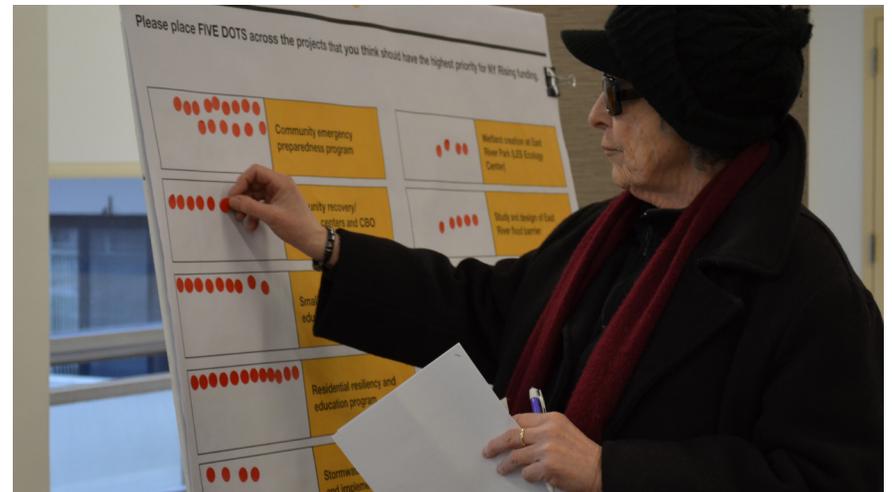
Sandy’s impact and the recovery

The combination of high tide, a full moon, and Superstorm Sandy’s size and wind dynamics created a massive surge of salt water, causing flooding and sewer backup. Flooding primarily affected the areas with lowest elevation adjacent to the shoreline, and in some cases, water overtopped the bulkheads and infiltrated areas inland. In addition to direct damage caused by flooding, preventative transportation and utility shutdowns and major power failures led to the widespread loss of electrical power, steam, transit, and telecommunications systems, impacting the Community even in areas not reached by flood waters. Following Superstorm Sandy, local emergency response efforts based on pre-existing social infrastructures seemed to materialize overnight, with community groups jumping into action to augment public recovery and rebuilding efforts.

A community-driven process

This Plan showcases a community-based planning process that has integrated both social and physical resiliency to inform a plan for a more resilient Lower Manhattan for years to come.

This Plan is the product of a collaborative community-based process led by the Committee. Input on needs and comments on projects were gathered through three Public Engagement Events, meetings of all three local Community Boards, and responses received from the public through the internet and in person. Based on this feedback, the Committee has developed an NYRCR Plan that seeks to address the specific and unique needs of the communities in the Lower Manhattan Planning Area. At early Public Engagement Events, public feedback contributed to the Community Vision Statement, which reflects these goals.



Lower Manhattan is located at the southern tip of the island of Manhattan (top). Community members voiced their feedback during Public Engagement Events (bottom).



Community-based organizations collected food and supplies to deliver to residents throughout Lower Manhattan. Source: Courtesy of GOLES.

Community vision statement

Through the NY Rising Community Reconstruction Plan, the Lower Manhattan community aims to **improve the capacity and readiness of all community members** to prepare for, respond to, and quickly recover from severe weather-related events; to **address needs currently unmet** by existing rebuilding and resiliency efforts; and to **support the vital and diverse character and history** of Lower Manhattan.

The Vision Statement reflects the Committee's focus on the strategic use of NYRCR funding to fill gaps in resiliency efforts already underway, with an emphasis on meeting the needs of the most vulnerable residents in Lower Manhattan. Vulnerable populations are those individuals who have limited mobility due to physical or other disability, limited communication skills (e.g., due to limited English proficiency), and/or a limited ability to control their environment. They are the most at risk during emergency events, and their collective safety was compromised by the particular effects of Superstorm Sandy and the power failures and cold weather that followed soon thereafter.

Critical issues and approaches

To address the needs of vulnerable populations during and following emergencies, the Committee focused on providing support to the community-based organizations (CBOs) that serve these residents on a daily basis.

In addition to the focus on vulnerable populations, the Planning Committee has prioritized strategic investments that are complementary to existing recovery and resiliency initiatives, by boosting emergency preparedness coordination, educating residents and small businesses about resiliency, and filling gaps in resiliency planning. The Committee also sought ways to leverage other efforts or investments by filling funding gaps for existing or planned government programs, and to create or expand scalable programs that could be replicated citywide. Finally, the Committee sought to identify projects that are highly feasible, able to be implemented on a short timeline, and whose benefits could thus be realized within the next few years.

Given this framework, the main areas of focus of the Committee were bolstering community emergency preparedness by investing in existing, unfunded initiatives; concentrating efforts and resources toward programs that benefit vulnerable populations; and developing replicable programs that seed further investment wherever possible.

A blueprint for future resiliency

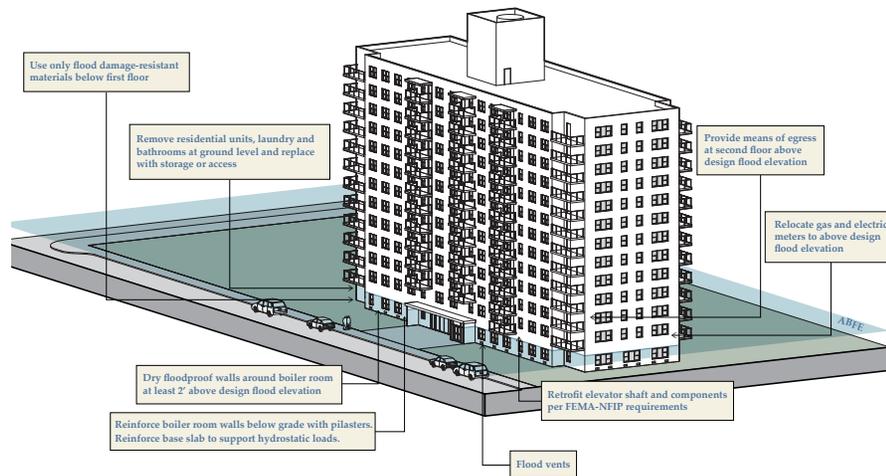
The NYRCR Plan for Lower Manhattan offers a blueprint for the implementation of the goals of the Planning Committee, outlining concrete strategies for enhancing the Community's resiliency.



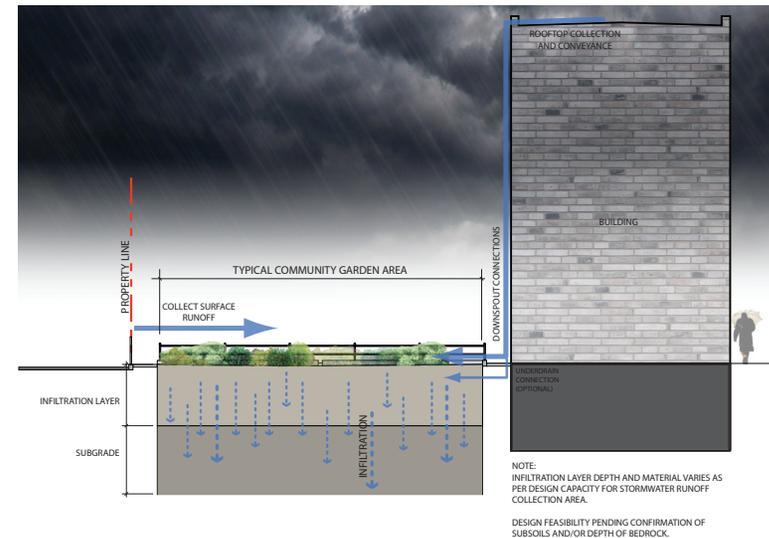
Community-based organizations quickly established supply distribution networks to deliver critical support to vulnerable populations in the wake of Superstorm Sandy. Source: Courtesy of GOLES.

Recovery support functions

The NYRCR Plan is informed by six Recovery Support Functions, established by President Barack Obama in 2011 through the National Disaster Recovery Framework. These Recovery Support Functions were used when developing needs, opportunities, strategies, and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a holistic resiliency strategy for the Community.



To enhance residential building resiliency, one Proposed Project would fund the creation of information center, and the provision of technical and financial assistance, around making resiliency upgrades to residential buildings.



Another Proposed Project would allocate funding toward the study and implementation of stormwater capture measures in the Planning Area, potentially including drainage systems in community gardens, seen here.

Strategies and projects

The NYRCR Plan contains six strategies and incorporates nine Proposed and Featured Projects to improve the resiliency of Lower Manhattan, as described below. Proposed Projects are projects that the Lower Manhattan Planning Committee has recommended to be fully funded through the NYRCR process. Featured Projects are innovative projects that may require additional funding sources for implementation, and for which the Committee has recommended funding an initial phase of implementation. The projects are not listed in any priority order.

Improve emergency preparedness through enhanced coordination and planning

Community emergency preparedness program (Proposed Project).

This project would create: (a) one or more local community emergency preparedness coordinators and (b) local emergency preparedness programs and plans, throughout the Planning Area.

Ensure CBO capacity to deliver key services to local populations during emergency events

Community resource/recovery center and CBO grant program (Proposed Project).

This project would fund: (a) a network of hardened community resource/recovery centers, to be based out of existing community facilities and organizations; and (b) grants to provide technical and financial assistance programs to CBOs to implement the functions of the community emergency preparedness plans.

Strengthen the resiliency of existing residential buildings

Residential resiliency and education program (Proposed Project).

This project would fund: (a) the creation of a resiliency information

assistance center for residential building owners, tenants' associations, and managers, as well as (b) technical assistance and individual counseling and (c) financial assistance for improving the resiliency of residential buildings.

Empower small businesses to become more resilient

Small business resiliency and education program (Proposed Project).

This project would fund: (a) the creation of an information and assistance center to connect ground-floor and below-grade small business retailers with existing programs and resources, as well as offer technical assistance for improving the resiliency of operations and retail spaces, and (b) financial assistance to help small businesses pay for technical audits and recommended resiliency upgrades.

Improve stormwater capture and retention

Stormwater capture and retention study (Proposed Project).

This project would fund: (a) a study to examine feasibility, costs and benefits, and potential sites for a high-impact implementation program of various stormwater capture and retention approaches in the Planning Area, followed by (b) the implementation of recommended scalable pilot projects.

Wetland creation at East River Park (Proposed Project).

This project would fund the construction of a one-acre artificial wetland on a currently unoccupied portion of land in East River Park near Corlears Hook.

Protect edge neighborhoods from coastal flooding

Berming and deployable walls at Battery Park (Featured Project).

This project would support the implementation of a system of berms and adjoining deployable flood barriers at Battery Park, for protection

against a 500-year flood event, as well as conceptual design for future phase(s) of work to the east and west of the Phase 1 project site.

Targeted flood protection strategy for Lower West Street (Featured Project). This project would fund a feasibility study and conceptual design for a targeted strategy for protection of the lower West Street area against a 100-year flood event, proposing strategies at sites to the north and south of Battery Park City.

Coastal protection study for west and east side (Proposed Project). This project would fund a feasibility study and conceptual design for a series of multipurpose flood barriers for protection of the east and west sides of Lower Manhattan against a 100-year flood event, using measures such as a raised greenway, berming, and deployable walls.

Outline of the Plan

The Plan begins with Section **I. Community Overview**, which provides an orientation to the Community, the critical issues laid bare by Superstorm Sandy, and the Planning Committee's work in the context of ongoing resiliency and recovery work.

The following Section, **II. Assessment of Risks and Needs**, describes the diverse assets at risk from future storms, and uses the Planning Committee and public feedback to catalog those risks. Using the risk assessment tool developed by the NYRCR Program, this section identified key opportunities for action that form the rationale for resiliency strategies and the related projects developed by the Planning Committee.

The next Section, **III. Reconstruction and Resiliency Strategies** describes strategies developed by the Committee to respond to needs, opportunities, and risks to assets measured through the risk assessment process.

The Proposed and Featured Projects, which are the path to implementing those strategies, are described in more detail in Section **IV. Implementation—Project Profiles**.

The final Section, **V. Additional Resiliency Recommendations**, describes additional resiliency recommendations strongly supported by the Community, as well as provides a list of the Proposed and Featured Projects described in Section IV. This Section also describes in more detail the public engagement process which informed this Plan, and provides additional information around existing local initiatives, the risk assessment process, and the assets identified by the Community in Section II.

Red Hook

NY Rising Community Reconstruction Plan

MARCH 2014

NY Rising
Community Reconstruction Program



Executive summary

The Red Hook NY Rising Community Reconstruction (NYRCR) Plan showcases the results of an intensive community-based resiliency planning process and is driven by the local knowledge and collaboration of Red Hook residents. Red Hook was devastated by Superstorm Sandy with critical housing, economic, social, natural, and infrastructure systems impacted.

Over a year later the impact continues to reverberate throughout the community, as residents and businesses struggle to address the physical and financial damage the storm caused and grapple with the uncertainty of what future storms and other disruptive events may bring.

Through the recovery process the Red Hook community showed great strength, coordination, and goodwill and spearheaded a remarkable grassroots response. The NYRCR Plan captures the Community's experience during and after Sandy and its vision for making Red Hook stronger and more resilient in the future.

Red Hook and the NY Rising Community Reconstruction Plan

The Governor's Office of Storm Recovery has allocated up to \$3 million in Federal Community Development Block Grant–Disaster Recovery (CDBG-DR) monies to fund eligible recovery and resiliency projects in the Red Hook Planning Area.

The Planning Area, spanning 1.3 square miles and including 12,400 residents, is a dynamic mixed-use neighborhood with a unique character and discernible small-town feel. Notable Community features include prominent industrial, manufacturing, and maritime assets along with growing mixed-use commercial corridors, a wealth of open space, and a diverse population comprised of both new and longtime residents. The neighborhood's character is framed by the historic significance and evolving composition of its working waterfront, peninsular nature, and relative isolation from the rest of Brooklyn due to the Gowanus Expressway.

Red Hook is a changing Community. Over the years residential uses have grown while industrial and manufacturing activity has decreased. Proposed developments such as a new hotel, galleries, and new housing would significantly alter the fabric of the Community. While these developments may usher in welcome economic improvements, they also pose risks for the affordability and overall mixed-use balance of Red Hook. Addressing resiliency within this diverse context presents unique challenges and opportunities.



In the wake of Sandy, Red Hook businesses and residents went to great lengths to support the Community (top). Debris cleanup required after Sandy was extensive (bottom). Source: Jojo Demirel (top); Jim Tempakis (bottom).

Superstorm Sandy's impact and the recovery

Storm surge from Superstorm Sandy inundated almost the entire neighborhood, resulting in extensive damage to homes and businesses and profoundly impacting lives and livelihoods. Flooding resulted in extensive building damage and disruption to the neighborhood's infrastructure, which had a disproportionate impact on vulnerable populations including the residents of the New York City Housing Authority's (NYCHA) Red Hook Houses. The Community's businesses were also disrupted and remain profoundly affected by the storm's impacts.

While Superstorm Sandy revealed Red Hook's many vulnerabilities, it also revealed its capacity for unprecedented cooperation and action. Red Hook residents, community-based organizations, businesses, and regional partners rallied in response, piecing together an essential system of distribution and support with limited resources. There are innumerable stories of neighbors helping neighbors and support pouring in from communities near and far. The Community's mobilization and organization has become a regional precedent for grassroots organizing and response.

A community driven process

The NYRCR Plan builds on the neighborhood capacity and experience developed in the wake of Sandy. The Red Hook Planning Committee—comprised of residents, civic leaders, and business owners—served as the leaders of this process and took on the challenging role of creating a unified vision for Red Hook’s resiliency needs and priorities across this varied Community. The Committee embraced the opportunity the NYRCR Program provided not only to develop a resiliency plan, but also to engage a broad swath of the Community, integrating a myriad of ideas in order to generate a unified and inclusive set of priorities for shaping Red Hook’s future. **The Planning Committee guided an extensive community engagement process fueled by 14 Planning Committee Meetings, three Public Engagement Events, and multiple additional engagement meetings.**

Many efforts are already underway by public agencies, utilities, and non-profits in the Red Hook Community and the Planning Committee worked to understand the initiatives and to avoid the duplication of efforts. Avoiding redundancy and leveraging knowledge already gained is a priority of the Committee as Red Hook builds toward a resilient future.



Residents input at Public Engagement #1 in October, 2013 (above) and Public Engagement #3 in February 2014 (below) shaped the NYRCR Plan.

Source: Carolina Salguero (bottom photo)

Community vision statement

“Empowered by the spirit of unity that helped the Red Hook community survive Superstorm Sandy, our vision for a **resilient and thriving** future is to work as a holistic community to **strengthen the historic waterfront** Red Hook Peninsula by minimizing differences and **maximizing cooperation** among all who live and work here. **Mindful of the growing climate-related** risks to our beloved community and the immediate need for improved emergency preparedness measures, our actions will serve to help to develop measures that will protect our neighborhood from flood inundation, **increase the safety of our citizens**, and move towards a **resilient community**. We are committed to **maintaining and expanding affordable housing** and **increased economic activity** with an emphasis on **local job development**, recognizing the importance of their interdependence. Our rebuilding efforts towards a resilient and sustainable community are focused on a sincere triple bottom line **integration of environment, economy, and community**, which will require **substantial improvement to our long-neglected infrastructure** including sewers, transportation, communications, power and energy provision, and education.”



Community members gather at Red Hook Fest at Valentino Pier Park. Source: Carolina Salguero

Critical issues

Red Hook residents and Planning Committee members identified numerous vulnerabilities and resiliency issues that were brought to light in the wake of Superstorm Sandy. **The Committee’s focus extended far beyond resiliency to issues of economic development, equity, and sustainability.** Recognizing that climate change will force the adaptation of Red Hook’s physical and cultural landscape, the Planning Committee sought resiliency improvements that could serve the greatest number of residents, provide economic co-benefits such as job creation, and be implemented quickly, resulting in immediate benefits. Much attention was given to emergency preparedness, capacity building, small business resiliency, chronic sewer system issues, and broader economic development strategies.

A blueprint for future resiliency

The NYRCR Plan for Red Hook offers a blueprint for implementation of the goals and vision of Red Hook residents. The Plan identifies critical resiliency strategies and recommends Proposed and Featured Projects. Proposed Projects are projects that the Planning Committee has recommended be funded through their Community’s CDBG-DR allocation. Featured Projects are innovative projects that the Committee is highlighting in the NYRCR Plan and potential second phases that would result from Proposed Projects.

Recovery support functions

The New York State Department of State (NYS DOS) has recommended a structure for each plan focused on a set of criteria, known as Recovery Support Functions. These Recovery Support Functions were utilized when developing needs, opportunities, strategies and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a comprehensive resiliency strategy for the Community.



New York Rising Community Reconstruction Plan Six Recovery Support Functions

Strategies and projects

Strengthen community capacity to prepare for, respond to, and recover from emergencies

Relief center network (Proposed). Fund the creation of a network of relief centers to house the coordination of relief services following a disaster, such as provision of food, water, power, medical services, and information.

Emergency backup generator for health and social services provider (Proposed). Purchase and install one fixed generator for a health and social service provider in Red Hook to ensure continuity of critical services to the Community during and after an emergency.

Strengthen individual economic resiliency & financial stability

Resiliency construction workforce training (Proposed). Fund training of Red Hook youth and adults—particularly low-income individuals with limited employment experience and/or education—and connect them to employment opportunities related to the construction of resilient infrastructure or building improvements.

Increase the resiliency of existing businesses and promote opportunities for economic development, & increase the physical and economic resiliency of private and public housing

Local financial assistance program for small businesses, star-ups, and homeowners/tenants (Proposed). Provide financial support to Red Hook small businesses and homeowners/tenants seeking to implement resiliency upgrades, as well as to entrepreneurs seeking to start micro-businesses.

Solar-powered emergency lights for Red Hook Houses stairwells (Proposed). Fund the implementation of a solar-powered emergency lighting pilot project in two or three buildings in Red Hook Houses. A second phase of this project would expand the program to all 30 residential buildings (Featured).

Create opportunities for alternative and/or redundant power generation and distribution

Red Hook Houses microgrid feasibility study (Proposed). Conduct a feasibility study for a microgrid that can provide backup power for Red Hook Houses—home to 50% of the Red Hook Community—during an emergency. Implementation of the project could occur during a second phase (Featured).

Increase transit connectivity and redundancy to facilitate evacuation and rebuilding

New ferry landing at or near Atlantic Basin (Proposed). Provide partial funding for the construction of a new ferry landing, at or near Atlantic Basin, contingent on Port Authority of New York and New Jersey (PANYNJ) and New York City Economic Development Corporation (NYCEDC) approval to use the site and a commitment of matching funds by a private/public entity to ensure completion of the ferry landing. A key second phase would secure operating subsidies to extend commuter ferry service to the new landing (Featured).

Improve drainage and reduce flooding from sewer backup

Red Hook drainage study (Proposed). Analyze the existing conditions that contribute to frequent flooding in Red Hook. By uncovering unknown details of existing conditions, the study would identify specific measures to improve drainage in the neighborhood.

Provide coastal flood protection

Integrated flood protection system (Featured). The Committee applauds the recent announcement of a \$200 million partnership between the State and the City of New York to construct a comprehensive flood management system—the first of its kind in the nation—to protect Red Hook. This project would reduce risk for much of the Community and is critical to the overall safety of this evolving neighborhood. The Community has drafted principles to guide the development of the project.

These initiatives are only a small segment of what is needed to achieve Red Hook’s full range of physical, economic and social resiliency goals. Additional recommendations proposed in the NYRCR Plan include:

- Preparation of a local emergency preparedness plan
- Implementation of a virtual citywide resiliency information clearinghouse, with specific information for local communities
- Creation of a resilient healthcare resource program with a mobile health clinic
- Development of partnership between Community Emergency Response Team (CERT) participants and emergency services/nurse training
- Study of land and facilities activation at and around Atlantic Basin
- Study of the economics of resiliency upgrades for industrial properties
- Construction of resiliency improvements at Red Hook Houses
- Support for National Flood Insurance Program (NFIP) reforms that mitigate premium increases
- Creation of a community/cultural/food space in Red Hook Houses
- Improvement of communication and collaboration between Red Hook residents, PANYNJ, and NYCHA, the largest property owners in Red Hook
- Establishment of direct bus service from Red Hook to Lower Manhattan
- Completion of repairs to the Van Brunt Street Pumping Station

Outline of the plan

The NYRCR Plan begins with **Section I. Community overview**, which provides an orientation to Red Hook’s distinctive character, the critical issues that were revealed by Sandy, and the Planning Committee’s work in the context of recent and parallel resiliency and recovery efforts and studies. Initiatives such as Federal Emergency Management Agency (FEMA) updates to Federal Insurance Rate Maps (FIRM), the legislation surrounding proposed repeals of NFIP subsidies, and the City of New York’s Special Initiative for Rebuilding and Resiliency are noted here.

The next **Section II. Assessment of risks and needs**, describes the diverse assets at risk from future storms as identified by the Planning Committee and the public. This section identifies key needs and opportunities that form the rationale for resiliency strategies and the related projects developed by the Planning Committee.

Section III. Reconstruction and resiliency strategies presents priority strategies that organize the risks, needs, and opportunities which were outlined in previous sections. The reconstruction and resiliency strategies lead into the development of Proposed and Featured Projects.

The Proposed and Featured Projects, which are the path to executing resiliency strategies, are described in more detail in **Section IV. Implementation - project profiles**.

Section V. Additional materials includes Additional Resiliency Recommendations, and the Extended Table of Resiliency Recommendations which presents the sum total of key projects discussed by the Community. Detailed information on Public engagement is also provided in this section.

Rockaway East

NY Rising Community Reconstruction Plan

MARCH 2014

NY Rising
Community Reconstruction Program



A coastal cityscape featuring a beach, a bridge, and a tall apartment building under a cloudy sky. The foreground shows a paved walkway with a curved metal railing and a street lamp. The middle ground includes a sandy beach with sparse vegetation and a body of water. In the background, a long bridge spans the water, and a tall, multi-story apartment building stands prominently on the left side. The sky is overcast with grey clouds.

Executive summary

Executive summary

Rockaway East and the NY Rising Community Reconstruction Plan

Through the NY Rising Community Reconstruction (NYRCR) Program, the Governor's Office of Storm Recovery has allocated up to \$15.1 million in Federal Community Development Block Grant–Disaster Recovery (CDBG-DR) funding for eligible recovery and resiliency projects in the Rockaway East Community.

The Rockaway East NYRCR Planning Area (Planning Area), located at the eastern edge of the Peninsula, is bounded by Beach 74th Street to the west and by the Nassau County line to the east. Made up of 14 members of the Community, the Rockaway East NYRCR Planning Committee (Committee) includes representatives from Community Board 14, and local civic, community, and religious organizations. As a community located on a barrier island, Rockaway East shares coastal protection challenges with the two other NYRCR Communities on the Rockaway Peninsula: Breezy Point and Rockaway West.



Sandy's impact and the recovery

The neighborhoods of Arverne, Edgemere, Bayswater, and Far Rockaway on the eastern portion of the Rockaway Peninsula in Queens were hard-hit by Superstorm Sandy (Sandy). While these communities are diverse in physical and social character and experienced differing types of damage, they also share common issues and needs, and came together as the Rockaway East Planning Area to produce a community-led plan for a more resilient future through the NY Rising Community Reconstruction (NYRCR) process.

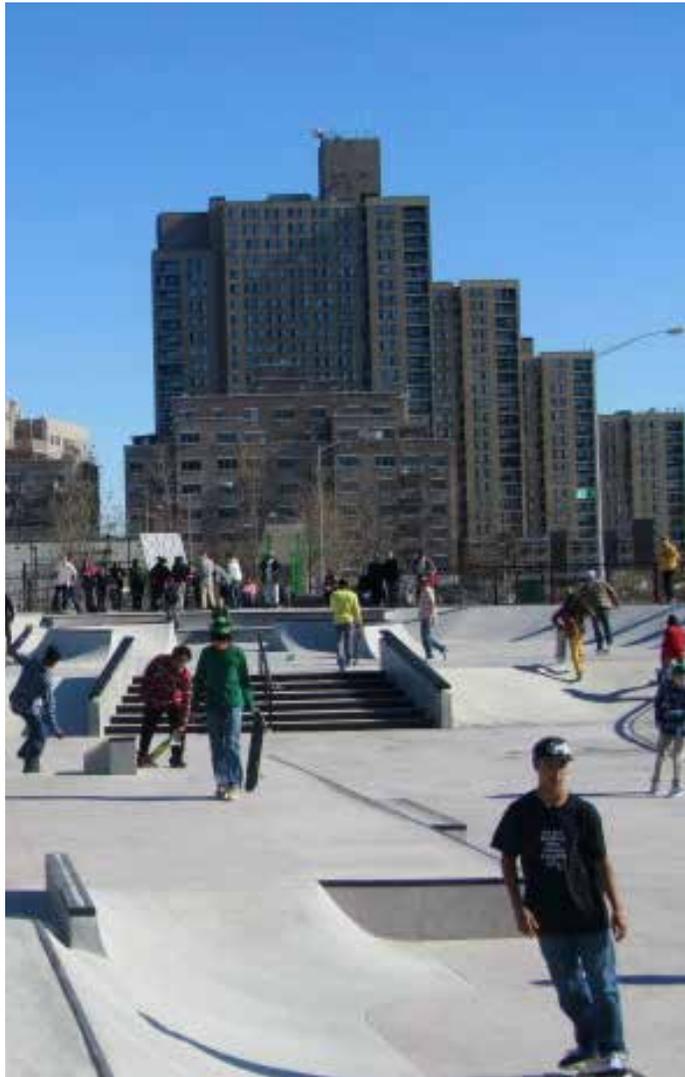
Damage from Sandy varied by neighborhood. The low-lying areas on the bay edge of the Planning Area, where homes were severely damaged and destroyed, were among the most dramatically impacted. Throughout Rockaway East, all residents suffered from lasting power outages and transportation disruptions.

In the days following the storm, residents and volunteers united to provide immediate relief and to begin the gradual process of rebuilding. Community members led and continue to drive local recovery efforts. Public input and local ownership of rebuilding decisions are reflected throughout the Plan.

Seventeen months after Sandy, its effects are still visible. Families are unable to return home, businesses remain shuttered, and efforts to enhance coastal protection are gradual. This Plan represents a community-based vision for rebuilding and enhancing the community.



The boardwalk at Beach 36th Street after Sandy. Source: Flickr user scarlatti2004, licensed under Creative Commons.



Far Rockaway skate park. Source: With permission from Denean Ferguson.

“The NY Rising Program [is] a ground-up effort to restore some sort of normalcy to the lives of people that have been affected by ... Hurricane Sandy.”

– Rockaway East NYRCR Planning Committee Co-Chair



Residential street in Rockaway East.

Community vision statement

“The neighborhoods of Rockaway East will rise up and leverage our robust social networks, diverse economy, and abundant natural resources to restore and develop a more vibrant, resilient, and sustainable community.”

A community-driven process

This NYRCR Plan is the product of a collaborative community-based process led by the Committee. Input on needs and projects were gathered through three Public Engagement Events as well as online outreach. Based on this feedback, the Committee developed a NYRCR Plan that seeks to address the unique needs of Arverne, Edgemere, Bayswater, and Far Rockaway, and of the Planning Area as a whole.

The first Public Engagement Event gathered public feedback, which was synthesized into the Community Vision Statement, based on goals that drove the subsequent process of identifying and planning projects to respond to diverse community perspectives on priorities and critical issues.

This NYRCR Plan complements and builds on the numerous other efforts already underway, led by residents, public agencies, utilities, community organizations, and building owners throughout the Rockaway Peninsula.



A vision for improved and resilient streetscaping at Mott Avenue.

The Planning Committee reviewed and assessed these initiatives in order to identify gaps that could be filled through the NYRCR Program.

Critical issues

The Vision Statement reflects the Committee’s emphasis on leveraging NYRCR funding to achieve a number of goals:

- Increase the social resiliency of Rockaway East neighborhoods, with a particular focus on supporting the Community’s most vulnerable populations. Vulnerable populations are individuals with limited mobility due to physical or other disability, inhibited communication skills (e.g., due to limited English proficiency), and/or a constricted ability to control their environment. The safety and security of many of Rockaway East’s most vulnerable residents was compromised by the effects and aftermath of Superstorm Sandy.
- The Rockaway East Planning Committee also explored coastal protection strategies that protect the Community from rising sea levels and issues exacerbated by extreme events, such as drainage and flooding.
- The need for economic revitalization, support for small businesses, and workforce development opportunities were also emphasized throughout the process.

Given the wealth of existing or planned government and citywide programs, this Plan also recommends supporting other efforts and investments by filling funding gaps or seeking policy changes.



Flooding from poor drainage in Rockaway East is a frequent problem.

A blueprint for future resiliency

The NYRCR Plan for Rockaway East offers an outline for the implementation of the goals of the Planning Committee. The Committee sought to identify projects that are highly feasible, able to be implemented on a short timeline, and whose benefits could thus be seen within the next few years.

Recovery support functions

There are six Recovery Support Functions, established by President Barack Obama in 2011 through the National Disaster Recovery Framework, that structure this NYRCR Plan. These Recovery Support Functions were utilized when developing needs, opportunities, strategies and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a comprehensive resiliency strategy for the Community.



Strategies and projects

The plan contains **3 strategies** and **11 Proposed and Featured Projects** to improve the resiliency of Rockaway East, as described below. Proposed Projects are projects that the Rockaway East Planning Committee has recommended to be funded through the NYRCR Program process. Featured Projects are innovative projects that may require additional funding sources for implementation, and for which the Committee has recommended funding an initial phase of implementation. The projects are not listed in any priority order.

Protect the community from flooding, surge, and sea level rise

- 1 **Thursby Basin Park drainage (Proposed).** This project would coordinate with the NYC Department of Parks and Recreation (NYC DPR) to construct a rain garden within the new Thursby Basin Park in Arverne, using green infrastructure to collect, store, and treat stormwater.
- 2 **Bayside coastal protection (Featured).** By restoring wetland habitat and raising portions of the Bayside Nature Trail, this project adds resiliency measures to recreational and ecological conceptual projects under consideration in Arverne, Edgemere, and Mott Basin.

Bolster Community Resiliency

- 3 **Relief center network** (Proposed).** This project would create a network of relief centers to house the coordination of relief activities following a disaster at the community level, providing a physical center for activities and capacity to coordinate with emergency management agencies and organizations.

4 **Local health center resiliency* (Proposed).** This project would fund capital improvements to strengthen the local health center facility against future storms and emergency events.

5 **Health care service expansion* (Proposed).** This project would fill a service gap by establishing a new health care facility on the Peninsula to provide either urgent care or emergency services.

6 **Residential education and technical assistance* (Proposed).** This proposed program entails two primary components – (1) general education and (2) individual counseling and technical assistance. The program would help property owners to fully understand the physical and financial risks facing their homes and to make more informed decisions about resiliency investments.

Strengthen Economic Resiliency

7 **Workforce development* (Proposed).** This project would expand workforce training and connect Rockaway East residents to employment opportunities in a range of resiliency-related industries.

8 **Mott Avenue corridor improvements (Proposed).** This project would make improvements to beautify street conditions, attract investment, and to help the area become more physically resilient so it can play a role in the wake of an event.

9 **Seasonal business and amenity expansion** (Proposed).** This project would construct a temporary shipping container market in a prominent location to showcase quality Rockaway East local businesses in a fresh context for both visitor and local markets.

10 **Rockaway bike share** (Featured).** Both Rockaway East and West would create a bike share program for the Rockaway Peninsula with stations sited at major transit hubs and attractions.

11 **Bus circulator service** (Featured).** This project would pilot a free limited-stop bus circulator that would better connect residents and visitors to the beach, ferry, and local businesses.

* Project not tied to a specific geographic point

** Project siting shown as a demonstration of concept and can be implemented in multiple locations



Rockaway East NYRCR Projects

Outline of the Plan

This NYRCR Plan begins with a Community overview, which provides a description of the Planning Area, the risk and critical issues laid bare by Superstorm Sandy, and the broader context of resiliency and recovery work already underway.

The next section, Assessment of risks and needs, describes the diverse assets at risk from future storms identified through Planning Committee discussions and public outreach. Using the risk assessment tool developed by the NYRCR Program, this section identifies key opportunities for action that support the resiliency strategies and projects proposed by the Planning Committee.

The following section, Reconstruction and resiliency strategies, describes strategies developed by the Committee to respond to needs, opportunities, and risks to assets measured through the risk assessment process.

The Proposed and Featured Projects, which are the path to implementing those strategies, are described in more detail in Implementation - project profiles.

The final section, Additional resiliency recommendations, describes additional resiliency recommendations strongly supported by the Community, but which lack an identified source of funding. It also describes the public engagement process in more detail, and provides additional supporting documentation for the NYRCR Plan.

Source (right): With permission from Denean Ferguson.

Rockaway West

NY Rising Community Reconstruction Plan

MARCH 2014



NY Rising
Community Reconstruction Program



Executive summary



Executive summary

In the midsection of the Rockaway Peninsula in Queens, the neighborhoods of Neponsit, Belle Harbor, Rockaway Park, and Rockaway Beach were dramatically impacted by Superstorm Sandy (Sandy). As residents say, the ocean met the bay. Inundated both from the Atlantic Ocean and Jamaica Bay, the peninsula experienced severe damage to housing, infrastructure, and other community assets, as well as lack of access to goods and services, causing months of distress.

Uniting as the Rockaway West NY Rising Community Reconstruction (NYRCR) Planning Committee, these neighborhoods have collaborated to create a community-based plan addressing their common risks and needs. This NYRCR Plan builds on lessons learned from Sandy to identify strategies and projects for increasing resiliency throughout the Rockaway West Community. The NYRCR Plan documents the Community's experience during and after Sandy and articulates a vision and strategy for long-term redevelopment and growth.

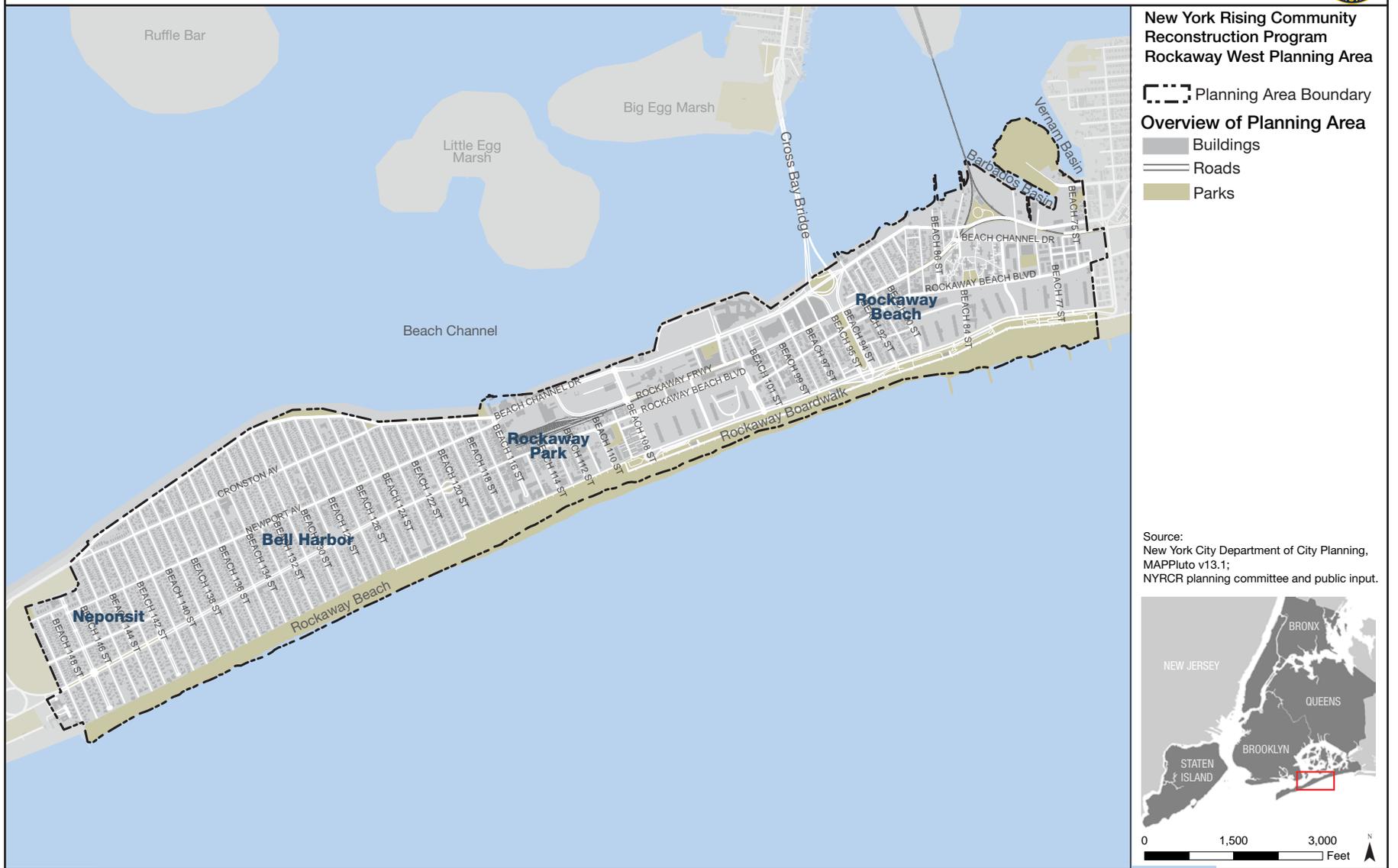
The Governor's Office of Storm Recovery has allocated up to \$21.3 million in Federal Community Development Block Grant-Disaster Recovery (CDBG-DR) monies to fund eligible Recovery and resiliency projects in the Rockaway West Community.



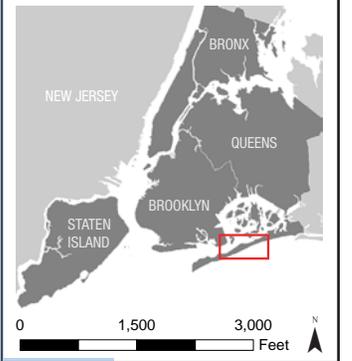
Rockaway West is located at the midsection of the Rockaway Peninsula.



Figure I-1: Rockaway West Planning Area



Source:
 New York City Department of City Planning,
 MAPPluto v13.1;
 NYRCR planning committee and public input.





Superstorm Sandy destroyed significant swaths of the boardwalk across Rockaway West. Shown here at Beach 115th Street. Source: Flickr user cgc76, licensed under Creative Commons.

Sandy's impacts and the recovery

In October 2012, Sandy unleashed destruction at a tremendous scale and complexity, causing devastating damage. Homes and businesses in Rockaway West were destroyed by forceful wave action and storm surge, which ripped the iconic boardwalk from its planks and inundated the entire Community with rising waters from both the ocean and the bay.

Immediately after the storm, community groups and volunteers united in Rockaway West to provide emergency relief and Recovery efforts. Even 17 months later, remnants of Sandy's impact persist. A tour of the Rockaway West neighborhood today reveals a boardwalk far from fully repaired, partially rebuilt homes, shuttered businesses, and residents still struggling to adjust to a new normal.



Caption Damaged homes along the Bay (top). Boardwalk after Sandy. (bottom) Source: Flickr user Melissa Segal, licensed under Creative Commons.



Community vision statement

“Rockaway West seeks to be **stronger and more resilient**, not only to be **better prepared** for future natural disasters or large-scale emergencies, but also to **bolster and grow** our robust natural, economic, and social ecosystems.”



Source: With permission from Danny Ruscillo.

A community driven process

This Plan is the product of a collaborative community-based process led by a Planning Committee. The Rockaway West Planning Committee is composed of 13 volunteer members, including representatives from Community Board 14, non-profit organizations, and local business leaders. The public planning process that guided the development of this reconstruction plan is highly reflective of the Community-driven nature of post-Sandy Recovery efforts.

The planning process was structured to collect public input on assets, needs, vision, strategies and projects at three critical junctures. At each Public Engagement Event, members of the public provided valuable feedback that informed Planning Committee deliberations. Based on this feedback, the Committee developed a NYRCR Plan to address the specific and unique needs of the neighborhoods that make up the Rockaway West Community.

Many initiatives led by residents, public agencies, utilities, community organizations, and building owners throughout the Rockaway Peninsula and New York City are already underway. A full review and assessment of these initiatives allowed the Planning Committee to identify gaps that could be filled through the NYRCR Program.

As one of three NYRCR Planning Areas on the Rockaway Peninsula—a barrier island that provides protection to Jamaica Bay and its surrounding areas—Rockaway



Rockaway West residents have remained engaged since Sandy. Source: With permission from John Cori.

West faces challenges related to coastal protection that are shared with its neighboring NYRCR Communities: Rockaway East, Breezy Point, Five Towns, and Atlantic Beach. These communities collaborated through a Jamaica Bay Working Group to develop comprehensive and longer term protection strategies.

Critical issues

Rockaway West’s low elevation and varied coastal protection leaves it greatly exposed to risk from future storm events, sea level rise, and frequent flooding. Some areas are more vulnerable than others, especially those on the bayside with natural or degraded edges. With baywalls and newly-built dunes, much of the Planning Area has some form of protection, but it does not protect against the 100-year storm; increasing protection will require significant capital investment and coordination with other communities and many governmental agencies.

Sandy demonstrated the strength and resiliency of the residents of the neighborhoods in Rockaway West, but it also showed that the Community would benefit from increased planning and capacity-building to ensure even stronger preparedness for future events. The storm also exacerbated the need for increased health care on the Peninsula, especially local emergency services.

Access to the Community is limited to a few key transportation links, which are both vulnerable and limited. The Rockaway Ferry has expanded and enhanced commuter transit, but its sustainability is unknown and it is not fully utilizing tourist opportunities. Further, small businesses and natural resources offer potential to draw visitors and build economic resiliency, but the Community has struggled to recover and revitalize the economy after Sandy.



Rockaway Beach nourishment program (top). The Rockaway Ferry leaving the Beach 108th Street landing (bottom).

Sources: Flickr user New York District U.S. Army Corps of Engineers, licensed under Creative Commons; Laura Deckelman.



Homes and businesses along the eastern bayside edge of Rockaway West are particularly at-risk.

A blueprint for future resiliency

The NYRCR Plan for Rockaway West offers a framework and outline for the implementation of the Planning Committee’s goals and strategies. The Planning Committee emphasized strategic investments that leverage the vast natural resources of the Rockaway Peninsula to enhance the Community’s economic vitality and connectedness. Committee members focused on recommending projects that would protect the Community from flooding, sea level rise, and also strengthen community networks and health care services. The Committee also paid particular attention to populations who were in more isolated neighborhoods during Sandy and who may be at more risk.

Recovery support functions

There are six Recovery Support Functions, established by President Barack Obama in 2011 through the National Disaster Recovery Framework, that structure this NYRCR Plan. These Recovery Support Functions were utilized when developing needs, opportunities, strategies and projects to ensure that a comprehensive approach is reinforced throughout the effort to shape a comprehensive resiliency strategy for the Community.

Strategies and projects

This Plan contains 3 strategies and 10 Proposed and Featured Projects to improve the resiliency of Rockaway West. Proposed Projects are projects that the Rockaway West Planning Committee recommends for funding through the NYRCR process. Featured Projects are innovative projects that may require additional funding sources for implementation, and for which the Committee has recommended funding an initial phase of implementation. The Committee prioritized projects that are highly feasible, able to be implemented on a short timeline, and whose benefits could thus be seen within the next few years.





A vision for a Beach 108th Street Ferry Terminal, which can improve coastal protection and catalyze economic development in the area.

The priority strategies and Proposed and Featured Projects are summarized below:

Protect the Community from flooding, surge, and sea level rise

- 1 **Bioswales to improve drainage (Proposed).** This project would create up to 50 bioswales in roadways and sidewalks throughout Rockaway West to collect and manage stormwater.
- 2 **Bayside coastal protection (Featured).** This targeted investment in coastal protection along Beach 88th Street at one of the most vulnerable locations on the bayside of Rockaway West would provide low-cost flood protection benefits in the short term for this portion of the Community.

Strengthen community resiliency

- 3 **Relief center network** (Proposed).** This project would fund the creation of a network of relief centers, to provide safe Recovery spaces and local relief services, and coordinate with emergency management agencies and organizations following an event impacting the Community.

- 4 **Health care service expansion* (Proposed).** This project seeks to attract a strong regional health care provider to expand services to the Rockaway Peninsula.

Catalyze economic revitalization

- 5 **Long-term ferry operations (Proposed).** This project would provide support for ongoing ferry service to Rockaway West, a significant transportation amenity valued widely across the Community.
- 6 **National Grid site redevelopment (Proposed).** This project would support new development at the large National Grid site at Beach 108th Street and Beach Channel Drive, expanding parking and offering an opportunity to revitalize this important corridor and the area surrounding the Rockaway Ferry landing.

- 7 **Beach 108th Street improvements (Proposed).** By improving the public realm of Beach 108th Street, this project would build on proposed efforts to support permanent Rockaway Ferry service and development of the National Grid site to support and revitalize the area.

- 8 **Bus circulator service** (Proposed).** A bus circulator service in Rockaway West would improve access to the transformed new Rockaway Ferry stop, providing improved transportation options while supporting ferry ridership and revenues.

- 9 **Rockaway bike share* (Featured).** This project would create a bike share system on the Rockaway Peninsula to facilitate flexible transportation across the peninsula for visitors and residents.

- 10 **New harbor park (Featured).** This project would expand upon the City's existing plans for an esplanade along Beach Channel Drive by creating an enhanced design for the Harbor Park at Beach 108th Street.

* Project not tied to a specific geographic point

** Project siting shown as a demonstration of concept and can be implemented in multiple locations



Aerial rendering of the Rockaway West Planning Area with Proposed and Featured Projects.

Strategy: Protect the Community from flooding, surge, and sea level rise: 1. Bioswales to improve drainage 2. Bayside coastal protection

Strategy: Strengthen community resiliency: 3. Relief center network 4. Health care service expansion

Strategy: Catalyze economic revitalization: 5. Long-term ferry operations 6. National Grid site redevelopment 7. Beach 108th Street improvements 8. Bus circulator service 9. Rockaway bike share 10. New harbor park

Outline of the plan

The Plan begins with a Community Overview, which provides an orientation to the Community, the critical issues laid bare by Superstorm Sandy, and the Planning Committee's work in the context of ongoing resiliency and Recovery work.

The next section, Assessment of Risk and Needs, describes the diverse assets at risk from future flooding and storms, and uses the Planning Committee and public feedback to catalog those risks. Using the risk assessment tool developed by the NYRCR Program, this section identifies key opportunities for action that support the resiliency strategies and projects proposed by the Planning Committee.

The following section, Reconstruction and Resiliency Strategies, describes strategies developed by the Committee to respond to needs, opportunities, and risks to assets measured through the risk assessment process.

The Proposed and Featured Projects, which are the path to implementing those strategies, are described in more detail in Implementation - Project Profiles.

“It’s a very enlightening process, especially to people who had no community input except going to the beach ... But now you have such a varied group of people that are sitting at a table deciding on what we’re going to do together as a community. I think with projects like NY Rising it’s the glue that’s [going to] stick us together and keep us there.”

– Rockaway West Planning Committee Co-Chair

The final section, Additional Materials, describes additional resiliency recommendations strongly supported by the Community, but which lack an identified source of funding. It also describes the public engagement process in more detail, and provides additional supporting documentation for the Plan.

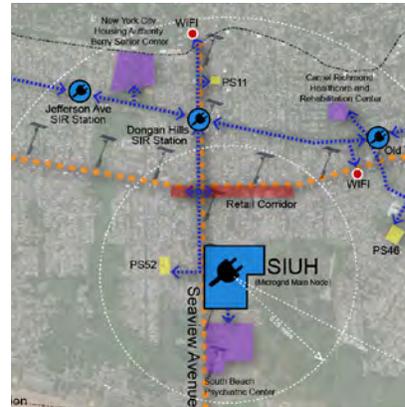


NY RISING COMMUNITY RECONSTRUCTION PROGRAM

EAST & SOUTH SHORES STATEN ISLAND

NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014



EXECUTIVE SUMMARY

Staten Island is home to nearly a half-million residents and one of the fastest growing counties in New York State. On the East and South Shores of Staten Island, approximately 140,000 residents reside. Prior to the opening of the Verrazano-Narrows Bridge, the East and South Shores of Staten Island were characterized by seasonal bungalows and tourist resorts. In the 1960s, the East Shore experienced more development in wetland areas and former summer homes were winterized to serve as permanent residences with development spreading from upland areas closer to the coastline as time progressed. The housing stock within the Staten Island East & South Shores New York Rising Community Reconstruction Community (“NYRCR Community” or “Community”) remains overwhelmingly owner-occupied, with nearly 94% of residents owning their homes.

While most of the waterfront communities on Staten Island were impacted by Superstorm Sandy, some of the most extensive damage occurred in low-lying East Shore and vulnerable South Shore areas. Peak storm tides during Superstorm Sandy reached 16 feet on Staten Island with waves up to six feet reaching the borough’s shoreline, causing massive flooding and extensive damage along Staten Island’s coastal areas. A total of 121,000 electric customers on Staten Island, or about 70% of Con Edison’s customers on the Island, were without power following Superstorm Sandy due to substation damage and downed overhead lines. Electric outages persisted for weeks and, in some cases months, in the areas

most impacted by Superstorm Sandy on the Island. The Community’s only hospital, with two locations, Staten Island University Hospital (SIUH) North and South campuses, were both incapacitated either due to storm surge or power outages, leaving Richmond University Medical Center (RUMC) on the North Shore as the only fully operational hospital on Staten Island during the storm. Twenty-three individuals lost their lives on Staten Island due to Superstorm Sandy.

In the East Shore, the most extensive inundation occurred in the low-lying residential neighborhoods of South Beach, Oakwood Beach, New Dorp Beach, and in what is commonly referred to as “the bowl” in Midland Beach and Ocean Breeze. While inundation on the East Shore primarily occurred southeast of Hylan Boulevard, flood waters nearly reached the Staten Island Railroad tracks in Dongan Hills—nearly one and a quarter miles from the shoreline—due to the area’s low topography and overburdened storm sewers.

On the South Shore, powerful waves eroded the area’s protective bluffs, causing significant erosion and damage, especially in the neighborhoods of Crescent Beach, Annadale, Prince’s Bay, and Tottenville. Storm surges traveled inland into low-lying areas along creeks and tributaries, including Mill and Lemon Creeks, flooding roads and disrupting businesses.

Sandy also underscored the tenuousness of the East and South Shore’s connections to the rest of New York City and the surrounding region as well.

Just before and immediately after Superstorm Sandy made landfall on Staten Island, all four of the bridges connecting the Island to Brooklyn and New Jersey, were shut down for safety reasons, isolating the entire borough. The Staten Island Ferry, as well as local rail and bus service temporarily ceased operations. As electrical power was lost across the Island, gas stations were incapacitated and fuel became scarce for a borough dependent on automobiles.

The economy of the East and South Shores is dominated by small businesses, many of which suffered widespread damage that is still being felt today. Before Sandy, the Planning Area contained approximately 3,500 businesses with 25,000 employees, generating revenues of \$6.5 billion annually. These businesses are concentrated primarily in the retail and service sectors, with Staten Island University Hospital representing the largest employer in the Community. Sandy’s impact on the area’s businesses affected an estimated 9,500 jobs and negatively impacted each of the Community’s major commercial corridors. Challenges facing businesses impacted by Sandy include building damage, inventory losses, insufficient insurance, and, a reduced customer base.

In September 2013, a committee of Staten Island residents and civic leaders (“NYRCR Committee”) convened with the goal of creating a plan to help the East and South Shores rebuild from the damage caused by Superstorm Sandy and prepare the area for a more resilient future. Since that time, the NYRCR Committee has worked

Staten Island East & South Shores

closely with a team of professional consultants, representatives of the Governor’s Office of Storm Recovery, and the New York State Department of State to develop this NY Rising Community Reconstruction (NYRCR) Plan.

The NYRCR Plan features a series of projects identified as having the greatest benefit in increasing the East and South Shore’s resilience to future climate related events. The State has allocated \$25,000,000 in Federal Community Development Block Grant-Disaster Recovery (CDBG-DR) dollars to fund eligible projects identified in the Staten Island NYRCR Plan. The NYRCR Plan is a community-based plan, which is the product of a robust public engagement effort involving consensus-building among both residents and business owners. Finally, the NYRCR Plan is comprehensive, addressing six Recovery Support Functions: Community Planning & Capacity Building; Economic Resilience; Health & Social Services; Housing; Infrastructure; and Natural & Cultural Resources.

With a fundamental focus on implementation, the NYRCR planning process incorporated extensive discussions with the City and State to confirm that relevant agencies have confidence in the project’s ability to be implemented. The NYRCR Committee also coordinated with agencies operating at a regional level, including the U.S. Army Corps of Engineers, and conducted an ongoing dialogue with parallel resiliency efforts, especially the U.S. Housing and Urban Development (HUD) Rebuild by Design competition. As a result, the projects featured in the NYRCR Plan are supportive and complimentary of these other efforts, rather than duplicative or counterproductive.

The NYRCR Plan is aimed at not only addressing short term needs in the aftermath of Sandy, but also the long-term resilience of the NYRCR Community. The Plan includes a menu of short term, “shovel-ready” projects; medium-term projects that can be implemented within two-five years; and long term actions that require resources beyond the NYRCR funding allocation and are largely addressed through planning projects and advocacy initiatives.

The 21 Proposed and six Featured projects included in the NYRCR Plan for the East and South Shores of Staten Island address each of five key strategies that emerged from the public engagement process and technical analysis:

PROPOSED AND FEATURED PROJECTS: Coastal Protection

STRATEGY A: *Leverage existing coastal protection initiatives, including those by the U.S. Army Corps of Engineers, to more comprehensively limit the exposure of the East and South Shores to storm surge.* The Coastline is the first and most critical line of defense in protecting the NYRCR Community from inundation associated with Sandy-like storms. While the U.S. Army Corps of Engineers’ (USACE) Phase I study will address the protection of the East Shore with a continuous seawall from Fort Wadsworth to Great Kills, local matching funds have not been committed, and implementation of the seawall will likely take many years. As such, the Plan includes three projects that address shorter term coastal protection needs in both the East and South Shores:

The *Interim East Shore Coastal Protection Measures (A1)* project would provide interim coastal protections for the area that is the subject of the USACE Phase I Study (i.e., between Fort Wadsworth to Great Kills). The project includes two phases; the first phase is planting and stabilizing existing temporary dunes for added erosion protection. The second phase involves “filling the gaps” between the existing New York City Department of Parks and Recreation (DPR) dunes and the National Park Service Dune adjacent to Miller Field.

Construction of the *Tottenville and Great Kills Dunes and Coastline Dune Plantings (A2)* project, will construct a permanent dune system

in phases to protect the Tottenville shoreline against storm surge, replacing temporary dunes that were constructed by NYC DPR.

The *Integrated South Shore Protection Plan (A3)* which will build upon the USACE’s Feasibility Study for Staten Island’s South Shore, by preparing supplemental studies beyond the scope of the USACE study. Tasks within this larger plan include a feasibility study for flood protection alternatives at Mill Creek and in the vicinity of the Tottenville Staten Island Railroad (SIR) Station along Ellis Street, to prevent flooding of local businesses and private homes.

Stormwater Management

STRATEGY B: *Leverage existing stormwater management measures, especially the Staten Island Bluebelt, to better protect East and South Shore communities from frequent flooding caused by heavy rains and high tides.*

While coastal protection figures prominently in protecting the East and South Shores from future Sandy-like events, the NYRCR Community is also affected by the frequent and dangerous flooding that occurs during smaller rain events like tropical storms, nor’easters, and even light rains accompanied by everyday high tides.

The Plan includes two Proposed Projects and two Featured Projects that work within existing programs to address short- to medium-term issues:

The *New Creek Bluebelt Implementation (B1)* project will install detention ponds and other selected best management practices (BMPs) at Last Chance Pond, Boundary Avenue, Joyce

Street and Meadow Place to alleviate flooding downstream.

The *Hylan Boulevard Green Streets and Streetscape Improvements (B2)* project will install “green street” measures, such as vegetated bioswales and bioretention tree pits to capture stormwater, reduce the volume of stormwater entering the storm sewer system and improve water quality along Hylan Boulevard, Staten Island’s primary commercial corridor. This project will have multiple benefits, creating a unique opportunity to educate the community about the importance of the Staten Island Bluebelt in managing stormwater; a location for people to interact with nature by bringing them closer to the Bluebelt; and a model for upgrading the visual quality of Hylan Boulevard and attracting increased private investment.

The *McLaughlin Street Residential Conversion (B3)* to Bluebelt project would fund the voluntary buyout of four homes in South Beach that are surrounded by the Staten Island Bluebelt, and replace them with Bluebelt BMPs.

The *Stormwater Outfall Assessment Study (B4)* would provide further investigation of stormwater outfalls identified by New York City Department of Environmental Protection (NYC DEP).

Key Connections

STRATEGY C: *Strengthen key connections and physical infrastructure that link communities in the East and South Shores to each other and with the rest of Staten Island by improving upon transportation infrastructure and the power grid.* The closure of all four of Staten Island’s

bridges, as well as the Staten Island ferry and the Staten Island Railway, the loss of electrical power, and the gas shortages that affected the NYRCR Community during and immediately after Sandy emphasized the need to create back up options and redundancies for the area’s transportation and electrical distribution infrastructure. The Plan includes six Proposed and Featured Projects to address both the short, and long-term issues related to the NYRCR’s Community’s ability to stay connected, and the area’s critical facilities to stay operational:

A study to identify key locations for microgrids and renewable energy sources (C1) will evaluate incremental implementation of microgrids at strategic locations to supply reliable electrical power and communication during emergencies.

The components of the *Go to High Ground (C2)* initiative encompass production of a Staten Island Severe Storm Survival Guide; Transportation Guide; and Go to High Ground: Vulnerable Population Emergency Preparedness and Evacuation brochures to inform all residents of pre-storm preparedness, post-disaster recovery and resource information. As a borough dependent upon automobile transportation, vehicle protection is critical to maintain the economic viability of the community’s workforce. The College of Staten Island’s storm surge analysis provided information regarding evacuation routes and strategies to mitigate future inundation of low-lying areas during storm surges. Go to High Ground’ is a proposed study to explore the creation of a system of wayfinding signage and development of a program encouraging residents to ‘go to high ground’ during a storm surge event

Staten Island East & South Shores

and provide designated areas for automobile evacuation.

The **East Shore Microgrid Network Pilot Project (C3)** will create a microgrid network centered on the Staten Island University Hospital – North campus and construct above-ground utility lines among critical and community facilities, including those that serve socially vulnerable populations. It potentially links to other community facilities, including: the NYC DEP Mason Avenue and South Beach Pump Stations, Public Schools 52 and 11, the South Beach Psychiatric Center, the NYC DPR’s Elevated Track and Field Facility, the New York City Housing Authority’s (NYCHA) South Beach and Berry Houses/Senior Centers, FDNY Engine Company 159, the Hylan Boulevard Retail Corridor and the traffic signals along this key evacuation route, as well as the Jefferson Avenue Station of the Staten Island Railroad.

The **South Shore Microgrid Network Pilot Project (C4)** will create a microgrid network centered around the Staten Island University Hospital – South Campus and construct above-ground utility lines to connect facilities including the Prince’s Bay and Huguenot stations of the Staten Island Railway, NYC DPR’s Blue Heron Nature Center, and District 3 facility, as well as Public School 5 and Intermediate School 7.

The **South Shore Resilient Dock Feasibility Study (C5)** will identify the most appropriate location for a multipurpose resilient dock in the South Shore. The resilient dock would be accessed by emergency vessels (including regular ferry boats) in the event that other forms of transportation access to the South Shore were compromised.

The resilient dock could also be utilized to support regular commuter ferry service and recreational use.

The **St. George/Tompkinsville Promenade Master Plan/Engineering Study (C6)** is the first phase in the implementation of the St. George/Tompkinsville Promenade, a vital link to the East and South Shores of Staten Island due to its proximity to the St. George Ferry Terminal. The overall vision is to repair, re-design, and rebuild the promenade in order to increase resiliency, improve connectivity, and enhance economic opportunity and natural resources. Conceptual design and detailed project engineering are included in later phases of the project and are included in the NYRCR Plan as a Featured Project.

Emergency Response Capacity

STRATEGY D: *Build the emergency response capacity of existing municipal agencies, non-profit relief organizations, and civic networks to increase the ability of local organizations to help vulnerable populations recover from major storms.* Capacity, communication, and coordination among Staten Island’s emergency response groups and non-profit organizations has been crucial in helping the East and South Shores recover from Superstorm Sandy. Three projects are included in the NYRCR Plan to strengthen those organizations and to increase the East and South Shore’s ability to assist the area’s vulnerable populations from major storms:

The **Staten Island ‘Central Command Center’ Location and Feasibility Study (D1)** will determine the feasibility of and potential locations for a year-round resource center for Staten Island

residents and for disaster response and recovery organizations, including Federal Emergency Management Agency (FEMA). During a disaster, the resource center would function as a ‘central command center,’ enabling resident access to a reliable power supply, phone charging stations, food and supplies.

Providing support for the **Staten Island Community Organizations Active in Disaster (COAD) (D2)** coalition will draw together the organizations that will be charged with responding to future crises in the NYRCR Community to create a plan for community response and to train these responding organizations for the roles that they will play in a post-crisis period. This group is based on a FEMA model that has been implemented throughout the nation.

The **Port Richmond CERT Reconnaissance, Radio Augmentation, and Training (D3)** project will expand the emergency operations capacity of the Port Richmond CERT (Community Emergency Response Team) & Rescue, Inc. through training and establishment of a new frequency and repeater site.

Neighborhood Integrity

STRATEGY E: *Rebuild residential communities in the East and South Shores in a way that increases resilience to future storms while maintaining neighborhood integrity.* Sandy exposed a broad set of needs beyond infrastructure and coastal protection. Through the NYRCR Process specific needs for creating new strategic visions, assistance and incentive programs, and organizations emerged. These were addressed through five Proposed Projects:

The ***East Shore Waterfront Vision Plan (E1)*** will focus on the “seam” between the New York City DPR’s ongoing work with the USACE on the proposed seawall along the East Shore. The plan will develop urban design and economic development strategies to leverage the potential created by the USACE seawall along the Father Capadanno corridor and key east-west commercial corridors, such as Seaview and Midland Avenues, Sand Lane, and Ebbitts Street.

The ***Home Elevation and Resiliency Assistance Program (E2)*** is a program to provide gap funding for low to moderate-income homeowners who do not qualify for existing City and State programs, but need grant and/or subsidized loan assistance in order to make their homes more resilient and to avoid exorbitant increase in flood insurance rates. Since this program identifies a need that is common across multiple New York City NYRCR Communities, this proposal presumes that a centralized non-profit housing assistance organization, NYC agency or NYS agency will administer a broad program that covers areas beyond Staten Island. This central non-profit or agency would aggregate funds from individual NYRCR Communities (to be earmarked for the area that allocates them) and leverage additional public and private funds to expand the influence of this program. This program would serve as a pilot on Staten Island.

Establishment of a Local Development Corporation (LDC) for the East Shore. (E3) The proposed LDC will enhance commercial districts on the Island’s East Shore by providing marketing for local businesses, providing a cohesive retail strategy for the area, acquiring properties to

be redeveloped, and assisting in obtaining financing. By advocating for resiliency-oriented infrastructure improvements and strengthening local businesses through promotional activities, the LDC would have multiple benefits that would help increase the overall resilience of the East Shore’s commercial districts.

‘Race for Space’ Grant Program to Fill Vacant Storefronts, (E4) a Proposed Project which will replicate the New York City Economic Development Corporation’s Staten Island Storefronts Race for Space Program in particularly hard-hit communities such as Midland Beach, would provide awards on a competitive basis ranging from \$25,000 to \$75,000 for businesses opening new storefronts.

Creation of Common Application for Disaster Relief Grant Funding for Local Businesses, (E5) a Featured Project, which would develop a single simplified application process to help these small businesses obtain post-disaster relief funds. This would eliminate the need for applicants to complete the multiple and sometimes confusing applications needed to access these programs.

These projects, if implemented, would provide employment of over six hundred individuals, reduce flooding risk, improve the health and social issues of the Community, and lead to a more resilient Staten Island helping residents and businesses recover, build back better and be better prepared for future extreme weather events.

Staten Island East & South Shores

A Coastal Protection	B Stormwater Management	C Key Connections	D Emergency Response Capacity	E Neighborhood Integrity
<p>A1a Interim East Shore Coastal Protection Measures Phase I</p>	<p>B1 New Creek Bluebelt Implementation</p>	<p>C1 Identify Key Locations For Microgrids And Renewable Energy</p>	<p>D1 Staten Island 'Community Emergency Resource Center' Location and Feasibility Study</p>	<p>E1 East Shore Waterfront Vision Plan</p>
<p>A1b Interim East Shore Coastal Protection Measures Phase II</p>	<p>B2 Gateway to the Bluebelt: Hylan Blvd Green Streets and Streetscape Improvements</p>	<p>C2 'Go To High Ground'</p>	<p>D2 Provide support for the Staten Island COAD</p>	<p>E2 Home Elevation and Resiliency Assistance Program</p>
<p>A2a Tottenville and Great Kills Dunes & Coastline Dune Plantings Phase I: Plant of existing dunes in Great Kills</p>	<p>B3 McLaughlin Street Residential conversion to Bluebelt *Featured Project</p>	<p>C3 East Shore Microgrid Network Pilot Project</p>	<p>D3 Port Richmond CERT Reconnaissance, Radio Augmentation, and Training</p>	<p>E3 Establish East Shore LDC</p>
<p>A2b Tottenville and Great Kills Dunes & Coastline Dune Plantings Phase II: Reconstruction/planting of existing dunes from Brighton St to Sprague Ave</p>	<p>B4 Assess Stormwater Outfalls *Featured Project</p>	<p>C4 South Shore Microgrid Network Pilot Project</p>		<p>E4 Implement 'Race for Space' Grant Program</p>
<p>A2c Tottenville and Great Kills Dunes & Coastline Dune Plantings Phase III: Construction/planting of dunes from Sprague Ave to Joline Ave</p>		<p>C5 South Shore Resilient Dock Feasibility Study</p>		<p>E5 Create Common Application for Disaster Relief Grant Funding for Local Businesses *Featured Project</p>
<p>A2d Tottenville and Great Kills Dunes & Coastline Dune Plantings Phase IV: Construction/planting of dunes from Joline Ave to Page Ave and at Goodall St *Featured Project</p>		<p>C6a St. George/Tompkinsville Promenade Master Plan / Engineering Study Phase 1A</p>		
<p>A2e Tottenville and Great Kills Dunes & Coastline Dune Plantings Phase V: Construction/planting of dunes from Conference House Park to Brighton St *Featured Project</p>		<p>C6b St. George/Tompkinsville Promenade Planning, Architecture / Landscape Design Phases 1B-1D *Featured Project</p>		
<p>A3 Integrated South Shore Protection Plan</p>				

Proposed and Featured Projects

FIVE STRATEGIES FOR PROPOSED AND FEATURED PROJECTS:



21 Proposed and six Featured Projects included in the NYRCR Plan for the East and South Shores of Staten Island



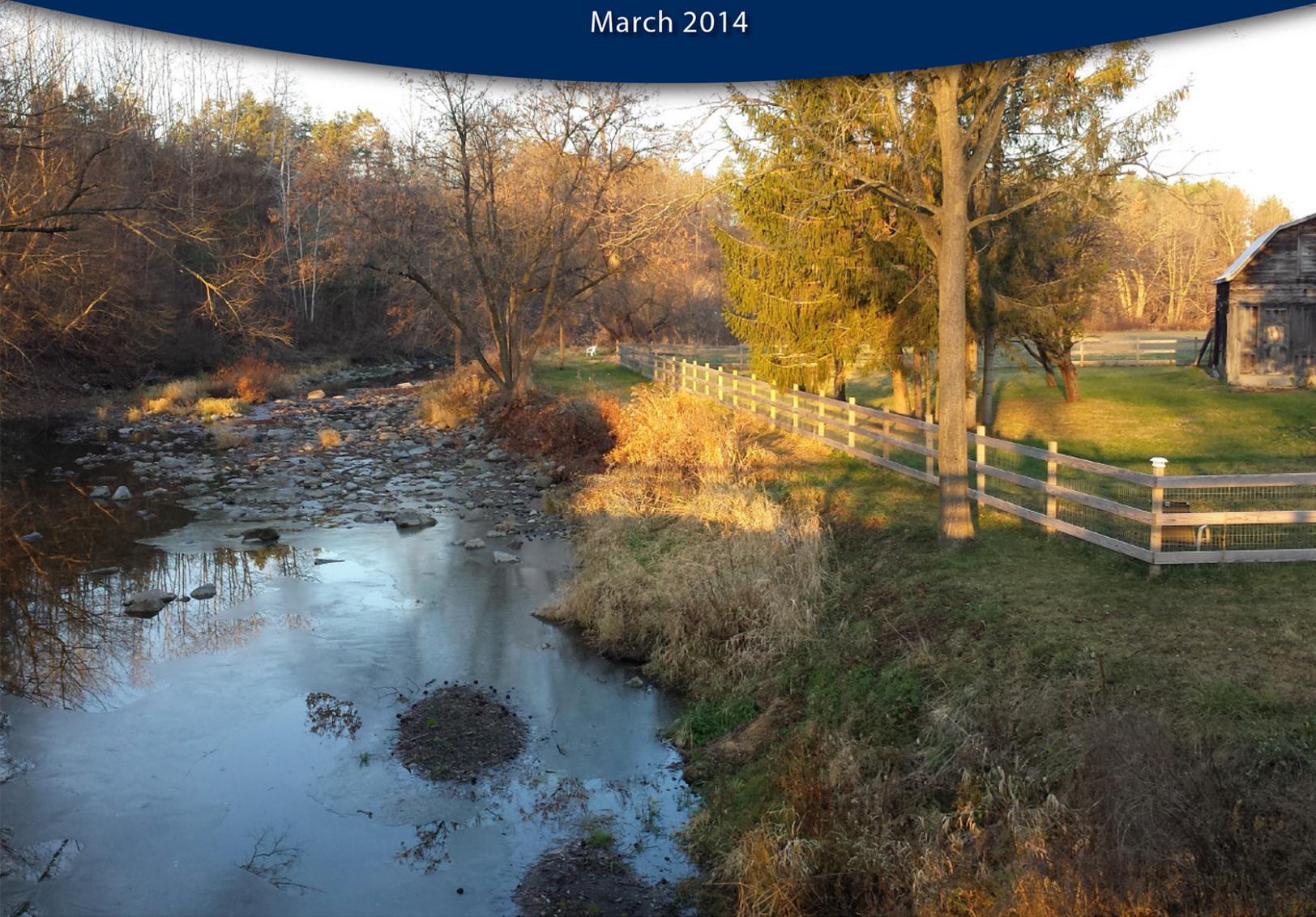
Upstate



NY Rising Community Reconstruction Plan for the
**CITY AND TOWN OF AMSTERDAM AND
TOWN OF FLORIDA**

Prepared for the
NY Rising Community Reconstruction Program

March 2014



Executive Summary

Governor Andrew M. Cuomo established the New York Rising Community Reconstruction (NYRCR) program to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The Governor's Office of Storm Recovery is managing the NYRCR program in partnership with the NYS Department of State. Additional support has been provided through the Regional Economic Development Council's State Agency Review Teams.

The NYRCR Program has provided a unique opportunity for residents of the City of Amsterdam and Towns of Amsterdam and Florida (also referred to as the Community) to engage in a thoughtful discussion about their collective future. Under this program the Community is eligible for up to \$12 million from the federal Community Development Block Grant Disaster Relief (CDBG-DR) program.

Overview

The City of Amsterdam and Towns of Amsterdam and Florida sit on the north and south banks of the Mohawk River. The Town of Florida is also bounded on the west by the Schoharie Creek. The Mohawk River historically formed part of the Erie Canal in the New York State Canal System. The growth and evolution of these communities are deeply connected to the area's waterways.

Flood Impacts

Although the entire study area felt the effects of Hurricane Irene, the Village of Fort Johnson in the Town of Amsterdam and the hamlet of Fort Hunter and neighborhood of Lost Valley in the Town of Florida sustained some of the most significant damage.

City of Amsterdam: The City of Amsterdam's government buildings lost power which shut down all communications between the Department of Public Works (DPW) and City Hall. At the City's DPW, loss of power meant the repair facilities could not be used, limiting the capabilities of the DPW and their vehicle fleet. Communications to City residents were significantly obstructed after the loss of power, compounding the existing challenge of aiding residents with limited ability to speak English.



Key infrastructure including the City's Amtrak station was inundated during Hurricane Irene.
Source: City of Amsterdam Fire Department



The Amtrak Station was flooded and had to close. The riverbank by Dove Creek eroded, undercutting the retaining wall and placing St. Mary's Hospital at risk of falling into the river. At historic Guy Park Manor, floodwaters carried away portions of the building and numerous artifacts housed in the Walter Elwood Museum.

Town of Amsterdam: In the Town of Amsterdam, the banks of local creeks eroded and roads were washed out from flooding. Stormwater collection and drainage systems were damaged. In the Village of Fort Johnson, the first floor of the Old Fort Johnson National Historic Landmark was damaged with five feet of flood water. Homes in Fort Johnson were also flooded.

Town of Florida: In the Town of Florida, floodwaters breached the protective berm that parallels Schoharie Creek in two locations, flooding most of the hamlet of Fort Hunter. Lost Valley, a small neighborhood on the Schoharie Creek with 20 homes, was almost entirely destroyed and is unlikely to be rebuilt.

Critical Issues and Needs

Critical issues and Community needs were identified through conversations with Planning Committee members and during public outreach events.

Continuity of Government Services

After Irene, Montgomery County offices were shut down for several weeks. Power losses at City Hall in Amsterdam impeded storm response and communications. Investments are needed to reduce the likelihood of a power failure for municipal and county facilities, and to reduce the vulnerability of county offices.

Communications

With the large Spanish-speaking population in the Community, there is a need for emergency preparedness and emergency alert information to be developed and distributed in Spanish.

Sheltering

Both the City and the Town of Amsterdam have identified the need for permanent shelter facilities to be used during a power outage. These facilities should have the capacity to receive vulnerable populations and to support satellite operations for emergency and municipal services.

Healthcare

In the City of Amsterdam, St. Mary's Hospital satellite facility and annex sit close to Dove Creek, where a retaining wall is in danger of collapse. Repairs to the wall will protect the hospital and nearby homes. There is a need for medical services on the south side of the Mohawk River in the event bridge crossings are closed.

Drainage Infrastructure

Portions of the existing stormwater management systems in all three municipalities were damaged by Hurricane Irene, or proved insufficiently sized. Some areas of the Community are not served by stormwater infrastructure or rely on ineffective drainage ditches to carry away stormwater.

Waterfront Protection and Revitalization

The storm events damaged and eroded sections of bank along the Community's numerous tributaries as well as the Mohawk River and Schoharie Creek. Riverbank stabilization is necessary in order to preserve and secure these areas. Creating greenways and parks on the Communities waterfront provides an opportunity for stabilization and an attractive amenity for residents, visitors, and businesses.

Historic and Cultural Asset Protection

The Community's historic assets, including Guy Park Manor, the Fort Johnson House, and the Schoharie Crossing Historic Site, were damaged from Irene and have not been fully restored. Cultural resources in flood prone areas need protection to prevent the loss of irreplaceable artifacts.

Community-Driven Process

A Planning Committee made up of civic leaders helped guide the development of this NYRCR Plan. Planning Committee members represented all three communities began meeting in September 2013 to discuss how to create a truly resilient Community that is better able to withstand the impacts of future storms and protect its vulnerable populations, businesses, and historic heritage. Their first step was to develop a Community Vision statement, which was presented to the public for their input. Feedback suggested that it should convey the potential for both economic and recreational waterfront opportunities, demonstrate a positive outlook for economic growth, and present the Mohawk River as an asset rather than a liability. The final Community Vision statement is:

Community Vision

"The City of Amsterdam, Town of Amsterdam, and the Town of Florida will maximize the economic and recreational opportunities of our waterfront assets. We will anticipate and mitigate flood risks, limit impacts to property and infrastructure when flooding is unavoidable, and respond efficiently and recover quickly, in a manner that protects vulnerable populations and our quality of life."

A Blueprint for Implementation

The Planning Committee met regularly to discuss Community needs and drafted a list of strategies to help guide the project development process. They spoke with others in the Community, including municipal officials and the public, to come up with an initial list of projects for the plan. A comprehensive Needs Assessment and Risk Assessment were also completed to support project development. Projects were then screened for feasibility, risk-reduction, and cost effectiveness prior to final selection. Projects in the plan were assigned into one of three categories:

Proposed Projects are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding.

Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.



Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

The projects listed below are grouped by strategy, and are not ranked or prioritized. All projects in the list below are proposed projects unless otherwise noted.

Strategy 1: Facilitate communication from emergency response organizations to residents before, during, and after emergency events

Project:

- Develop a county-wide emergency communications system p.

Strategy 2: Improve emergency response through community-wide coordination and positioning of critical resources and services

Projects:

- Establish permanent emergency shelter facilities in the Town and City of Amsterdam.
- Maintain power to critical City buildings (during an outage) to enable continuity of services.



The protective berm at Fort Hunter was breached at the Schoharie Crossing Historic Site which also suffered extensive damage.
Source: NYS Canal Corporation

Strategy 3: Maintain essential medical services to all populations during an emergency event

Projects:

- Protect and reinforce the Dove Creek retaining wall near St. Mary’s Hospital.
- Provide pre-positioned medical services on the south side of the Mohawk River (Featured).

Strategy 4: Create and sustain a “Business Friendly Climate” to encourage businesses to remain, locate, grow, and develop

Projects:

- Demolish the abandoned Carpetland building and replace it with a public recreational space.
- Design the Waterfront Heritage Area on the City of Amsterdam’s south side (Featured).

Strategy 5: Stabilize and revitalize neighborhoods and protect them from flooding.

Projects:

- Remove the Old Brookside Reservoir dam and redevelop the site for recreational use.
- Reinforce the protective berm on the east bank of the Schoharie Creek in Fort Hunter.
- Acquire and demolish three abandoned homes in Fort Hunter to create public recreational space and prevent future development on these at risk sites.

Strategy 6: Mitigate damage to transportation corridors and infrastructure

- Create a detailed site plan for the Amtrak station relocation project.
- Install stormwater conveyance infrastructure along Guy Park Avenue on the west side of the City.

Strategy 7: Improve drainage in key areas known to flood.

- Create a green infrastructure and flood mitigation master plan for the City.
- Repair and restore damaged stormwater infrastructure on west Route 5 in the City.
- Enhance stormwater conveyance and increase detention volume in Fort Hunter.
- Enlarge undersized culverts in the Town of Florida.
- Install stormwater infrastructure on Midline Road in the Town of Amsterdam (Featured).

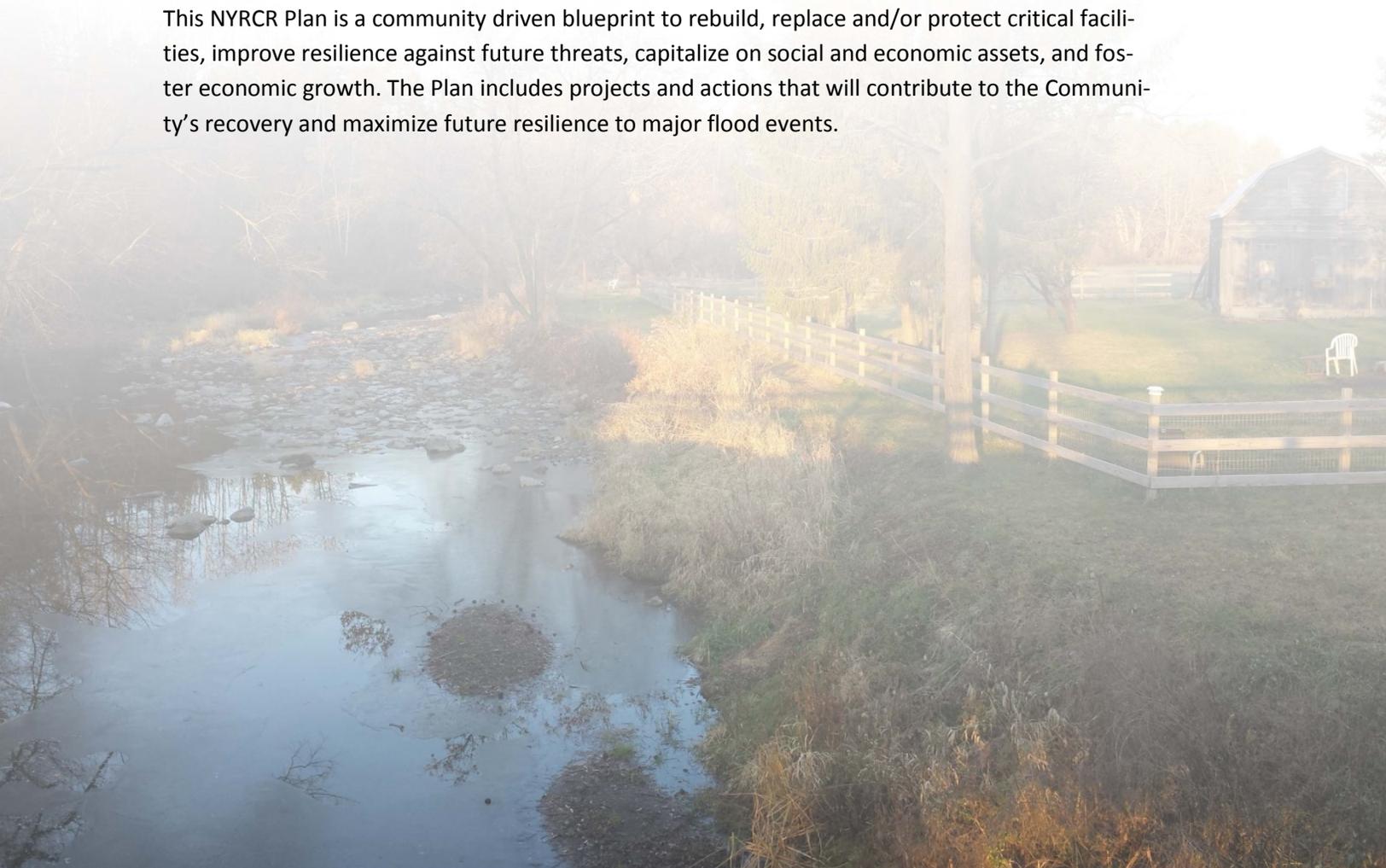
Strategy 8: Augment natural and cultural resources to support flood resiliency

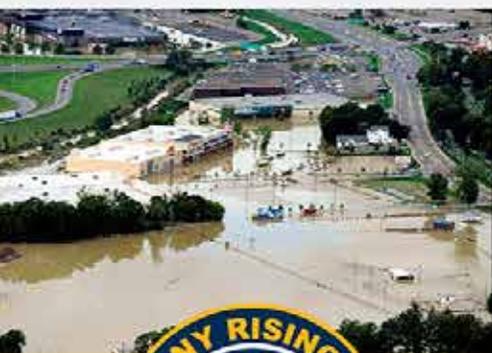
- Stabilize and repair the South Chuctanunda Creek banks and streambed.
- Stabilize and repair the Bunn Creek banks and streambed.
- Stabilize and repair the North Chuctanunda Creek banks and streambed.
- Construct the shoreline stabilization features of the Amsterdam Riverwalk project (Featured).

Strategy 9: Protect cultural artifacts, historic sites and archives from damage and loss

- Perform an interior conditions assessment of the Old Fort Johnson House.
- Rebuild collapsed retaining wall on Kayaderosseras Creek next to Old Fort Johnson.

This NYRCR Plan is a community driven blueprint to rebuild, replace and/or protect critical facilities, improve resilience against future threats, capitalize on social and economic assets, and foster economic growth. The Plan includes projects and actions that will contribute to the Community's recovery and maximize future resilience to major flood events.





NY RISING COMMUNITY RECONSTRUCTION PROGRAM

NYRCR BROOME

NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014

Executive Summary

The New York Rising Community Reconstruction (NYRCR) Broome Plan presents projects to increase resiliency in future flood events. Projects may be eligible for Federal Community Development Block Grant - Disaster Recovery (CDBG-DR) funding, other State or Federal funding, or could be accomplished through other combinations of municipal, nonprofit, or private investment.

A. Overview

The NYRCR Broome Community is composed of six municipalities located in Broome County, NY: the City of Binghamton, Town of Vestal, Town of Union, Town of Conklin, Village of Johnson City, and Village of Endicott. While these municipalities vary greatly in their geographic size, population, and local economy, they all share their borders with the Susquehanna River, and have experienced a similar history of flood damage and loss due to extreme storm events. The NYRCR Broome Community is eligible for up to \$18,660,947 million in CDBG-DR implementation funds (City of Binghamton - \$3 million; Town of Conklin - \$3 million; Town of Vestal - \$3 million; Town of Union - \$3.66 million; Village of Johnson City - \$3 million; and Village of Endicott - \$3 million).

Broome County, located in the Southern Tier region of New York State, measures 715 square miles and according to the 2010 U.S. Census has a population of 200,600 residents, approximately 68 percent of whom live in the municipalities that make up the NYRCR Broome Community. The Susquehanna River, one of the longest rivers on the east coast, flows across the southern-most portion of Broome County from east to west. The river flows for 464 miles through three states, starting in Upstate New York (Cooperstown), and proceeding west through the Southern Tier, across rural southeastern Pennsylvania, finally terminating in the Chesapeake Bay in Maryland. Since record keeping began nearly 200 years ago, the U.S. Weather Service has reported flooding along the main stem of the Susquehanna River every 15 years on average. This, coupled with localized flash flooding that occurs annually on smaller tributaries, led to the Susquehanna River Basin being identified as one of the most flood-prone watersheds in the country.

B. Summary of Storm Impacts

Hurricane Irene made landfall in New York on August 28, 2011. The National Weather Service located at the Broome County Airport recorded 2.71 inches of rain and a peak wind gust of 45 mph. There was some minor damage in the far eastern part of the County and scattered power outages, but no major impact. Despite its lack of high winds, Hurricane Irene's rainfall did saturate the soil and cause a moderate rise in the Susquehanna River that contributed to the major flooding from Tropical Storm Lee.

The next severe storm occurred only ten days later when Tropical Storm Lee arrived in New York on September 7, 2011. Up to 12 inches of rain from Tropical Storm Lee led to massive flooding on the Susquehanna River, larger tributaries, streams, and creeks. The river crested up to 4 feet higher than the previous record and for the first time, overtopped levees and floodwalls along the Susquehanna River in Binghamton, Vestal, and Union. BAE Systems' 27-acre facility on Main Street in Union, which employed 1,400 people, was declared a total loss. Numerous roads were impassible or entirely washed out. Primary transportation routes 17, 81, and 88 were closed during the height of the flooding. Stormwater and sanitary sewer utility systems were overloaded, damaging pump systems or causing total failure. Thousands of people were displaced from their homes; approximately 2,000 people had to be housed in a temporary shelter at the Binghamton University Events Center for up to 15 days. The floods unleashed extensive damage throughout the river valley from Conklin west to Tioga County, including Johnson City's commercial district, the Town of Vestal's municipal offices, and the City of Binghamton's downtown commercial area.

In total, flooding from Hurricane Irene and Tropical Storm Lee destroyed 229 homes, damaged over 9,000 homes, and caused approximately \$502.8 million in property damage in Broome County. The NYS Office of Emergency Services used evacuation areas and Census data to estimate that 24,000 people were evacuated in Broome County. Flooding from Tropical Storm Lee is the worst flood of record for the Southern Tier.

C. Summary of Critical Issues

Flooding from Tropical Storm Lee raised critical issues that the NYRCR Broome Plan seeks to address. As part of the public outreach process, community residents, key stakeholders, and Planning Committee members discussed the challenges they faced as a result of flooding associated with Hurricane Irene and Tropical Storm Lee. From this information, the Planning Committee identified critical issues that need to be addressed in order to increase flood resiliency and help the Broome Community build back better.

Communication between public agencies, local residents, and business owners was insufficient to plan for flooding and to aid in storm response and recovery. Shelters must be able to accommodate displaced persons and their pets. Best management practices should be implemented to control flooding in stream corridors adjacent to the Susquehanna River's tributaries. Critical health and safety infrastructure, including utility systems, flood protection measures, and medical service providers, must have increased resiliency to protect people and property and ensure continuous operation in a disaster. Each community must attract new development to flood-safe areas, to increase the tax base and stability of its neighborhoods. The disaster also illustrated the need for more collaborative regional planning to maximize capacity, capabilities, and resources to address regional watershed issues.

D. Community-Driven Process

Development of the NYRCR Broome Plan was a community-driven process that involved extensive public engagement. During the first public workshop, held on October 15, 2013, residents were asked to talk about the strengths of their communities and their vision for the future. To help inspire and guide the planning process, the Broome NYRCR Planning Committee used this information to develop a vision statement:

“The diverse, urban, suburban, and rural communities of Broome County are working together, regionally, to ensure an economically vibrant, safe future for all residents. The communities recognize the economic, environmental, and social value and challenges associated with the region’s rivers and tributaries. By promoting sound growth, mitigating future damage and transforming these communities through a comprehensive and sustainable approach, the region will reach its full potential for resiliency.”

The public engagement process included a series of seven NYRCR Planning Committee meetings that were highly publicized and open to the public, numerous Committee work sessions, interviews with key stakeholders, and three public engagement events, including the Regional Resiliency Summit. These events provided the opportunity for public input and comment at key milestones throughout the planning process.



The Regional Resiliency Summit was a forum for public input and information sharing.

Arch Street Communications.

The Regional Resiliency Summit was held on November 18, 2013 and brought together almost 140 stakeholders from Broome County, Tioga County, and the Village of Sidney in Delaware County to share information on regional mitigation and floodplain management. Leading experts shared presentations on storm preparedness, changing weather patterns, recovery, and resiliency.

A fourth public engagement event is scheduled to be held before May 12, 2014 to present the final NYRCR Broome Plan and discuss implementation of its proposed projects. As with all public meetings, a wide range of media will be used to inform the community of this event and NYRCR Broome Plan. Media outlets include the NYRCR website, social media, electronic mail, and print advertising.

In addition to advertised public meetings, stakeholders (i.e., residents, public and private agencies, community organizations, and local businesses) were encouraged to provide feedback to the Committee throughout the planning process using the NYRCR website and Facebook page. The Committee Co-Chairs also made numerous public presentations and gave media interviews to publicize the NYRCR Program and the NYRCR Broome Plan.

E. A Blueprint for Implementation

Critical issues identified during the planning process became the basis for identifying needs and opportunities to increase resiliency in the Broome Community. These needs, coupled with an assessment of risk to

community assets, were then used by the Committee to develop a series of reconstruction strategies designed to present how to best use community assets, capitalize on opportunities, and resolve critical issues.

Once the Committee identified the resiliency strategies, they developed a list of projects and management measures that should be taken to implement each strategy. These projects were classified as proposed, featured or additional resiliency recommendations. **Proposed Projects** are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding. **Featured Projects** are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not been proposed for funding through the NYRCR Program. **Additional Resiliency Recommendations** are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

Each of the NYRCR Broome Plan's 12 strategies and their proposed and featured projects are listed below. The projects are not ranked or prioritized.

1. Expand educational efforts so that people, businesses, and social service providers know beforehand what to expect and how to access assistance during and after a flood or other catastrophic storm event.

- United Way of Broome County Infrastructure Resiliency - Proposed.
- Targeted Disaster Preparedness Education, Broome County - Featured.

2. Incorporate an educational component related to understanding flooding, its causes, and implications, starting with students at the elementary grade level and including all ages to senior citizens.

- Susquehanna River Regional River Initiative - Proposed.
- National Flood Insurance Program's Community Rating System Participation, Broome County - Featured.

3. Prior to storm events, establish neighborhood evacuation routes, and provide information during storms (e.g., extent of flooding, road closures, alternate routes, available shelters) to local residents and businesses.

- Powers Road Evacuation Route Flood Protection Study, Town of Conklin - Proposed.
- Powers Road Evacuation Route Flood Protection Construction, Town of Conklin - Featured.

4. Encourage participation in the National Flood Insurance Program's Community Rating System.

- National Flood Insurance Program's Community Rating System Participation, Broome County - Featured.

5. Create flood-safe developments outside the floodplain.

- Susquehanna Street Stormwater Detention, City of Binghamton - Featured.

- Progress Parkway / Hardie Road, Town of Conklin - Featured.
- Rental Housing Replacement, Town of Union - Featured.

6. Expand flood protection of underdeveloped parcels to spur economic growth.

- BAE Systems Floodwall Construction, Town of Union - Featured.

7. Improve stormwater management to mitigate flash flooding.

- Susquehanna River Regional River Initiative - Proposed.
- Creek Channel Improvements, City of Binghamton - Proposed.
- Carlin Creek North Flood Mitigation, Town of Conklin - Proposed.
- Carlin Creek South Watershed Improvements Engineering and Design, Town of Conklin - Proposed.
- Powers Road Evacuation Route Flood Protection Study, Town of Conklin - Proposed.
- Stillwater Road Stormwater, Town of Conklin - Proposed.
- Backflow Preventer Program, Village of Endicott - Proposed.
- Anna Maria Drive Ditch Stormwater Management, Village of Johnson City - Proposed.
- Scatter Site Stream Bank Restoration, Town of Union - Proposed.
- Stormwater Outflow Pipe Backflow Prevention, Town of Union - Proposed.
- Taft Avenue Sanitary Sewer Basin Flow Metering, Town of Union - Proposed.
- Valleyview Drive Drainage Improvements, Town of Union - Proposed.
- Doris Avenue and Vestal Parkway Stormwater System Upgrades, Town of Vestal - Proposed.
- Hawthorne Street Drainage Improvements, Town of Vestal - Proposed.
- Roberts Street Stormwater Pump Station Upgrade, Town of Vestal - Proposed.
- Stair Park Stormwater Detention Facility, Town of Vestal - Proposed.
- Susquehanna Street Stormwater Detention, City of Binghamton - Featured.
- Carlin Creek South Watershed Improvements Construction, Town of Conklin - Featured.
- Powers Road Evacuation Route Flood Protection Construction, Town of Conklin - Featured.

- Huron Campus Flood Mitigation, Village of Endicott - Featured.
- K-Mart Site Redevelopment, Village of Endicott - Featured.
- Tri-Cities Airport Stormwater Improvements, Village of Endicott - Featured.
- Cloverleaf Bio-Retention/Flood Mitigation, Village of Johnson City and Town of Union - Featured.
- Oakdale Mall Rehabilitation, Village of Johnson City - Featured.
- Argonne Neighborhood and South Endwell Riverfront Trail, Town of Union - Featured.
- Fairmont Park Protective Measures, Town of Union - Featured.
- Castle Gardens Buyout Area Stormwater Detention, Town of Vestal - Featured.
- Cloverleaf Bio-Retention/Flood Mitigation, Town of Vestal - Featured.
- Town Square Mall Green Infrastructure Retrofit, Town of Vestal - Featured.

8. Increase resiliency of sewer and water supply systems to ensure continued operation of essential health and social services facilities during emergencies.

- Front Street Stormwater Separation, City of Binghamton - Proposed.
- Taft Avenue Sanitary Sewer Basin Flow Metering, Town of Union - Proposed.
- Wastewater Treatment Plant Improvements, Village of Endicott - Proposed.
- Water Supply Interconnection, Village of Endicott and Town of Vestal - Proposed.
- Water Treatment Plant Resiliency Improvements, Village of Johnson City - Proposed.

9. Provide adequate emergency shelters north and south of the Susquehanna River to house displaced residents and their pets.

- Regional Emergency Shelter Feasibility Study, Broome County - Proposed.

10. Ensure the resiliency of operational locations used by public works departments, first responders, and emergency management service providers.

- Community Center Relocation, Town of Conklin - Proposed.
- DPW Complex Resiliency Improvements, Village of Johnson City - Proposed.

- Fire Station 1 Flood-Proofing, Town of Vestal - Proposed.
- Emergency Management Services Relocation, Town of Vestal - Proposed.
- Refuse Garage Relocation, Town of Union - Proposed.

11. Improve the resiliency of residential development in flood-prone areas.

- Exchange Street Housing Flood Resistance, City of Binghamton - Featured.
- Argonne Neighborhood and South Endwell Riverfront Trail, Town of Union - Featured.
- Fairmont Park Protective Measures, Town of Union - Featured.

12. Ensure reliability and resiliency of critical public works infrastructure.

- Scatter Site Stormwater Infrastructure, City of Binghamton - Proposed.
- Scatter Site Sanitary Sewer Pump Station Resiliency, City of Binghamton - Proposed.
- Scatter Site Utility Improvements, Village of Endicott - Proposed.
- Sanitary Sewer Pump Station Resiliency Improvements, Village of Johnson City - Proposed.
- Water Treatment Plant Resiliency Improvements, Village of Johnson City - Proposed.
- DPW Complex Resiliency Improvements, Village of Johnson City - Proposed.
- Roberts Street Stormwater Pump Station Upgrade, Town of Vestal - Proposed.
- United Way of Broome County Infrastructure Resiliency - Proposed.



NY Rising Community Reconstruction Plan for the
**TOWNS AND VILLAGES OF
ESPERANCE, SCHOHARIE, AND MIDDLEBURGH**

Prepared for the
NY Rising Community Reconstruction Program

March 2014



Executive Summary

The NY Rising Community Reconstruction (NYRCR) Program was established by New York Governor Andrew M. Cuomo to provide rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The NYRCR Program is managed by the Governor's Office of Storm Recovery partnership with New York State Department of State and New York State Department of Transportation. Additional State support in project review has been provided through the Regional Economic Development Council's State Agency Resource Team.

Overview

Residents of the rural and tight-knit Schoharie Valley have a complex relationship with Schoharie Creek. The Creek created the Valley long ago, carving through rock to create the especially fertile soil that continues to sustain the residents along its winding northward path to the Mohawk River. The natural beauty of the Creek brings tourists looking to recapture the simplicity of days spent hiking through forests, searching for pollywogs, and stopping at roadside stands for apples and pumpkins. Visitors help to support Main Street businesses and buoy the local economy. Yet while the Schoharie Creek offers the promise of fertile soils and an unparalleled natural beauty beckoning to tourists and residents alike, floodwaters that have raged from the Schoharie Creek and its tributaries have also caused incredible destruction and loss as the Schoharie Creek has attempted to carry ice melt and rain water away.

Geographic scope

The three towns and three villages that make up the study area of this NYRCR Schoharie Valley Plan (NYRCR Plan) are (from north to south): the Town and Village of Esperance, the Town and Village of Schoharie, and the Town and Village of Middleburgh. All are located within the Schoharie Valley, which includes the watersheds of Schoharie Creek and its tributaries.

Storm damage and critical issues

Hurricane Irene dumped more than sixteen inches of rain in the headwaters of the Schoharie Creek. This excessive rainfall led to raging creeks and streams that quickly swelled and spilled their banks, flooding towns and local communities more rapidly than residents had ever seen. Schoharie Creek rose to a historic level of more than 17 feet in just 12 hours, and produced flow rates that were higher than at any other period since creek flow rates began to be measured in 1939.

The flooding caused widespread destruction of homes, businesses, agriculture, and public infrastructure. As a result of Hurricane Irene, 57 homes were destroyed and 367 homes sustained severe damage, rep-



resenting approximately 20% of the total housing stock within the Community. Residents that managed to escape direct damage suffered from power loss and isolation. National Grid reported 3,370 customer outages in Schoharie County on August 31, 2011. Numerous roads and bridges were flooded, damaged, and impassable, leaving residents in many neighborhoods stranded. This damage was in part the result of an aging infrastructure and undersized stormwater systems which were unable to cope with the massive influx of water and highlighted the need for them to be more robust and resilient.



Photo credit: Ken Hubert

Flooding of the Schoharie Valley after Hurricane Irene

Businesses and public buildings located within the Community's main street business districts also suffered major damage from the storms. Two years later, businesses are still reeling from significant losses of inventory, extensive repairs, and the loss of a customer base due to population dispersal.

The lack of available and redundant communication systems and emergency plans which did not address this magnitude of a flooding disaster compounded the issues faced by community members and emergency responders during and after Hurricane Irene and Tropical Storm Lee.

Additionally, the disruption of emergency medical services and county health services as a result of the flooding of the County Health Department underscored the fragility of the existing health and social service system throughout the Community.

Community-driven process

The damage illustrated a need and an opportunity to better manage the interaction between the Community and this powerful waterbody. Looking to the future, the Community has committed to take active steps to avoid or mitigate future impacts from flooding, while highlighting Schoharie Creek as a Community asset. This includes collaborating regionally to study the Schoharie Creek and its tributaries and identify flood mitigation options, and improving local infrastructure that can resist impacts from flooding or that can resiliently recover from flooding without permanent damage. Other needs include ensuring that first responders have the resources they need to respond to the community, providing emergency shelters to house people who are displaced by disaster, and restoring natural stream patterns and reconnecting floodplains. Economic revitalization presents a particularly poignant challenge, as many businesses have not been able to recover to levels preceding the two storms.

It was in this context that the NYRCR Schoharie Valley Planning Committee, a group of civic leaders from the six communities included in this process, came together to define and implement a vision of resilience for the community. This vision developed by the Planning Committee was informed by public input collected during four public engagement events held as part of the planning process.

Community Vision

We commit to the flood resiliency and sustainable revitalization of our towns and villages.

With this plan, we strive to:

1. Support local residents, businesses, and farms with storm recovery, technology improvements, and future planning assistance;
2. Increase the vitality of main streets and downtown centers, and their resilience to future storms;
3. Preserve open spaces and their natural ability to provide resiliency since wetlands, floodplains, and riparian zones are an important part of long-term planning;
4. Maintain and upgrade the facilities and assets of first responders to enable continuous services during an emergency including providing safe evacuation routes for residents and timely communication;
5. Expand the range of housing options by rehabilitating and reinforcing existing housing stock, promoting “green” development, and focusing on new construction in strategic areas.;
6. Promote historic and cultural assets as a draw for tourism;
7. Adapt housing and service improvements to serve vulnerable populations;
8. Treat the Creek as an asset through Improved public access for tourism, kayaking, and enjoyment;
9. Support ongoing economic development efforts for local businesses and farms, and to grow and sustain the Community’s population; and
10. Develop and maintain long-range strategic plans to prepare for the future needs of the Community.

The community vision led to the selection of strategies and projects to mitigate or recover from flooding while meeting other community goals. The selected strategies and projects have helped to meet community goals related to economic recovery; capacity building; and supporting other regional planning efforts. Planning efforts of the Regional Economic Development Council, local comprehensive plans, the Mohawk Valley Regional Sustainability Plan, the Schoharie County Multi-Jurisdictional Hazard Mitigation Plan, and the Schoharie County Hurricane Irene and Tropical Storm Lee After Action Report have been incorporated into and bolstered by the NYRCR planning process.

A blueprint for implementation

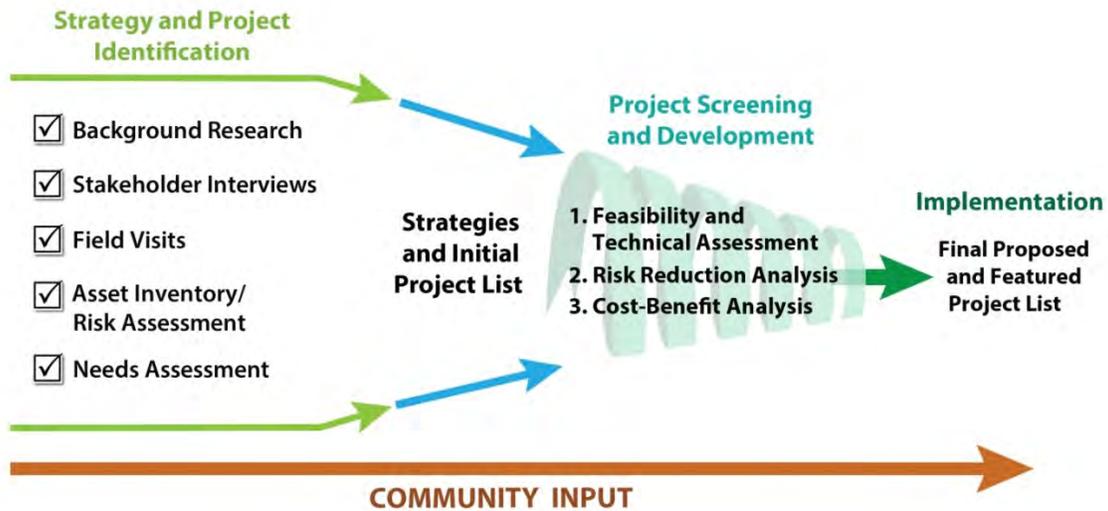
Strategy and project identification

Strategies and projects were developed based on Planning Committee and public input, a comprehensive asset inventory, a risk assessment, and an assessment of needs. The Planning Committee identified 106 critical assets of community value and assessed the flood risk to those assets. The importance of assets and the public support for projects that would protect those assets was determined at public meetings and workshops.

The following graphic outlines the process taken by the Planning Committee to develop resiliency strategies and identify projects for Community reconstruction and resiliency.

Esperance/Schoharie/ Middleburgh assets of community value include:

- ❖ Homes/neighborhoods vulnerable to flooding;
- ❖ Emergency services;
- ❖ Historic structures;
- ❖ Parks/open spaces;
- ❖ Drinking water systems;
- ❖ Wastewater systems;
- ❖ Healthcare facilities;
- ❖ Potential shelters;
- ❖ Bridges;
- ❖ Dams;
- ❖ Schools; and
- ❖ Main Street business districts.



NYRCR process for developing strategies and projects

Project screening and development

This NYRCR Plan highlights projects and actions the Community proposes to take in order to recover, and to maximize resilience to future major flood events. Under the NYRCR Program, the Towns and Villages of Esperance, Schoharie, and Middleburgh are each eligible for up to \$3 million to fund the projects highlighted in this final NYRCR Plan to reach the Community’s collective goal of building back better. These projects are classified into three categories: Proposed; Featured; and Additional Resiliency Recommendations.

- Proposed Projects are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding.
- Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.
- Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

The projects identified by the Community are presented in the table below and are grouped by their associated strategy. In many cases a project may cross multiple strategies but for the purposes of this document, projects are associated with their primary strategy. Projects are all Proposed except for those marked with an asterisk (*), which are Featured projects. Projects are not listed in any particular order.

Schoharie Valley NYRCR Plan Proposed and Featured projects by planning strategy

Strategy 1: Enhance storm preparation and emergency preparedness planning across the region, including improving communication capacities and processes, and educating the public to prepare for, respond to, and recover from flooding.	
Flood Warning and Response System	Generators for Healthcare Facilities and Emergency Services
Flood Resilience Public Education Campaign	
Recruit Volunteer First Responders	Resources for Homeowners
Strategy 2: Build a vibrant economic base by supporting and improving businesses, services, and attractions in the region.	
Commercial Node Development and Public Utility Extension Feasibility Study	Multi-use Trail from Central Bridge through Schoharie to Middleburgh*
Local Disaster Recovery Manager	Business Restoration and Incentives Program*
Strategy 3: Address the lack of detailed data and analysis to quantify flood risks and to plan measures, including green infrastructure projects, to reduce flooding risks and increase resiliency of stream systems in the event of future storms.	
Schoharie Creek Flood Study (Schoharie Creek Tributary Hydrologic Modeling)	Gorge Creek Hydrologic Study
	Fox Creek Study*
Strategy 4: Strengthen each jurisdiction's storm preparation and emergency preparedness planning, including improving communication capacities and processes.	
Central Bridge Firehouse Relocation	Town Highway Garage Replacement
Town of Esperance Town Hall Restoration and Flood Proofing	Contribution to Firehouse Replacement
Equip Landis Arboretum as an Emergency Shelter	Rebuilding Police Emergency Services
Village of Esperance Firehouse Rescue Facility	Alternate Emergency Route*
New Ambulance Building and Shelter	Become a FEMA CRS Community*
Emergency Response Equipment	Town of Schoharie Comprehensive Plan Update *
Strategy 5: Make repairs to infrastructure damaged by Hurricane Irene and Tropical Storm Lee and implement flood proofing and flood preparedness measures.	
Hilgert Parkway Stormwater Pumping Station	Gorge Creek Culvert Repair and Stormwater and Drainage Infrastructure Improvements
Install Sewer to Prevent Future Health Risks in the Village of Esperance, Phase I	Install Sewer to Prevent Future Health Risks in the Village of Esperance, Phase II*
Young's Spring Intake Line Replacements	Implementation of the Commercial Node Town of Middleburgh Utility Extension*
Drinking Water Intake Improvements	
Cemetery Road Repair	Spring Brook Drainage Improvements*
Central Bridge Main Street Repairs	Evaluate and Install Photovoltaic Systems*
South End Drainage Improvements	Central Bridge Water Reservoir Restoration*
Town of Middleburgh Watershed Restoration Project	
Strategy 6: Address interim and permanent housing needs across all housing types, including special needs and affordable housing, and reduce flood insurance costs to current homeowners.	
Parrott House	Stream Bank Erosion Control—Schoharie Creek off of Baker Avenue
Taylor Block	
Huntersland Volunteer Fire Department Berm Enhancement	Land Use Study for Floodplain Management
Strategy 7: Address the lack of comprehensive open space and stormwater plans in the Community, including development and restoration of green infrastructure.	
Master Drainage Plan	Re-purpose Destroyed Mobile Home Park
Northern Drainage/Stream Improvement	Stony Brook Mitigation
Tributary Mitigation Program	Karkerdorf Boat Launch*
Town of Middleburgh Watershed Restoration Project	Add the Village to the Town of Middleburgh's Comprehensive Plan Update*

NYRCR

Village of Margaretville

NY Rising Community
Reconstruction Plan

MARCH 2014

**NY RISING
COMMUNITY
RECONSTRUCTION
PROGRAM**



Executive Summary

Overview

Nestled in the valleys of the Catskill Mountains of Delaware County, New York, the Village of Margaretville serves as a regional center of commerce, education, healthcare, and tourism. Its tranquil beauty and inviting charm, however, is regularly punctuated by periods of intense flooding. The East Branch of the Delaware River, whose headwaters are mere miles north of the Village core, broadens and deepens as it winds its way through streets lined with charming historic homes and quaint, inviting storefronts that are repeatedly overwrought by flooding.

While the citizens of Margaretville have consistently rebuilt their Village of 596 people, in 2011, Hurricane Irene and Tropical Storm Lee unleashed an historic deluge of damaging rain, winds, and swollen waterways. Flood waters rapidly swallowed roads, bridges, streets, and in many cases, homes, businesses, and critical assets.

Coupled with a rainy summer and an already high water table, these two storms were the “one-two punch” that caused Margaretville’s flood-weary citizenry to be resoundingly committed to building a more resilient future. New York Governor Andrew M. Cuomo’s NY Rising Community Reconstruction (NYRCR) Program strikes a balance between recovery efforts and a resolve for future resiliency.

Often characterized as the “darling of the Catskill Mountains,” Margaretville has risen with proverbial David-like resolve in the aftermath of these Goliath-like storms and their resulting devastation.

To address the impacts of regular flooding and to bolster resiliency against future storms, Margaretville and a portion of the neighboring Hamlet of Arkville, formed a 1.16 square-mile planning area under the guidance and funding of the NYRCR Program. The NYRCR Margaretville Plan aims to address the most critical needs and impacts from major storm events, while identifying projects and strategies to bolster future resiliency, increase safety and quality of life, and inject incentives for economic growth. The Village’s highest priorities in the NYRCR Margaretville Plan are synthesized into proposed projects that could become realities with an NYRCR Program award of up to \$3 million.

The NYRCR Margaretville Plan was an eight-month exercise of intense community collaboration, public engagement and input, and scientific observation and analysis. It reflects a “can-do” spirit and identifies achievable projects and implementation strategies to rebuild with resiliency, and guard against future natural disasters.

Critical Issues

Several critical issues were identified during the NYRCR Margaretville Plan process. These issues surfaced through existing plan reviews, technical analyses, ongoing public engagement and input, interagency coordination, and NYRCR Margaretville Committee guidance and discussion. The dynamic challenges, which are often interconnected, require comprehensive solutions.

Broadly speaking, there are three overriding factors that result in critical issues framed for action in the NYRCR Margaretville Plan.



Margaretville’s relationship with the natural environment is both a blessing and a bane.

The Village’s proximity to the East Branch of the Delaware River offers inviting outdoor recreation and relaxation. However, Margaretville’s location also makes it particularly vulnerable to flooding, especially during periods of heavy rain and massive snow melts. As a result, its citizens have often been cut off from critical pathways to shelters, medical care, and essential services, when roads and bridges have become inaccessible and damaged.

The Village’s identity as a regional hub for commerce, education, medical care, and tourism make reconstruction and resiliency critical to both Margaretville and the region.

Access to critical facilities, including emergency services, is vital to secure. Moreover, as flooding causes both structural degradation and financial hardship on residents and businesses, economic and tourism potential is hindered, while blight discourages private investment in the community.

The small village-big city connection illuminates economic and quality of life interdependencies.

The Pepacton Reservoir, fed by the waterways surrounding Margaretville, provides about 25% of the drinking water for 9 million people in New York City (NYC). The importance of this land for water quality establishes a unique, collaborative connection between Margaretville and NYC; Margaretville helps to provide clean drinking water to NYC, while NYC helps to fuel Margaretville’s local economy. It is estimated that as much as 11% of Margaretville’s total land area is populated by NYC residents who have second-home getaways in the Village.

This “co-existence” with the NYC watershed region makes Margaretville’s resiliency pivotal to health, safety, quality of life, and environmental stewardship that extend far beyond its geo-political borders.

A Community-Driven Process

Meeting this planning challenge with the same collaborative spirit that has driven their response and recovery efforts, the NYRCR Margaretville Committee (Committee) reviewed existing plans and studies, engaged in scientific and cost-benefit analyses and risk assessments, and conducted extensive, multimedia public outreach and engagement.

Public input underscored every phase of the planning process, and was essential to project identification and strategy development.

A comprehensive communications strategy deliberately incorporated multiple means and measures to reach all home and business owners, as well as educational, healthcare, civic, faith-based, and social service organizations across the public and private sectors. Specific venues for public involvement included open weekly or bi-weekly Committee meetings, online and hard copy surveys, door-to-door visits, interviews of key community stakeholders, radio and social media channels, and community-wide public meetings held in easily accessible venues.

Vision Statement

Overarching this effort was the following vision adopted by the Committee early in the planning process:

“To create a resilient and vibrant environment in the Village of Margaretville that embraces the community’s history, charm, and character, while providing for future economic stability and reducing the vulnerability of the effects of natural hazards, flooding, and climate change. Through stakeholder-driven action, the Village of Margaretville will build on its role as a regional commercial and cultural hub to recover in the wake of recent storm and flood events, by fostering economic vitality, protecting the environment, and focusing on the health, safety, and well-being of people, property, and critical assets.



VISION STATEMENT (CONTINUED FROM PREVIOUS PAGE)

The Village of Margaretville will recover from the effects of flooding events to build a stronger, more economically robust community that is more resilient to these events. By (1) capitalizing on social, economic, and environmental assets; (2) protecting vulnerable populations; and (3) focusing on retaining residents, maintaining community character, and attracting new families and businesses; the Village of Margaretville will remain a safe and welcoming place to call home.”

A Blueprint for Implementation

While they were extreme events, the storms of 2011 were the latest in a series of natural disasters that have devastated the Village of Margaretville. The Committee and the public relied on a multi-generational body of knowledge and experience, augmented by anecdotal evidence and scientific analysis to identify Margaretville’s primary needs, risks, and critical issues. Ultimately, the findings became a blueprint for project and strategy realization.

The NYRCR Margaretville Plan aims to bolster the resiliency of existing critical assets and any proposed construction projects to “weather against” future storms.

The Committee first identified and analyzed the Village’s economic, healthcare, social services, housing, infrastructure, and natural and cultural resources to assess prospective risk to the community if these assets were lost or impaired. The Committee then evaluated overall risk to these assets, with a particular eye toward flooding by the East Branch of the Delaware River, and regional creeks and streams that wind through the Village.

Next, the Committee constructed preliminary strategies to reduce risk in the Village and to meet the most critical needs associated with community health and safety, resiliency, quality of life, economic growth, and environmental stewardship. The strategies became the foundation for projects and actions proposed in the NYRCR Margaretville Plan for CDBG-DR funding.

Projects were categorized into three project types. This methodology was designed to identify and consider the full range of potential actions and outcomes, while providing the Village with clear direction toward project implementation.

Proposed Projects are those recommended for CDBG-DR funding.

Featured Projects would involve an initial study or project’s first phase proposed for CDBG-DR or other identified funding. Featured Projects may also consist of other measures that do not involve capital expenditures.

Additional Resiliency Recommendations are projects and actions the Committee has highlighted, but which are not categorized as Proposed or Featured Projects.

From Strategies to Implementable Projects

The NYRCR Margaretville Plan is grounded in six strategies that would help to address critical community reconstruction and resiliency needs.

These strategies resulted in proposed and featured projects, as well as additional resiliency recommendations, to collectively remediate, mitigate, rebuild, and incentivize a renewed Margaretville.

Strategies

Strategy 1: Reduce the impact of flooding on the built environment in the Village, including critical facilities, infrastructure, businesses, and housing.

Strategy 2: Improve pre-disaster planning to include emergency communications systems, public outreach and education campaigns, economic recovery planning, and to secure transportation access into and out of the Village.



Strategy 3: Encourage business retention and growth in the downtown to strengthen the Village as a regional economic, social, and cultural hub.

Strategy 4: Ensure essential services are available before, during, and after a disaster.

Strategy 5: Develop initiatives to address housing challenges related to flood risk, affordability, availability, and limited parcels.

Strategy 6: Protect, preserve, and enhance natural, cultural, and historic resources and assets.

Projects

Village Resiliency Implementation Plan

Study the feasibility of addressing the Bridge Street Bridge area for flood mitigation, resiliency, and redevelopment opportunities. This project would incorporate previous planning efforts, combined with additional analysis, to prepare conceptual alternatives with renderings, associated costs, recommendations, and implementation actions. *(Proposed Project)*

Infrastructure Improvements (4)

Several projects have been proposed to alleviate chronic flooding of critical facilities and other assets in the Village. The following projects increase water flow capacity, remove obstructions, and protect adjacent properties.

- Binnekil Bulkhead, Levee Repair, and Improvements *(Proposed Project)*
- Bull Run Bridge Replacement and Property Acquisition *(Proposed Project)*
- Scotts Brook Culvert Replacements *(Proposed Project)*
- Bull Run Retaining Wall Repair *(Featured Project)*

Margaretville Central School Back-up Generator and Additional Mitigation Measures

Installation of flood protection and mitigation improvements is critical to this vital, regional public facility, which functions as an American Red Cross shelter during floods. Phase 1, proposed here, would include installation of a back-up generator, while Phase 2 would include structural flood-proofing and installation of a sump pump and dewatering system. *(Proposed Project – Phase 1)*

Fire Department and Department of Public Works (DPW) Facility Back-up Generator

Increase the size and capacity of Fire Department and DPW facilities that provide regional first response services. This project includes a new back-up generator to ensure facility operations during disasters, particularly as they function as a shelter and Incident Command Center. *(Proposed Project)*

Commercial Renovations and Small Business Incentives

Provide renovation assistance for commercial properties in the downtown area. Create small business incentives to encourage commercial growth to enhance economic vibrancy. *(Proposed Project)*

Acquisition and Renovation of Business Center

Acquisition and renovation of the existing Business Center facility on Main Street is proposed to foster business growth. This growth can occur by providing existing and entrepreneurial businesses with greater access to information, resources, educational offerings, and technical assistance. The project would include a provision for business incubator space and renovation of the upper stories of the Business Center into new apartments. *(Proposed Project)*



Installation of Solar Back-up Power

Purchase and install solar arrays for power back-up at several critical facilities, including the Margaretville Central School, the Fire Hall, and the DPW building.
(Proposed Project)

Flood Mitigation Retrofits for Homes and Targeted Property Acquisitions

This project would include flood mitigation improvements for houses, businesses, and assets located in hazard-prone areas to protect them from future damage. It would also include acquisition and demolition of select structures, where appropriate.
(Proposed Project)

NYRCR Margaretville



Proposed Project	Featured Project	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6
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NYRCR MARGARETVILLE PROJECTS							
Village Resiliency Implementation Plan	x		x	x	x	x	x
Binnekill Bulkhead, Levee Repair, and Improvements	x		x		x	x	x
Bull Run Bridge Replacement and Property Acquisition	x		x		x	x	x
Scotts Brook Culvert Replacements	x		x		x	x	x
Commercial Renovations and Small Business Incentives	x			x	x		x
Fire Department and Department of Public Works (DPW) Facility Back-up Generator	x		x	x		x	
Margaretville Central School Back-up Generator and Additional Mitigation Measures	x		x			x	
Acquisition and Renovation of Business Center	x				x		x
Flood Mitigation Retrofits for Homes and Targeted Property Acquisition	x		x				x
Installation of Solar Back-up Power	x		x			x	
Bull Run Retaining Wall Repair		x	x		x		



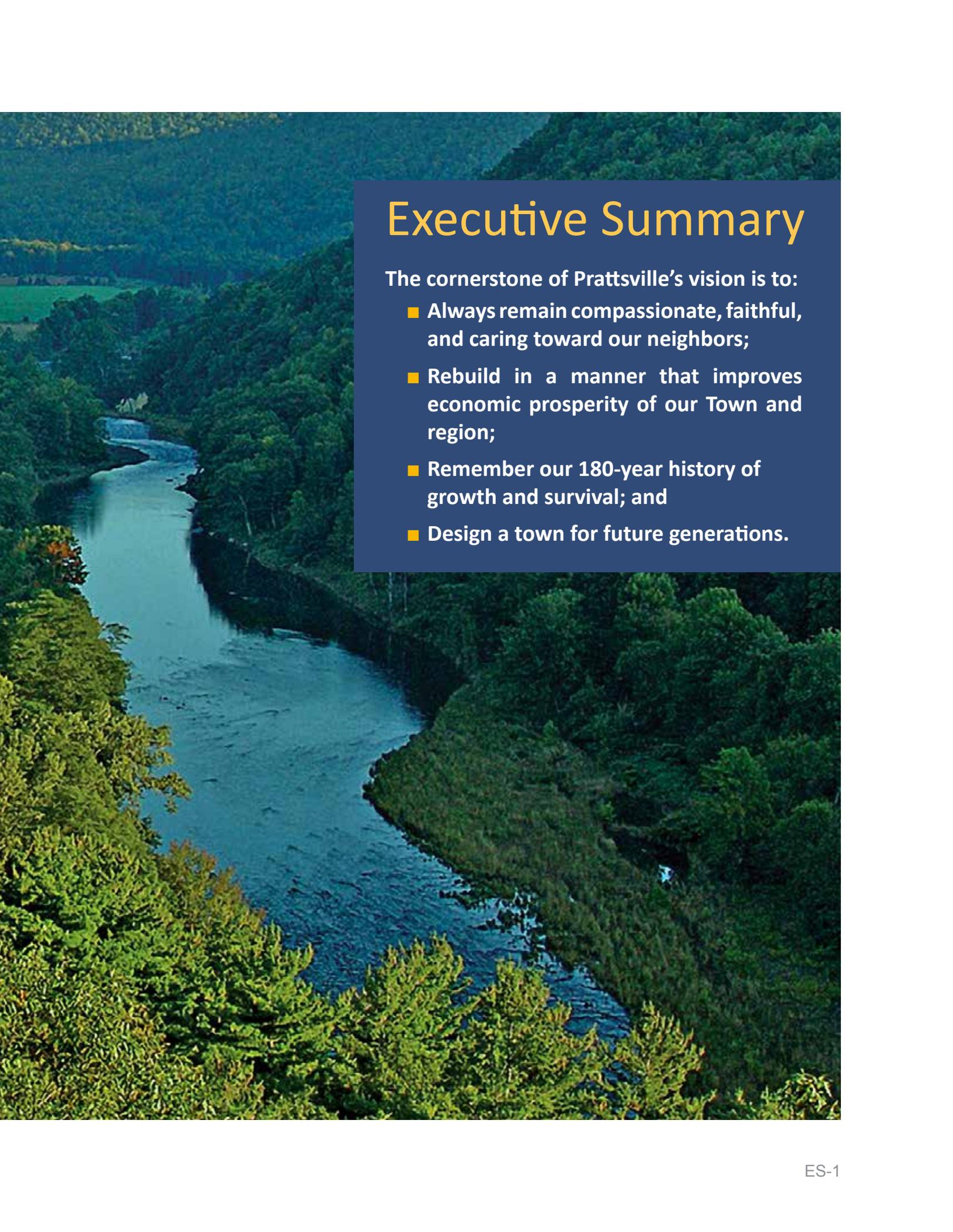


NY RISING COMMUNITY RECONSTRUCTION PROGRAM

NYRCR PRATTSVILLE

NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014



Executive Summary

The cornerstone of Prattsville's vision is to:

- Always remain compassionate, faithful, and caring toward our neighbors;
- Rebuild in a manner that improves economic prosperity of our Town and region;
- Remember our 180-year history of growth and survival; and
- Design a town for future generations.



Executive Summary

In the days following Hurricane Irene and Tropical Storm Lee, Governor Andrew M. Cuomo described Prattsville as “the worst hit community” of all the affected towns, hamlets, and cities in the State of New York. Over two and one-half years, Prattsville has battled back from that knockout punch, taking advantage of the opportunities it has been given, inspiring others, and staying the course. Through participation in the NY Rising Community Reconstruction Program (NYRCR), Prattsville is eligible to receive up to \$3 million in Community Development Block Grant Disaster Recovery funds to help implement its vision for a resilient future.

Prattsville is a very small town of just over 350 year round residents at the northwestern edge of the Catskill Park in Greene County, New York, only two hours from New York City, near Oneonta, Kingston, and Catskill. The NYRCR planning area includes the entire Town to ensure that locations for floodsafe new development are available, although the high risk area is the Schoharie Creekside hamlet along New York State Route 23.

Prattsville’s Story of the Storm

On the morning of August 28, 2011, as Hurricane Irene passed over the Catskills, the Schoharie Creek rose slowly at first until a flash flood hit between 7:30 and 8:30 a.m., causing creek waters to rise over 7 feet in 1 hour and a total of 16 feet in 12 hours. The Schoharie broke from its banks roaring down Prattsville’s Main Street at an astonishing peak flow of 120,000 cubic feet per second (cfs) –which is greater than the volume flowing over Niagara Falls. Hurricane Irene broke records across the Schoharie Valley, and in Prattsville the storm was 24% larger than the 500 year event and more than double the peak flow reported in the Town’s previous record.

Throughout the hamlet, residents and business owners were stranded on rooftops in driving rain, waiting hours to be rescued, watching houses collapse and a wall of water destroy their Town. Fire fighters and emergency crews became trapped on the second floor of the station for 5 hours. The Sheriff’s water rescue boat capsized and sank on Main Street.

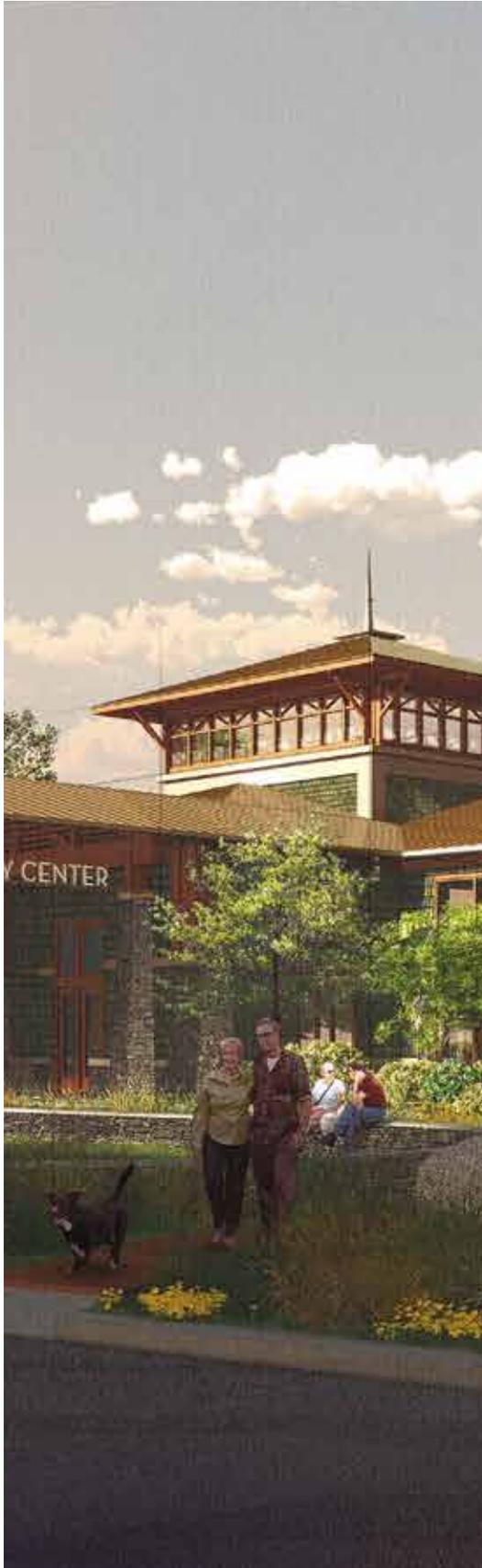


Homes floated out from Moore’s Mobile Home Park. By early afternoon the community watched in shock as the five-generation, 86-year-old O’Hara’s Service Station washed away entirely, along with the Rod and Gun Club.

Once the floodwaters receded a slick layer of red mud, 6 inches deep in places and contaminated with oil, gas, and sewage, covered everything. The Town remained virtually landlocked for more than a week and the State Route 23 Bridge across Schoharie Creek closed for 10 days. Sidewalks were destroyed, trees were ripped from the ground, culverts blocked, drains filled to capacity, and pump stations failed. Power and telephone poles were knocked down, causing electrical service and landlines to be out for weeks. Tractors plowed the parking lot of Jim’s Great American Grocery Market clear of debris and mud, and it became the command center as Prattsville began rebuilding – one neighbor at a time.

All the devastation, and Prattsville’s near isolation following the storms, underscored long-standing problems, brought forward new needs and identified critical challenges including:

- Relocating vulnerable seniors from the floodplain to safe and affordable housing;
- Restoring homes and businesses directly damaged by the floods;
- Addressing limited access to health and social services;
- Using creative partnerships to address the scarcity of developable land and advance mitigation projects;
- Protecting critical municipal facilities that are still at risk; and
- Addressing the lack of implementation capacity and need for staff support.



Prattsville Moves “From the Middle of Nowhere, to the Center of Everything”

The NYRCR process advances the important work accomplished by FEMA, Prattsville residents, and a group of professional volunteer planners and architects in the weeks following the floods in 2011. That successful REBUILD Prattsville FEMA Long Term Community Recovery process included a four day design workshop, dozens of working group meetings, multiple public events, interviews, and focus groups. The NYRCR Planning Committee engaged the public through open Committee meetings, public workshops, open houses, and neighborhood workshops. The outreach approach included posters, flyers, advertising and announcements as well as social media. The Committee distributed a community newsletter and conducted a survey to reconfirm priorities. These outreach efforts generated feedback that was incorporated into the vision adopted by the Planning Committee, which is to:

***“Always remain compassionate, faithful, and caring toward our neighbors; Rebuild in a manner that improves economic prosperity of our Town and region; Remember our 180 year history of growth and survival; and Design a town for future generations.*”**

Prattsville focuses on a holistic approach to planning; capacity building; and providing health, social services, infrastructure, and jobs that serve all residents and keep them safe. We work to reduce risk and damage from flooding and ensure that our homeowners and businesses can recover quickly. Our seniors, families, and children have many opportunities to enjoy nature, history, art, and culture. Prattsville is a mainstay of our strong, resilient and creative mountaintop region where people choose to live, work, and play.”

A Blueprint for Recovery

During the NYRCR process, the Committee identified and ranked economic, health and social services, housing, infrastructure, and natural and cultural assets. They evaluated and scored each asset based upon the level of hazard, exposure, and vulnerability each faces in extreme weather. Many were found to be at high risk.

“We should become a modern, eco-friendly, green town within the context of our special history. Take advantage of all cutting edge technologies in the rebuilding. Physically look historic, but infrastructure-wise be 21st century.”

- Post-flood survey comment

The Committee then identified six overarching strategies to guide them in developing projects that would address the risks to their assets. Fifteen projects, including eight with regional impact, were identified and classified as Proposed, Featured, or Additional Resiliency Recommendations. Proposed Projects are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding. Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects. Once the Proposed and Featured Projects were identified, the Committee used the scores, cost estimates, market analyses, and identified community benefits to evaluate how feasible the projects are and how effectively they reduce risks. These projects are summarized on the next page, but are not ranked or listed in priority order.

Building on a wealth of public input since the floods, Prattsville enjoys strong support for all projects among residents young and old, and broad consensus that it is on a path to continued success.



1

Prattsville Town Common

Strategy: Ensure that all residents have an exceptional quality of life and that vulnerable seniors are safe.

Proposed Projects:

- Acquire and extend infrastructure to build a flood-safe neighborhood at the Town Common;
- Respond to critical regional needs by developing a health center and urgent care center.

Featured Projects:

- Anchor the Town Common with affordable senior housing in apartments and in a cottage community;
- Create a focal point at the Town Common with a regional community/ senior center and emergency shelter.

2

Prattsville Works

Strategy: Create work and wealth for local residents and strengthen the Town’s commercial foundation, with a focus on green industry and green energy.

Proposed Project:

- Create the Green in Greene Grant Fund to help new companies to locate in Town.

Featured Project:

- Create the Prattsville Eco-Commerce Park focused on green industry and green energy.

3

Choose Prattsville

Strategy: Restore damaged homes and build new residences.

Featured Project:

- Launch the Choose Prattsville Housing Program to bring neighbors home and encourage new flood-safe residences.



High above the hamlet, three breathtaking properties overlooking the Schoharie Valley would be home to Prattsville’s Town Common. The project would transform and complete Prattsville, reduce risks, and promise superior quality senior living, health, recreation, and community services in a smart and green rural neighborhood - a model for the region.

4

Creative Main Streets

Strategy: Preserve the past and seize a future that supports the economy and culture that make Prattsville unique.

Featured Projects:

- Complete the Prattsville Green Main Street Initiative with street, Town Green restoration, and Schoharie Creekside trail;
- Support the arts, culture, and historic assets through the Prattsville Cultural Resources Program.

5

Nature and Heritage Tourism

Strategy: Capitalize on nature and heritage tourism by enhancing existing facilities and expanding recreation and entertainment.

Featured Projects:

- Promote Prattsville as a destination for authentic nature and heritage tourism and a creative place to live, work, and play;
- Repair flood damage and expand amenities available at Conine Field.

6

Prepare Prattsville

Strategy: Build awareness, provide services, and model sustainable measures that make Prattsville resilient.

Proposed Projects:

- Support the Prattsville Local Development Corporation;
- Develop an Emergency Preparedness and Notification Strategy, with a plan, website, and audible flood warning system;
- Support development of a new flood-safe fire station.

Featured Project:

- Establish a fund to implement hazard mitigation projects.



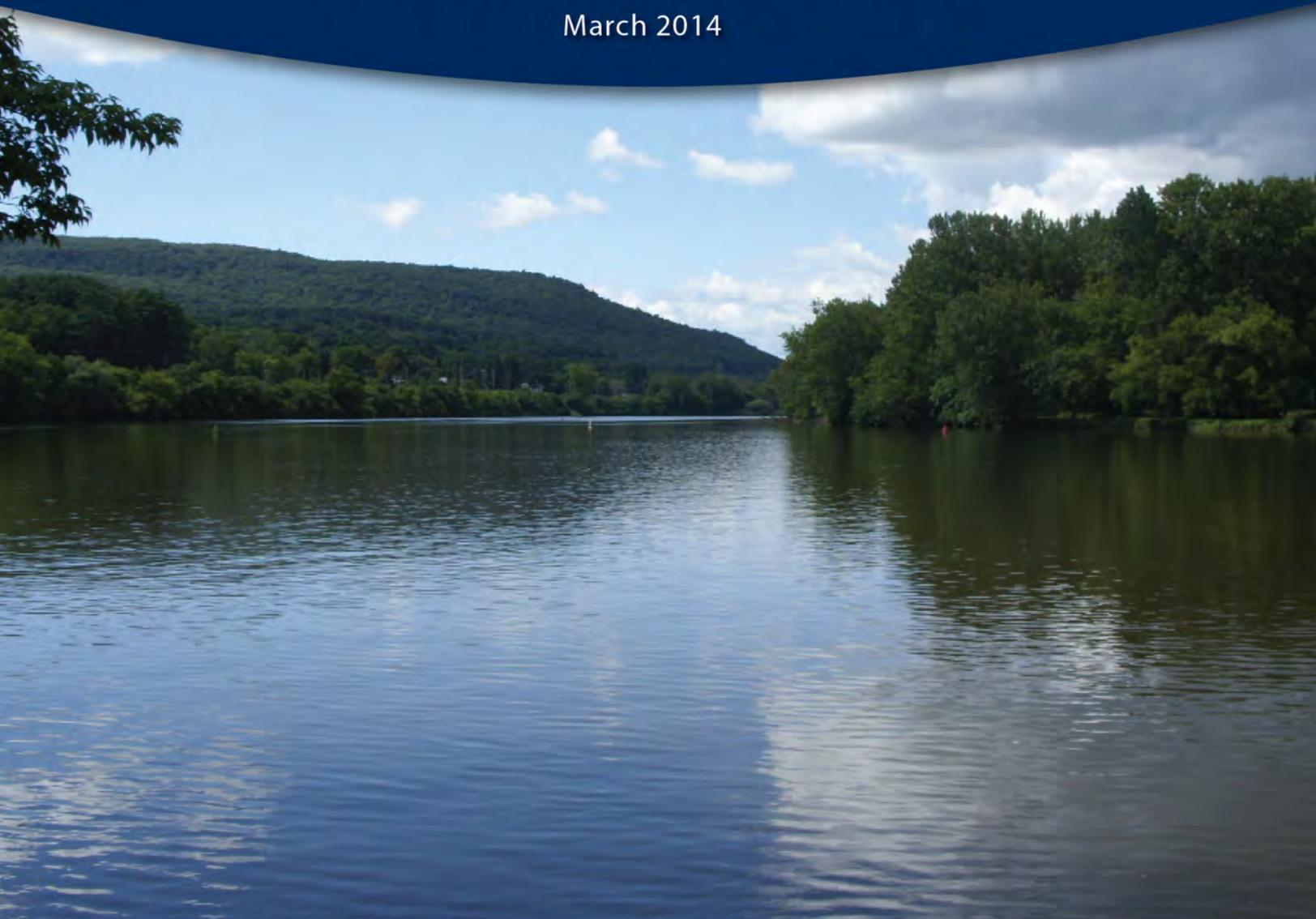
Emphasizing Prattsville's vision of being "Green in Greene," it offers a mix of uses and choice in housing, bringing seniors and children together and strengthening the multi-generational family ties that make Prattsville the desirable and determined community that it has always been.



NY Rising Community Reconstruction Plan for the
**CITY OF SCHENECTADY
AND TOWN OF ROTTERDAM**

Prepared for the
NY Rising Community Reconstruction Program

March 2014



Executive Summary

The New York Rising Community Reconstruction (NYRCR) Program was established by Governor Andrew M. Cuomo to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee.

The NYRCR Program provided a unique opportunity for community members in the City of Schenectady (Schenectady) and the Town of Rotterdam (Rotterdam) to come together and engage in thoughtful discussion about their future. In the two years since Hurricane Irene and Tropical Storm Lee, they have done their best to rebuild, but have not fully recovered. Under this Program, Schenectady and Rotterdam each qualify for awards of up to \$3 million to fund reconstruction and resiliency projects.



NYRCR Planning Committee

Overview

Schenectady and Rotterdam are located on the south bank of the Mohawk River in Schenectady County. The Plan addresses three distinctly different parts of Schenectady: mixed use neighborhoods, including the Stockade; Schenectady's downtown central business district; and the existing and former industrial waterfront. The portion of Rotterdam included in the study area is predominantly residential and includes the Hamlets of Pattersonville and Rotterdam Junction, and the waterfront floodplain in between them. The hamlets are distinct communities that lie far west of the more densely settled Rotterdam town center.

Storm Damage

Schenectady and Rotterdam were hard hit by Hurricane Irene and Tropical Storm Lee. Floodwaters poured into streets, homes, and buildings throughout Schenectady. The level of the Mohawk River rose as high as 28 feet above flood stage in the Stockade and East Front Street neighborhoods. Residents in these neighborhoods, who had experienced numerous previous floods, had never seen their homes (some of which are over 200 years old) come under as much water. The damage was so significant that some residents were unable to return to their homes for six to nine months.

The hamlet of Rotterdam Junction was the hardest hit community in Schenectady County. Water overflowed into the abandoned and debris-laden Old Erie Canal by Leggerio Lane, flowed southeast through the canal, overflowed the Hudson-Mohawk Hike Bike Trail, and flooded Rotterdam Junction. As a result, 62 homes were inundated: 57 were flooded to the first floor and 5 were flooded up to the second floor. Residents who had not evacuated found themselves trapped because State Route 5S was flooded on Monday morning and the Route 103 Bridge was closed on Sunday night. This effectively turned Rotterdam Junction into an island surrounded by debris-laden flood waters, making it extremely dangerous to attempt to leave.



Photo credit: Jose Rijo
Flooded home in Rotterdam Junction



Photo credit: The Daily Gazette
Flooded homes on Ingersoll Avenue, Schenectady.

Critical Issues

The aftermath of these unforgettable, catastrophic events guided the NYRCR Planning Committee when they were tasked to define critical flood-related issues in both communities. Some of these issues include:

- Existing local and regional plans predate the storms and do not address flood-related emergency preparedness, evacuation planning, and flood mitigation.
- Residential property is still at risk of flooding: Over 50 homes in the Historic Stockade and East Front Street neighborhood are located in the 100-year floodplain and the majority of Rotterdam Junction residents live in the 500-year floodplain.
- The communities struggle with abandoned homes as a result of Irene and Lee: seven in Schenectady and 14 in Rotterdam.
- Culverts and storm drains throughout Schenectady and Rotterdam are undersized and in need of repair, which compromises their ability to handle large storm events.
- The communities’ water and sewer systems, which were damaged during Irene and Lee, continue to be vulnerable to flood damage.
- Emergency responders were able to meet the community’s needs during Irene and Lee, but often had to make due with imperfect facilities – upgrades are needed.

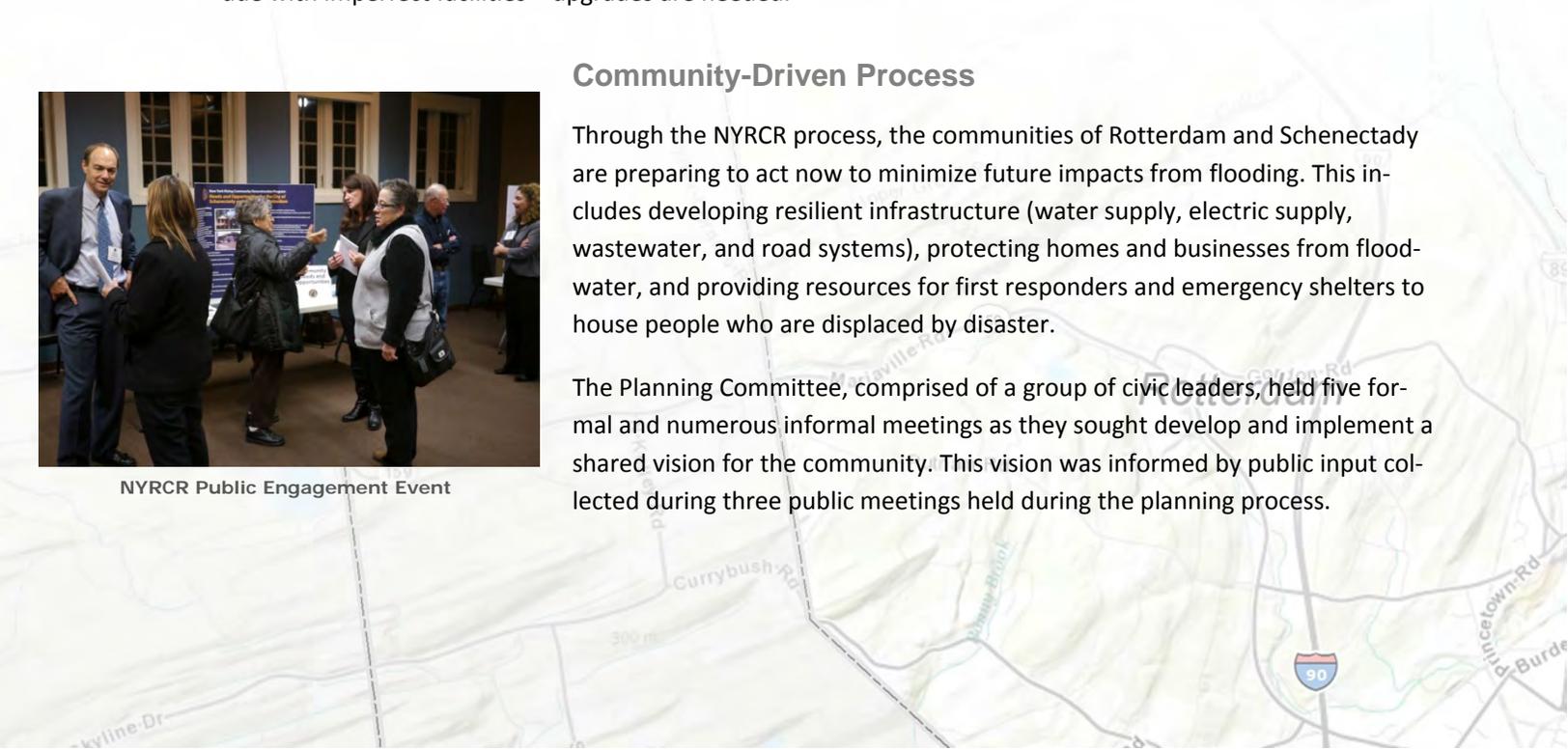
Community-Driven Process

Through the NYRCR process, the communities of Rotterdam and Schenectady are preparing to act now to minimize future impacts from flooding. This includes developing resilient infrastructure (water supply, electric supply, wastewater, and road systems), protecting homes and businesses from floodwater, and providing resources for first responders and emergency shelters to house people who are displaced by disaster.

The Planning Committee, comprised of a group of civic leaders, held five formal and numerous informal meetings as they sought develop and implement a shared vision for the community. This vision was informed by public input collected during three public meetings held during the planning process.



NYRCR Public Engagement Event



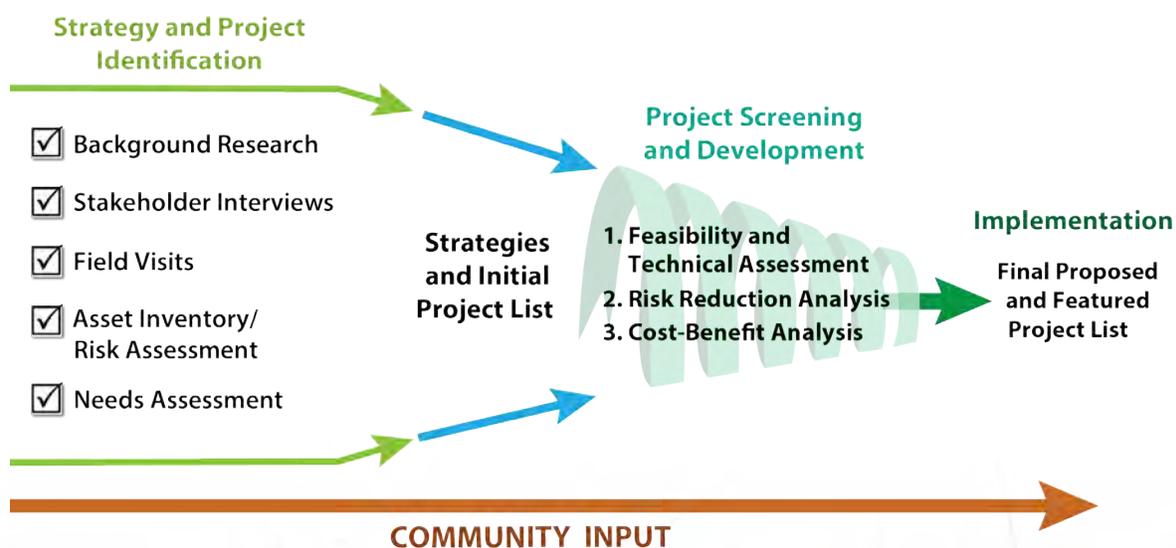
Community Vision

The City of Schenectady and the Town of Rotterdam will be resilient; they will anticipate flood risks, limit impacts on property and infrastructure when flooding is unavoidable, and respond efficiently and recover quickly, in a manner that protects traditional community neighborhoods, quality of life, and takes advantage of waterfront opportunities.

A Blueprint for Implementation

The Planning Committee developed strategies and projects based on public input and a comprehensive asset inventory, risk assessment, and needs assessment process. The Planning Committee identified 60 critical assets of community value and assessed the flood risk to each asset. The importance of assets and the public support for projects was determined at public meetings and workshops.

The figure below outlines the process taken by the Planning Committee to develop resiliency strategies and projects for Schenectady and Rotterdam.



Project Screening and Development

The project development and evaluation process resulted in identifying projects that fall under three categories: Proposed, Featured, and Additional Resiliency Recommendations.

- Proposed projects are projects proposed for funding through a NYRCR Community's allocation of CDBG-DR funding.
- Featured projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.
- Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.



The projects below are grouped by strategy. Projects are all categorized as “Proposed” except for those marked “Featured.” Projects are not ranked or listed in any particular order.

- Strategy: Strengthen capacity of emergency and support services to respond during a major storm event and manage resources throughout recovery.
 - ❖ Rotterdam Junction Firehouse Upgrades
 - ❖ Schenectady High School Emergency Shelter Project
 - ❖ Evacuation Plan for Rotterdam Junction
 - ❖ Senior Citizens Center/Schenectady County Emergency Shelter

- Strategy: Complete long-term community recovery planning, watershed management planning, hazard mitigation planning, and other related planning efforts to build flood resilience.
 - ❖ East Front Street Combined Sewer System Study
 - ❖ Mitigation Measures to Reduce Flooding in the Stockade and East Front Street Neighborhoods

- Strategy: Incorporate green infrastructure and other stormwater management practices into private and public development and infrastructure projects.
 - ❖ Liberty Park Expansion and Streetscape Improvements

- Strategy: Establish health and social service buildings outside the flood zones as shelters during major storm events.
 - ❖ Senior Citizens Center/Schenectady County Emergency Shelter
 - ❖ Schenectady High School Emergency Shelter Project

- Strategy: Reduce flood risk to vulnerable neighborhoods located in the floodplain.
 - ❖ Mitigation Measures to Reduce Flooding in the Stockade and East Front Street Neighborhoods
 - ❖ Demolish Seven Flood Damaged Homes Located in the 100-Year Flood Plain



Photo credit: Schenectady County

American Red Cross provides medical care for Rotterdam Junction residents



Photo credit: The Daily Gazette

Evacuations during Irene/Lee



Photo Credit: Elinore Schumacher

Home repairs after the storms.

- Strategy: Protect wellheads and other drinking water infrastructure from flooding to ensure uninterrupted supply of clean, safe drinking water.
 - ❖ Flood Protection of Rotterdam Water District #5 Wells
 - ❖ Flood Protection of Schenectady City Well Heads
 - ❖ Install an Automatic Transfer Switch at the Rotterdam District #3 Well Head Facility

- Strategy: Improve septic and wastewater infrastructure to reduce flood damage and risk of pollution.
 - ❖ North Ferry Street Pump Station Relocation Project
 - ❖ City of Schenectady Wastewater Treatment Plant- Flood Control

- Strategy: Improve and maintain culverts and other drainage systems that contribute to flood impacts.
 - ❖ Mohawk-Hudson Bike-Hike Trail and Culvert Improvements
 - ❖ Replace Lock Street Stormwater Pumps with Gravity Storm Sewer Line
 - ❖ Schenectady County Community College Flood Abatement (Featured)
 - ❖ East Front Street Combined Sewer System Study

- Strategy: Ensure that critical facilities continue to operate during major storm events through redundant backup systems (e.g., generators, pumps, and connecting supply waterlines).
 - ❖ Install Generator at City Hall
 - ❖ Install an Automatic Transfer Switch at the Rotterdam District #3 Well Head Facility

- Strategy: Increase opportunities for recreation and tourism through efforts that include improving river access, regional biking and hiking trail development, and new activities and events.
 - ❖ Liberty Park Expansion and Streetscape Improvements

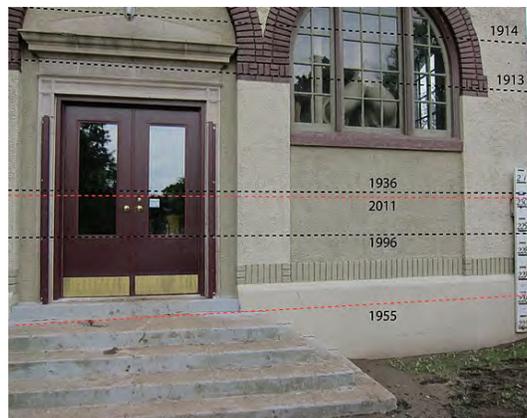


Photo Credit: Jim Kalohn, Schenectady County Planner

**Historic Flooding of the
North Ferry Street Pump Station**



Photo Credit: Times Union

**Schenectady County Community College
Irene/Lee flooding**

The projects and actions included in the Schenectady/Rotterdam NYRCR plan will help the communities achieve recovery from the devastation of Irene and Lee and make them more resilient in the face of future flood events.

NY Rising Community Reconstruction Plan

NYRCR Towns of Shandaken and Hardenburgh

March 2014

NY Community Reconstruction Program



The NYRCR Shandaken and Hardenburgh
Planning Committee





EXECUTIVE SUMMARY

OVERVIEW

The Towns of Shandaken and Hardenburgh are located in Ulster County, New York, in the Mid-Hudson Region. The combined area of the Towns of Shandaken and Hardenburgh comprise 201 square miles amid the Catskill Mountains, affording residents and visitors with plentiful opportunities for both active and passive recreation. The Town of Shandaken has 12 population centers (hamlets) with approximately 3,085 residents. It is the only Town wholly located within the Catskill State Park and the New York City (NYC) watershed. Public lands owned by both New York State (NYS) and NYC comprise nearly 80% of the Town. Meanwhile, Hardenburgh has a population of 238 people. Five of the Catskill peaks are within or border the Town of Hardenburgh, where 52% of the land is publically owned.

In August and September 2011 Hurricane Irene and Tropical Storm Lee pommelled the Towns of Shandaken and Hardenburgh. The impacts and challenges caused by these storms and resultant flooding were significant and affected the lives of all segments of the local community and the region at large; considerable recovery goals remain more than two years after the flooding. In both Towns, flooding wreaked havoc on roadways and transportation infrastructure. The devastating

effects of Irene forced the evacuation of over 200 people from the area, including residents of Shandaken and Hardenburgh. Displaced residents from the Towns were directed to an overnight shelter that had been set up at Belleayre Mountain, where beds, hot meals, and medical services were provided. In total, Ulster County experienced over \$10 M in damages; Shandaken marked Irene as the largest storm on record.

To address the significant lasting impacts of these devastating storms, and to establish long-term community viability and resiliency, Shandaken and Hardenburgh collaborated to develop a NY Rising Community Reconstruction (NYRCR) Plan. Beyond simply rebuilding, the NYRCR Shandaken/Hardenburgh Plan aims to build back better by increasing the Towns' resiliency against future flooding. Ultimately, saving lives; protecting properties; advancing economic development; and improving quality of local life, are envisioned outcomes. Through the NYRCR Program, each Town was allocated up to **\$3 million** to implement reconstruction and resiliency. These projects have been identified through a community-driven process and extensive analytical vetting that is detailed in the Plan.

CRITICAL ISSUES AND CHALLENGES

Critical issues that consistently arose in public meetings and through personal interviews and surveys in both Towns include the current inadequacy of infrastructure as well as communications reliability and economic viability. As the roadways and infrastructure are built adjacent to the streams and rivers, they are vulnerable to the frequent flood events that result

in damage and road closures. The result – after flood events, residents in these communities are often cut off from routes that ordinarily connect them to critical regional facilities and services. Moreover, during flood conditions, emergency response is severely hampered stranding vulnerable residents and business owners.

Other contributing factors to the severity of storm



impacts include aging, under-sized, and under-designed transportation and stormwater infrastructure is prevalent throughout both towns. These issues, combined with the location of critical asset and the mountainous terrain, limit the developable areas in the Towns and mitigation options.

Meanwhile, limited cell and Internet service contributes to physical and psychological isolation, which can be dangerous during emergencies and inadequate telecommunications also limits residents’ ability to access critical information about how to prepare for disasters, avoid danger, and seek assistance following disasters.

Relative to the need for expanded opportunities for economic development, there is great concern

about the limited land remaining for development for new residential or commercial uses. Additionally, there are restricted options for the relocation of assets currently in flood-prone areas. Collectively, these factors, coupled with an increasingly aging local population, deter economic growth and an adequate local workforce. Finally, the region’s popularity as a second home and vacation destination provides key patrons for local businesses, but also creates unpredictability and seasonal fluctuations in sales revenue and worker income. These issues have been considered in the development of the NYRCR Shandaken/Hardenburgh Plan.

COMMUNITY-DRIVEN PROCESS

The planning process was led by the NYRCR Shandaken/Hardenburgh Committee, comprised of local residents, business owners, and community leaders. The NYRCR Shandaken/Hardenburgh planning process was built on a community vision

statement that was created by the Committee with input from the public and local stakeholders. This vision provided the focus for identifying strategies and developing projects that would enable each Town to not only to survive, but to thrive.

Community Vision

Through collaborative discussions, stakeholder engagement, review of existing plans and studies, and a focused intention towards holistic community recovery, the Committee adopted the following vision to guide the recovery and resiliency efforts of the Towns of Shandaken and Hardenburgh: To rebuild stronger, safer, and more vibrant communities that will be more resilient in the face of future disasters by planning and developing actions to secure funding and other resources

The planning process included several crucial components, including ongoing public outreach, reviews of existing studies, a risk assessment of critical assets, identification of critical needs and opportunities, a cost-benefit analysis, and ultimately, identification of proposed projects and implementation strategies. The vision statement provided a guide for all aspects of the planning process.

Throughout the process, the public was informed

and encouraged to attend and participate in Committee meetings and public information events by targeted mailings, posters displayed at local businesses, social media via the Town website, Town cable TV, Facebook, email blasts, and local newspapers. Also, outreach was provided at two popular local festivals, the two-day Shandaken Fall Fest and the Cauliflower Festival at which NYRCR booths were provided to provide information about the program and three public meetings. The public meetings were aired on local the Town’s cable TV



station to ensure that the public had an opportunity

to be informed of the process.

FINAL PLAN AS A BLUEPRINT FOR IMPLEMENTATION

Based on the needs identified during the planning process, and an assessment of the vulnerability of critical assets in Shandaken and Hardenburgh, the Committee created a list of proposed and featured projects to increase resiliency against future disasters. These projects are listed below, but are not ranked in any priority order. Proposed Projects are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding. Featured Projects are projects and actions that the

Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

SHANDAKEN PROJECT LIST	
Project Name	Short Project Description
Shandaken Proposed Projects	
Backup Power Generator for Shandaken Town Hall	Fixed Installation of back-up propane generators for Shandaken town
Little Peck Hollow Rd Bridge	Rebuild and improve little peck hollow road bridge to improve flow capacity and convey flood waters.
Lower Birch Creek Rd Bridge	Realign the Lower Birch Creek Road and make necessary upgrades to the bridge structure in order to alleviate the existing roadway flooding condition.
Muller Rd Bridge	Rebuild and improve Muller Road Bridge and bridge abutment to improve flow capacity and convey flood waters.
Pantherkill Rd Bridge	Replace the existing Pantherkill Road bridge and bridge abutment over the Pantherkill stream to improve flow capacity and convey flood waters.
Peck Hollow Rd Bridge - Peck Hollow	Rebuild and improve Peck Hollow Road Bridge over Peck Hollow Creek. This project would replace the existing bridge and abutment to improve flow capacity and convey flood waters.
Improved Data Collection and Storage System to include Elevation Monuments	Install elevation monuments/markers in public locations in each hamlet to lower costs associated in elevation certificate data collection for flood prone structures
Municipal Complex	Construct a new town complex including relocating and co-locating Town Hall, highway department, emergency management services (EMS) and dog shelter out of the floodplain: the project removes these critical services from their currently damage-prone location in the flood plain to a new site on State Route 28.
Fire District and Emergency Service Improvements	Provide funding for up to three volunteer fire districts for unique upgrades and relocate the EMS ambulance garage out of the flood plain.
Phoenicia Stream Restoration and Recreation Trail - Phase 2: Realignment and Replacement of Bridge St. Bridge	Replace the existing Bridge Street Bridge with a longer and higher elevated structure that reduces the number of in-stream support structures, reduces debris and sediment buildup, lowers the flood plain above and below the bridge, and allows for more stream capacity during high water events.



SHANDAKEN PROJECT LIST	
Project Name	Short Project Description
Shandaken Featured Projects	
Lower Muddy Brook Slope Repair	This project will repair and stabilize Lower Muddy Brook slope and embankment near the intersection of Muddy Brook and Woodland Valley Roads.
Pantherkill Rd. Slope Repair	This project will repair and stabilize the Pantherkill road slope and embankment along the south side of Pantherkill road for a length of approximately 60 feet.
Silver Hollow Slope Stabilization	This project will repair and stabilize the Silver Hollow slope and embankment near 19 Silver Hollow Road in the hamlet of Chichester.
Upper Muddy Brook Slope Repair	This project will repair and stabilize the Upper Muddy Brook slope and embankment in the approximate location of 131 Muddy Brook Road.
Phoenicia Water System Upgrades	Upgrade the Phoenicia water system to increase capacity and make it more flood-proof and resilient during high water events.
Emergency Power Generation Hookup Improvements	Outfit lodging establishments, restaurants and gas stations (and perhaps other appropriate buildings) with quick connect capability to hook up generators after floods to ensure that each hamlet has locations with electricity for people to remain safe and access accommodations, showers, food and water.
Mt. Tremper Car Bridge - Phase 1	Remove and replace the Mt. Tremper car bridge with a pedestrian crossing. Phase 1: bridge removal
Mt. Tremper Car Bridge - Phase 2	Remove and replace the Mt. Tremper car bridge with a pedestrian crossing. Phase 2: pedestrian bridge design and replacement
Phoenicia Stream Restoration and Recreation Trail - Phase 1: Land Acquisition, Property Relocation; and Park Development	Acquire properties adjacent to the Bridge Street Bridge and create a park with associated amenities and flood protection measures. This phase 1 action is part of a greater stream restoration project that includes bridge replacement, a recreational trail, and streambank restoration.
Phoenicia Stream Restoration and Recreation Trail - Phase 3: Streambank Restoration	Stream restoration and gravel harvesting near the Bridge Street Bridge to remove impediments and debris accumulation, increase flood protection for neighboring properties, improve stream function and conveyance and increase safety for residents and visitors. This phase 3 action is part of a greater project that includes bridge replacement, a recreational trail, and reduction in flood elevation.
Phoenicia Stream Restoration and Recreation Trail - Phase 4: Construction Of Amphitheater and Trail Connection(s)	Construct an amphitheater, trail, and trail network connections near the Bridge Street Bridge. This phase 4 action is part of a greater stream restoration project that includes bridge replacement, creation of a public park, and streambank restoration.
Building Department Digital Upgrades	Plan and implement digital upgrade for the building department and provide GIS training for local officials to allow electronic post-storm building inspections and reports from the field and to increase the community CRS numbers.
Home and Business Flood Mitigation Improvements	Construct flood mitigation improvements for houses, businesses and assets located in hazard-prone areas to protect structures from future damage. Where appropriate, this may also include the acquisition and demolition of structures located in the hazard-prone areas to protect from future damage.



HARDENBURGH PROJECT LIST	
Project Name	Short Project Description
Hardenburgh Proposed Projects	
Ploutz Rd. and Millbrook Rd Bridge Construction	This project would construct an improved stream crossing structure that will replace two existing culverts with a 20' span bridge to cross an unnamed tributary of Millbrook Creek.
Millbrook Rd. Bridge Replacement	This project will replace the existing bridge with a 20' span bridge at the Millbrook Road Belleayre Stream crossing.
Hinckley Bridge	The project would replace the existing Hinckley Road Bridge at the Belleayre Stream crossing.
Millbrook Rd. Bridge Abutment Stabilization	The project would correct under-abutment scour on the west abutment of the Millbrook Rd. Bridge to stabilize the existing structure, thus ensuring safe mobility and access before, during and after a flood event.
Rider Hollow Rd/ Todd Mountain Rd. (intersection) Bridge replacement	Replace an antiquated bridge with a stream crossing structure capable of conveying larger flows.
Beaverkill Rd. Embankment Stabilization	The proposed road embankment stabilization project addresses erosion protection, stream restoration, and embankment repair, and would restore the stream to its pre-Irene channel conditions. Improvements would be made to the banks of Beaverkill Creek along Beaverkill Road, and would increase access, improve stream function, and increase safety for vehicular travel through the area.
Backup Power Generators - Fixed installation	Install back-up propane generators for key community facilities to ensure the provision of essential services during a disaster. Facilities slated for the improvements include the Town Hall and the two Highway Garages.
Grant's Mill/ Millbrook Covered Bridge Relocation	Relocation of the Millbrook Covered bridge from its present location to a "dry dock" location approximately 300 feet to the east and placing it on concrete abutments. - Its current abutments are in a seriously precipitous condition. The Covered Bridge is on the NYS and National Historical Site list and this project would protect the historic structure, mitigates water surface elevation issues in the vicinity, and reduces tailwater conditions on the Mill Brook Road Bridge.
Old Baker Road and Rider Hollow Road intersection Bridge Replacement	Replace the antiquated bridge on Rider Hollow Road with a new concrete slab bridge. This will alleviate the existing roadway flooding condition therefore have safety and mobility benefits. The new bridge will convey the 100-year design flow without roadway overtopping and will allow floating debris to pass through more easily.
Hardenburgh - Broadband Service Extension	Support Broadband service extension in the Beaverkill Valley, bringing broadband internet and improved communication services to the Beaverkill Valley on the south side of the mountain dividing the Town of Hardenburgh, currently an area unserved by broadband.
Hardenburgh Featured Projects	
Upper Drybrook Road Stream Bed Management	The stream has deposited a large gravel bar and threatens to encroach into the road cutting off ingress/egress by the residents upstream. This project will create increased access, improved stream function and increased safety for vehicular travel.
Beaverkill Road Stream and Stream Bank Restoration	Restore the Beaverkill Creek corridor and embankments back to its pre-Irene channel in the reach along Beaverkill Road,



HARDENBURGH PROJECT LIST

Project Name	Short Project Description
Upper Drybrook Road Bank Stabilization and Stream Bed Management	Improvements to address road embankment failure 400 feet up from the intersection of Drybrook Rd. and Erickson Rd. The project calls for earthen and heavy stacked rock embankment fortification and stream bed management.

Towns of Shandaken and Hardenburgh cover an immense geographic area. Projects identified in this Plan reflect the fiscal practicality of the residents who deal must with the basic issues of protecting the roads, infrastructure, and communications that provide lifelines to their respective communities. Community stewards bear the responsibility of balancing environmental protection with private land ownership and use. The residents of Shandaken and Hardenburgh are committed to improving their Towns by providing a first-line of defense against natural hazards to preserve a way of life for themselves and future generations with the support of the NYRCR plan which provides a blueprint for increased resiliency of their community.

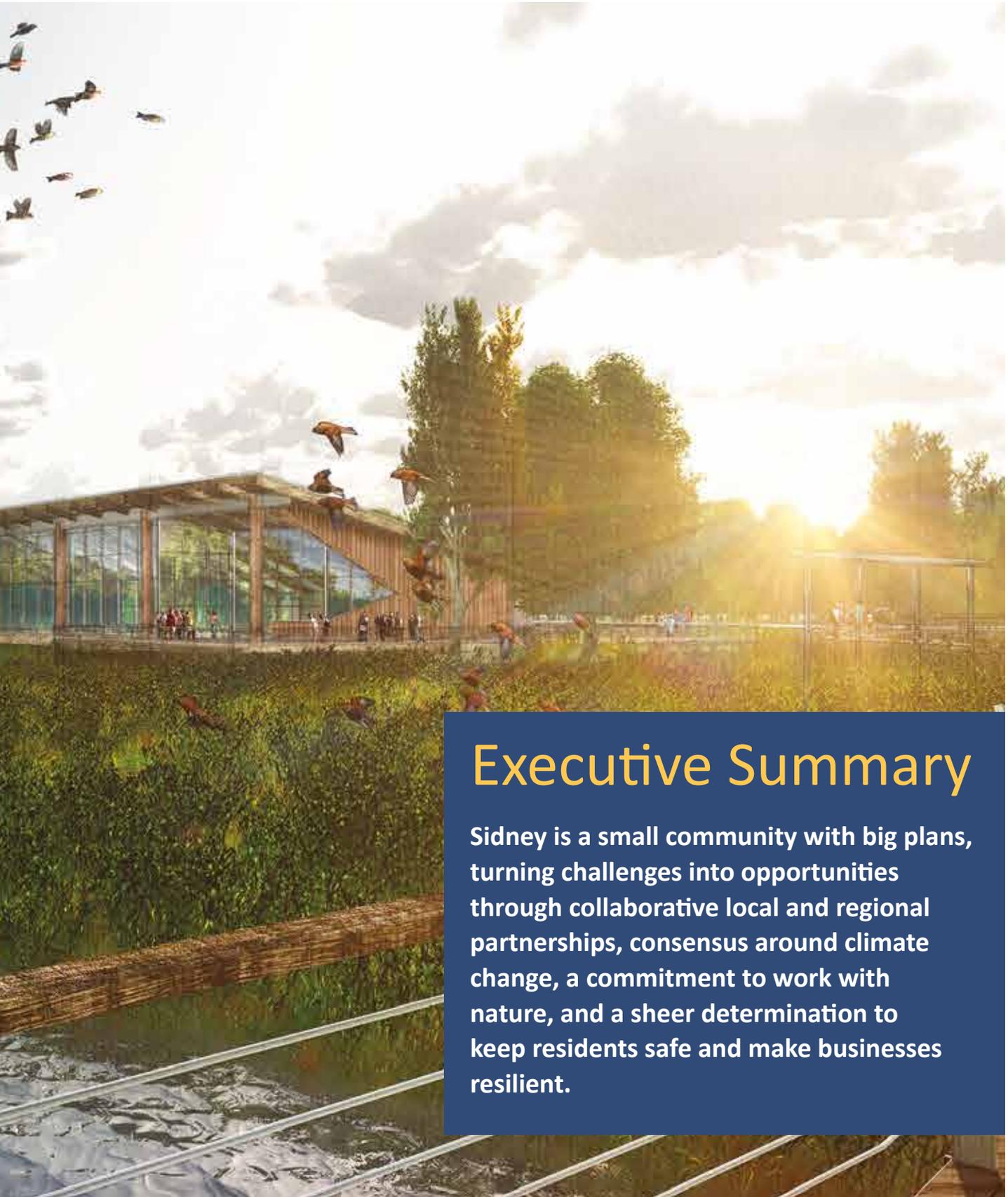


NY RISING COMMUNITY RECONSTRUCTION PROGRAM

NYRCR SIDNEY

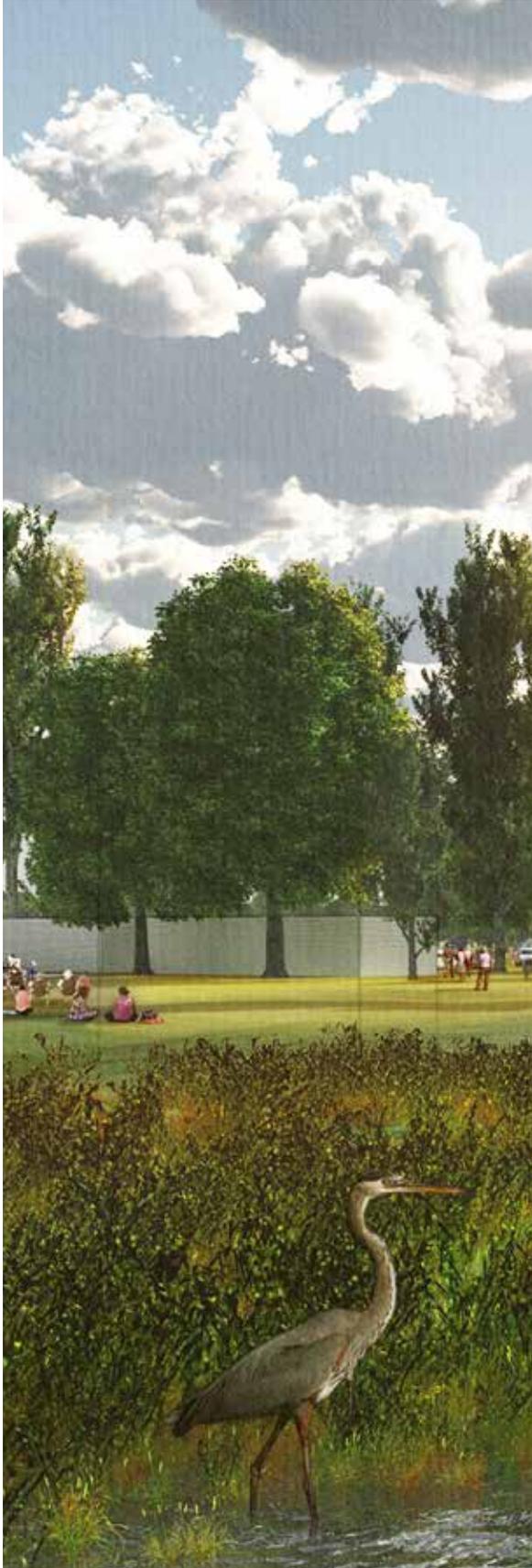
NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014



Executive Summary

Sidney is a small community with big plans, turning challenges into opportunities through collaborative local and regional partnerships, consensus around climate change, a commitment to work with nature, and a sheer determination to keep residents safe and make businesses resilient.



Executive Summary

Sidney is a small community with big plans, turning challenges into opportunities through collaborative local and regional partnerships, consensus around climate change, a commitment to work with nature, and its sheer determination to keep residents safe and make businesses resilient. Sidney's participation in the NY Rising Community Reconstruction Program (NYRCR) offers access to up to \$3 million in Community Development Block Grant Disaster Recovery funds to help implement its vision for a resilient future.

Sidney is a Delaware County village of 4,000 residents in the foothills of the Catskill Mountains that was devastated by flooding in 2006 and by Tropical Storm Lee in 2011. The entire Village is included in the geographic scope because over 40% of residents and most industrial and commercial partners are in extreme risk areas. The Riverlea Farm property on Plankenhorn Road in the Town of Sidney, a possible location for flood-safe replacement housing and the Peckham Brook Reservoir, a critical asset in need of repair located in the Town of Bainbridge, Chenango County are also included.

Sidney's Story of the Storm

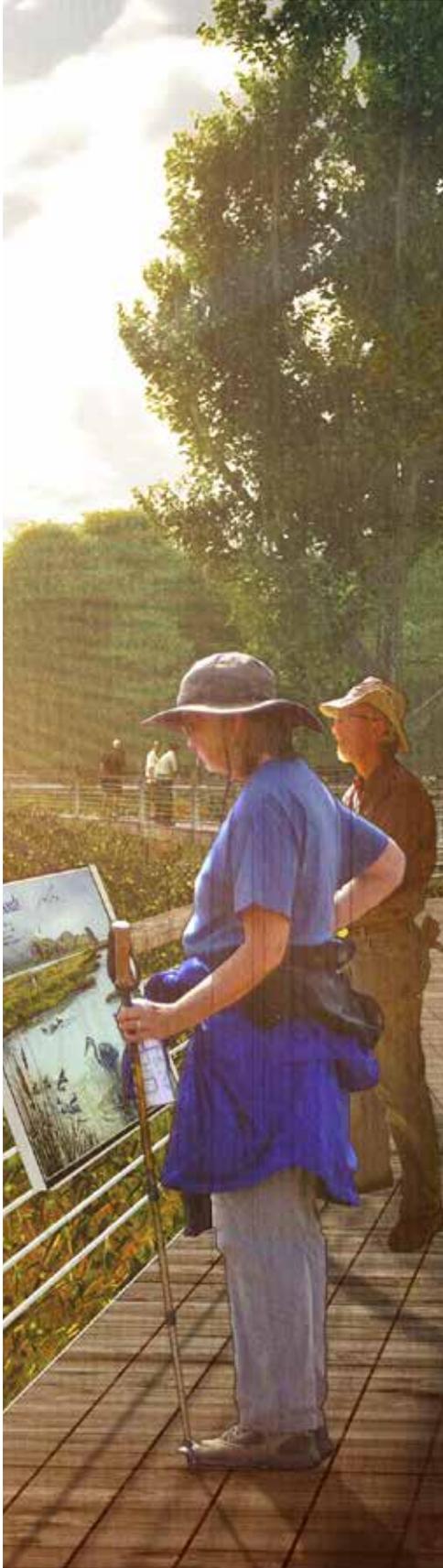
After 70 years with minimal flooding, Sidney was inundated by a serious flood in June 2006 when storms dropped close to 14 inches of rain over the upper Susquehanna Basin, setting new high-water levels. In 2011, before some businesses and residents fully recovered, Tropical Storm Lee dropped close to 12 inches of rain on Sidney. Flash flooding from the Weir Creek inundated Amphenol Aerospace, closing the plant for the second time in five years. The floodwaters spread over the downtown impacting over 420 buildings, including every structure in the 100 year floodplain. Worst hit were 100 properties west of Union Street and north of the railroad.

By mid-day on September 8th, neighborhoods near the river were evacuated. Hundreds of people spent the night in shelters. Electricity was cut off to flooded areas, including eight companies in Sidney's industrial park. The Main Fire Station took on four feet of floodwater. The secondary Fire House, closer to the Susquehanna River, was devastated. The emergency command relocated to higher ground. The Susquehanna finally crested on September 11, 2011. Floodwater did not recede in some parts of the Village for more than a week. Some businesses, including major employer ACCO Brands USA, that did not flood still took significant losses due to days without power.

The day after Tropical Storm Lee struck, Amphenol Aerospace officials told the Village they would be moving the plant to a flood-safe location, possibly out of the State. While still dealing with the state of emergency, Village officials began working to keep Amphenol's 1,000+ jobs in the Village. By the end of November, New York Governor Andrew M. Cuomo committed the State to providing \$20 million in business assistance, and Amphenol announced it would stay in Sidney.

Sidney's near complete devastation twice in five years' time underscored its vulnerabilities and identified urgent challenges. The most critical issue could not be simpler: too many vulnerable residents live in the extreme risk areas adjacent to the Susquehanna River and the Weir Creek. Other areas of concern include the lack of land for relocation, the need for a clear regional strategy for watershed management and lack of capacity to implement necessary resiliency recommendations.





Moving Ahead with a Bold Vision

The NYRCR Planning Committee engaged the public through open Committee Meetings, public workshops, open houses and neighborhood workshops. The outreach approach included posters, flyers, advertising and announcements as well as social media. The process built on the overlapping NYS Long Term Community Recovery Plan (LTCR Plan), which included a 3-day design workshop, multiple public events, interviews, and focus groups. Community members participated in the NYRCR Southern Tier Susquehanna River planning effort with Tioga and Broome County communities and sponsored a Regional Resiliency Summit. The daylong event, built regional cooperation and brought together experts to discuss flood control, reinforcing Sidney's sustainable approach. In January, a public outreach event in support of the NYRCR Plan gathered over 150 residents from the most vulnerable riverfront neighborhood. The Village met with more than 60 families, confirming their interest in relocation to a safe new neighborhood. Working with the Governor's Office of Storm Recovery, the Village hosted an open house and over 50 families applied for housing assistance or buyouts. Building on its successful community engagement strategy, the Committee prepared a vision statement to guide implementation of the NYRCR Plan. Sidney's vision for a resilient future is:

Sidney is a progressive, dynamic and resilient place with the friendly feel of an historic, close-knit community. We embrace our waterways and make sustainable choices that protect our Village residents, our neighboring communities, and our region. Our green waterfront reduces future risks while offering entertainment, culture, arts, and recreation. The Village's vibrant downtown, flood-safe neighborhoods, and social support systems appeal to everyone, young and old. Sidney is a strong community devoted to family, fostering businesses large and small, and working together to face any obstacle.

Blueprint for Recovery

Building on a wealth of public input since the floods, the Planning Committee enjoys strong support for all projects in the NYRCR Plan and broad consensus that the Village is on a path to continued success. During the NYRCR process, the Committee identified and ranked economic, health and social services, housing, infrastructure, and natural and cultural assets. They evaluated and scored each asset based on the level of hazard, exposure, and vulnerability each faces in extreme weather. Many were found to be at extreme risk. The Committee then identified six overarching strategies to guide them in developing projects that would address the risks to their assets. Twenty projects, including 12 with regional impact were identified and classified as proposed, featured or additional resiliency recommendations. Proposed projects are proposed for funding through the NYRCR program. Featured projects are important recommendations that are not proposed for NYRCR funding. Additional Resiliency Recommendations are projects and actions that are highlighted. Once the proposed and featured projects were identified, the Committee used the scores, cost estimates, market analyses, and identified community benefits to evaluate how feasible the projects are and how effectively they reduce risks. These projects, highlighted below and linked to the strategies have not been ranked or listed in priority order.

1

Riverlea Farm Neighborhood

Strategy: Create a vital new neighborhood where relocated residents, businesses, and community organizations can enjoy a remarkable quality of life.

Proposed Projects:

- Acquire the 165-acre Riverlea property for a new floodsafe neighborhood and extend infrastructure;
- Launch the Village of Sidney Home at Riverlea Program (HARP) to provide relocation incentives.

Featured Projects:

- Develop affordable and moderate priced single family and senior housing;
- Plan and construct a new civic commons with a community center, municipal office and police station;
- Make Riverlea resilient using green building, energy and infrastructure.





2

Sidney GreenPlain

Strategy: Use sustainable green infrastructure to mitigate flooding along the Susquehanna River and Weir Creek for the Village and its neighbors.

Featured Projects:

- Design, assemble and construct the 140 acre Sidney GreenPlain – a high capacity floodplain;
- Make the GreenPlain a community and regional asset offering lifelong recreation;
- Develop the Sidney Waterfront Entertainment, History, and Environmental Education Center.

3

Sidney Works!

Strategy: Protect the Village’s manufacturing and Main Street commercial base by making businesses resilient.

Proposed Projects:

- Evaluate reuse strategies for the current Amphenol Aerospace plant;
- Provide secondary access for ACCO Brands USA to reduce business disruption.

Featured Project:

- Design and Construct Sidney Green Streets using green infrastructure to reduce flood impacts.

4

Sidney Safe Neighborhoods

Strategy: Offer safe and resilient neighborhoods, with housing for people of all ages, abilities, and incomes.

Proposed Project:

- Evaluate the feasibility of constructing a berm to protect the Village’s Historic North End Neighborhood.

Featured Project:

- Launch the Sidney Safe Neighborhoods Grant Program to restore homes, create housing and encourage workers to live locally.

5

Sidney's Ready!

Strategy: Prepare for climate change by educating, alerting, and protecting Village residents.

Featured Project:

- Develop an emergency preparedness plan integrating the Sidney High School Flood Monitoring Program.

6

Delaware Susquehanna Compact

Strategy: Become a leader in watershed-wide planning for the Susquehanna Corridor and model sustainable mitigation measures locally.

Proposed Projects:

- Collaborate with Tioga, and Broome Counties in the Regional River Initiative advance resilience projects;
- Provide capacity to guide implementation and advocate for Susquehanna River initiatives.

Featured Projects:

- Develop a resilient land management framework;
- Advance infrastructure improvements necessary to mitigate flooding and protect critical facilities;
- Develop a tributary improvement plan for Weir Creek and other waterways.





NYRCR STONY POINT



NY RISING COMMUNITY RECONSTRUCTION PLAN

March 2014

NY Rising Community
Reconstruction Program

Executive Summary

I. Overview

The New York Rising Community Reconstruction (NYRCR) Program was established by Governor Andrew M. Cuomo to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. This program empowers communities to prepare locally-driven recovery plans to identify innovative reconstruction and resiliency projects and other actions to allow each community not only to survive, but also to thrive in an era when natural risks will become increasingly common.

This Stony Point NYRCR Plan presents proposed programs, policies and construction initiatives developed by the Stony Point NYRCR Community and the Stony Point NYRCR Planning Committee, comprised of Stony Point residents chosen to represent the community.

Community Location and Allocation Amount

The Town of Stony Point is located in the Hudson Valley of New York State in Rockland County, approximately 30 miles north of New York City. Stony Point measures approximately 28 square miles and has a population of just over 15,000. The Town sits at the southernmost edge of the Hudson Highlands, on the west shore of the Hudson River. Stony Point is bordered to the south by the Town of Haverstraw and the Village of West Haverstraw; to the north and west by the Orange County towns of Highlands, Woodbury, and Tuxedo; and to the east by the Hudson River.

The Town of Stony Point is eligible for up to \$3 million in CDBG-DR funding through the NYRCR program.

Scope of Planning Area

The scope of the planning area includes all areas of the Town of Stony Point outside of Bear Mountain and Harriman State Parks. Some areas within the geographic scope were not directly damaged by Hurricane Irene, Tropical Storm Lee, or Superstorm Sandy, but include potential locations for resilient redevelopment, providing the Town the ability to relocate critical facilities out of flood-prone areas.

Summary of Storm Impacts

Hurricane Irene (August 28, 2011), Tropical Storm Lee (September 7, 2011), and Superstorm Sandy (October 29, 2012) hit Stony Point with full force. The storms brought heavy rains and/or significant storm surge with them, leading to record flooding along the Hudson River waterfront and in inland areas along the Cedar Pond Brook and other streams that run through the Town.

During Superstorm Sandy, storm surge and waves up to twelve feet in height struck Stony Point's Hudson River shoreline. Waterfront homes and businesses were damaged, in some cases severely. The Ba Mar mobile home park was hit especially hard, with many homes lifted off their footings, flooded, or otherwise damaged. At the many marinas along the river, buildings were damaged or destroyed; docks, some with boats still attached, were torn from their pilings and set afloat while moorings were pulled from the bed of the Hudson. Other businesses along the River experienced comparable levels of damage; some have not reopened. The wastewater treatment plant was partly flooded and some machinery was lost, although the sewage tanks narrowly avoided being inundated.

During Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy, the Cedar Pond Brook and other

streams overflowed their banks, flooding homes and roadways and leading to severe erosion and infrastructure damage. Erosion of streambeds and banks exposed the Cedar Pond Brook interceptor sewer line, a major feeder line for the wastewater treatment plant. Although not damaged in the storm, this critical piece of infrastructure is still in imminent danger of experiencing a critical failure. Charles S. Eccher Lowland Park, an important recreational resource near the heart of the Town, was also flooded and suffered significant damage.

The physical damage to roads, bridges, homes, and other essential infrastructure compounded short and long term economic impacts that rippled throughout Stony Point and the region. Some storm victims lived for months in a temporary shelter facility, while others were forced to live elsewhere or reside in homes that remain damaged. Irreparable losses to waterfront homes and businesses and major damages to infrastructure complicated and delayed recovery efforts. Today, Stony Point is still recovering from the damage caused by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee.

Summary of Critical Issues

In the aftermath of Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee, the key critical issues facing Stony Point include:

1. Lack of Emergency Preparedness

The recent storm events highlighted the need for better community awareness, education, and dissemination of information about how to prepare for, what to do, and where to go during storm events. Major gaps include bilingual materials on preparedness; access to real-time data during storms; signage and information on evacuation routes and locations of shelters and emergency services; information on recovery resources available to local residents; and improved communication between residents and government/emergency services providers.

2. Incomplete Recovery of the Hudson River Waterfront

Economic losses have slowed the waterfront's revitalization efforts and interrupted economic growth throughout Stony Point. Making these businesses more resistant to flooding and improving the resilience of Stony Point's waterfront economic assets through the implementation of best practices would improve the Town's ability to recover economically from future storm events. Additionally, many homes that were damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee remain unrepaired since the storms; walls are missing, roofs have collapsed, yards are overgrown, windows and doors are boarded up and some are surrounded by hurricane fencing to protect residents. The result is that certain areas along the Hudson River waterfront have a blighted appearance.

3. Critical Assets Vulnerable to Flooding

Protecting residences, businesses, parks, natural resources, infrastructure, and energy resources from flooding, storm surge and wave action is critical to creating a resilient Stony Point. All of these resources have been affected during past storms. Additionally, the infrastructure in place to protect waterfront properties, including jetties, bulkheads, and seawalls, was damaged.

4. Uncertainty Surrounding Regional Energy and Infrastructure Projects

The community indicated that several regional infrastructure projects are proposed within the Town. Critical to the community and to the implementation of the NYRCR Plan is a better understanding of these projects, their location/route, and their potential short and long term effects.

5. Synergy Between Local and Regional Natural and Cultural Resources

Stony Point and the surrounding region are rich in natural and cultural resources that draw visitors from around the globe. The protection and promotion of

these resources would increase tourism in the Town. This would improve the local and regional economy while emphasizing the need for protection of these resources and ultimately afford the Town the ability to promote resilient reconstruction and development.

II. Community-Driven Process

Community Vision/Goals

Stony Point NYRCR Community Vision for the Future:

Stony Point is a vibrant and connected riverfront and hillside community. Our Vision is to preserve our town's history and protect our people and our natural resources while making the community more resilient in the face of future hazards and attracting visitors to ensure an ecologically sound and economically strong future for the people of Stony Point.

Goals and objectives:

- ▶ Plan for better mobility and connectivity for people in cars, on foot, and with transit.
- ▶ Cooperate with other regional entities.
- ▶ Improve waterfront access and infrastructure.
- ▶ Protect the watershed and strengthen stormwater management practices.
- ▶ Redevelop historic assets while maintaining neighborhood fabric.
- ▶ Foster emergency readiness.
- ▶ Revitalize downtown businesses.
- ▶ Develop design and construction standards for resilience.
- ▶ Enhance historical, natural, and cultural attractions for tourists.
- ▶ Retain and attract residents with a range of housing options.

Summary of Public Outreach

The NYRCR Program is fundamentally a grass-roots initiative. Initial project recommendations were generated by the Stony Point NYRCR Planning Committee, which was comprised of local business owners, elected officials, civic leaders, and storm-impacted residents. The Committee met approximately every other week from September 2013 through March 2014. Materials were circulated to the Committee before and after each meeting and also posted to the NYRCR website. Committee members also created Facebook pages, posted relevant materials to their municipal websites, held additional meetings among themselves, and attended municipal meetings to report on their NYRCR Plan progress. Members of the Committee were instrumental in reaching out to vulnerable populations, particularly residents of the Ba Mar mobile home park, to include them in the NYRCR dialogue.

Three public engagement meetings were held throughout the eight month planning process, with a fourth to be conducted after the final plans are complete. These meetings provided the opportunity for Stony Point residents to learn about the NYRCR planning process, assets and projects, and provide input to help develop community-driven plans for a more resilient future. The format of the Public Engagement Meetings varied throughout the process, but generally included power point presentations, display boards and mapping, workgroups with maps and markers, survey sheets and comment boxes. A summary of the content for each public engagement meeting is provided on the next page.

Public Engagement Meeting #1

- ▶ Introduction to the NYRCR Program, project timeline, and progress-to-date; and
- ▶ Gather input on draft community vision, geographic scope, list of community assets, list of needs and opportunities, and local and regional project ideas.

Public Engagement Meeting #2

- ▶ Review Draft Conceptual Plan; and
- ▶ Gather feedback on Reconstruction Strategies and Projects.

Public Engagement Meeting #3

- ▶ Review the Risk Assessment process and results;
- ▶ Assess community support for and gather feedback on projects.

Public Engagement Meeting #4: Final Plan

- ▶ Present the Final Plans
- ▶ Review the selected projects, and the process and timeline for implementation.

III. Final Plan as a Blueprint for Implementation

The risks to, and vulnerability of, assets within the Town of Stony Point were exposed by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through the NYRCR planning process, the community changed its focus from repair to resiliency. This change of purpose revealed significant opportunities to help Stony Point build back better.

The Committee first identified where the Town is vulnerable, where its critical assets are located and the risks those assets face. To address these specific vulnerabilities, a comprehensive needs and opportunities analysis was prepared through a combination of research, analysis, and feedback from the Committee and the community.

The NYRCR Plan provides an overview of Stony Point and its risks, vulnerabilities, needs and opportunities. Strategies for reconstruction and resilience were developed as an approach to meet the identified needs and a way to put the related opportunities into action. To address the risks and respond to the needs, projects were developed to execute the reconstruction and resiliency strategies. These projects include short-term actions (Proposed and Featured Projects) that most effectively implement identified opportunities. Other actions (Additional Resiliency Recommendations) that could further the Town's goals of reconstruction and resilience were also identified. All projects are included in this plan.

Proposed Projects are proposed for funding through a community’s allocation of CDBG-DR funding.

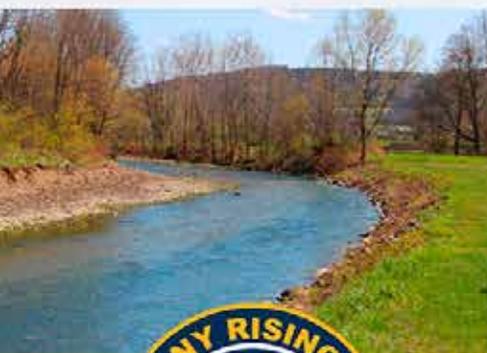
Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.

Additional Resiliency Recommendations are resiliency projects and actions that the Stony Point NYRCR Planning Committee would like to highlight, but are not categorized as Proposed or Featured Projects.

Proposed and Featured Projects

The strategies presented in the table below, and the Proposed or Featured Projects that implement them, specifically address the stated needs and transform opportunities into action items. The strategies were developed to concentrate resiliency planning efforts toward resolving critical issues identified throughout the planning process. The Proposed and Featured Projects are presented in conjunction with the strategy that they fulfill; they are not presented in any particular order of priority.

Strategy	Project Name
Strategy 1: Strengthen current short- and long-term emergency shelters and develop new sheltering opportunities	Letchworth Village Disaster Recovery and Communications Center
	Stony Point Center Retrofit
Strategy 2: Encourage economic development and support existing businesses	Grassy Point Development/Redevelopment
Strategy 3: Improve on existing emergency preparedness, response and communications	Letchworth Village Disaster Recovery and Communications Center
Strategy 4: Provide information and assistance to homeowners with pre-storm flood-proofing and post-storm repair, buyouts and demolition	Demolition of Damaged and Abandoned Structures
Strategy 5: Promote sustainability and resilience through local land use planning and regulation	Grassy Point Development/Redevelopment
Strategy 6: Repair, rehabilitate, upgrade and fortify critical infrastructure and transportation	Hardening of Wastewater Treatment Plant
	Rehabilitation of Wastewater Interceptors along Beach Road and the Ba Mar Sewer Line
	Shoreline Protection Against Erosion and Wave Action (Beach Road)
	Shoreline Protection Against Erosion and Wave Action (River Road)
	Cedar Pond Brook Interceptor Sewer Line Rehabilitation
Strategy 7: Harness resiliency potential of natural resources	[No Proposed or Featured Projects affiliated with this strategy]



NY RISING COMMUNITY RECONSTRUCTION PROGRAM

NYRCR TIOGA

NY RISING COMMUNITY RECONSTRUCTION PLAN

MARCH 2014

Executive Summary

Tropical Storm Lee, the worst flood of record for the Southern Tier of New York, severely impacted the riverine communities in Tioga County. Banding together to build back better, the municipalities that make up the NYRCR Tioga Community are a warm and resilient group of riverine communities that work together to restore, redevelop and revitalize their economy, quality of life, housing; infrastructure, and the natural resources that make up their cultural fabric.

A. Overview

The NYRCR Tioga Community comprises five municipalities located in Tioga County: the Town and Village of Nichols, the Town and Village of Owego, and the Town of Tioga. Each of the five communities profiled in the NYRCR Tioga Plan is eligible to receive up to \$3 million in CDBG-DR implementation funds.

Tioga County, located in the Southern Tier region of New York State, measures 523 square miles, and according to the 2010 U.S. Census has a population of 51,125 residents, approximately 53 percent of which live in the towns and villages that make up the Tioga Community. While these communities vary greatly in their geographic size, population, and local economy, they all share their borders with the Susquehanna River, and have experienced a similar history of flood damage and loss due to extreme storm events.

The Susquehanna River, one of the longest rivers on the east coast, flows across the southern-most portion of Tioga County from east to west. The river flows for 464 miles through three states, starting in Upstate New York (Cooperstown), and proceeding west through the Southern Tier, across rural southeastern Pennsylvania, finally terminating in the Chesapeake Bay in Maryland. Since record keeping began nearly 200 years ago, the U.S. Weather Service has reported flooding along the main stem of the Susquehanna River every 15 years on average. This, coupled with localized flash flooding that occurs annually on smaller tributaries, led to the Susquehanna River Basin being identified as one of the most flood-prone watersheds in the country.

B. Summary of Storm Impacts

The 2011 Atlantic hurricane season brought tremendous devastation to communities along the Susquehanna River. Hurricane Irene made landfall in New York on August 28, 2011 and produced 6 to 8 inches of rain and heavy winds that knocked down trees and power lines. In some locations, power was out for a week.

On September 7, 2011, not long after Hurricane Irene passed through the region, Tropical Storm Lee dropped an additional 11 inches of rain on Tioga County during a 24-hour period. The torrential rains, coupled with saturated grounds and the fact that the Susquehanna River was still swollen from Hurricane Irene, led to record high water levels. Reports indicate that the flood waters in Tioga County associated with Tropical Storm Lee measured 4 feet higher than those reported during the flood of 2006.



Elan 3 Consulting

Tropical Storm Lee produced record high flood levels.

The extreme rains associated with Tropical Storm Lee also caused the water in the Susquehanna's primary tributaries within the Tioga Community to overrun their banks. Increased velocity, coupled with abundant sediment and debris in the creeks, caused excessive flooding and left critical roads impassable or entirely washed out. The flooding also inundated stormwater and sewer utility infrastructure, damaging pump systems or causing total failure throughout the five communities. This resulted in extensive damage to the commercial districts in the Villages of Owego and Nichols, and the closure of critical municipal facilities in the Town and Village of Owego, as well as the Town and Village of Nichols. The Village of Owego was particularly hard-hit, with 85 percent of the community under water.

The flooding associated with Hurricane Irene and Tropical Storm Lee not only caused damage to residential, municipal and commercial property, but to agricultural lands as well. Stream bank erosion resulting from the storms has reduced the amount of productive agricultural acreage, negatively impacting farming operations that play a large role in the Tioga Community economy.

In total, flooding from Hurricane Irene and Tropical Storm Lee destroyed 82 homes, damaged over 3,750 homes and caused millions of dollars of property and infrastructure damage in the Tioga Community. Tropical Storm Lee is considered the worst flood of record for the Southern Tier of New York.

C. Summary of Critical Issues

This natural disaster exposed critical issues that the NYRCR Tioga Plan seeks to address. As part of the public outreach process, community residents, key stakeholders, and Committee members discussed the challenges they faced as a result of flooding associated with Hurricane Irene and Tropical Storm Lee. From this information, the Planning Committee identified the following critical issues that need to be addressed in order to increase flood resiliency and help the Tioga Community build back better.

- **Regionalism.** Successful flood recovery will be dependent on municipalities working together.

- **Flood Recovery Assistance Programs.** Economic recovery has become more difficult with subsequent floods, property damage, and loss.
- **Infrastructure.** There is a need to relocate critical facilities outside of the floodplain.
- **Emergency Response.** Communities need to be able to educate the public, keep them informed and provide continuous services before, during and after a storm.
- **Planning, Capacity Building, and Sustainability.** Municipalities require additional staff capacity to implement flood recovery projects, and need to update their local laws and plans to increase flood resiliency.

D. Community-Driven Process

Development of the NYRCR Tioga Community Plan was a community-driven process that involved extensive public engagement. During the first public workshop, held on September 24, 2013, residents were asked to talk about the strengths of their town or village and their vision for the future of the Tioga Community. To help inspire and guide the planning process, the Tioga NYRCR Planning Committee used this information to develop the following vision statement:

“Through our collaborative efforts, the Tioga Community is capitalizing on opportunities to rebuild stronger, smarter, and safer. We are a warm and resilient group of riverine communities that work together to restore, redevelop and revitalize our economy, quality of life, housing, infrastructure and natural resources that make up our cultural fabric.”



Members of the NYRCR Tioga Planning Committee at the Regional Resiliency Summit.

The public engagement process included a series of eight NYRCR Planning Committee meetings that were highly publicized and open to the public, numerous Committee work sessions and sub-committee meetings, interviews with key stakeholders, and three public engagement events, including the Regional Resiliency Summit. These events provided the opportunity for public input and comment at key milestones throughout the planning process.

The Regional Resiliency Summit was held on November 18, 2013 and brought together almost 140 stakeholders from Tioga County, Broome County, and the Village of Sidney in Delaware County to share information on regional mitigation and floodplain management. Leading experts shared presentations on storm preparedness, changing weather patterns, recovery, and resiliency.

A fourth public engagement event is scheduled to be held before May 12, 2014 to present the final NYRCR Tioga Plan and discuss implementation of its proposed projects. As with all public meetings, a wide range of media will be used to inform the community of this event and the NYRCR Tioga plan. Media outlets include the NYRCR website, social media, electronic mail, and print advertising. In addition to advertised public meetings, stakeholders (i.e., residents, public and private agencies, community organizations, and local businesses) were encouraged to provide feedback to the Committee throughout the planning process using the NYRCR website and Facebook page. The Committee Co-chairs made numerous public presentations and gave media interviews to publicize the NYRCR Program and the Tioga Plan.

E. Final Plan as Blueprint for Implementation

Critical issues identified during the planning process became the basis for identifying needs and opportunities to increase resiliency in the Tioga Community. These needs, coupled with an assessment of risk to community assets, were then used by the Committee to develop a series of reconstruction strategies designed to promote the best use of community assets, capitalize on opportunities, and resolve critical issues.

Once the Committee identified the resiliency strategies, they developed a list of projects and management measures to implement each strategy. These projects were classified as proposed, featured or additional resiliency recommendations. A list of the Community's resiliency strategies and projects that support them is provided below. Projects are not ranked or listed in priority order.

1. Strengthen or create new plans or local laws to minimize damage from future flooding.

- Stormwater Management Plan and Improvements, Village of Owego - Proposed.
- Resiliency Tools Update, Village of Owego - Proposed.
- Resiliency Tools Update, Town of Nichols - Proposed.

2. Ensure new development and redevelopment are resistant to flood damage.

- Highway Garage Relocation, Town of Nichols - Proposed.
- Joint Fire Station, Village and Town of Nichols - Proposed.
- DPW, Parks, and Utilities Office Relocation, Town of Owego - Proposed.
- DPW and Codes Office Relocation, Village of Owego - Proposed.
- Salt Storage Facility and Cover, Town of Tioga - Proposed.

3. Comprehensively prepare the Tioga Community for disasters.

- Regional Soil and Water Conservation District Projects, Tioga County - Proposed.
- Regional Susquehanna River Initiative, Tioga County - Proposed.
- Emergency Weather Alert and Warning System, Town and Village of Nichols and Village of Owego - Proposed.

4. Increase awareness among residents regarding home preparedness and emergency notifications.

- Emergency Preparedness and Notification Plan, Village of Owego - Proposed.
- Emergency Weather Alert and Warning System, Town and Village of Nichols and Village of Owego - Proposed.
- Solar-Powered Electronic Message Board, Village of Nichols - Proposed.

5. Ensure that flood-affected communities have the necessary staff capacity to apply for and administer flood mitigation and community revitalization funds.

- Regional Flood Recovery and Revitalization Office, NYRCR Tioga Community - Proposed.
- Regional Soil and Water Conservation District Projects, Tioga County - Proposed.

6. Improve the quality of life for residents after flood recovery.

- Commercial District Enhancements, Village of Nichols - Proposed.
- Regional Incubator Node, Village of Owego - Proposed.
- Alternative Energy Study, Town of Tioga - Proposed.
- Recreation Improvements and Creek Stabilization, Village of Nichols - Proposed.
- Revitalization Plan, Town of Nichols - Featured - Proposed.

7. Create a diversified economy in the Tioga Communities, supported by tourism, light industry, and small business.

- Commercial District Enhancements, Village of Nichols - Proposed.
- Regional Incubator Node, Village of Owego - Proposed.
- Alternative Energy Study, Town of Tioga - Proposed.
- Sewer Expansion, Town of Tioga - Proposed.
- Revitalization Plan, Town of Nichols - Featured.
- Healthy Main Street Economy / Sewer Expansion, Town and Village of Nichols - Featured.
- Water and Sewer Extensions along Route 434, Town of Owego - Featured.

8. Ensure emergency services for vulnerable populations, including provision of medical supplies and pharmaceuticals.

- Emergency Preparedness and Notification Plan, Village of Owego - Proposed.
- Emergency Weather Alert and Warning System, Town and Village of Nichols and Village of Owego - Proposed.

9. Reduce future flood damage to existing homes through adoption of stricter land use controls and undertake infrastructure improvements that further protect and allow for the new construction of affordable and market-rate housing.

- Resiliency Tools Update, Village of Owego - Proposed.
- Resiliency Tools Update, Town of Nichols - Proposed.
- Sewer Expansion, Town of Tioga - Proposed.
- Levee Accreditation, Village of Nichols - Proposed.
- Healthy Main Street Economy / Sewer Expansion, Town and Village of Nichols - Featured.

10. Protect key areas and critical facilities in the Tioga Community.

- Town Highway Facility Relocation, Town of Nichols - Proposed.
- Joint Fire Station, Town and Village of Nichols - Proposed.
- Bridge and Culvert Inspection and Upgrades, Town of Nichols - Proposed.
- Emergency Operations Center Generator, Village of Nichols - Proposed.
- DPW, Parks and Utilities Office Relocation, Town of Owego - Proposed.
- DPW and Codes Office Relocation, Village of Owego - Proposed.
- Main Street Water Pump House and Well Head Replacement, Town of Owego - Proposed.
- Gaylord Road Culvert Replacement, Town of Owego - Proposed.
- Salt Storage Shed and Cover, Town of Tioga - Proposed.
- Levee Accreditation, Village of Nichols - Proposed.

11. Preserve and restore natural areas, including floodplains, streams, and wetlands, which can slow floodwater's momentum, reduce erosion, and increase a community's flood resiliency.

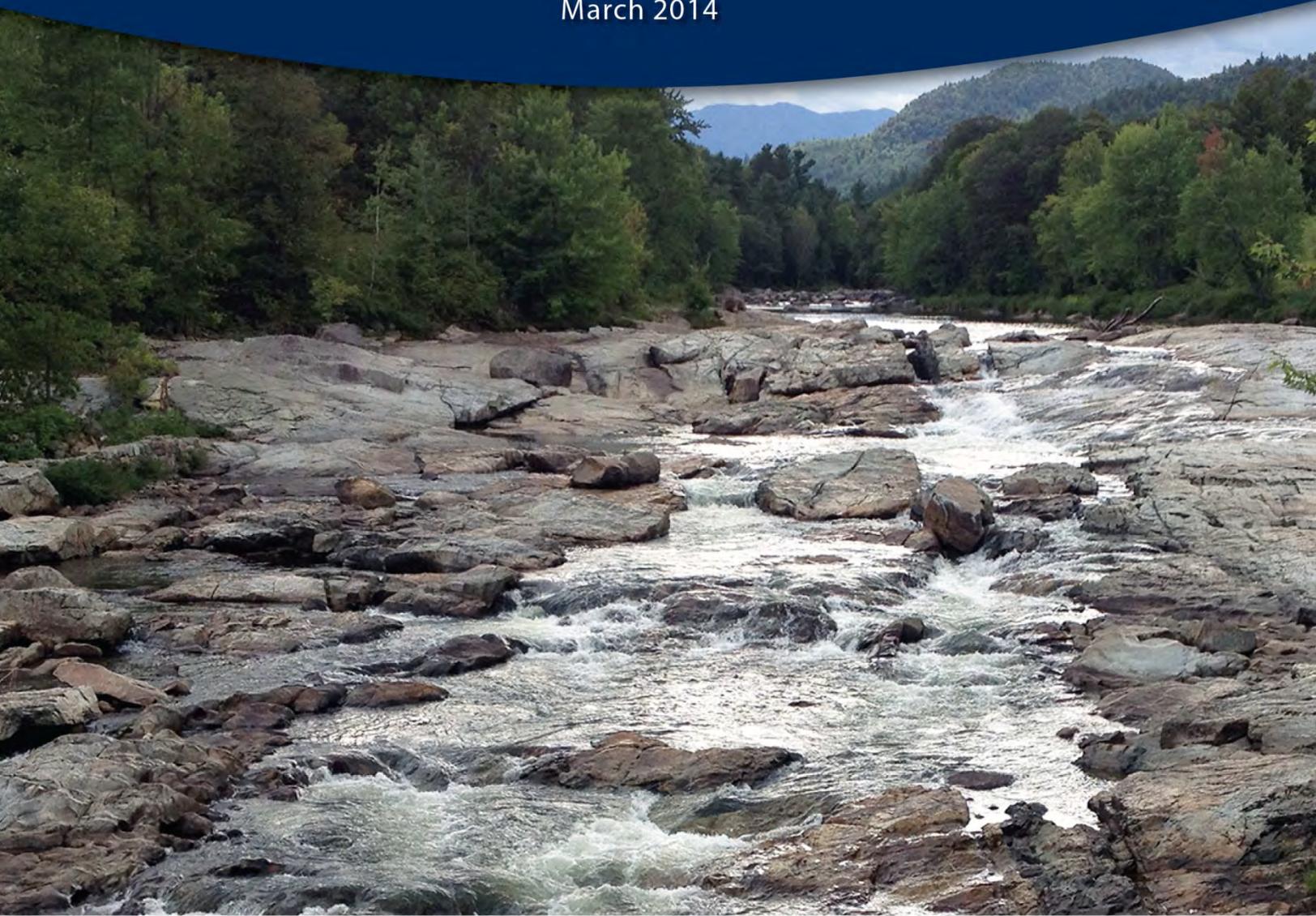
- Regional Soil and Water Conservation District Projects, Tioga County - Proposed.
- Regional Susquehanna River Initiative, Tioga County - Proposed.
- Recreation Improvements and Creek Stabilization, Village of Nichols - Proposed.
- Stormwater Management Plan and Improvements, Village of Owego - Proposed.



NY Rising Community Reconstruction Plan for the
TOWNS OF JAY AND KEENE

Prepared for the
NY Rising Community Reconstruction Program

March 2014



Executive Summary

The New York Rising Community Reconstruction (NYRCR) program was established by Governor Andrew M. Cuomo to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The program provides a unique opportunity for community members in Jay and Keene to come together and engage in thoughtful discussion about their future. In the two years since Hurricane Irene and Tropical Storm Lee, they have done their best to rebuild, but have not fully recovered. Under this Program, the Towns of Jay and Keene each qualify for up to \$3 million to fund reconstruction and resiliency projects.

Overview

The Towns of Jay and Keene consist of six small hamlets – St. Huberts, Keene Valley, Keene, Upper Jay, Jay, and Au Sable Forks – situated in Essex County, within the North Country Region of upstate New York. Like many communities in the North Country, Jay and Keene were established and grew along the banks of a river, the Ausable, and as such parts of each town are susceptible to both seasonal and extraordinary flooding.

Jay and Keene are located at the heart of the Adirondack Park, the largest publicly protected area in the contiguous United States, and serve as gateways to the High Peaks region. The scenic beauty of the area and its tremendous recreational opportunities are a driver of tourism and, for many residents, a prime reason to live in Jay and Keene.

Flooding from heavy rains, ice jams, and snowmelt has been a reality in Jay and Keene since the two towns were established. While residents acknowledge that flooding is a regular and increasingly more frequent occurrence, Hurricane Irene and Tropical Storm Lee impacted the area unlike any other flood event in the last century. During Hurricane Irene, the Ausable River discharge was more than 200 times the average recorded discharge for the month of August.

Storm Impacts

The impacts of Hurricane Irene and Tropical Storm Lee on Jay and Keene were profound. Roads, bridges, and culverts washed out, isolating residents, challenging emergency response, and severely disrupting the flow of tourists, local, and commercial traffic to the hamlets and the Lake Placid and Tri-Lakes region. Repairs cost millions of dollars. Other critical infrastructure was impacted. For example, the wastewater treatment plant and sewer system serving Au Sable Forks and Black Brook, as well as a critical water main serving these hamlets, suffered over \$2 million in damage.



An inundated house in Au Sable Forks

Dozens of homes were severely damaged or, in some cases, completely destroyed. More than 40 properties were ultimately eligible for home buyouts.



Local businesses were not spared – businesses throughout the two towns lost thousands of dollars in inventory due to flood damage and in some cases they were forced to close for a prolonged period of time.

Finally, river habitat was impacted due to scour, bank and soil erosion, and subsequent emergency repair work.

Critical Issues

The Towns of Jay and Keene have done much to recover from this disaster, although vulnerabilities remain that leave the Community susceptible to future flood damage. For example:

- Local capacity and expertise to implement planning and stormwater pollution prevention is limited.
- Volunteer firefighter recruitment has decreased over time and there is a need for equipment and training.
- Many local businesses that managed to recover from Hurricane Irene do not likely have the resources to withstand another disaster.
- Some shelter facilities need upgrades to improve capacity and functioning.
- Many houses are still located in flood-vulnerable areas, particularly in the Town of Jay.
- The area's few major roadways remain vulnerable to damage from erosion and slumping. Flooding could isolate the communities and limit the resources and services accessible during an emergency.
- Undersized culverts and bridges throughout Jay and Keene suffer from sedimentation and debris accumulation, leading to road washouts, structure failure, and inhibiting fish passage.
- Water and wastewater infrastructure is vulnerable to flood damage.
- The Ausable River and its tributaries, including Gulf Brook, Johns Brook, and Beede Brook, threaten houses and infrastructure due structural impediments to water and sediment flow.
- Storm damage, development impacts, and post-storm recovery efforts have left the Ausable and many of its tributaries needing ecological restoration to improve aquatic habitat and mitigate flooding, including Johns Brook and Styles Brook.
- Historical uses of the river have resulted in reaches that are over-wide, causing fine sediment to accumulate and creating the conditions for ice-jams to form. This is exacerbated by human activities such as sanding of roads, poor erosion and sediment control, etc.



Road damage closed Route 73, a critical connection between Keene and the Northway and a popular route for visitors

Community-Driven Process

The Jay and Keene Planning Committee, a group of volunteers united in their desire to help their Community rebuild and increase its resiliency to flooding, worked together to define a Community vision statement that encapsulates their goals for the NYRCR Plan and its implementation. From the beginning, the Planning Committee decided that the Plan should address the entirety of both towns, treating them as a single Community.

Over a series of more than half a dozen Planning Committee meetings and five public meetings, the vision statement was transformed into the NYRCR Plan, containing strategies and projects that, if implemented, will help achieve the Planning Committee’s vision. The public input received over the course of the planning process helped the Planning Committee craft a Plan that reflects the Community’s inherent strengths while also incorporating new and innovative ideas that will make Jay and Keene a more vibrant and resilient Community.

Community Vision

The Towns of Jay and Keene are a resilient Community. The Ausable River runs through our towns and links us together. Keeping the Ausable clean and ensuring a healthy river system for recreation is important for our economy and the health and welfare of our citizens and visitors alike. Reducing future flood hazards, planning for flood safe neighborhoods, meeting the needs of our residents and building a strong economy with employment opportunities, vibrant main streets, world class recreation and sustainable farms and forestry are all important to the future viability and vitality of our two towns.

Guided by this vision, the Towns’ NYRCR Plan integrates economic, environmental and social priorities in order to rebuild and repair damaged assets, preserve our unique natural and cultural resources, and improve the resilience of our Community.

A Blueprint for Implementation

To help achieve the Community’s vision, strategies and projects were developed through an iterative process. The Planning Committee sought, wherever possible, to achieve multiple benefits through well-designed projects that address economic, environmental, and social/health aspects of resilience and sustainability. Projects were grouped into three categories: Proposed; Featured; and Additional Resiliency Recommendations.

- **Proposed Projects** are projects proposed for funding through a NYRCR community’s allocation of Community Development Block Grant – Disaster Recovery (CDBG-DR) funding.
- **Featured Projects** are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.
- **Additional Resiliency Recommendations** are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

The Proposed and Featured projects identified by the Jay and Keene Planning Committee are listed below. Projects are not ranked or listed in any particular order.

- Strategy: Use local ordinances and land use planning to minimize stormwater pollution and shift development out of the floodplain
 - ❖ Development and implementation of an enhanced Site Plan Review process – Proposed Project
 - ❖ APLUDP land reclassification and hamlet expansion study – Featured Project
- Strategy: Strengthen the capacity of first responders to respond during a natural disaster and manage resources throughout recovery



- ❖ Water rescue equipment for Keene – Proposed Project
- ❖ Generator upgrade at Keene Central School – Proposed Project
- ❖ Water rescue equipment for Jay – Proposed Project
- ❖ Necessary emergency support equipment for Keene – Featured Project
- ❖ Necessary emergency support equipment and shelter upgrades for Jay – Featured Project
- Strategy: Enhance education and outreach regarding floodplain management and stream dynamics
 - ❖ Best Management Practices education program for debris removal, in-channel response and recovery, and erosion and sedimentation control – Proposed Project
- Strategy: Undertake watershed management planning and related efforts to build flood resilience and capacity
 - ❖ LIDAR acquisition – Featured Project
 - ❖ Ice jam study – Featured Project
- Strategy: Improve transportation infrastructure to promote flood resiliency and habitat connectivity
 - ❖ Priority culvert replacement program – Proposed Project
 - ❖ Implementation of the Rural Roads Active Management Program – Proposed Project
 - ❖ Keene Valley safe trail connections – Featured Project
 - ❖ Repairs to Hull's Fall Road and installation of a pedestrian bridge – Featured Project
- Strategy: Protect vulnerable civic assets from flooding using structural and non-structural controls
 - ❖ Restoration and flood mitigation at Gulf Brook – Proposed Project
 - ❖ Rome Dam engineering study – Proposed Project
 - ❖ Au Sable Forks water building relocation and upgrade – Proposed Project
 - ❖ Au Sable Forks comprehensive stormwater and flood mitigation study – Proposed Project
 - ❖ Springfield Road storm drainage system – Featured Project
- Strategy: Use green infrastructure and ecological restoration techniques to improve habitat, mitigate flooding, and support recreation-based tourism
 - ❖ Restoration and flood mitigation at Johns Brook – Proposed Project
 - ❖ Rolling Mill Hill water infrastructure protection – Proposed Project
 - ❖ Restoration and flood mitigation at Beede Brook – Featured Project
 - ❖ Restoration program for the East Branch of the Ausable River – Featured Project
 - ❖ Riparian corridor invasive species inventory and management program – Featured Project
- Strategy: Protect intact floodplain areas from development through conservation easements, purchase of development rights, and other strategies
 - ❖ Conservation easements and Purchase of Development Rights to protect floodplains from development – Featured Project
- Strategy: Promote Main Street revitalization in hamlets and support business retention and expansion
 - ❖ *No Proposed or Featured projects are proposed for this strategy.*

- Strategy: Develop local health care resources
 - ❖ *No Proposed or Featured projects are proposed for this strategy.*
- Strategy: Relocate or protect housing located in flood vulnerable areas
 - ❖ *No Proposed or Featured projects are proposed for this strategy.*
- Strategy: Promote senior and affordable housing development
 - ❖ *No Proposed or Featured projects are proposed for this strategy.*

As the NY Rising program continues into the implementation phase, the Plan is intended to drive real change and progress that creates a truly resilient Jay and Keene.





NYRCR ULSTER COMMUNITIES



NY RISING COMMUNITY RECONSTRUCTION PLAN

.....

March 2014

NY Rising Community
Reconstruction Program

Executive Summary

I. Overview

Community Location and Allocation Amount

Ulster County, located in the mid-Hudson region of New York State, measures 1,161 square miles and is located approximately 100 miles north of New York City. Ulster County borders the western shore of the Hudson River. A considerable portion of the County is located within the Catskill Mountains and the Shawangunk Ridge. The County is comprised of 20 towns, three villages and the City of Kingston. According to the 2010 US Census, Ulster County is home to 182,493 residents.

This Ulster NY Rising Community Reconstruction Plan presents proposed programs, policies and construction initiatives developed by the NYRCR Ulster Communities, which includes the Villages of Ellenville, New Paltz and Saugerties; and the Towns of New Paltz, Rochester, Rosendale, Saugerties, Wawarsing and Woodstock.

Each of the NYRCR Ulster Communities is eligible for up to \$3 million in CDBG-DR funding.

Scope of Planning Area

The Planning area includes the ten municipalities within NYRCR Ulster Communities. Although some of the areas within the geographic scope were not directly damaged by the storms, the Ulster NYRCR Planning Committee agreed that important community assets, areas where access to critical facilities was interrupted or cut off entirely due to storm-related flooding, and areas with high potential for more resilient reconstruction should be included in the planning area.

Summary of Storm Impacts

Hurricane Irene (August 28, 2011), Tropical Storm Lee (September 7, 2011), and Superstorm Sandy (October 29, 2012) hit the Ulster County NY Rising Communities with full force. The torrential downpour caused water levels in the Rondout Creek, Wallkill River, and Lower and Upper Esopus Creek to reach record heights causing widespread flash flooding. Homes, businesses and infrastructure were destroyed in all ten municipalities particularly in low-lying areas. Countless roads were closed due to flood waters overtopping culverts; bridges were closed isolating residents; and the force of the stormwater caused substantial infrastructure damage to water mains, sewage treatment facilities, and water delivery systems throughout the region.

Stream banks were overtopped and severely eroded, flooding dozens of homes and depositing natural and man-made debris throughout the stream corridors. Businesses were severely flooded, leaving residents without access to basic necessities for weeks. Residents were forced to evacuate their homes, moving to shelters established in local emergency service buildings, schools, and community centers. County-wide shelters were set up at the Belleayre Mountain Ski Center and the SUNY New Paltz Health and Wellness Center, which, given their remote locations were difficult to access.

The physical damage to roads, bridges, homes, and other essential infrastructure resulted in short and long term economic impacts that rippled throughout the County and the region. Irreparable losses to commodity farms, power failures, and, in some cases, isolation from economic centers complicated and delayed recovery efforts. Tourism, a major industry in this region, suffered greatly through both an overall loss of revenue and lost wages due to postponed

business activity. Today, Ulster County municipalities are still recovering from the damage caused by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee.

Summary of Critical Issues

During and after Hurricane Irene, Tropical Storm Lee and Superstorm Sandy, the Rondout, Wallkill and Esopus as well as various streams and tributaries overflowed their banks forcing water throughout the Towns and Villages. Previous development within the floodplain increased impervious surface coverage, inhibiting water storage absorption and funneling flood water further and further away from the source. When the water did recede back into the waterway, it took with it bacteria, roadway oils and spills, potentially contaminating valuable riverine ecosystems. Damage to streams and watersheds were severe and included stream bank erosion and deposits of man-made and natural debris. Passive and active recreation areas, trails for hiking, biking, climbing, swimming, skating, fishing, throughout the County were closed or damaged and some are still waiting for funding for repair.

The key critical issues facing the Ulster NYRCR Communities include:

- ▶ Widespread flooding of the Rondout, Wallkill and Esopus;
- ▶ Natural and man-made debris blocking culverts, lodging against bridge abutments, and inhibiting the flow of water, and compromising infrastructure;
- ▶ Direct economic impact to agricultural operations from commodity loss and secondary economic impacts to the region from loss of tourism revenue;
- ▶ Massive stream bank erosion throughout the watershed areas, and on the Hudson River shoreline;
- ▶ Lack of emergency preparedness, regional command centers and effective inter-municipal communication among emergency service providers;
- ▶ Damage to residential neighborhoods built in flood prone areas, exacerbated by the lack of resilient design and construction;
- ▶ Lack of regional sheltering, with protected access routes;
- ▶ Vulnerability of and damage to critical assets including key municipal and emergency service buildings, commercial and healthcare facilities;
- ▶ Vulnerability of and damage to bridges, culverts, roadways, water supply, wastewater treatment plans and system infrastructure;
- ▶ Widespread and prolonged roadway closures isolating neighborhoods, healthcare facilities and senior centers, regional shelters, businesses, regional economic generators, and preventing access by emergency service providers;
- ▶ Lack of designated route detours and signage;
- ▶ Prolonged and widespread electrical power interruption including to communication towers.

II. Community-Driven Process

Committee Vision/Goals

NYRCR Ulster Communities Vision for the Future

The Ulster NY Rising Community Group Reconstruction Plan will identify projects to advance a regionally-coordinated plan for resiliency that addresses the specific needs of our 10 municipalities to respond to and recover from future disasters. Our vision is to protect our residents and our man-made and natural resources by implementing ecologically-sound policies and programs that will sustain our local and regional environments and promote further growth in our economies.

Goals to realize that vision:

- ▶ Advance educational outreach to ensure our residents understand natural hazards and how they can protect themselves, their homes, neighborhoods, and communities against future disasters.
- ▶ Contribute to community recovery and regional preparedness with a defined approach to crisis planning, attracting and retaining volunteers, and enhanced communication between and among our municipalities and emergency services.
- ▶ Identify a plan for business continuity designed to ensure the availability of goods and services and to advance economic opportunity in the region.
- ▶ Develop policy, design, and construction standards to make our community more resilient in the future.
- ▶ Cultivate partnerships among private organizations, public agencies, and municipalities to address hazard mitigation, and ensure coordinated preparedness, and response.
- ▶ Identify and evaluate natural resources, waterways, and watersheds to restore, preserve, protect, and conserve our natural assets and reduce the vulnerability of our watersheds to storm-related hazards.

Summary of Public Outreach

The NYRCR Program is fundamentally a grass-roots initiative. Initial project recommendations were generated by the Ulster NYRCR Planning Committee, which was comprised of residents, business owners and municipal representatives from the ten NYRCR Ulster Communities. The Committee met approximately every other week from September 2013 through March 2014. Materials were circulated to the Planning Committee before and after each meeting and also posted to the NYRCR website. The Planning Committee members also created Facebook pages, posted relevant materials to their municipal websites, held additional meetings within their communities, and attended municipal meetings to report on their NYRCR Plan progress.

Four public engagement meetings were held throughout the eight month planning process. These meetings provided the opportunity for Ulster County residents to learn about the NYRCR planning process and provide input to help develop community-driven plans for a more resilient future. The format and venue of the Public Engagement Meetings varied, but generally included power point presentations, display boards and mapping, workgroups with maps and markers, survey sheets and comment boxes.

III. Final Plan as a Blueprint for Implementation

The risks to, and vulnerability of, the NYRCR Ulster Communities exposed by Superstorm Sandy, Hurricane Irene and Tropical Storm Lee forced everyone – from local residents to their elected representatives at every level of government – to change their focus from repair to resiliency and to prioritize improvements to pre-storm conditions. This change of purpose revealed significant opportunities to help the Communities build back better.

The NYRCR Ulster Communities understand where they are vulnerable, where their critical assets are located and the risks to those assets. To address their specific vulnerabilities, a comprehensive needs and opportunities analysis was prepared through a combination of research, analysis, NYRCR Planning Committee and community feedback. A sample of the needs and opportunities identified to address those needs are:

NEEDS:

- ▶ Multi-jurisdictional planning activities to mitigate future storm damage
- ▶ Systemic, coordinated regional watershed modeling data for the Rondout, Wallkill and Esopus Watersheds
- ▶ Regional inventory of sensitive environmental systems (wetlands and tidal areas) for use in flood control
- ▶ Fortified/hardened wastewater and stormwater management infrastructure
- ▶ Improved storm preparedness training, inter-municipal emergency communication systems, regional shelters, back-up power generators and water pumps
- ▶ Improved detour signage for post-disaster travel
- ▶ Additional financial, education and construction assistance to area businesses on flood mitigation and flood proofing measures
- ▶ Rehabilitation, repair and relocation assistance and homeowner buyout programs
- ▶ Revisions to local zoning regulations to restrict development from floodplains and flood prone areas
- ▶ Coordinated list of vulnerable and home-bound populations maintained by emergency service providers to ensure particular attention during and after events.

OPPORTUNITIES:

- ▶ Watershed-wide studies to manage and implement recovery initiatives.
- ▶ Regional hydraulic and hydrologic watershed modeling to identify system-wide infrastructure improvements including resizing culverts, bridge and roadway design
- ▶ Alternative broadcast channels for emergency dispatch
- ▶ Public education campaigns for storm preparedness
- ▶ Public-private partnerships for mutual assistance post storm assistance
- ▶ Assistance for flood proofing and elevating vulnerable structures
- ▶ Regional coordination for infrastructure improvements and flood control systems
- ▶ Alternative flood management initiatives including green infrastructure, best management practices for stream management
- ▶ Implementation of alternative renewal energy sources including wind, solar, geo-thermal.
- ▶ Regional network of shelters and food pantries and public private partnerships to ensure uninterrupted sources for provisions.

Sections I and II of the NY Rising Community Reconstruction Plan (NYRCR Plan) provide an overview of NYRCR Ulster Communities and present risks, vulnerabilities and needs. Strategies for reconstruction and resilience were developed to put action to the opportunities, presenting short-term action items (Proposed and Featured Projects) that most effectively implement identified opportunities.

Proposed Projects are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding.

Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.

Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

Proposed and Featured Projects

Each strategy and the Proposed or Featured project presented in the table below specifically addresses a stated need and transforms an opportunity into an action item. The strategies were developed to concentrate the resiliency efforts toward resolving critical issues identified throughout the planning process. The Proposed and Featured Projects are presented in conjunction with the relevant strategy, though are not presented in any particular order of priority.

Community	Project Name
Strategy 1: Optimize regional coordination and communication to better mitigate flooding, plan for future disasters, and protect communities.	
Village of Ellenville, Town of Rochester, Town of Rosendale, Town of Wawarsing	Rondout Watershed Study and Improvements
Village of Ellenville, Town of Wawarsing	Stream Bank Restoration
Town & Village of New Paltz	Flood Prevention Strategies and Stormwater Management for Walkkill River & Waterways (streams, tributaries, etc.)
Town of Olive	The Esopus Creek in Boiceville and the Bushkill and Maltby Hollow Creeks in West Shokan Flood Mitigation Project
Village of Saugerties	Water Supply Protection: Supplemental Source Exploration
Town of Wawarsing	Stream Bank Restoration
Strategy 2. Implement measures to fortify and increase the resiliency of existing and future commercial development and critical infrastructure.	
Town of Rosendale	Fann’s Plaza Redevelopment
	Stormwater Mitigation, Route 32/Washington Park
Town of Woodstock	Upgrade Route 212

Community	Project Name
Strategy 3. Improve emergency preparedness and increase the resiliency of critical health and social service facilities	
Village of Ellenville	Generators for Ellenville School and Village Water Supply
Town & Village of New Paltz	Consolidated Municipal and Emergency Operations Center
Town of Olive	Relocate West Shokan Firehouse Co #5
	Relocate Boiceville Firehouse Co #5
Town of Rosendale	Generators for Town Facilities
Village of Saugerties	Water Supply Protection: Pre-Filter
Village of Ellenville	Mobile Water Pumps
Town of Olive	Relocate Town Offices & Highway Complex out of Flood Plain
Town of Wawarsing	Mobile Water Pumps on Trailers
	Portable Generators & Transfer Switches
Strategy 4. Strengthen current emergency shelters at both a local and regional level and develop new sheltering opportunities where needed, particularly for vulnerable populations.	
Village of Ellenville, Town of Wawarsing	Emergency Shelter
Village of Ellenville, Town of Rochester, Town of Wawarsing	Temporary Regional Shelter Located in a New Wing to be Constructed at Ellenville Regional Hospital
	Alligerville Emergency Station
Town of Rochester	Rehabilitate Existing Community Center to Serve as Disaster Relief Shelter
Strategy 5. Provide assistance to homeowners to protect themselves from future flooding through mitigation measures, elevation, acquisition, relocation and general flood proofing	
Town of Rosendale	Flood Mitigation and Protection to Homeowners Prone to Flooding
Village of Saugerties	Dredging Assistance
	Housing Flood-Proofing Assistance
Strategy 6. Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.	
Town & Village of New Paltz	Carmine Liberta Bridge Replacement
	Inflow and Infiltration Investigation and Permanent Wastewater Collection System Repairs
	Route 299 West and Springtown Road
	Sewer Treatment Plant Hardening
Town of Rosendale	Rosendale Flood Control Project Improvement
	Rosendale Sewer Treatment Plant Stormwater Management Study

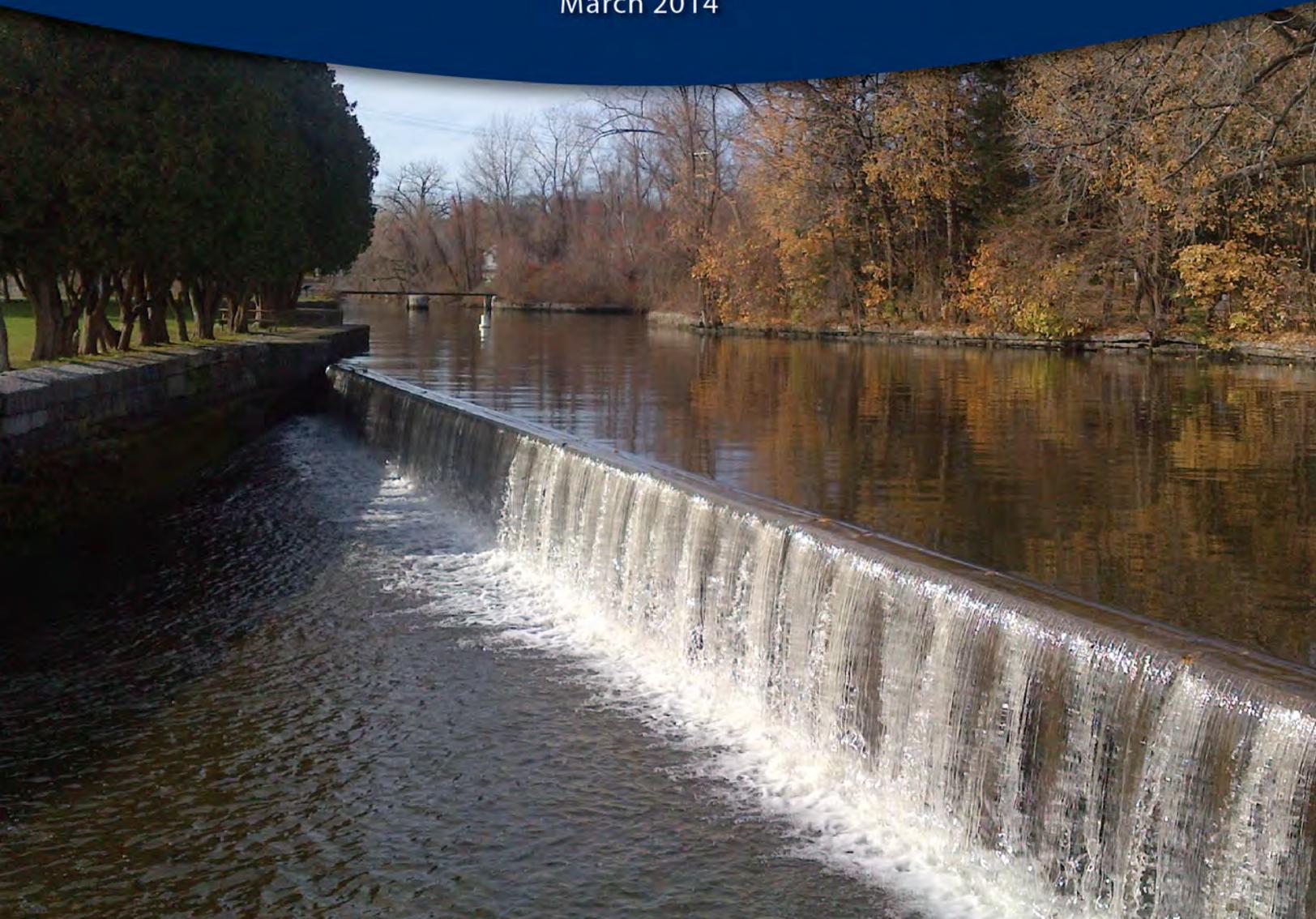
Community	Project Name
Town of Saugerties	Bridge Abutment Replacement
	Harden Malden Sewer Plant against Flooding
	Replace Culvert-Platte Clove
	Replace Culvert-Wilhelm Road
	Sewer Extension to Creekside Neighborhoods
	Storm Sewer Replacement
Village of Saugerties	Repair Supporting Structures Adjacent to Lighthouse
	Water Supply Protection: Silt & Debris Removal
Town of Woodstock	John Joy Road Improvements
	Mink Hollow Bridge Protection
	Replace Culverts- Reynolds Lane and Church Road
	Replace Culverts-Lane Road
Town of Rochester	Rochester Creek Bridge Project
Strategy 7. Strengthen the transportation network by developing alternative transit and emergency routes.	
Town & Village of New Paltz	Springtown Road Rail Trail Approach Reconstruction
Town of Wawarsing	Oak Ridge Road Flood Mitigation
	Route 209 Alternative Analysis
Strategy 8. Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding.	
Town of Olive	Bushkill Creek Stream Restoration
Town of Rochester	Rochester/Rondout Creek and Tributaries Immediate Repair
Town of Rosendale	Flood Mitigation and Protection for Key Intersections in Town
Town of Saugerties	Stream and Stream Bank Rehabilitation
Village of Saugerties	Parks Restoration
	Shoreline Stabilization At and Adjacent to Tina Chorvas Park



NY Rising Community Reconstruction Plan for the
VILLAGE OF WATERFORD

Prepared for the
NY Rising Community Reconstruction Program

March 2014



IRENE
WATERLINE
8-29-11



Executive Summary

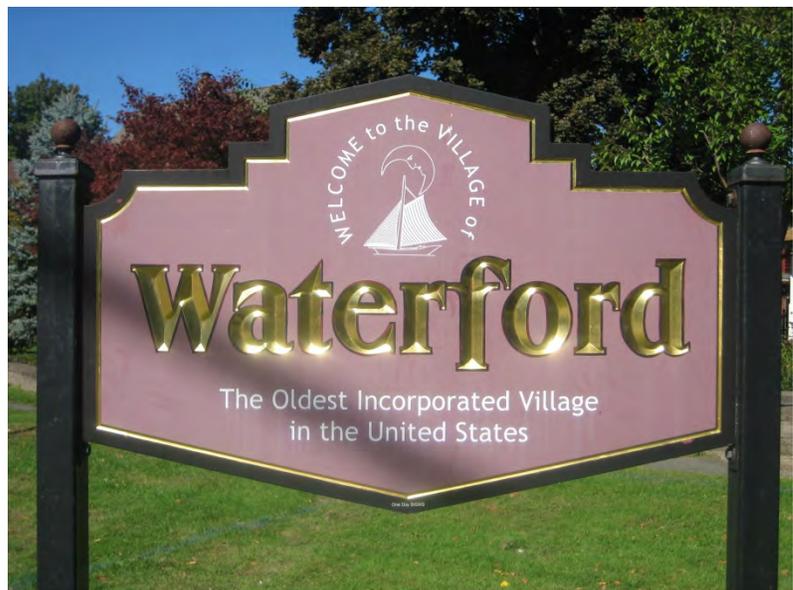
Background

The historic Village of Waterford is located approximately ten miles north of the City of Albany at the southeastern tip of Saratoga County. Three water bodies converge at the Village: the northernmost branch of the Mohawk River, the Hudson River, and the eastern terminus of the Erie Canal. The Village's harbor is a key community landmark and a destination for recreational boaters. The neighborhood adjacent to the harbor is subject to regular flooding when the Mohawk reaches flood stage. But Waterford experienced some of the most extreme floods on record when Hurricane Irene hit in August of 2011.

New York Governor Andrew M. Cuomo created the NY Rising Community Reconstruction (NYRCR) Program to assist communities like Waterford that were devastated by Superstorm Sandy, Hurricane Irene and/or Tropical Storm Lee to develop plans that identify strategies, projects and actions which will contribute to community resiliency and reduced vulnerability to flooding. .

The Waterford NYRCR Plan assesses the risk posed to key community assets, identifies strategies to address flood risk and other critical issues, and presents projects that will make Waterford more resilient in the face of future flooding. Under the NYRCR Program the Village of Waterford is eligible for up to \$3 million to implement these projects.

The planning process was informed by the community's experience during Hurricane Irene in August 2011, when the Mohawk River rose to one of the highest levels recorded in the last 100 years. More than 90 homes were damaged by Irene, which directly affected a significant number of the Village's 2,000 residents. In the wake of the storm, the Village fire department coordinated the efforts of 18 fire departments that worked together to meet residents' immediate needs and to clean up from the disaster. While the Vil-



Village of Waterford: The oldest continuously incorporated village in the United States



lage appears to have recovered from the devastation brought by Irene, there is still unmet need, and significant sections of the Village are still vulnerable to flood damage during future storms.

Critical issues for the Village

A number of critical issues were taken into consideration in development of the NYRCR plan for the Village of Waterford:

- Houses in the 100-year floodplain must be better protected against flooding. The community is generally well adapted to flooding based on its history of flooding, but with the observed increase in major storm events in recent decades, addressing risk to the most vulnerable homes is critical. Actions to strengthen and protect the housing stock should contribute to the preservation and improvement of the Village’s historic character and charm.
- Fire and emergency services need to be fortified with a new, consolidated facility and additional equipment.
- Drainage issues that contributed to flooding during Irene must be addressed to protect nearby homes against future flooding.
- Recreational and streetscape improvements should increase resilience while also improving accessibility.
- The community should pursue economic development measures that complement actions to increase long-term resiliency against floods.



View of Waterford Canal Harbor and Visitor’s Center



The second of three public meetings conducted during the planning period was held in November 2013.

A Community-Driven Planning Effort

The NYRCR planning effort was spearheaded by the Village of Waterford NYRCR Planning Committee (Committee), made up of Village residents, stakeholders, and community leaders. The Committee worked together to develop a vision of resilience for the Village of Waterford, which was presented to the public for comment and feedback.

Community Vision

The Village of Waterford envisions a Community Reconstruction Program that will provide a strategy for addressing past flood damage and for developing long-term solutions aimed at making the Village better able to manage and cope with future storm and flooding events. In developing the program, we will recognize the unique character of the Community, including its historic building stock and the economic and recreational assets of its waterfront resources along the State Canal System, Hudson River, and Mohawk River.

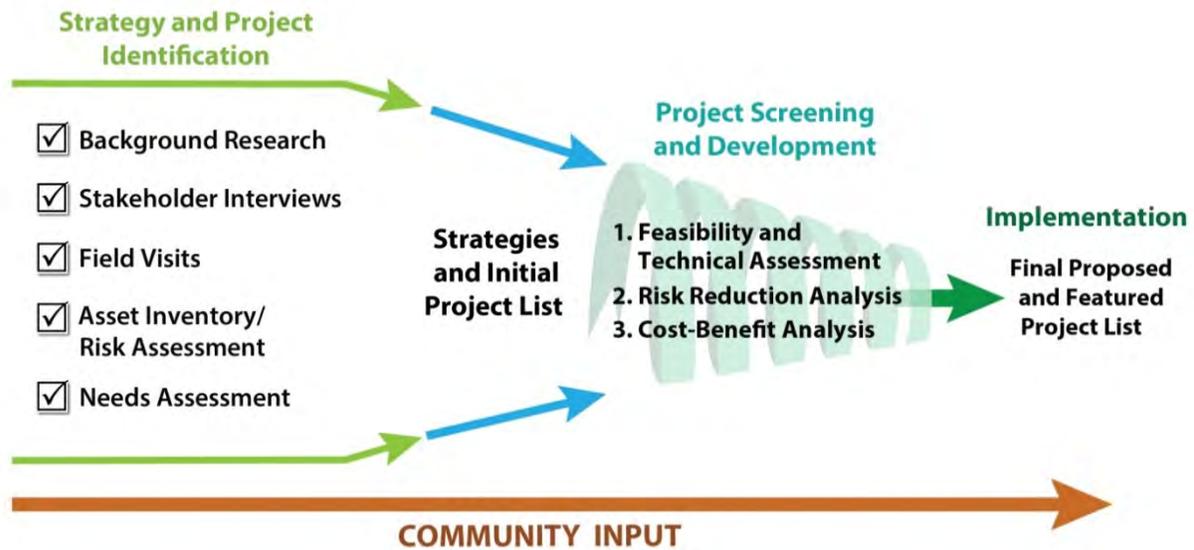
Public outreach was essential to the planning process, both to educate community members and to receive public input. Residents, public and private agencies, and community organizations provided direction through public meetings and via social media. Three public meetings were held during the eight-month planning period, with a fourth public meeting scheduled to present the completed plan. The meetings were well attended, with no less than 40 people at each public meeting. To complement the public meetings, the Governor's Office of Storm Recovery's website was used to provide updates and receive comments, and the Planning Committee created a Facebook page to provide an additional venue for communication with community members.

A blueprint for implementation

The NYRCR planning process culminated in the development of strategies and the selection of projects. The Planning Committee developed these strategies and projects based on a comprehensive inventory of community assets, an assessment of risk to those assets in the event of a flood, and identification of needs and opportunities to make assets more resilient and support the social and economic vitality of the Village.

The Planning Committee identified more than 50 community assets and assessed the flood risk to each. The Waterford Village Historic District was found to be the asset at greatest risk, validating an emphasis placed by the Committee on addressing flood risk to housing stock in the 100-year floodplain.

The figure below outlines the process taken by the Planning Committee to develop resiliency strategies and projects.



Projects were then divided among three categories: Proposed, Featured, and Additional Resiliency Recommendations.

- Proposed Projects are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding.
- Featured Projects are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program.
- Additional Resiliency Recommendations are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

Proposed and Featured projects in the Waterford NYRCR plan are listed below, organized by strategy. Projects are all “Proposed” except for those marked “Featured.” Projects are not ranked, or listed in priority order.

- Strategy: Strengthen the Village’s emergency response capacity through enhanced communications, expanded community awareness, and improved response services.
 - ❖ Emergency Response Measures Project
 - ❖ Consolidated Firehouse Phase I Project
 - ❖ Consolidated Firehouse Phase II Project (Featured)
- Strategy: Reduce flood risk to housing stock in the 100-year floodplain.
 - ❖ Building Resiliency Program
 - ❖ Home Buyout Program

- Strategy: Improve Village infrastructure to better manage flood waters.
 - ❖ Street Resiliency Project
 - ❖ Wetland Drainage System Improvements
- Strategy: Support community development through activities that encourage the engagement of tourists and residents in the community.
 - ❖ (No Proposed or Featured projects pertain to this strategy.)

The Waterford NYRCR Plan provides a blueprint for implementing strategies and projects that together strengthen and protect Community assets, address critical issues, and contribute to the long-term vibrancy of the Village of Waterford.



NY Rising Community Reconstruction Plan

NYRCR Village of Washingtonville

March 2014

NY Rising Community Reconstruction Program





EXECUTIVE SUMMARY

OVERVIEW

The Village of Washingtonville is located in central Orange County, New York, within the northern region of the Town of Blooming Grove. The Village shares the majority of its border with the Town of Blooming Grove, and a small portion with the Town of New Windsor.

In late August-early September 2011, back-to-back storms Hurricane Irene and Tropical Storm Lee became the most recent in a long history of floods in Washingtonville. The Village's downtown, consisting of residential, commercial, and historic properties, is cradled by Moodna Creek, and is immediately in the flood hazard area. The area flooded with up to 8 feet of water during Hurricane Irene, destroying Village Hall, and damaging or destroying approximately 80 homes. Flooding also incapacitated the Village's emergency services, government, and public works; this compromised continuity of services and operations, and hindered response times during the disaster and into the recovery phase.

The impacts and challenges caused by these storms and resultant flooding were significant, and affected the lives of all segments of the local community, and the region at large. Despite extensive collaboration between the community and agency partners to use available response and recovery resources, including inspiring local volunteer efforts, considerable unmet recovery needs remain more than two years after flood waters have receded.

To address the substantial, lasting impacts from both historic and more recent floods, and to establish long-term community health and resiliency, the Village of Washingtonville has developed a NY Rising Community Reconstruction (NYRCR) Washingtonville Plan. The NYRCR Washingtonville planning area includes all land within the Village boundaries, as well as a contiguous ¼ mile buffer around the Village. This planning area was defined to encourage reconstruction and resiliency projects that address the sources of flooding in the Village, and to protect the assets that affect the Village's resiliency to future storm events.

Under the guidance and funding of the NYRCR Program, the completed NYRCR Washingtonville Plan aims to address the most critical needs and impacts from Hurricane Irene and Tropical Storm Lee, while also identifying strategies and priorities for future resiliency, increased quality of life, community vibrancy, and economic growth. The Village's highest priorities are synthesized into proposed projects that may be implemented with an NYRCR award of up to \$3 million.

The following critical issues were identified during the NYRCR Washingtonville Planning process through a combination of existing plan reviews, technical analyses, ongoing public input, inter-agency coordination, and NYRCR Washingtonville Committee (Committee) guidance and discussion.

CRITICAL ISSUES

The Village's proximity to Moodna Creek offers residents and visitors both active and passive recreation along the Creek's banks. However, the Moodna also places its most crucial community

assets at an inherent risk of flooding, and as the waters of the Creek overtop its banks, the Village has repeatedly sustained significant flood damage to infrastructure and critical assets.



Repeated flooding of the Village’s primary transportation access routes and corridors has created significant evacuation and safety issues in the past. Numerous flood events have inundated State Route 208 and State Route 94, the primary transportation corridors providing access into and out of the Village, including to vital services, such as food and medical care. During peak high-water levels following Hurricane Irene, widespread flooding crippled transportation functionality and limited emergency response throughout the Village. The alarming impacts of road closures were widespread across the Village, with sizeable sections of the Village isolated from emergency relief for days.

A thriving economy in the Village is significantly restrained by the real and perceived threats of severe flood damage. Additional challenges to local economic growth that were corroborated by anecdotal and documented evidence throughout the planning process include:

- A lack of economic development incentives;
- Lack of parking near commercial and downtown areas;
- Insufficient recreational opportunities to keep families in town; and
- A need to inventory and assess economic assets damaged by storm events.

Increasing housing costs and reduced housing affordability are growing issues throughout Orange County. The severity of these issues is more pronounced in the Village of Washingtonville, exacerbated by the skyrocketing costs of flood insurance. Of the 110 National Flood Insurance policyholders in the Village, 27 are classified by FEMA as Repetitive Loss (RL) properties, and five as Severe Repetitive Loss (SRL) properties. General housing affordability issues particularly limit options for flood-ravaged homeowners who may otherwise look to relocate their homes to less-flood-prone locations within the Village.

A lack of focused local planning documents currently places the community at a disadvantage when making decisions to guide the future growth of Washingtonville. While the Village is included in the planning area of several regional and Orange County planning documents, much of the information and issues specific to Washingtonville are minimized or marginalized. Identifying emerging issues, trends, and strategies to address them becomes increasingly challenging without up-to-date local data and information, and ongoing stakeholder engagement. In addition, the lack of a formal Washingtonville Comprehensive Plan presents a challenge for verifying the consistency of local ordinances with shifting community goals and preferences.

COMMUNITY-DRIVEN PROCESS

Through collaborative discussions, stakeholder engagement, reviews of existing plans and studies, and a focused intention toward holistic community recovery, the Committee adopted the following vision to guide the recovery and resiliency effort for the Village of Washingtonville:



To create a resilient and vibrant environment in the Village of Washingtonville that embraces the community's history, charm, and character while providing for future economic stability and reducing vulnerability to the effects of natural hazards, flooding, and climate change. Through stakeholder-driven action the Village will focus its efforts to recover from the past and most recent storm and flood events by fostering economic vitality and focusing on the safety and well-being of people, property, and critical assets.

The Village of Washingtonville will recover from the effects of Hurricane Irene and Tropical Storm Lee, and past flooding events to create a community that is stronger and more economically robust as a result of rebuilding and re-visioning. By capitalizing on the social, economic, and environmental assets; protecting vulnerable populations; maintaining community character; and attracting new families and businesses; the

Village of Washingtonville will remain a safe, resilient, and welcoming place.

Public input was solicited and incorporated into the planning process through diverse and continuous methods to ensure maximum engagement. The public engagement process for Washingtonville advanced the NYRCR Program framework for community-driven resiliency initiatives that began with a communications strategy. This strategy — deliberately targeted to reach residents, homeowners, non-resident property owners, business owners, and community and social service organizations across both the public and private sectors — served as the local blueprint for public engagement and education. Specific venues for public involvement and engagement included weekly or bi-weekly Committee meetings, online and hard copy surveys, focused agency interviews and electronic surveys, and community-wide public meetings.

FINAL PLAN AS BLUEPRINT FOR IMPLEMENTATION

The Committee identified the Village's primary needs through the lens of the community vision and critical issues, including lost economic opportunities attributed to damages, and insufficient local capital for rebuilding and economic expansion. The needs identified provide a basis for the strategies, projects, programs, policies, and actions proposed as a result of this community planning process.

The NYRCR Washingtonville Plan addresses the overarching need to ensure the resiliency of existing assets and any proposed post-storm new construction projects to future storm events. To meet this goal, the Committee first identified and analyzed the Village's economic, health/social services, housing, infrastructure, and natural/cultural resources, specifically highlighting those resources whose loss or impairment posed risk to critical facilities and essential social,

economic, or environmental functions of the community.

The Committee then evaluated the overall risk to these assets, primarily relevant to flooding by Moodna Creek. Once delineated, the risk-to-assets relationship provided another tool for the Committee to use in making decisions for NYRCR reconstruction strategies and proposed projects.

Next, the Committee constructed strategies to reflect community values and input, issues, needs, and opportunities. These strategies are the foundation for proposed projects, programs, policies and actions in this Plan.

Projects were vetted with both qualitative input from the community, and quantitative, scientifically based analysis. This included a detailed Cost Benefit Analysis, Risk Reduction Analysis, and Hydraulic Modeling.



The final list of projects was categorized into three project types. **Proposed Projects** are projects proposed for funding through a NYRCR Community’s allocation of CDBG-DR funding. **Featured Projects** are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. **Additional Resiliency Recommendations** are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

Strategy 1: Reduce the impact of flooding on the built environment in the Village, including critical facilities, infrastructure, businesses and housing.

Mays Field Relocation Project - Phase I: Little League field removal and creation of passive flood control – Buy out May's Field property, remove excess dirt, structures, and asphalt to restore as passive flood control, and provide additional flood storage through creation of retention area. It is important to the Committee to also identify a location for new Little League fields. **Proposed**

Moodna Creek Stormwater Storage Areas/Moodna Creek Stream Management Improvements -

Identify appropriate locations throughout Washingtonville to implement stream management measures, and conduct a feasibility study to analyze reductions in the extent and severity of flooding throughout the Village. The feasibility study would produce detailed projects that address the extent of and reduce the impact of flooding in the Village.

Proposed

Strategy 2: Ensure safe and reliable transportation, movement, and shelters during flood and disaster events.

Complete Additional Hydraulic, Stormwater, and Bridge Analysis - Pursue a comprehensive hydraulic analysis of the Moodna Creek, including erosion

issues along Route 208, as well as an analysis of the numerous bridges and structures that reflect present and potential constrictions, due to their design and location. Pursue analysis of Village stormwater systems for possible improvements.

Proposed

Strategy 3: Improve pre-disaster preparation to include emergency communication systems, evacuation routes, shelter access, sheltering-in-place procedures, and transportation access into and out of the Village.

Village Combined Facility Building - Construct a public facility/structure to house multiple community functions. **Featured**

Automatic Level Sensing Devices - Install automatic level sensing devices on streams and lakes to provide for early warning of potential flooding in the Village, coordinated with similar regional and state-wide initiatives, thereby helping to notify residents and business owners of impending floods.

Featured

Strategy 4: Maintain and enhance economic vitality through retention of the tax base and strategic actions to enhance business viability in the Village.

Village Park - Create a waterfront park at the site of the old Village Hall to include the old Village Hall parcel, as well as two adjacent repetitive, flood-damaged parcels being considered for acquisition. The new park may be designed for passive and active recreation, linking the Village downtown with the banks of Moodna Creek. **Proposed**

Review and Update Village Codes and Ordinances - Review existing codes and ordinances for consistency with community goals and implement changes, as necessary. Potential updates include streamlining approval/ permitting process; creating flood and overlay zoning districts, targeted density areas, and incentives to encourage desirable business growth and development; and developing a Village Comprehensive Plan. **Proposed**



Strategy 5: Protect, preserve, and enhance natural, cultural, and historic resources and assets.

Moffat Library Improvements - Phase I - Construct improvements to the Moffat Library to increase resiliency and address existing flood damage. Improvements would include water -sealing the basement and stone foundation to minimize water infiltration, providing roof repair or replacement, and installing a backup generator. *Proposed*

Moffat Library Improvements - Phase II- Improve emergency response and operations functionality of the library, and add new social and cultural improvements, such as pedestrian-friendly green

space, sidewalks, and landscaping around the facility. *Proposed*

Improved Local Branding and Marketing - Create a coordinated local branding and marketing initiative to reinforce a sense of place, highlight local assets, and encourage economic development. This initiative may include a historic resources inventory and programming, updated and uniform signage, and wayfinding installations. *Featured*

Strategy 6: Increase access to youth programs, activities, and recreation opportunities for local children and teens.

CONCLUSION

The proposed and featured projects and additional resiliency recommendations listed above are the culmination of the Committee’s robust effort over many months to help the Village build back better from a history of devastating storm and flood damage.

The Committee has carefully crafted and refined the content of this Plan, and has done so through a process that sets a foundation upon which the Village may take its first major steps towards future resiliency.