

# **NY Rising**

## **Community Reconstruction Committee Plans**



### **Executive Summaries**



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## **FOREWARD**

### **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, within the Governor's Office of Storm Recovery (GOSR), empowers the State's most impacted communities with the technical expertise and funding resources 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 \$700 million planning and implementation program 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.

Launched in the summer of 2013 and completed in March 2014, Round I of the NYRCR planning process included 50 NYRCR Planning Areas, comprising 102 storm-impacted localities. In January 2014, Governor Cuomo announced a second round of the planning process, serving an additional 22 storm-impacted localities. Four of these localities were absorbed into existing Round I NYRCR Planning Areas, bringing the number of localities participating in Round I up to 106; the other 18 localities formed 16 new Round II NYRCR Planning Areas. Between Rounds I and II, there are 66 NYRCR Planning Areas, comprising 124 localities. The program serves 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.

In Rounds I and II, the State allotted between \$3 million and \$25 million to each participating locality for the implementation of 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.<sup>1</sup>

Each NYRCR Planning Area is represented 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 650 New Yorkers have represented their communities by serving on Planning Committees. Nearly 650 Planning Committee Meetings have been held, during which Planning Committee members worked with the State’s team to develop community reconstruction plans, which identify opportunities to make their communities more resilient. All meetings were open to the public. An additional 250+ Public Engagement Events attracted thousands of community members, who provided feedback on the planning process and resulting 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 program’s website ([www.stormrecovery.ny.gov/nyrcr](http://www.stormrecovery.ny.gov/nyrcr)), providing several ways for community members and the public to submit feedback on the program and materials in progress.

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

The NYRCR Program does not end with the NYRCR Plans. Governor Cuomo has allotted over \$700 million for planning as well as implementing eligible projects identified in NYRCR Plans. NYRCR Planning Areas are also eligible for additional funds through the NY Rising to the Top Competition, which evaluates applications from Round II NYRCR Planning Committees across three categories—Regional Approach, Inclusion of Vulnerable Populations, and Use of Green Infrastructure. The winner of each category will be allotted a share of the competition’s \$3.5 million to fund additional eligible projects.

In April 2014, Governor Cuomo announced that projects identified in NYRCR Plans would receive priority consideration through the State’s Consolidated Funding Application (CFA) process and charged the Regional Economic Development Councils (REDCs), which play an advisory role in the CFA process, to support NYRCR projects. In December 2014, Governor Cuomo announced that 24 NYRCR projects received nearly \$12 million in CFA funding. This announcement is an example of the Governor honoring his commitment to leverage the work of the NYRCR Planning Committees to incorporate resilience into other State programs and to find additional sources of funding for NYRCR projects. The NYRCR Program is also working with both private and public institutions to identify existing funding sources and to create funding opportunities where none existed before.

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<sup>1</sup> Five of the Round I Planning Areas—Niagara, Herkimer, Oneida, Madison, and Montgomery Counties—are not funded through the CDBG-DR program.

The NYRCR Program has successfully coordinated with State and Federal agencies to help guide the development of feasible projects. The program has leveraged the REDC State Agency Review Teams (SARTs), composed of representatives from dozens of State agencies and authorities, for feedback on projects proposed by NYRCR Planning Committees. 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, which are passionately committed to realizing a brighter, more resilient future for their communities.

### **The NYRCR Plan**

NYRCR Plans are an important step toward rebuilding more resilient communities. 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.

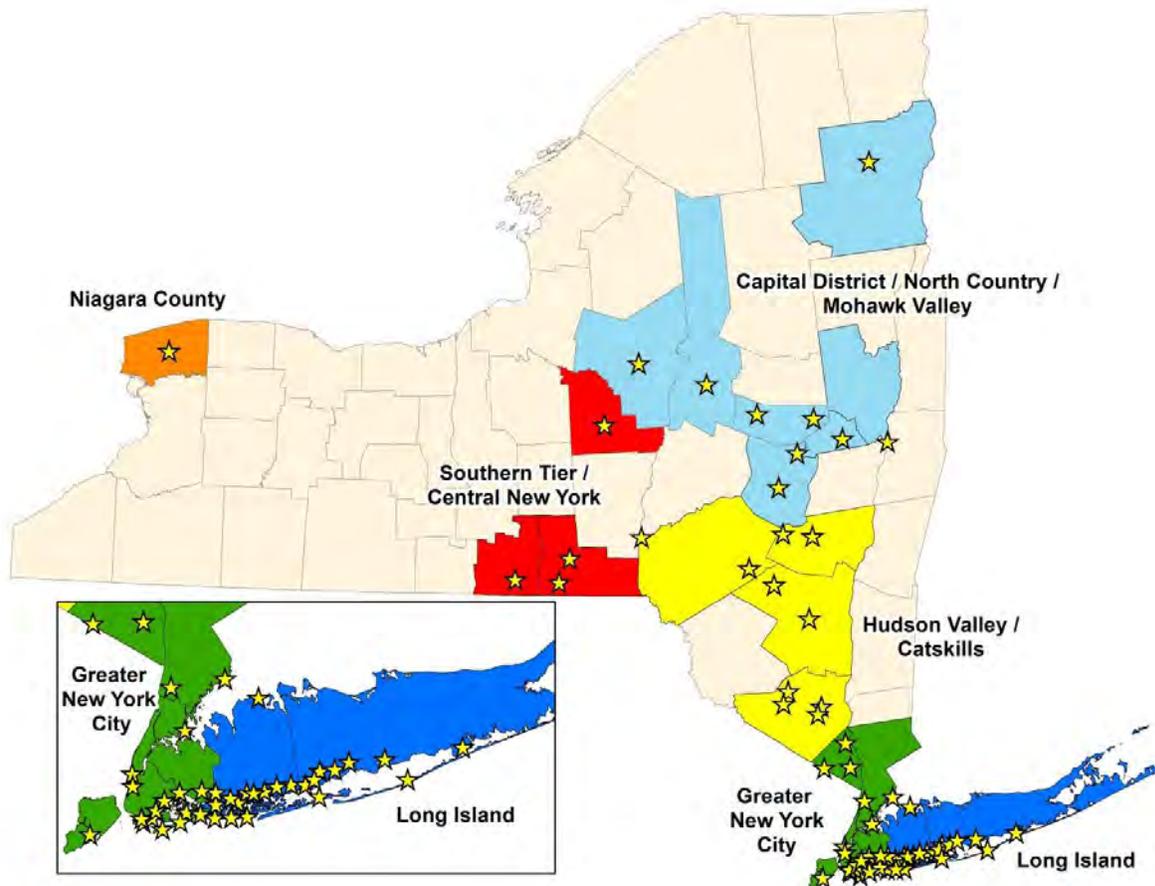
The projects and actions set forth in NYRCR Plans are divided into three categories. The order in which the projects and actions are listed in NYRCR Plans does not necessarily indicate a Planning Committee's prioritization of these projects and actions. **Proposed Projects** are projects proposed for funding through an NYRCR Planning Area's allotment 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 NYRCR Plans were voted for inclusion by 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 NYRCR Plans, 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 satisfy a Federally-designated eligible activity category, fulfill a national objective (i.e., 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 GOSR 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 NYRCR Plans exceeds NYRCR Planning Areas' CDBG-DR allotments 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 NYRCR Plans is subject to applicable Federal, State, and local laws and regulations, including the Americans with Disabilities Act. Inclusion of a project or action in NYRCR Plans does not guarantee that a particular project or action will be eligible for CDBG-DR funding or that it will be implemented. Projects will be implemented on a staggered timeline, and the NYRCR Program will choose an appropriate State or local partner to implement each project. GOSR will actively seek to match projects with additional funding sources, when possible.

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



Map displays the 66 NYRCR Planning Areas from Rounds I and II. (Five of the Round I Planning Areas—Niagara, Herkimer, Oneida, Madison, and Montgomery Counties—are not funded through the CDBG-DR program.)



# Long Island

# Greater Bay Shore

NY Rising Community Reconstruction Plan



NY Rising Community Reconstruction Program

December 2014





## Greater Bay Shore NY Rising Community Reconstruction Plan

*“In my 20 years of being involved with the Fire Department, I’ve travelled across the State to other areas that have been hit by natural disasters. I’ve never witnessed the type of damage I witnessed in Bay Shore and the Town of Islip that was sustained from Sandy! I’ve never seen such masses of people in desperation for help and at the same time I have never seen the Community rally to help one other the way that they did.”*

- Brian Butler, Bay Shore Fire Department Chief and Greater Bay Shore NYRCR Planning Committee Co-Chair



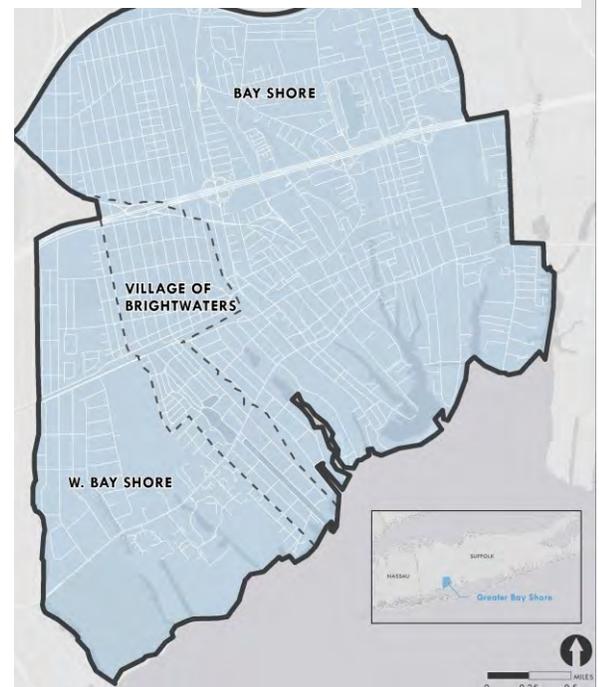
## Executive Summary

### Introduction

Greater Bay Shore is located along the South Shore of Suffolk County, Long Island. This NY Rising Community Reconstruction (NYRCR) Program Community encompasses an area of 15.4 square miles composed of West Bay Shore (3.96 square miles) and Bay Shore (9.7 square miles) within the Town of Islip and the incorporated Village of Brightwaters (1.75 square miles). The Community features extensive waterfront (almost 9 miles long) on the Great South Bay and is a gateway to and a lifeline for Fire Island. Bay Shore’s downtown is reminiscent of a quaint Main Street USA with a thriving mix of family-owned shops and local businesses with newer restaurants and retail shopping.

As part of the ongoing recovery from Superstorm Sandy, Greater Bay Shore’s NYRCR Planning Committee (Committee) took on the responsibility of developing a plan that laid the groundwork for the Community’s resilient future. The composition of the Committee includes a cross-section of Greater Bay Shore’s population including members of business and community organizations, local residents, and municipal representatives. Greater Bay Shore’s NYRCR Committee Co-Chairs were selected by the Committee in consultation with the State of New York. With the entire Community involved, and with the help of New York State, the Committee has produced a forward-thinking, pragmatic recovery, and resiliency plan.

### The Greater Bay Shore NYRCR Planning Area





### Overview

NY Rising Community Reconstruction (NYRCR) Greater Bay Shore (Community) is one of an additional 22 Communities across the State that was designated to participate in Round II of the NY Rising Community Reconstruction Program. Greater Bay Shore is the ninth, and only Round II, Community in Suffolk County of the NYRCR Program. A total of up to \$3 million has been allotted for reconstruction and resiliency projects within the Greater Bay Shore Community.

The Greater Bay Shore community is civic-minded with a range of community organizations, religious institutions, and recreational amenities. This is a proud community that has a strength in purpose and always takes the opportunity to do the right thing. Greater Bay Shore is a place to call home. It considers itself the “heart of the South Shore.”

After passing through the Caribbean -- including Jamaica, Cuba and the Bahamas -- and fluctuating between a Category 1 and Category 2 Hurricane, Sandy turned north toward the US coast on Saturday, October 27, 2012. The storm made landfall near Atlantic City, NJ, around 8 PM on Monday, October 29. The winds had decreased to just below the threshold for a Category 1 Hurricane and meteorologists and the press christened this near hurricane as “Superstorm Sandy.”

Superstorm Sandy’s historically unprecedented path approached New Jersey and New York from the east; storms typically approach from the south. As a result, the track of Superstorm Sandy resulted in a worst-case scenario for storm surge and inundation in coastal regions from New Jersey north to Connecticut including New York City and Long Island. The storm surge came ashore near the time of high tide along the South Shore of Long Island during a full moon, when tides are strongest. Greater Bay Shore was immediately inundated with an estimated 3.4 feet of water on top of the morning tide of 1.3 feet (based on NOAA tide tables) that had already inundated the bay front shore and had yet to retreat. Bulkheads were battered by debris, floating docks and boats were tossed on land, damaging homes and property along the shoreline. Superstorm Sandy’s storm surge significantly impacted the Community and affected the entire coastal frontage as well as inland areas of Greater Bay Shore.



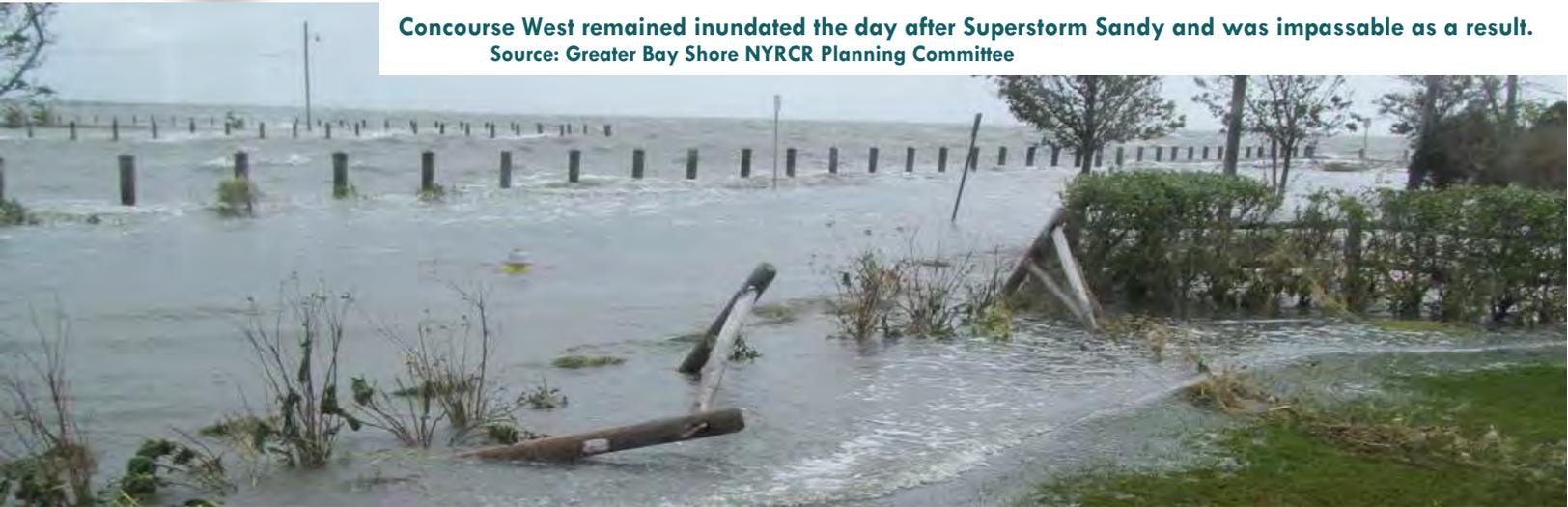
Satellite imagery of Superstorm Sandy as it approaches the tri-state area.

Source: NOAA



## Greater Bay Shore NY Rising Community Reconstruction Plan

**Concourse West remained inundated the day after Superstorm Sandy and was impassable as a result.**  
Source: Greater Bay Shore NYRCR Planning Committee



In advance of the storm, thriving and beloved waterfront establishments such as Captain Bill's, Swept Away (formerly Cool Water Grill); Molly Malone's and Fatfish took precautions like sandbagging entrances and boarding up windows. Still, many of these restaurants were severely compromised by the winds and flooding. With the help of their staff and the Community, Captain Bill's at 122 Ocean Avenue was re-built, reopening the day after Thanksgiving 2012. While Molly Malone's on Maple Avenue sustained extensive damage, it was eventually rebuilt as well.

The Bay Shore Fire Department (BSFD) mobilized in the days ahead of Superstorm Sandy's landfall with advance planning meetings and equipment preparation. The BSFD was flooded with hundreds of calls for emergency assistance with the earliest received mid-day on October 29th. The BSFD's Dive Team used inflatables to rescue trapped residents south of Montauk Highway, on Shore Lane, Maple and South Clinton Avenues. During and in the days immediately after the storm, the BSFD braved dangerous conditions to respond to structure fires, as well as live, burning and downed wires, flooding conditions and fallen trees.

In the weeks following the storm the Bay Shore Fire Department Headquarters at 195 Fifth Avenue was used as a public safety response area, an Island Harvest distribution point and a donation collection center. The Red Cross also used the Fire Department as a base and dozens of out-of-state utility workers were housed in the facility for several days. The BSFD's reach was felt on a regional scale as well when their members traveled east in November 2012 to assist a number of Nassau County fire departments in providing adequate protection to their communities.

**Volunteer fire fighters from the Bay Shore Fire Department on a search and rescue operation during Superstorm Sandy.**  
Source: Bay Shore Fire Department





### Community Identified Issues

Through the Committee process, as well as feedback gained at the Public Engagement Events, critical issues related to Greater Bay Shore's recovery from Superstorm Sandy as well as future resiliency needs were identified. These issues helped define needs, opportunities, strategies, and projects that would make Greater Bay Shore a more resilient and sustainable community. Critical issues included:

- **Repetitive and severe flooding.** Many locations in the Community are subject to chronic flooding as a result of tidal surges, heavy rain storms, and extreme high tides.
- **Extended recovery time for basic services.** Following Superstorm Sandy, the return of basic services (electric, gas, internet, telephone) took from a few days to a couple of weeks — for structures that were in otherwise sound condition.
- **Resiliency of ferry terminals/marina.** Bay Shore is the primary terminal for public and private passenger and freight service to Fire Island and functions as a regional asset.
- **Presence of vulnerable population.** There are people in every community that are particularly vulnerable to the strains and hardships associated with a major storm and the recovery period. These include individuals with disabilities, low- and very-low income, the elderly and young children, homeless, and people at risk of becoming homeless.
- **Communications and educational outreach before, during and after storms.** The need for accurate information to plan for, withstand and recover from storms is critical to the Community's well-being. This is especially important for vulnerable populations and those with English as a Second Language (ESL).
- **Maintaining critical services and access at LIJ Southside Hospital.** The Committee and public indicated that roadway flooding and the potential for flooding at (and adjacent to) the Hospital is a major concern because the continuity of the operation of the hospital is vital to the well-being of both the health and the economy of Bay Shore and the surrounding area.
- **Water quality.** The Town of Islip's Great Cove Watershed Study, in 2012, identified untreated surface runoff as one of the causes of deteriorating water quality in Great Cove and within the streams and creeks that drain to the Cove and the Great South Bay. In addition, the Community expressed concern for streams and creeks that have become overgrown and silted. This affects the capacity of natural waterways to collect, store, filter and discharge water into the Bay.
- **Continued recovery of the local economy including Downtown Bay Shore.** A critical issue to the Community is the continued recovery of Downtown Bay Shore as the anchor of the local economy.

### COMMUNITY IDENTIFIED ISSUES

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FLOODING

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RECOVERY TIME FOR SERVICES

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RESILIENCY OF FERRY TERMINALS  
& MARINAS

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VULNERABLE POPULATIONS

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COMMUNICATION & OUTREACH

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MAINTAINING CRITICAL SERVICES &  
ACCESS AT HOSPITAL

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WATER QUALITY

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CONTINUED RECOVERY OF LOCAL  
ECONOMY

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## Greater Bay Shore NY Rising Community Reconstruction Plan

### NYRCR Program: A Community-Driven Process

As directed by Governor Andrew M. Cuomo at the outset of this process, the Greater Bay Shore Community's goal was to "build back better". The NYRCR planning process allowed the real "experts"-- residents of the communities that were confronted first-hand by Superstorm Sandy -- to define the issues, generate the ideas, and provide meaningful input that shaped this NYRCR Plan. During the numerous Planning Committee Meetings, Public Engagement Events, discussions, and site tours, Committee members and the public drew on their own experiences and on input from their neighbors to identify approaches and projects that would strengthen the community's resiliency. Based on this input, the Committee began the process of formulating a future vision of a more resilient Greater Bay Shore.

The Greater Bay Shore 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. Informed by public input from community members, the Community Vision Statement represents a consensus assessment of the direction this Community wishes to move.

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

### VISION STATEMENT

*Picturesque Greater Bay Shore, including the mile-square Village of Brightwaters, is the heart of Long Island's South Shore. With the Great South Bay as our backyard, we are the gateway to the National Seashore, a lifeline to Fire Island, and serve over one million visitors each year. The economic vitality of our historic downtown and the nearby marinas, docks and ferry services are crucial to our identity and future well-being. We are proactively pursuing a future that supports a resilient and sustainable economy while also reducing damage from future storm events and strengthening our ability to recover from these events. Greater Bay Shore is a caring, culturally diverse community, united in spirit, purpose, and values.*



*"From our Planning Committee's initial meeting, we recognized the enormity of our challenge to formulate resiliency strategies and reconstruction projects that could protect Greater Bay Shore in the future. But what began as a formidable mission evolved into a more achievable task because the NY Rising Community Reconstruction Program assigned us a team of extraordinary professionals to lead, teach, and work with us. These experts from the Governor's Office of Storm Recovery and the Consultant Team truly listened and used our input to define our community's important assets, strengths, and values. Together we reviewed and detailed the incredible damage done by Superstorm Sandy and determined the critical issues and needs of our vulnerable waterfront community. After many months of positive engagement and transformative analysis with the team, our committee has developed a reconstruction plan of projects and actions to help ensure our community's future well-being. It was a privilege to serve on this committee, and I applaud the team's outstanding service to their fellow New Yorkers."*

- Donna Periconi, Greater Bay Shore NYRCR Planning Committee Member & Chamber of Commerce of Greater Bay Shore



## Greater Bay Shore NY Rising Community Reconstruction Plan

### Public Engagement Process

A critical component of the NYRCR Program was the transparent exchange of information by the Consultant Team, the Committee, and the public to identify appropriate projects, strategies, and solutions likely to carry Community support. The public included residents, some of whom also represented civic groups, neighborhood and homeowner associations, environmental and business groups, as well as educational, medical, religious and other institutions. In addition, employees of businesses, representatives of the media, and elected/appointed officials expressed interest in the process and provided their input.

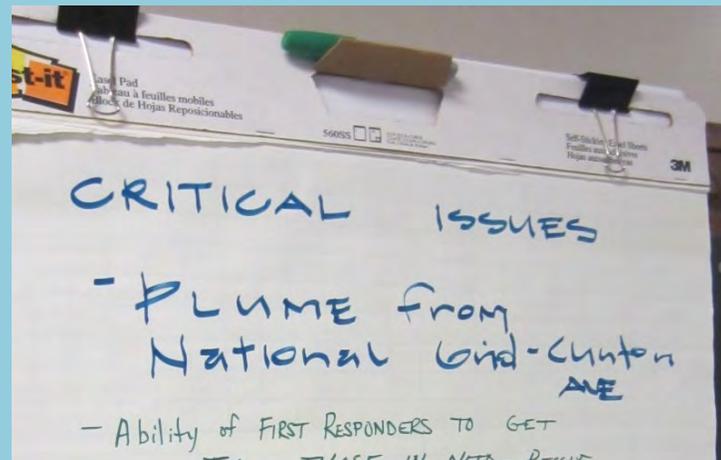
The Greater Bay Shore NYRCR Committee was composed of residents who could speak directly from experience of the character of the community and its needs and strengths in good times and bad. Ten Committee meetings were held, all of which were open to the public, with meeting dates and times posted on the NYRCR website ([www.stormrecovery.ny.gov/nyrcr](http://www.stormrecovery.ny.gov/nyrcr)). Comment forms were available at Committee Meetings, Public Engagement Events, and on the NYRCR website to provide an opportunity for the public to contribute their feedback, which was then passed along to the Committee.

The 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 NYRCR Plan and a fourth will present this final document. Additionally, the public was encouraged to participate in “online public meetings” in association with Public Engagement Events #1 and #2.



There was animated discussion and feedback at Public Engagement Event #1, July 2014.

Source: Jacobs



The Community identified critical issues during Public Engagement Event #2, September 2014.

Source: Jacobs



## Greater Bay Shore NY Rising Community Reconstruction Plan

### NYRCR Plan: A Blueprint for Resiliency

An asset inventory was conducted for the Greater Bay Shore Community to identify assets, both built and natural, which are critical to the safety, resiliency, and character of the Community. The assets were evaluated in detail to understand their level of risk to, 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. 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. The order in which the projects and actions are listed in this NYRCR Plan does not necessarily indicate the Planning Committee’s prioritization of these projects and actions. **Proposed Projects** are projects proposed for funding through an NYRCR Planning Area’s allotment 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 voting members of the Planning Committee.

**Table ES-1. Greater Bay Shore NYRCR Proposed & Featured Projects**

Strategy	Project Name & Description	Project Category
Ensure adequate resources to enhance the ability of Community-Based Organizations (CBO) to prepare for, and respond to local emergencies.	<b>Greater Bay Shore Resiliency Generator Project:</b> Permanent placement of fixed generators at 7 crucial community facilities.	Proposed
	<b>Community-Based Organizations (CBO) &amp; Vulnerable Population Emergency Action &amp; Education Plan:</b> Development of a plan to enable CBOs to coordinate their efforts to address emergency preparedness education, evacuation, and long-term resiliency needs of vulnerable populations.	Proposed
Ensure public safety and the ability of first responders to promptly and effectively react to severe storm events and other emergencies.	<b>Fire and Rescue Communications:</b> Upgrade communications equipment to eliminate incompatibility of equipment among first response agencies.	Proposed
	<b>Fire and Rescue Equipment:</b> Purchase of essential Search and Rescue equipment.	Proposed
	<b>Enhanced GIS Emergency Management System:</b> Project to enhance a Town-wide GIS system to improve storm response and recovery.	Proposed
	<b>Greater Bay Shore Resiliency Generator Project</b>	Proposed
Improve the economic resiliency of the Community.	<b>Bayview Avenue, Bay Shore Waterfront Corridor Improvement:</b> “Complete Streets” improvements on Bayview Avenue between Ocean and South Clinton Avenues to improve parallel access and evacuation opportunities along waterfront.	Featured



## Greater Bay Shore NY Rising Community Reconstruction Plan

**Table ES-1. Greater Bay Shore NYRCR Proposed & Featured Projects (Cont'd)**

Strategy	Project Name & Description	Project Category
Provide for the unique needs and requirements of vulnerable populations including the elderly, individuals with disabilities, and low income residents.	<b>Community-Based Organizations (CBO) &amp; Vulnerable Population Emergency Action &amp; Education Plan</b>	Proposed
	<b>Penataquit Village Housing Resiliency Enhancements:</b> Project to install a series of “green” drainage improvements on a Town of Islip-owned parcel with existing multi-family residential housing.	Proposed
	<b>Bayview Avenue, Bay Shore Waterfront Corridor Improvement</b>	Featured
Encourage safe and resilient housing for all residents	<b>Penataquit Village Housing Resiliency Enhancements</b>	Proposed
Ensure continuity of service and access to critical health care facilities and to public safety services.	<b>Drainage, Roadway &amp; Utility Infrastructure Initiative:</b> This initiative would undertake the design, engineering, and hydrologic study of 5 locations within the Community.	Featured
Integrate “Green” and “Gray” infrastructure (natural and engineered stormwater management system) to holistically manage stormwater and reduce flooding.	<b>Stream Corridor &amp; Lakes Drainage Capacity Improvement Initiative:</b> Project to undertake a comprehensive drainage analysis, design, and long-term management recommendations for 6 north-south stream corridors and a series of artificial lakes in Brightwaters.	Proposed
	<b>Penataquit Village Housing Resiliency Enhancements</b>	Proposed
	<b>Stream Corridor Drainage Capacity Improvement Initiative Implementation:</b> Implementation of recommendations from the <i>Stream Corridor &amp; Lakes Drainage Capacity Improvement Initiative</i> .	Featured
	<b>Great Cove Watershed Improvement Project:</b> Implementation of 4 projects contained in the Great Cove Watershed Management Plan.	Featured
Mitigate flooding from the Great South Bay.	<b>Phase I: Brightwaters Canal Improvements:</b> Project to replace 500 linear feet of deteriorated and/or damaged bulkheading along the Canal.	Proposed
	<b>Phases II &amp; III: Brightwaters Canal Improvements:</b> Project to replace a total of 1,000 linear feet (two 500-linear foot phases) of deteriorated and/or damaged bulkheading along portions of the Canal.	Featured

**Washed out local roadway in Greater Bay Shore.**

Source: Jacobs





# New York City Metro Region

# Bergen Beach, Georgetown, Marine Park, Mill Basin, Mill Island

NY Rising Community Reconstruction Plan

December 2014



NY Rising Community Reconstruction Program





# **Executive Summary**

## **Southeast Brooklyn**

### **Waterfront Community**

Bergen Beach, Georgetown, Marine Park, Mill Basin, and Mill Island are close-knit communities with strong civic ties and comprise the Southeast Brooklyn Waterfront NYRCR Community (Community). These five neighborhoods are characterized by their proximity to Jamaica Bay, tree-lined residential blocks, vast swaths of recreational facilities and open space, and vibrant commercial corridors. The Community also has a wealth of large publicly-owned waterfront and natural spaces, including Floyd Bennett Field, Marine Park, and the Gateway National Recreation Area. Located just to the north of Jamaica Bay, five creeks and basins from the Bay flow into the Community—Marine Park Creek, Mill Basin, East Mill Basin, Shellbank Creek, and Paerdegat Basin. Some neighborhoods, like Mill Island, are bounded by water on three sides; some homes even accommodate private docks.

Home to a population of 53,000, residents of the Community are relatively well-educated and high-earning. In fact, median household incomes across all five neighborhoods exceed City and State levels. The majority, or 63%, of the Community’s primarily single-family and two-family homes are owner-occupied. These housing typologies, combined with lack of local subway access, contributes to a car-oriented, suburban character.

Superstorm Sandy impacted the Community in unprecedented ways. Homes and streets that had never experienced significant flooding were inundated. Jamaica Bay waters rose over bulkheads and banks of the four basins in the area. Low-lying neighborhoods adjacent to the Bay—Bergen Beach and Mill Island—faced the greatest levels of inundation, with six-to-nine feet of flooding reported in some areas. Wastewater sewer backup caused stormwater to jet out from manholes and flood streets, especially in low-lying areas. Sewer backup flooded basements and blocked sewers, some exacerbated by overgrown tree roots. Power loss was experienced through much of the Community, with some homes and businesses losing power for a few hours while others were off-line for weeks. The effects of Superstorm Sandy also impacted the delivery of critical supplies: gas stations were unable to pump gas due to loss of power or lack of access to gas, while grocery stores lost merchandise



The Mill Island neighborhood, which sits on the Mill Basin waterbody, suffered considerable damage during Superstorm Sandy.

without working refrigerators. Gridlock on major roadways during the days following the Storm hampered access.

The NY Rising Community Reconstruction (NYRCR) Program was established to provide additional rebuilding and revitalization assistance to communities severely damaged during Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through Community Development Block Grant-Disaster Recovery (CDBG-DR) funding from the U.S. Department of Housing and Urban Development, New York State has allotted up to \$4.38 million to the Southeast Brooklyn Waterfront NYRCR Community, which is defined by the following boundaries: Gerritsen and Nostrand Avenues to the southwest, Paerdegat Basin to the northeast, Avenue N and Flatlands Avenue to the north, Floyd Bennett Field to the south, and Jamaica Bay to the east. The community-driven process has resulted in the identification of projects and policy recommendations intended to enhance the physical, environmental, social, and economic resiliency of the Community. The projects identified in this Plan address Superstorm Sandy-related impacts and better prepare communities for future severe weather-related events.

## Community Vision Statement

**“Through the NY Rising Community Reconstruction Program, the Southeast Brooklyn Waterfront Community aims to increase preparedness around severe weather-related events and climate change through education, planning, infrastructure development, and leveraging the ties that bind the community together.”**

The Southeast Brooklyn Waterfront NYRCR Planning Committee (Committee) is comprised of eight volunteer members who are local homeowners, civic leaders, and business leaders. In order to create a framework for developing projects, the Committee drafted a vision statement at the outset of the process.

Over the course of six months, over 150 residents, elected officials, business owners, and other community stakeholders participated in three Public Engagement Events. Technical information on issues related to coastal protection strategies, stormwater management measures, and public emergency education best practices, among others, was shared at these events to help inform public feedback on project ideas. In addition to these events, presentations were made to the five civic organizations representing the Community. A web-based and paper survey was widely distributed and a toll-free voicemail line was established to solicit additional feedback or questions. Committee members participated in nine planning meetings to learn more about the resiliency issues facing their communities, develop a vision for their Plan, identify strategies, and recommend projects. City, State, and Federal agency input also was solicited throughout this process in order to leverage opportunities to tie into existing or proposed public projects or vet independent project ideas.

As part of the planning process, an assessment of risks and needs was conducted. The coastline bordering the Southeast Brooklyn Waterfront Community remains exposed to coastal flooding from future storms and sea-level rise. Much of the waterfront and some low-lying inland areas—primarily in the neighborhoods of Bergen Beach and Mill Island—are located within either the high or extreme risk zones. These areas remain at high risk of damage from future coastal hazards due to inundation from surge or wastewater and stormwater sewer backup. In addition, the Community’s residents (particularly vulnerable populations) and assets are vulnerable due to a lack of social and technical preparedness. The lack of a comprehensive emergency preparedness plan, as well as unclear or incomplete information about emergency response procedures and resources, hinders effective emergency response and recovery, thus increasing potential damage to assets.



Top, The Southeast Brooklyn Waterfront NYRCR Planning Area is home to a wide array of recreational spaces, including Marine Park. Bottom, One of the greatest assets—and vulnerabilities—of the Southeast Brooklyn Waterfront Planning Area is its housing stock, mostly comprised of 1- and 2-family homes.

Based on discussions held at Planning Committee meetings, as well as public feedback received at two Public Engagement Events, strategies were developed that would ultimately influence and shape the Proposed Projects. The discussions that led to the development of the following strategies were based on a review of Community needs, risks, and vulnerable assets.

- Reduce neighborhood flooding through stabilizing the coastal edge, discouraging development at at-risk locations, and mitigating any potential negative impacts of new projects.
- Improve stormwater and wastewater management to prevent flooding and backup.
- Make power supply more resilient and redundant.
- Enhance emergency preparedness and response.
- Improve resiliency of commercial corridors and critical supply chains.
- Improve residential resiliency through education, technical assistance, and funding.

This process resulted in the eight Proposed Projects described in the Plan. Projects fall under three categories: Proposed Projects, Featured Projects, and Additional Resiliency Recommendations. Proposed Projects are projects proposed for funding through an NYRCR Planning Area's allotment 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 following projects address the previously stated strategies and are not listed in order of priority.



Southeast Brooklyn Waterfront NYRCR Planning Committee members brainstormed needs, opportunities, strategies, and project ideas over the course of several Committee meetings and Public Engagement Events.

To address the first strategy related to the reduction of neighborhood flooding, the **Southeast Brooklyn Waterfront Coastal Protection Study** would develop a comprehensive coastal protection strategy for the Community. A joint project with the Canarsie NYRCR Community—**Southeast Brooklyn Waterfront and Canarsie Stormwater Study and Pilot Projects**—would examine the feasibility, costs, and benefits for stormwater capture and retention. The **Bergen Beach Retention/ Detention System** also would contribute to the strategy of improving stormwater management the construction of a stormwater retention/ detention system within a naturalized park area in Bergen Beach, and tie into City plans to construct new sewers and outfall in the area. To address the need to make power more resilient and redundant, a project to install **Alternative Power Hotspots** in privately-owned parking lot(s) would provide a reliable source of lighting in the event of an outage and create a meeting space where residents could power mobile devices.

In addition, community education and technical assistance programs would address the needs of homeowners, businesses, and critical care providers. To address the strategy to enhance emergency preparedness and response, a **Community Preparedness Education Program** would develop a local preparedness and response guide as well as educational programming to help inform community members of what to do before, during, and after a severe weather event. **Recovery Community Centers** would be created and based out of existing community facilities and organizations to provide emergency-related supportive services and supplies to residents after a severe event. Funding would help health and social service providers make building-level capital upgrades to ensure continuity of service during and after an emergency through the **Critical Facility Upgrades Program**. Finally, a **Homeowner Assistance Program** would fund resiliency educational programming, counseling, and audits for homeowners in the Community and address the strategy to improve residential resiliency.

## Recovery Support Functions

The Governor’s Office of Storm Recovery has structured each plan to focus on a set of criteria, known as the 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 well-rounded resiliency strategy for the Community.



Health & Social Services



Community Planning & Capacity Building



Economic Development



Natural & Cultural Resources



Housing



Infrastructure Systems

## Proposed and Featured Projects

### Southeast Brooklyn Waterfront Coastal Protection Study

This project would develop a study to determine the cost and feasibility of coastal protection measures along the Southeast Brooklyn Waterfront shoreline in order to protect the Community from a severe weather event. The scope of the study would include an assessment of populated areas that are most at risk from coastal flooding, a comparison and feasibility analysis of potential alternatives, the conceptual design of protection measures, community engagement, and agency coordination. The study would require coordination with the U.S. Army Corps of Engineers and the City of New York in order to recommend targeted strategies and approaches that leverage existing plans and initiatives by these agencies.

### Southeast Brooklyn Waterfront and Canarsie Stormwater Study and Pilot Projects

This project would fund: 1) a study to examine the feasibility, costs, and benefits for various stormwater capture and retention projects in the joint Planning Areas of Southeast Brooklyn Waterfront and Canarsie, followed by 2) the implementation of recommended scalable pilot projects within the Southeast Brooklyn Waterfront Planning Area.

### Bergen Beach Stormwater Retention/Detention System

This project would construct a stormwater retention/detention wetland within a natural area of southern Bergen Beach on land owned by New York City Department of Parks and Recreation. This stormwater retention system would link to City plans to construct a new storm sewer and outfall along Avenue Y, providing stormwater flooding abatement for a low-lying, at-risk residential community, while also removing pollutants from stormwater that may otherwise enter nearby East Mill Basin. This project would mitigate stormwater runoff in an area that recurrently experiences this issue.

### Alternative Power Hotspot

This project would fund the installation of alternative energy infrastructure along critical thoroughfares throughout the Planning Area to serve as pilots for similar interventions in the neighborhood. Alternative power hotspots



The Southeast Brooklyn Waterfront NYRCR Planning Area has an extensive edge, and many Community assets, including supermarkets and shopping centers, sit along the water.

would provide a reliable source of lighting in the event of an outage and create a space where residents could meet and power mobile devices, while also accessing food and other services nearby. In locating the hotspots, the project would leverage the large number of big-box retailers and associated street-facing parking lots within the Planning Area.

#### **Emergency Preparedness Education Program**

This project would develop a local emergency preparedness and response guide, online hub, and educational programming to help inform community members throughout the Southeast Brooklyn Waterfront NYRCR Planning Area of what to do before, during, and after a storm event. Materials would focus on preparedness measures, evacuation protocol, and where to go to access supplies and information, among other topics.



Some residents in the Southeast Brooklyn Waterfront NYRCR Planning Area own boats which they keep docked in Mill Basin.

### **Recovery Community Centers**

This Proposed Project would fund the development of Recovery Community Centers to be based out of existing community facilities and organizations. Centers would facilitate disaster preparedness coordination across community-based organizations (CBOs) in advance of an event. Centers could provide power, information, and supplies for residents, among other services. These would be located outside of the floodplain, have a parking lot, and be compliant with the Americans with Disabilities Act (ADA).

### **Critical Facility Upgrades Program**

This project would help health and social services providers to make critical building-level capital improvements. Providers could include medical clinics, hospitals, voluntary emergency/ambulance organizations, and senior living facilities, among others. Funding for upgrades would help to prevent disruption in the essential services these organizations offer as a result of power outages or structural damages in the event of a storm. Potential capital improvements may include: 1) backup power (natural gas); 2) floodproofing measures, such as elevating mechanicals and applying waterproof coatings to the basement and ground floor, among other measures.

### **Homeowner Assistance Program**

This project would fund educational programming and one-on-one counseling, as well as audits for high-risk homeowners, in the Southeast Brooklyn Waterfront NYRCR Planning Area. Project components may include: 1) education to eliminate confusion around retrofitting for resiliency, flood insurance, and other financial questions; 2) individual counseling to provide one-on-one assistance; and 3) audits, performed by specialized engineers, to recommend specific measures to enhance home resiliency.

# Canarsie

## NY Rising Community Reconstruction Plan

December 2014

NY Rising Community Reconstruction Program





# Executive Summary

## Canarsie

Canarsie, a serene neighborhood with striking waterfront views, sits on a rectangular peninsula in Southeast Brooklyn and borders three expansive bodies of water—Jamaica Bay, Paerdegat Basin and Fresh Creek. The Community is also home to Canarsie Park, a 132-acre park under the jurisdiction of the NYC Department of Parks and Recreation, that includes ball fields, playgrounds, and a skate park. Canarsie Pier, extending out from the neighborhood into Jamaica Bay, reinforces the Community's relationship with nature, and is a popular destination for fisherman and others looking to enjoy the waterfront.

The neighborhood is home to approximately 90,000 residents, most of whom hail from the Caribbean. Nearly half of Canarsie's residents are homeowners and reside in primarily brick, low-density attached homes. Commercial corridors run through the center of the neighborhood along Avenue L and Rockaway Parkway, while single and multifamily homes and low rise apartment buildings sit at the Community's edges. Public transportation, while present in the Community, is lacking, with more than three-quarters of Canarsie residents commuting over an hour to downtown Brooklyn, where most are employed.

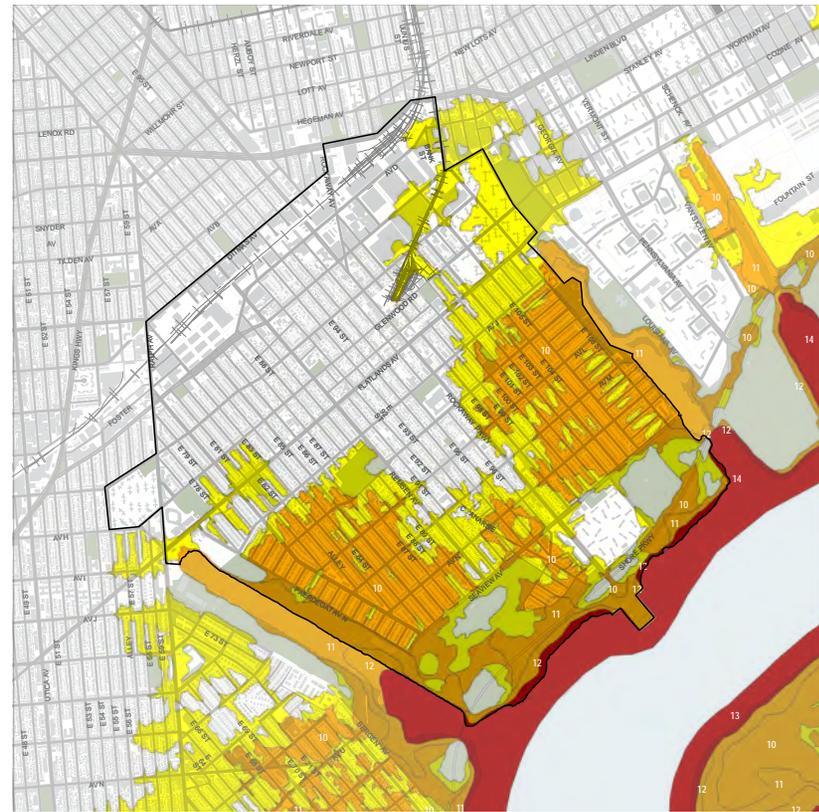
Superstorm Sandy produced widespread damage in Canarsie, flooding homes and critical facilities. High storm surge, coupled with a high-tide condition during a full-moon cycle, led to waters rising above the height of bulkheads and natural river banks. Jamaica Bay, Paerdegat Basin, and Fresh Creek, while community amenities, also served as gateways for rising waters during the storm. Water rose through storm sewers, eclipsing manholes and flooding streets while wastewater rose up from toilets in residents' homes. Power outages were also rampant, closing businesses and preventing residents from accessing supplies and support services. Superstorm Sandy exposed vulnerabilities in the Community, most notably the lack of a sufficient emergency response plan.

The NY Rising Community Reconstruction (NYRCR) Program was established to provide additional re-building and revitalization assistance to communities severely damaged during Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through Community Development Block

Current Flood Insurance Rate Map



2016 Preliminary Flood Insurance Rate Map



NY Rising Community Reconstruction Program  
Canarsie Planning Area

Planning Area

- VE zone (waves > 3')
- 100 year floodplain (1% annual chance of flooding)
- 500 year floodplain (0.2% annual chance of flooding)

The revision of the Flood Insurance Rate Maps in 2016 will bring a substantial change in the number of homes in the floodplain.



Food trucks are a consistent presence on Canarsie Pier.

## Community Vision Statement

**“Canarsie, a proudly diverse and peaceful community surrounded by bountiful natural and recreational resources, will become a self-reliant, empowered, prosperous community, and a model of sustainability and resilience.”**

Grant Disaster Recovery (CDBG-DR) funding from the U.S. Department of Housing and Urban Development, New York State has allotted up to \$11.9 million to fund eligible projects developed by the Canarsie NYRCR Community. The community-driven process has led to projects and policy recommendations that intend to enhance the physical, environmental, social, and economic resiliency of the Community. The projects identified in this Plan address Superstorm Sandy-related impacts and better prepare communities for severe weather-related events in the future.

### Community-Driven Process

The Committee was comprised of 9 volunteer members including homeowners, civic leaders, and business leaders. They collaborated to devise strategies to protect and prepare residents from future storms.

Throughout the participatory planning process, the Committee solicited feedback from the wider community by hosting Public Engagement Events. Over the course of many months, more than 300 residents, elected officials, and professionals participated in 3 dynamic Public Engagement Events, providing their feedback on the needs, strategies, and potential projects identified by the Committee. A fourth Public Engagement Event is scheduled for January 2015. Ten Planning Committee Meetings were held, all of which were open to and observed by the public. Through active discussion and interactive exercises for soliciting feedback, the Committee learned about resiliency measures tailored to the needs of their Community.

With the public’s input, the Committee developed a list of the most pressing needs and opportunities in Canarsie. They include more resilient water management infrastructure, flood protection from storm surge, effective emergency management and planning response, and homeowner assistance, to name a few. The needs were used to draft a comprehensive list of resiliency strategies, which served as the foundation for project development.

## Recovery Support Functions

The Governor’s Office of Storm Recovery has structured each plan to focus on a set of criteria, known as the 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 well-rounded resiliency strategy for the Community.



Health & Social Services



Community Planning & Capacity Building



Economic Development



Natural & Cultural Resources



Housing



Infrastructure Systems

Building on this foundation of needs, opportunities, and corresponding strategies, the Committee developed resiliency projects. Proposed Projects are projects recommended for funding through a NYRCR Planning Area’s allotment of CDBG-DR funding. Featured Projects are projects and actions that the Planning Committee has analyzed in depth and identified as important resiliency recommendations, 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 Canarsie NYRCR Plan contains 6 strategies, 10 Proposed Projects, and 2 Featured Projects, intended to improve the resiliency of Canarsie. The list below follows the order of projects as demonstrated in the Project Profiles in Section V of this document. Each project is listed underneath the strategy to which it corresponds most directly.

### Reduce Vulnerability to Coastal Flooding and Sea Level Rise

#### Fresh Creek Coastal Protection (Proposed)

This project would fund a flood wall and adjoining bioswales to capture storm surge and rising waters at the most vulnerable areas along Fresh Creek. A flood wall is a small wall that reduces flood risk from sea-level rise and 10-year storm events.<sup>3</sup> A bioswale is a landscaped element that reduces gutter flow and manages water surface ponding.

### Activate and Enhance Access Along the Shoreline

#### Fresh Creek Long-Term Restoration & Resiliency (Featured)

This project proposes a comprehensive plan for the length of Fresh Creek, incorporating green infrastructure, improved access, and public amenities.

#### Canarsie Pier Access Improvements (Proposed)

This project would fund safety improvements to the Belt Parkway underpass and roundabout to improve and encourage pedestrian and cyclist access between Canarsie Pier and the Community.



Fresh Creek, the water body that separates Canarsie from East New York.

[Canarsie Pier and Beach Community Enhancements \(Featured\)](#)

This Featured project would upgrade the facilities at Canarsie Pier to create a waterfront destination that better serves visitors and local residents.

[Canarsie Youth and Environmental Education Program \(Proposed\)](#)

This project would fund the development of an environmental education program for youth in Canarsie where they can learn about the Jamaica Bay and adjacent waterways.

**Improve Wastewater and Stormwater Management**

[Canarsie and Southeast Brooklyn Waterfront Stormwater Study and Pilot Projects \(Proposed\)](#)

This two-phase project would fund a study to examine the feasibility, costs, and benefits of various stormwater capture and retention projects in the Canarsie and Southeast Brooklyn Waterfront NYRCR Planning Areas. The Proposed project would also provide funding for the implementation of recommended scalable pilot projects within both Planning Areas.



A typical commercial corridor in Canarsie.

### **Build and Coordinate Local Capacity for Emergency Response**

#### Recovery Community Center (Proposed)

This project would establish a Recovery Community Center with resilient lighting and power, the ability to distribute supplies, coordinate efforts with government agencies, and host trainings and capacity building initiatives.

#### Critical Facility Upgrades Program (Proposed)

This project would fund resilient retrofits for a community-based organization in Canarsie to ensure continuity of critical services. The organization would also be required to provide assistance with recovery efforts after an emergency event.

#### Canarsie Corps (Proposed)

This project would establish a Canarsie Corps summer youth employment program to support resiliency and other community projects in Canarsie.

### **Make Homes More Physically and Financially Resilient**

#### Homeowner Audit and Grant Program (Proposed)

This project would provide technical assistance and financial tools to low and moderate income single- and multi-family homeowners who want to retrofit their homes so they can mitigate future flood risk.

### **Strengthen Economic Resiliency**

#### Resiliency Workforce Development (Proposed)

This project would train and connect local residents with sustainable job opportunities while simultaneously building a community that can more effectively recover from future storm events.

#### Resilient Streetscaping (Proposed)

This project would fund capital improvements along Avenue L and Rockaway Parkway that help to strengthen the economic viability of local businesses and provide support to residents during and after future disasters.



Canarsie Park borders Jamaica Bay and is an important amenity in Canarsie.

## Outline of the Plan

The first section of the Plan includes a Community Overview, which provides an orientation to the Community, the critical issues revealed by Superstorm Sandy, and the Committee’s process 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 applies the 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 Committee.

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

The Proposed and Featured Projects are described in greater detail in the Project Profiles section. The final section, Additional Materials, describes Additional Resiliency Recommendations strongly supported by the Community, but which lack an identified funding source. The public engagement process is also described in more detail, along with additional supporting documentation for the Plan.



Fishing is a popular activity along the southern edge of Fresh Creek.



**RYE NYRCR**



# NY RISING COMMUNITY RECONSTRUCTION PLAN

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**December 2014**

NY Rising Community  
Reconstruction Program

# Executive Summary - Rye

## Overview

New York State's Governor's Office of Storm Recovery received funding from the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant-Disaster Recovery (CDBG-DR) program to create the NY Rising Community Reconstruction (NYRCR) Program.

The NYRCR Program is designed to provide each NYRCR Community with planning assistance to develop an NYRCR Plan that presents a community vision, identifies critical issues, and highlights strategies and projects that will make the Community more resilient in the face of future storms.

In addition to funding this planning effort, the State has allotted \$3 million in CDBG-DR funding for the implementation of eligible projects identified in the Rye NYRCR Plan.

The City of Rye is located in Westchester County on the Long Island Sound, 28 miles from midtown Manhattan via the Metro North Rail Station located in downtown Rye. This bedroom community has a population of approximately 16,000 people, who live primarily in single family homes and low-density multifamily housing. Among Rye's greatest assets are its natural features. Tree-lined streets, several beaches, and Blind Brook and Beaver Swamp Brook are just a few environmental assets that allow residents to feel close to nature, despite their proximate location to New York City.

However, Rye's natural features also create hazards during storms. Over the last decade, Rye has been heavily impacted by a series of storms. In 2007, two major storms hit Rye before the spring thaw. In 2011, Hurricane Irene caused significant riverine flood damage in Rye. When Tropical Storm Lee hit a few

weeks later, it delayed recovery efforts. In 2012, Superstorm Sandy's strong winds caused considerable and extended power outages and storm surge wreaked havoc along the coast of the Long Island Sound. These storms raised awareness about the Community's vulnerability to flooding and power loss during storm events.

Riverine flooding is the most critical issue facing Rye today. Blind Brook and Beaver Swamp Brook pass through residential neighborhoods, the Central Business District, and several municipal and non-profit properties. Repetitive storm damage and the major repairs that follow have fatigued the Community, and the City is seeking relief.

## Community-Driven Process

The Rye NYRCR Plan was developed over the course of a seven month community driven planning process, commencing in June 2014 and formally conducting post-plan development in January 2015. Developed by the Rye NYRCR Planning Committee (Committee), community stakeholders, residents, and State-provided experts, the Rye NYRCR Plan respects the Community's strengths and assets as it seeks to fully recover and to increase resilience and sustainability. The Committee developed the following vision to guide them through the planning process:

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**The City of Rye is a thriving, suburban, Sound Shore community with a spirit of volunteerism, proximity to New York City, local and regional natural resources, historic landmarks, excellent schools, and access to transit. Our Vision is to preserve and improve Rye to ensure that the community remains economically and environmentally resilient and resistant to storms and floods.**

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*Children and teenagers in Rye participated in an education and outreach session about resilience.*

To ensure the Rye NYRCR Plan reflects the views of the entire community, a series of Planning Committee Meetings and Public Engagement Events were held throughout the planning process. In Rye, 10 Planning Committee Meetings were held with the nine members and two co-chairs of the Planning Committee and representatives from the State team. During these meetings, Committee members shared their local expertise and experience to guide the development of the NYRCR Plan. Three Public Engagement Events were held throughout the process to solicit feedback and input from members of the larger Rye community on the Vision, Values, and Community Assets; Needs and Opportunities and Strategies; and Projects. A fourth Public Engagement Event will be held to present the final plan to the Community.

## NYRCR Plan as Blueprint for Implementation

The Rye NYRCR Plan focuses on addressing the existing and potential future risks to the Community. The planning and engagement process first identified assets within Rye. Then, Committee members, residents, and stakeholders identified the needs and opportunities of affected assets, as they relate to 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, the potential risk to those assets from future storms was analyzed and documented. Detailed information about the assets and risk assessment process can be found in Section II.

After speaking with Community members about their needs, the Committee used emerging themes to create four strategies to direct reconstruction and resilience efforts. Reconstruction efforts seek to restore, repair, or rebuild what was damaged or destroyed by Hurricane Irene and Superstorm Sandy. Resiliency efforts are about strengthening Rye’s ability to rebound quickly from storm-related challenges. The four strategies were developed to protect Rye’s riverine assets from flooding; protect Rye’s coastal assets from sea level rise, coastal vulnerability, and tidal impacts; increase infrastructure resilience; and improve Rye’s preparedness for future storms.

The Committee and Community were guided by these strategies as they identified projects for implementation.

The projects included in the Rye NYRCR Plan are organized into three categories:

- ▶ **Proposed Projects** are discrete projects that can be funded with the Community’s allotment of 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.

Within the Rye NYRCR Plan, projects are listed by strategy and then by category, but are otherwise not listed in any particular order. Listed on the next page are the Proposed and Featured Projects identified by the Committee.

**Table 1**  
**Strategy: Collaborate Within the Watershed to Address Riverine Flooding at its Source**

Project Name	Description	Category	Regional
Modifications to the Sluice Gate at Bowman Avenue Dam	Modifications include moving the stream gauges that trigger the sluice gate's automatic functions further downstream and updating the operational rules of the gate.	Proposed	Y
Stormwater Ponds at Anderson Hill Road (SUNY Purchase)	Two stormwater detention ponds could be created by building earthen berms across the Blind Brook floodplain, with openings at the channel. During heavy rain storms, the berms would constrict the water flow through the channel and would create detention ponds immediately upstream.	Proposed	Y
Bowman Avenue Dam Upper Pond Resizing	Expand the storage capacity of the Upper Pond at the Bowman Avenue Dam by excavating 104,000 cubic yards of material, creating a larger retention basin.	Proposed	Y
Detention Basins at Westchester County Airport	Expand the capacity of two detention ponds at the Airport to increase their storage capacity, minimizing runoff into Blind Brook.	Featured	Y
Bowman Avenue Dam Lower Pond	Resize the lower pond at the Bowman Avenue Dam to increase its flood storage capacity. The project also includes the installation of a spillway as a flood control structure at I-287.	Featured	Y

**Table 2**  
**Strategy: Infrastructure Resilience**

Project Name	Description	Category	Regional
Improved Milton Road Drainage to Harbor	Install expanded drainage on Milton Road north of the Milton Harbor House to divert flood waters to the Harbor.	Proposed	N
New Entrance to Rye Nature Center	Create a new entrance to the Nature Center that does not cross Blind Brook. The historic bridge on the current access road could be converted into a pedestrian bridge.	Featured	N
Floodproof the Locust Avenue Firehouse	Floodproof the Locust Avenue Firehouse.	Featured	N

**Table 3**  
**Strategy: Readiness for Future Storms**

Project Name	Description	Category	Regional
Designate Rye Golf Club as a City-Operated Emergency Center	Designate a City-operated emergency center at Rye Golf Club to provide residents a place to regroup during or after storm events which result in the loss of power, flooding, and/or utility interruptions.	Featured	N
Floodproof Non-profit Facilities in the Central Business District	Floodproof non-profit facilities in the Central Business District that have suffered repeated damage during storms.	Featured	N



# YONKERS NYRCR



## NY RISING COMMUNITY RECONSTRUCTION PLAN

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**December 2014**

NY Rising Community  
Reconstruction Program

# Executive Summary

## I. Overview

The NY Rising Community Reconstruction (NYRCR) Program was established by Governor Andrew M. Cuomo to provide rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Recovery and reconstruction initiatives began immediately following these storm events, the overall success of which will be measured by the communities' ability and commitment to become more resilient. The NYRCR Program provides an opportunity for residents, business owners, and community leaders to actively participate in planning for a stronger future—to reflect, to learn, and to build back better and stronger. The 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.

The Yonkers NYRCR Plan (Plan) was developed over seven months of community stakeholder engagement. The Plan reflects Yonkers' vision and goals, honoring its unique qualities and assets for building a safer, more resilient, and sustainable future.

### a. Community location and allotment amount(s)

The City of Yonkers, located in Westchester County just north of the Bronx, measures 20.3 square miles. The diverse city has just fewer than 200,000 residents and is the fourth largest city in New York. Yonkers is the fastest growing major city in the State outside of New York City with a growth rate of 2.8%. The City is home to over 100 nationalities and has a very diverse landscape, ranging from 4.5 miles of beautiful Hudson

River waterfront along its western edge, to its bustling downtown and historic business district, to miles of hills and valleys that are home to beautiful parks and quiet suburban neighborhoods.

Yonkers is defined by a series of hills and valleys that form an integral part of the City's landscape. Two rivers help delineate the borders of the City: to the west is the Hudson River, and to the east is the Bronx River. In between these two rivers are various streams and waterways prone to flooding, including Grassy Sprain Brook, Saw Mill River, Tibbetts Brook, and Troublesome Brook. Where development is located within the low-lying areas adjacent to these watercourses, significant flooding has occurred. In addition to the riverine flooding along the interior waterways, Yonkers is also vulnerable to coastal flooding from storm surges along the Hudson River.

This Yonkers NYRCR Plan presents proposed programs, policies, and construction initiatives developed throughout the planning process.

The State has allotted up to \$3 million in Federal Community Development Block Grant-Disaster Recovery (CDBG-DR) funding to implement eligible projects developed through the Yonkers NYRCR planning process.

### b. Scope of planning area

The planning area encompasses the entire City of Yonkers. The NYRCR Planning Committee (Committee) determined that impacts from flooding, wind, stormwater, downed trees, and utility outages were widespread enough to merit including all of the City's neighborhoods within the Scope. The areas in the City that did not suffer direct damage from these significant storms remain candidate locations for recovery services, shelters, and other important community

resources. Locating these types of facilities in less damage-prone areas could help the City to recover more effectively from future storm events. In addition to the Citywide Geographic Scope, the Committee determined that certain areas of the City known to have been most heavily impacted by storm damages were in need of a more detailed focus. These sections of Yonkers, centered on major watershed corridors, were developed as focus areas. A total of five focus areas were selected, including the watersheds of the Bronx River, Grassy Sprain Brook and Reservoir, Saw Mill River, Tibbetts Brook, and the City’s Hudson River waterfront.

### c. Summary of storm impacts

Hurricane Irene (August 28, 2011) hit Yonkers with full force, causing widespread and long-lasting damage. These storms damaged public and private property and caused serious physical, economic, and safety hardships to Yonkers residents. Many of the City’s waterways reached record heights during Hurricane Irene, including the Bronx River, Saw Mill River, Grassy Sprain Brook, and Tibbetts Brook. The flood waters of both storms caused extensive damage to businesses, homes, and City infrastructure.

Superstorm Sandy (October 29, 2012) brought with it winds of up to 90 miles per hour that downed hundreds of trees and closed roads throughout the City. Downed trees blocked travel along City roads, and took with them electrical lines, resulting in power losses to thousands of City residents as well as closure of schools and businesses for a full week. During Superstorm Sandy the Hudson River had a high tide of approximately 14 feet above Mean Low Water, flooding much of the waterfront. Hurricane Sandy’s storm surges destroyed a lot of the equipment at the Yonkers Wastewater Treatment Plant (WWTP) and caused untreated and partially treated sewage to flow into the Hudson River. Some of the businesses in Yonkers remain unable to reopen since Superstorm Sandy.

The physical damage caused by Superstorm Sandy and Hurricane Irene to roads, homes, and City infrastructure, coupled with the economic impacts of prolonged closure of businesses, continue to affect Yonkers today. The City is still recovering as its residents prepare for future storm events.

### d. Summary of critical issues

During and after Hurricane Irene and Superstorm Sandy, many water bodies in Yonkers overtopped their banks and released floodwaters throughout the City. In addition to flooding, strong winds during Superstorm Sandy brought down trees and power lines causing disruption to power. These storms exposed vulnerabilities within the City. The issues identified affect the City’s ability to withstand the impact and recover from future storms. The key critical issues facing the City of Yonkers include:

- ▶ Riverine, Coastal, and Stormwater Flooding
- ▶ Tree and Wind Damage
- ▶ Susceptibility of Major Infrastructure to Storm Damage
- ▶ Communication and Education Challenges
- ▶ Managing the Impacts of Development, Including Resiliency Projects

## II. Community-Driven Process

All of the material presented in the Yonkers NYRCR Plan has been developed collaboratively. The NYRCR Program provided the Community with a unique opportunity to participate in a bottom-up, community-driven planning effort to reshape Yonkers for a more resilient future. The steps in the process included organizing for action, creating an inventory of community assets, determining needs and opportunities, conducting a risk assessment, engaging with the region-wide planning context, developing strategies for investment and action, and producing this final Yonkers NYRCR Plan.

## a. Community vision/goals

The Yonkers NYRCR Vision Statement:

The City of Yonkers is a vibrant and diverse community focused on protecting our residents, property, infrastructure, and natural resources from extreme flooding and natural disasters. Our goals are to work together to safeguard the public health and safety of the City's residents through flood mitigation and effective flood recovery, protect the natural environment, and enhance the City's economy for current and future residents.

### Goals:

As we develop a Community Reconstruction Plan, we will strive to develop ecologically sound policies and programs that will:

- ▶ Address flooding as a Citywide problem—with multiple watersheds, rivers, and tributaries—that requires a coordinated mitigation effort with solutions unique to each watershed;
- ▶ Advance educational outreach to ensure our residents understand natural hazards and how they can protect themselves, their homes, and their neighborhoods against future storms in an environmentally sustainable way;
- ▶ Collaborate with City, County, State, and Federal agencies and adjacent municipalities regarding drainage improvements and maintenance;
- ▶ Contribute to a coordinated Citywide preparedness and response against future storms;
- ▶ Coordinate with nearby upstream municipalities that contribute to our flooding problem;
- ▶ Cultivate partnerships among private organizations, public agencies, and municipalities to ensure responsible development;
- ▶ Develop policy, design, and construction standards to make our neighborhoods more resilient in the future;
- ▶ Maintain and upgrade the City's infrastructure;
- ▶ Preserve the character of our neighborhoods; and

- ▶ Protect our neighborhoods from coastal and riverine flooding.

## b. Summary of public outreach

The NYRCR Program is fundamentally a grassroots initiative. Initial project recommendations were generated by the Yonkers NYRCR Planning Committee, which was comprised of community leaders, storm-impacted residents, and municipal staff. The Committee met approximately every other week from the end of June 2014 through mid-November 2014. Materials were circulated to the Committee before and after each meeting and also posted to the City's page on the NYRCR website. Committee members also shared information with their community by posting relevant materials to the City website and Facebook page, leaving materials in the libraries and other high traffic areas, posting information throughout the City, reaching out to friends and neighbors through email and conversation, and attending municipal meetings and community functions to report on their NYRCR Plan progress. To encourage participation and reach as many neighborhoods within the City as possible, meeting locations moved throughout Yonkers during the planning process to accommodate residents and be as inclusive as possible.

Three Public Engagement Meetings were held throughout the seven month planning process, with a fourth to be conducted after the final plan is complete. These meetings provided the opportunity for Yonkers residents to learn about the NYRCR planning process; review and provide feedback on assets, needs, opportunities, strategies, and projects; and help develop community-driven plans for a more resilient future. The format of the Public Engagement Meetings varied throughout the process, but generally included PowerPoint presentations, display boards and mapping, discussion groups with handouts and markers, survey sheets, and a photo booth, where participants had photos taken to memorialize their ideas. The first meeting gathered input on the community vision, goals, assets, and planning context; the second event focused on needs and opportunities; and the third event introduced the community to the Committee's list of projects.

### III. Final plan as blueprint for implementation

#### a. Needs and risks underpin projects

The risks to and vulnerability of assets in the City of Yonkers were made clear when these assets were exposed to Superstorm Sandy and Hurricane Irene. Through the NYRCR planning process, the community shifted its focus from simply making repairs to improving resiliency and prioritized building back better. This change of purpose revealed significant opportunities to help the City build back better.

The Committee understands where the City is vulnerable, where critical assets are located, and what the risks are to those assets. To address their specific vulnerabilities, a comprehensive needs and opportunities analysis was prepared through a combination of research, analysis, discussions among the Committee, and feedback from the community. A sample of the needs and the opportunities identified are:

#### Needs

- ▶ System to contact volunteers in each vulnerable neighborhood to participate in pre- and post-flood emergency communication, including homeowner associations and co-op/condo boards
- ▶ Generators for stores that have perishable inventory, especially grocery stores; for high-rise buildings with elevators; and for other services that are critically needed after storms
- ▶ Better coordination of services/information among emergency services agencies
- ▶ Better protection of homes and neighborhoods from flooding
- ▶ Preservation of electrical service during storms (electrical systems are vulnerable above and below ground)
- ▶ Restoration of streams and tributaries through the removal of debris/obstructions according to recognized best practices

- ▶ Regional and inter-municipal cooperation on flooding and resiliency issues

#### Opportunities

- ▶ Establish and maintain liaison with district volunteer leaders (e.g. various homeowner associations and co-op/condo boards)
- ▶ Find a way to incentivize stores to install generators—especially grocery stores (NYS already mandates gas stations)
- ▶ Inform and educate emergency services personnel (ambulance drivers, firefighters, police) of emergency routes and driving procedures to be used during major storms
- ▶ Utilize land management tools to create flood-safe homes and neighborhoods
- ▶ Explore alternative power opportunities such as renewables and micro-grids for improved access to power and increased flexibility during/after storms
- ▶ Revise protocols for tree pruning, removal, and replanting
- ▶ Support and build on current efforts in the State legislature to establish a Statewide flood mitigation and preparedness authority

#### b. Strategies describe the committee's approach to meeting those needs

The strategies proposed in the NYRCR Plan consider emergency, disaster recovery, and long-term resiliency needs that remain unmet. The strategies were developed to concentrate the resiliency efforts toward resolving critical issues identified throughout the planning process. They represent statements of action that address how best to fortify community assets, capitalize on opportunities, resolve critical issues, and meet short-, medium-, and long-term goals identified during the planning process. The projects developed throughout the planning process are a path to executing the strategies and realizing the vision the community has for the City of Yonkers.

### c. Projects are the path to executing the strategies

Presented in the table below are strategies developed by the Committee and the Proposed or Featured Projects that implement them. Strategies 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.

Proposed Projects are projects proposed for funding through a NYRCR Community’s allotment 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 Committee would like to highlight and that are not categorized as Proposed or Featured Projects.

**Table ES-1 Proposed and Featured Projects**

Strategy	Project Name	Project Category
Work with neighborhoods and businesses to improve flood resistance in Yonkers’ vulnerable areas	Bronx River and Grassy Sprain Brook Hydrologic Study	Proposed Project
	Saw Mill River Hydrologic Study	Proposed Project
Improve on existing emergency preparedness and communications	Emergency Power to Street Lights along Evacuation Routes	Proposed Project
	Yonkers Emergency Response and Recovery Campaign	Proposed Project
Provide information and assistance to home and business owners with pre-storm floodproofing and post-storm recovery	Technical Assistance Program for Residential Resiliency	Proposed Project
Promote resiliency and flood management best practices through land-use planning and regulation	Planning Study to Establish Best Management Practices for Upland Waterways	Proposed Project
	Resilient Revitalization of the Alexander Street Waterfront— Study and Pilot Projects	Proposed Project
	Scout Field Engineering Study	Proposed Project
Repair, rehabilitate, upgrade, and fortify critical infrastructure assets	Creation of Access to Grassy Sprain Brook through Sprain Brook Parkway Sound Barrier	Proposed Project
	Reconstruction of Seawall at Yonkers Paddling and Rowing Club	Proposed Project
Enhance regional coordination in flood mitigation planning	Feasibility Study for Creation of a Regional Flood Control Authority	Proposed Project
Harness resiliency potential of natural resources	Planning Study for Sprain Diversion Channel	Featured Project

# East Bronx Waterfront

NY Rising Community Reconstruction Plan

December 2014





# Executive Summary

## East Bronx Waterfront

The East Bronx Waterfront is a collection of coastal communities extending from Harding Park east to City Island in the New York City Borough of the Bronx. The East Bronx Waterfront NY Rising Community Reconstruction (NYRCR) Planning Area (Planning Area) includes 12 neighborhoods: City Island, Spencer Estates, Country Club, Edgewater Park, Locust Point, Silver Beach, Throggs Neck, Schuylerville, Ferry Point, Castle Hill, Clason Point, and Harding Park.

The Planning Area has roughly 48,000 residents, with incomes that vary by neighborhood but collectively are higher than Bronx County and the New York City average. The Planning Area comprises a diverse population and has a higher median age compared to the rest of the borough. Each of its 12 neighborhoods is unique in character, with many actively engaged civic and community groups. Many of these organizations came to the aid of the East Bronx Waterfront NYRCR Community (Community) in its time of need during the recovery from Superstorm Sandy.

The Governor's Office of Storm Recovery has allotted up to \$3 million in Federal Community Development Block Grant–Disaster Recovery (CDBG-DR) funds for recovery and resiliency projects in the East Bronx Waterfront. Recognizing that this funding cannot solve for all challenges, the East Bronx Waterfront NYRCR Planning Committee (the Committee) has focused on short-term projects that are sustainable, implementable, and replicable throughout the Community. Through these projects, the Community will build the foundation for long-term resiliency to climate change impacts.

### Storm Impacts

Superstorm Sandy struck the East Bronx Waterfront during low tide in Long Island Sound. While this lessened the impact from surge, there was significant damage throughout the Planning Area. High-wind and wave impacts downed power lines, swept debris into buildings, and caused flooding in several neighborhoods. Homes directly facing the waterfront experienced damage and flooding.

## Community Vision Statement

**“The tight-knit villages of the East Bronx aim to protect their beautiful waterfront by building a more resilient shoreline and better preparing residents for extreme weather events, while also improving the network between neighborhoods and creating an overall self-sufficient community.”**

In the days following the storm, the Community realized its lack of emergency response and recovery planning, including a lack of communication between community facilities that were not damaged and that were able to provide recovery functions. Without a formal recovery plan in place and effective communication between community facilities, residents were uncertain of where help was available and were in many cases left to fend for themselves.

### Critical Issues

The Committee wants to ensure that when the next storm or emergency hits, the Community will be prepared. The edge condition throughout the Planning Area varies from bulkheads and sea walls to wetlands and natural berms. Ownership of waterfront land is primarily private, and much of the exposed waterfront is low-lying with limited opportunity to tie-back to higher ground. Recognizing that protection strategies should enhance the relationship with water, determining optimal locations and approaches with the greatest likelihood for implementation will be a major challenge.

The recovery from Superstorm Sandy was impeded both by damage to existing community centers and the lack of physical centers in some neighborhoods. Existing centers need to be hardened, new centers need to be identified, and communities need to organize through their civic organizations to be part of a larger recovery network so that communities can be served in times of crisis. The Committee recognizes that it needs to adapt, and that adaptation will be most successful if the distinct neighborhoods of the East Bronx can band together to develop a holistic resiliency strategy.

### Community Driven Process

The Committee and members of the public acknowledge the Community's inextricable link to the water, and endorse a future vision that not only ensures the preservation of this relationship but is broad enough to facilitate more effective community-wide communication and collaboration during storm events.



Public Engagement Meeting #3

The Community is a collection of distinct neighborhoods that prize their access and unique relationships to the water. The vision for the Community speaks to the desire to retain and embrace this connection to the water by creating a more resilient shoreline. The Community recognizes the challenges it faces to protect the waterfront from climate change and is committed to adhering to sustainable development principles that work to enhance its neighborhoods and improve quality of life.

### Public Engagement

The Committee recognizes that a comprehensive resiliency plan in this community will be successful only if there is broad involvement and support. Extensive outreach was undertaken, led by Civic Associations embedded in each neighborhood distributing flyers in their mailings and emails to the members. Through the NYRCR planning process, public engagement sessions were held at Providence Rest Nursing Home. In addition to flyer distribution, two local newspapers covered the events. The first three public engagement sessions were held to identify needs, refine strategies, and review and add input to Proposed and Featured projects. More than 300 people participated, providing input through comment cards and public dialogue, and voting to help the Committee select and refine the projects and develop the final plan.

### Blueprint For Implementation

The Committee created a list of sustainable, implementable and replicable projects. A particular focus was placed on pilot projects that could be replicated throughout the Planning Area. The Committee developed strategies for social, economic, and physical resiliency by proposing projects that strengthen the edge against future flooding and sea-level rise, fix power and drainage infrastructure, and identify studies that will achieve long-term economic and social sustainability. The Community recognizes that it will become more resilient through education and community capacity building. The Committee wants to bolster this initial capacity building effort with a holistic recovery plan for the Community.



### Health & Social Services



### Community Planning & Capacity Building



### Economic Development



### Natural & Cultural Resources



### Housing



### Infrastructure System

### Recovery Support Functions

The Governor’s Office of Storm Recovery has structured each plan to focus on a set of criteria, known as the Recovery Support Functions. These six Recovery Support Functions were used to develop needs, opportunities, strategies, and projects to ensure that a comprehensive approach is reinforced throughout the planning process to shape a well-rounded resiliency strategy for the Community.

### Needs and Opportunities

The Committee identified needs based on impacts from Superstorm 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:

- A protected coastal edge
- A more diverse power generation system
- Resiliency measures that address localized flooding along key access routes
- Natural stormwater management strategies to reduce inland flooding from heavy rain and storm events and reduce impervious surface area
- Housing that is more resistant to flooding
- Improved communication networks and education programs
- Suitable development in flood-prone locations
- Multiple storm recovery facilities in central locations
- A stable local economy following storm-related events

While the needs are significant, a number of opportunities will help lead the Community toward a resilient future. Multiple partners at the Federal, New York State and New York City levels are already working in several neighborhoods in the Planning Area, allowing the Committee to focus on specific interventions that can be replicable throughout the Community. Perhaps the most significant opportunity comes from the local community based organizations. The Community has relied upon these strong and active groups of civic organizations, and this plan builds upon these organizations to develop the capacity and capability to formulate the recovery plan. The Committee has built upon these strengths and opportunities in developing its NYRCR Plan.



Connection to the water draws residents to the area



Waterfront edge in Edgewater Park

## 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, address localized flooding, and build capacity within the Community to quickly recover following an emergency.

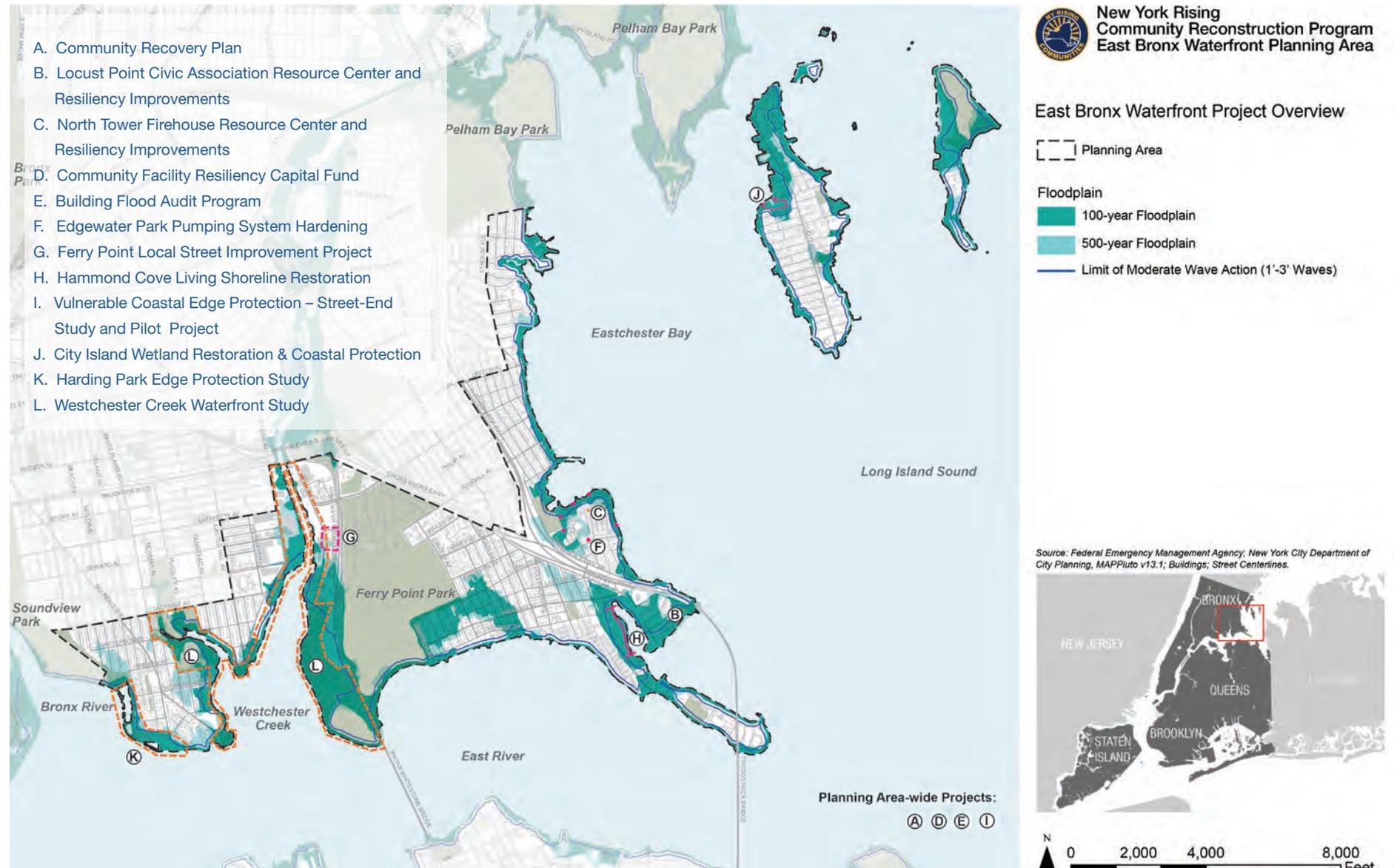
The key strategies are:

- Maintain the Community’s close relationship to the water by developing diverse coastal edge protection measures
- Harden power panels and provide alternative power sources for key Community facilities
- Increase local preparedness and capacity for recovery
- Ensure economic resiliency for businesses and property owners in flood-prone areas
- Improve and increase the capacity of stormwater management infrastructure

## Proposed and Featured Projects

The NYRCR planning process has resulted in 12 Proposed and Featured Projects to improve the resiliency of the East Bronx Waterfront. Proposed Projects are projects that the Committee has recommended 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 might have recommended funding an initial phase of implementation. The following Proposed and Featured Projects are together the product of a collaborative, community process that was led by the Committee with public input.

**Figure ES-1: East Bronx Waterfront Project Overview**





The Community wants to preserve its close connection to the water.

**Community Recovery Plan (Proposed Project)**

This project would create a local community recovery plan to enhance coordination with existing New York City resources, educate communities about the effects of climate change, and provide access to information about post-disaster resource services.

**Locust Point Civic Association Resource Center and Resiliency Improvements (Proposed Project)**

This project would provide funds for flood-proofing of the Locust Point Civic Association Center, a key community facility in Locust Point.

**North Tower Firehouse Resource Center and Resiliency Improvements (Proposed Project)**

This project would provide funding for resiliency improvements to the North Tower Firehouse to ensure its reliability during emergencies and to optimize its use as a gathering place and resource and distribution center.



Children playing basketball in the Planning Area

**Vulnerable Coastal Edge Protection – Street End Study and Pilot Project (Proposed Project)**

The study would examine the many different low-lying street end conditions that will need to be addressed throughout the Community and identify possible coastal protection typologies that could be used to protect the street ends. The project would fund up to three pilot projects identified in the study.

**Edgewater Park Pumping System Hardening Improvements (Proposed Project)**

This project would harden the sewage pump system in Edgewater Park by raising the six control panels that support pumping systems and hardening electrical conduits.

**Ferry Point Local Street Improvement Project (Featured Project)**

This project would repave and regrade up to three local streets in the Ferry Point neighborhood. A similar green infrastructure approach to roadway paving could be replicated in similar neighborhoods with streets where the mapped width exceeds the built width.

**Westchester Creek Waterfront Study (Proposed Project)**

This project would provide funding for a study to re-envision the Westchester Creek waterfront. Waterfront access is limited along the Creek but the many underutilized lots create an opportunity to transfer Westchester Creek into a resilient, accessible community asset.

**Community Facility Resiliency Capital Fund (Featured Project)**

This project would fund resiliency improvements for critical community buildings and facilities that serve vulnerable populations. Resiliency measures could include flood-proofing, raising mechanical and electrical equipment, and purchasing and installing backup generators.



Vulnerable homes along the waterfront

**Building Flood Audit Program (Featured Project)**

This project would provide technical assistance to homeowners who want to retrofit their buildings to mitigate future storm damage.

**Hammond Cove Living Shoreline Restoration (Featured Project)**

This project would enhance the shoreline on the west side of Hammond Cove that is threatened by sea-level rise.

**Harding Park Edge Protection Study (Featured Project)**

This project would study potential protection measures along the Bronx and East Rivers to reduce the risk of future flooding caused by coastal storm events.

**City Island Wetland and Coastal Protection Strategy (Featured Project)**

This project would create additional waterfront access for the Community, increase wetland habitat, and improve stormwater storage capabilities while adding a strategic piece to the long-term overall coastal protection strategy needed for City Island.

When coupled together, the NYRCR Plan for the East Bronx Waterfront offers a blueprint for implementation that would build the capacity for the Community to cope with future storms, protect the edge and power supplies, improve drainage, and re-envision the Community's relationship with the water.

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NY RISING COMMUNITY RECONSTRUCTION PROGRAM

# Gravesend & Bensonhurst

NY RISING COMMUNITY RECONSTRUCTION PLAN

DECEMBER 2014



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## Gravesend and Bensonhurst

# EXECUTIVE SUMMARY

This NY Rising Community Reconstruction Plan (NYRCR Plan) was developed to help the Gravesend and Bensonhurst NYRCR Community (Community) rebuild from the damage caused by Superstorm Sandy and prepare for a more resilient future. The Governor's Office of Storm Recovery (GOSR) facilitated a planning process which was led by the Gravesend and Bensonhurst NYRCR Planning Committee, a group of nine residents and civic leaders. In July 2014, the Committee convened to begin the process of identifying the needs of the Community and the corresponding opportunities, while engaging the larger public in this process. Projects, programs, and actions to increase Gravesend and Bensonhurst's resilience to future climate-related events were then developed and refined. Since that time, the Committee has worked closely with a team of professional consultants, representatives of the New York State Governor's Office of Storm Recovery (GOSR), and New York City agencies to develop this NYRCR Plan. The State has allotted up to \$3 million in Federal Community Development Block Grant-Disaster Recovery (CDBG-DR) to implement eligible projects in this NYRCR Plan.

The Gravesend and Bensonhurst Community lies in southern Brooklyn, just north of Coney Island Creek and the Coney Island peninsula. Adjacent neighborhoods include Bath Beach to the west, Coney Island to the South, Sheepshead Bay and Homecrest to the east, and Midwood and Mapletown to the north. The Community is home to 96,166 residents in 37,927 households and is predominantly characterized



as a working and middle-class area. It features a large concentration of elderly residents, which is typical for many of the neighborhoods in Southern Brooklyn. The Gravesend and Bensonhurst Community is also very diverse ethnically, with a significant Chinese, Spanish, Arabic, and Russian speaking population.

The housing stock is diverse, with one-and two family wood frame houses, row houses, multi-family buildings, and apartment complexes. The major avenues have neighborhood scale retail stores and Shore Parkway features a regional commercial center with a number of big box stores. Regional transportation

infrastructure, such as the N and R subway lines and the Belt Parkway, built in the mid-1900s, resulted in wetland and marsh areas being filled in. Apartment buildings and row houses were built in these low lying areas. Almost all of the land west of Cropsey Avenue that currently exists today has been created with landfill. As seen during Superstorm Sandy as well as during more frequent storm events, these low lying areas remain at risk for flooding, both from tidal surge and rainwater.

On October 29, 2012, when Superstorm Sandy made landfall, flooding in Gravesend and Bensonhurst largely resulted from a tidal storm surge that overtopped bulkheads at Gravesend Bay and Coney Island Creek. The surge crossed over and under the Belt Parkway, flooding streets, homes, and businesses in the upland Community. Inundated segments of the Belt Parkway and other low-lying roadways were impassable, which disrupted vehicular travel and the delivery of emergency services. Although the primary cause of damage from Superstorm Sandy was flooding, the storm also resulted in downed trees which damaged power lines and roofs. The three subway lines in the Community (F, N, and D lines) were disabled due to the flooding of MTA's Coney Island Rail Yard and downed trees over the subway tracks.

In addition to significant weather events such as Superstorm Sandy and Hurricane Irene, the Community experiences flooding in low lying areas during smaller events. This flooding is magnified when there is a high volume of rain during a short period of time and when precipitation is accompanied by high tides. Flooding is also exacerbated by the high degree of impervious surface in the Community

## Community Vision

*Gravesend and Bensonhurst are culturally and generationally diverse communities, home to safe and stable residential neighborhoods with access to transportation, shopping, and the waterfront.*

*Our vision is to rebuild and plan for a more resilient future where the safety and well-being of our community is maintained in the face of future storm events. We will work in a unified fashion to develop solutions that foster strengthened infrastructure systems, economic vitality, a healthy environment, improved access to the water, and enhanced tools for communication and emergency planning.*



(i.e., asphalt, concrete, buildings) as well as the inadequate capacity of the existing stormwater system.

Superstorm Sandy exposed several challenges within the Community that this NYRCR Plan addresses. The overarching critical issue was to prevent coastal and stormwater flooding. Addressing the needs of the Community's socially vulnerable populations was another

major theme. These, and other critical issues were identified throughout the NYRCR Process through data analysis, site visits, extensive meetings with the Committee, key stakeholders and government agencies, and through Public Engagement Events. These issues helped to guide the development of the NYRCR Plan and identify Proposed and Featured Projects to address problems faced by the Community.

## Gravesend and Bensonhurst



Participants at Public Engagement Event #3

### Community Driven Process

This NYRCR Plan is the product of a robust public engagement effort involving consensus-building among both residents and business owners. The public engagement plan for Gravesend and Bensonhurst was structured to provide multiple opportunities for input and to encourage broad community participation from the entire spectrum of residents in the Community. The Committee made every effort to include socially vulnerable populations in the planning process. Outreach materials were developed in Spanish, Chinese, and Russian and translators were available at public engagement events. Public Engagement Events were also located in different areas of the Community to ensure participation was geographically inclusive. An online web tool called the “NYRCR Mapping Gallery” was also developed to provide another venue for feedback. Additionally, the Committee utilized a survey to solicit information from residents and business owners on the impacts of Sandy.

The Committee was instrumental in providing input and information to shape the NYRCR Plan and in assisting with the broader Community Engagement Strategy through their constituent and social networks. To guide the NYRCR Plan, the Committee developed a vision statement that addresses the Community’s resiliency priorities:

With a fundamental focus on implementation, the NYRCR Program planning process incorporated extensive discussions with various City agencies to ensure that the NYRCR Plan is supportive and complimentary to New York City’s ongoing efforts, rather than duplicative or counterproductive. The Committee also maintained an ongoing dialogue with parallel resiliency efforts. This includes the New York City Economic Development Corporation’s (NYC EDC) feasibility study to evaluate improved coastal protection measures at Coney Island Creek.

### Final Plan as Blueprint for Implementation

To address the critical issues identified in the planning process, the Committee developed five strategies which will have the greatest benefit in increasing Gravesend and Bensonhurst’s resilience to future climate related events. These strategies, described below, frame the NYRCR Plan’s approach to address the needs expressed by the Community especially the overarching theme of strong consideration for the area’s diverse and vulnerable population. The projects for each strategy are the specific short and long term measures needed to improve the resilience of the Community. Identified projects were analyzed by the Consultant Team and vetted by the public and the Committee. “Proposed Projects,” which are listed with each strategy below, are those projects proposed by the Committee for implementation through the Community’s allotment of CDBG-DR funding. The NYRCR Plan’s suite of projects includes many programs and actions that are interrelated to strategically leverage the Community’s allotment.



Flyers, posters, and presentation materials produced in multiple languages



*Potential Redevelopment of the Bensonhurst Park Tennis Center Site Along Bay Parkway*

**Strategy A: Develop a comprehensive resiliency approach to the waterfront**

This strategy directly addresses coastal surge and tidal impacts the Community experienced during prior storms as well as the potential risks posed by future storms. There is a significant opportunity to develop continuous coastline defense measures that would protect the Belt Parkway, a regional infrastructure asset, as well as the upland areas in the Community. The Committee recognizes that coastal protection improvements along the Belt Parkway can be leveraged to promote access to the waterfront’s

commercial and recreational areas, economic development, as well as other measures that would increase the overall resiliency of the Community.

Strategy A includes a Proposed Project to develop a Comprehensive Waterfront Master Plan to identify specific coastal measures that are linked with waterfront access, economic development, and recreation improvements. The Committee recognizes the potential to connect these coastal protections to a regional network potentially extending from Sheepshead Bay to Bensonhurst. The Master Plan would

coordinate with ongoing efforts to protect assets around Coney Island Creek by other agencies such as the NYC EDC and the Metropolitan Transit Authority (MTA). Additionally, the project is envisioned as a road map to help guide decisions and prioritize projects. New York City and the Community can use the plan to help leverage these investments to greater benefits. Another Proposed Project will provide funding that will incentivize the redevelopment of the Bensonhurst Park Tennis Center Site and adjacent areas along Bay Parkway in a way that will improve the resilience of the waterfront and serve the greater needs of the Community.

## Gravesend and Bensonhurst

### Strategy B: Protect the Community from flooding during significant rain events

The Community is vulnerable to flooding both from coastal surge events and from stormwater flooding. Areas of the Community, including segments of the Belt Parkway and Cropsey Avenue experience recurring flooding during smaller rain events. This strategy addresses three important needs: pinpoints necessary maintenance and repairs to reduce the risk from stormwater flooding; identifies stormwater infrastructure upgrades such as increasing the capacity of stormwater infrastructure or installing check valves or catch basins to alleviate flooding “hotspots”; and determines locations for upstream stormwater retention to reduce the amount of stormwater entering the system during significant rain events.

Strategy B includes a Proposed Project to perform a high-level analysis of the hydrologic and hydraulic (H&H) systems affecting drainage in the low-lying areas of the Community that experience recurring flooding. This study will help provide feasible alternatives to address the stormwater inadequacies, which will better inform storm water management projects. Another Proposed project will identify the specific drainage issues identified along areas of Cropsey Avenue along with a pilot project that implements recommendations from the study. A third Proposed Project will fund green infrastructure improvements on publicly owned property to strategically intercept stormwater before it reaches the combined sewer system.

### Strategy C: Provide resiliency assistance and education for homeowners, renters, and business owners

Residents in the Community expressed the need to address anticipated increases in flood insurance premiums. The increase is due to recent reforms to the National Flood Insurance Program as well as expected changes to the Flood Insurance Rate Map (FIRM) which will significantly increase the portion of the Community required to purchase flood insurance. The 100-year floodplain on the updated FIRMs includes almost 10,000 new residential units. The Committee is concerned that the financial burden of insurance premiums for units affected as well as cost of flood protection measures will significantly impact property owners and renters, and will weaken the economic base of the Community. Strategy C identifies ways to strengthen the housing stock against future extreme weather events which will serve to protect residents from future storms and help to stabilize property values. Housing and residential neighborhoods are supported by projects that will provide residents with resources to help increase the resilience of homes and commercial properties. This includes a Proposed Project that provides technical assistance and education to property owners that need to retrofit their properties.

### Strategy D: Develop a coordinated community response plan during times of extreme weather

The Committee recognizes that during and after Superstorm Sandy, there were gaps in access to municipal services and storm-related information. Superstorm Sandy revealed that there is a need to improve the capacity, communication

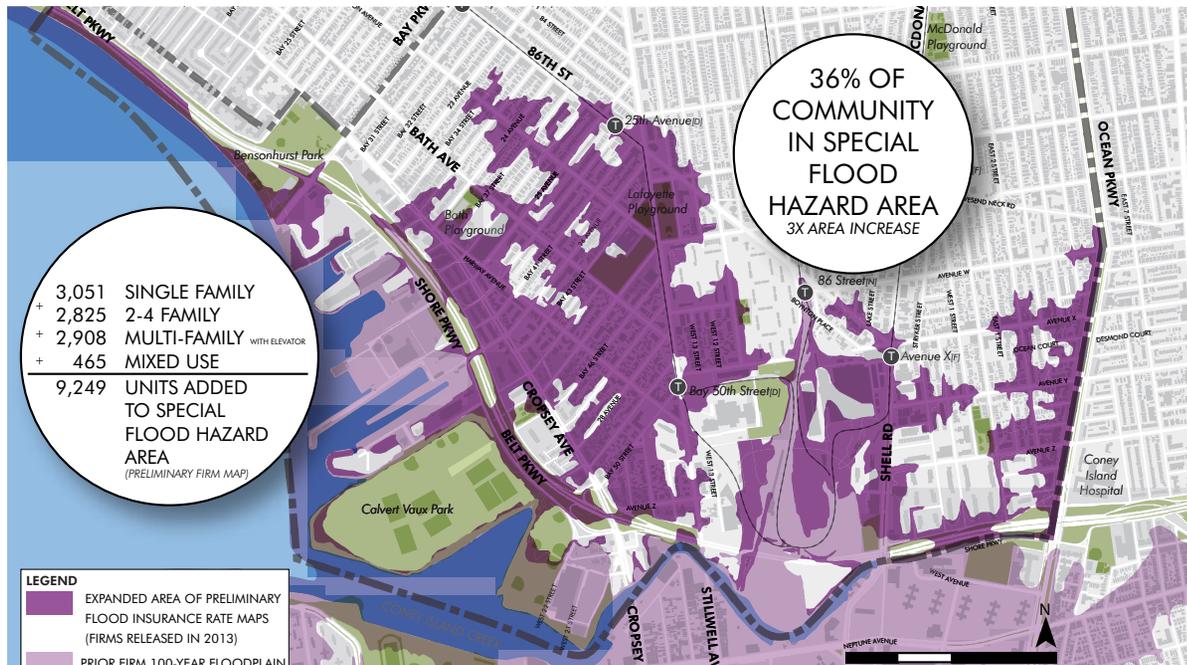


Flood Protection Measures Along the Belt Parkway

**Strategy E: Upgrade, maintain, and strengthen community infrastructure**

As experienced during Superstorm Sandy as well as from other more frequent storm events, the Community’s power supply and telecommunications network are vulnerable to disruptions. During Superstorm Sandy, in inundated areas, ground floors and basement spaces were flooded, disrupting power supply and destroying critical building systems such as lighting and elevator service. In some buildings, utility systems were off-line for weeks after the storm. Risks to vulnerable populations are amplified during power outages, especially amongst elderly residents that are less mobile or dependent on medical services. Strategy E helps to mitigate those risks by providing for more resilient communication and power supply systems.

Proposed Projects in Strategy E include the funding of backup generators at critical facilities. Funding is also proposed to expand the scope of a microgrid feasibility study in Coney Island to institutional facilities and large residential buildings such as Coney Island Hospital, Beach Haven Apartments and Marlboro Houses, and Lafayette High School in Gravesend. This study was initiated by the Brighton Beach, Coney Island, Manhattan Beach, and Sea Gate NYRCR Committee. Another Proposed Project will provide a backup communication system in the form of a wireless mesh network made up of community-wide wi-fi access points connected to the Internet.



Areas to be added to FEMA’s Updated Special Flood Hazard Area

ability, and coordination among emergency-response groups and the local community-based organizations in Gravesend and Bensonhurst. Strategy D seeks to improve communication networks so that the organizations will be better positioned to disseminate critical information, identify and assist vulnerable populations, assist in rapid recovery efforts, and distribute emergency supplies.

Projects under this strategy strengthen the support infrastructure for socially vulnerable populations to help prepare these groups in advance of a potential disaster. This includes a Proposed Project to provide disaster-recovery workshops for local workers which will provide them

with environmental and health safety (EHS) training and the skills needed to help the Community and surrounding areas rebuild and recover from storm events. Another Proposed Project supports the formation of a COAD (Community Organizations Active in Disaster) that can coordinate Community Based Organizations (CBOs) and develop Community-specific disaster preparedness plans.

The Committee supports greater coordination between CBOs in order to effectively communicate and provide services to all populations. This can be achieved through the formation of a COAD that can develop Community-specific disaster recovery plans and coordinate activities among groups.

## Gravesend and Bensonhurst

### Proposed and Featured Projects

<b>A</b> <b>Develop a Comprehensive Resiliency Approach to the Waterfront</b>	<b>B</b> <b>Protect the Community from Flooding During Significant Rain Events</b>	<b>C</b> <b>Provide Resiliency Assistance and Education for Homeowners, Renters, and Business Owners</b>	<b>D</b> <b>Develop a Coordinated Community Response Plan During Times of Extreme Weather</b>	<b>E</b> <b>Upgrade, Maintain, and Strengthen Community Infrastructure</b>
<p><b>A1a</b> Develop a Comprehensive Waterfront Master Plan for Coastal Protection</p> <p><b>A1b</b> Implementation of Coastal Defenses *Featured Project</p> <p><b>A2</b> Redevelopment of the Bensonhurst Park Tennis Center Site</p> <p><b>A3</b> Study the Feasibility of a Multi-purpose Pier with Resilient Dock *Featured Project</p>	<p><b>B1</b> Analyze Hydrologic and Hydraulic Systems for Improved Stormwater Management</p> <p><b>B2a</b> Belt Parkway Drainage Study (Phase I) *Featured Project</p> <p><b>B2b</b> Improve Stormwater Drainage along the Belt Parkway (Phase II) *Featured Project</p> <p><b>B3a</b> Cropsey Avenue Drainage Study (Phase I)</p> <p><b>B3b</b> Improve Stormwater Drainage along Cropsey Avenue</p> <p><b>B4a</b> Green Street Infrastructure Siting Analysis in Combined Sewer Area *Featured Project</p> <p><b>B4b</b> Implement Green Infrastructure Pilot Project in Combined Sewer Area</p>	<p><b>C1</b> Develop a Residential and Commercial Property Technical Assistance and Education Program</p> <p><b>C2</b> Establish Housing Loan Program for Resiliency Retrofits *Featured Project</p> <p><b>C3</b> Establish Commercial Loan Program for Resiliency Retrofits *Featured Project</p>	<p><b>D1</b> Create a Community Disaster Recovery Training and Workforce Development Program</p> <p><b>D2</b> Development of a COAD to create a Community Disaster Recovery Plan</p> <p><b>D3</b> Expand Emergency Communications Network for First Responders *Featured Project</p> <p><b>D4</b> Establish Resource and Recovery Center at an Existing Social Service Facility *Featured Project</p>	<p><b>E1</b> Install Backup Power Supply for Critical Facilities and Infrastructure</p> <p><b>E2</b> Expand Feasibility Study for Energy Resiliency for NYCHA and Mitchell-Lama Properties into Gravesend-Bensonhurst</p> <p><b>E3</b> Develop a Wireless Mesh Network as a Backup Communications Network</p>

### Additional Resiliency Recommendations

<p><b>A4</b> Support Resilient Improvements at City Parks Along or Near the Waterfront</p> <p><b>A5</b> Support Coney Island Creek Feasibility Study</p>	<p><b>B5</b> Support Zoning Education and Enforcement for Permeable Pavements</p>	<p><b>C4</b> Support Resiliency Retrofits at Marlboro Houses</p>	<p><b>D5</b> Support the Capacity Increase of the Local Community Emergency Response Teams (CERT)</p>	<p><b>E4</b> Support Sewer Infrastructure Maintenance Project</p> <p><b>E5</b> Support Backup Power for Telecommunications Infrastructure</p>
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**DEVELOP A COMMUNITY RESPONSE PLAN**

**PROVIDE RESILIENCY ASSISTANCE AND EDUCATION**

**PROTECT FROM RAIN EVENT FLOODING**

**DEVELOP A COMPREHENSIVE RESILIENCY APPROACH TO THE WATERFRONT**

**UPGRADE, MAINTAIN, AND STRENGTHEN INFRASTRUCTURE**

## Gravesend and Bensonhurst



Comprehensive Waterfront Master Plan (Project A1): Integrating with a comprehensive coastal protection system for South Brooklyn



NY RISING COMMUNITY RECONSTRUCTION PROGRAM

# Idlewild Watershed Communities

*Springfield Gardens, Brookville, and Rosedale*

NY RISING COMMUNITY RECONSTRUCTION PLAN

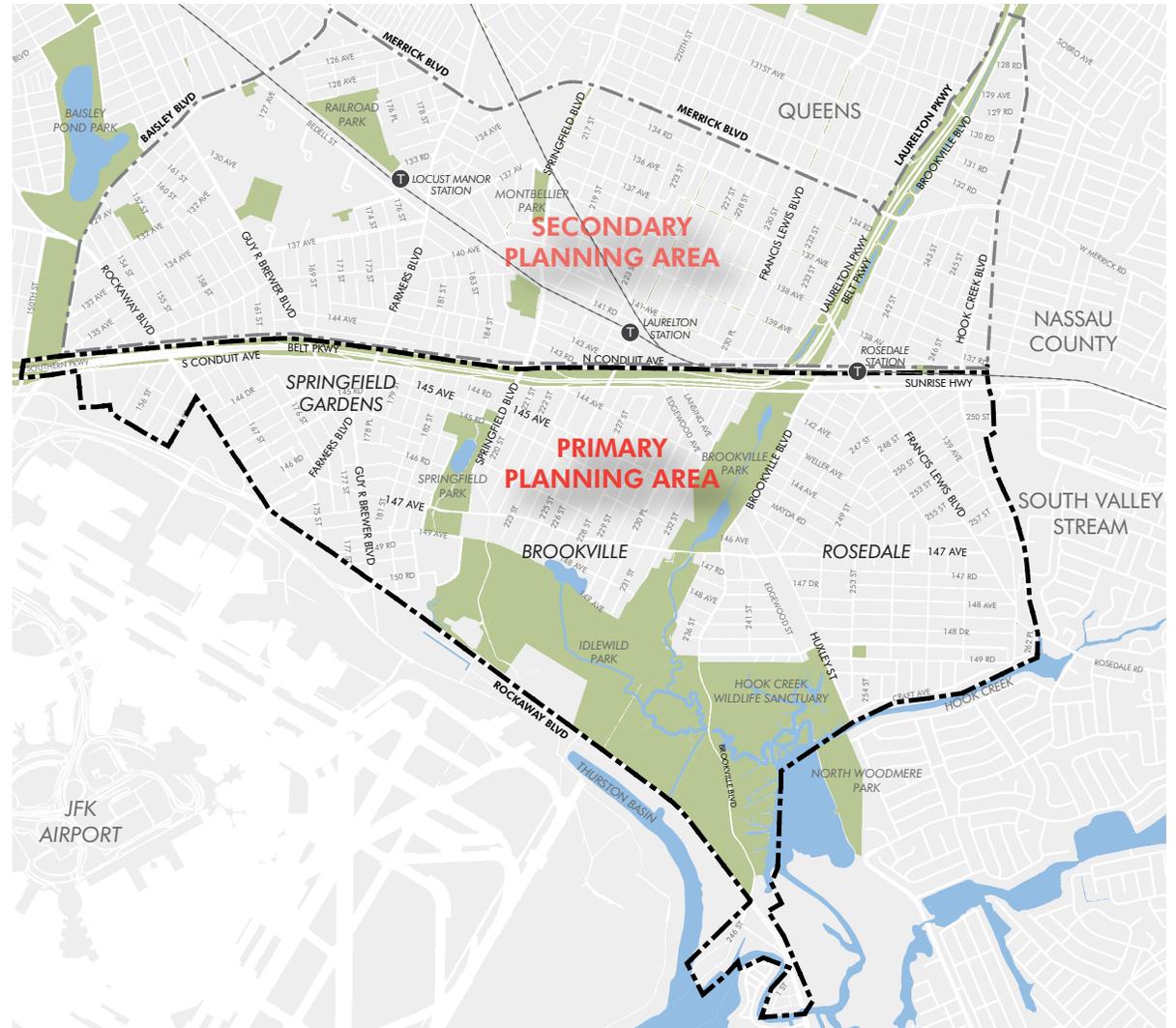
DECEMBER 2014

## EXECUTIVE SUMMARY

The Idlewild Watershed Communities (the Community) of Springfield Gardens, Brookville, and Rosedale are uniquely close-knit New York City neighborhoods noted for their strong sense of civic activism, enviable network of open space and wetland habitat, and diverse neighborhood character. Although the area is primarily suburban and residential in character, this Community in the borough of Queens also includes a significant industrial and manufacturing district directly adjacent to John F. Kennedy International (JFK) Airport. The nearby presence of JFK Airport to the south and their low-lying topography and high water table play a formative role in shaping the landscape of the Community. The nearly 95,000 residents within the Idlewild Watershed Communities experience constant reminders of both of these features.

The Idlewild Watershed Communities NY Rising Community Reconstruction (NYRCR) Plan features a suite of projects identified as having the greatest benefit in increasing the Community's resilience to future climate related events. The Governor's Office of Storm Recovery has allotted \$6,000,000 in U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant-Disaster Recovery (CDBG-DR) dollars to fund eligible projects identified in the NYRCR Plan. The NYRCR Plan is a community-based plan, which is the product of a robust public engagement effort involving consensus-building among residents, civic leaders, and elected officials. Finally, the NYRCR Plan is comprehensive,

Idlewild Watershed Communities NYRCR Boundary



addressing six Recovery Support Functions: Community Planning & Capacity Building; Economic Development; Health & Social Services; Housing; Infrastructure; and Natural & Cultural Resources.

The Community includes three neighborhoods: Springfield Gardens, Brookville, Rosedale, as well as the southern section of Laurelton below Merrick Boulevard. To the south, the Community Boundary is Rockaway Boulevard and JFK Airport. The western boundary is Baisley Boulevard, which extends north from the Belt Parkway and curves eastward to the intersection with Merrick Boulevard. Merrick Boulevard serves as the northern boundary of the Community through Springfield Gardens and Laurelton until it reaches Laurelton Parkway. From Laurelton Parkway, Rosedale extends north, bounded to the east by Hook Creek Boulevard. The southern section of Rosedale, which includes the Idlewild Park Preserve and Meadowmere, is also included in the Community.

The Idlewild Watershed Communities NYRCR Planning Committee (Committee) organized the Community into a Primary Study Area and Secondary Study Area to reflect different needs and opportunities that are present in different areas. The neighborhoods to the south of the Belt Parkway and Sunrise Highway have been designated as the Primary Study Area, while the area to the north has been designated as the Secondary Study Area. The Primary Study Area experienced significant flooding, damage, and destruction during Superstorm Sandy and Hurricane Irene and is more prone to frequent stormwater flooding.

The Community experienced tidal flooding during Superstorm Sandy due to storm surge that flowed through Jamaica Bay and into the wetlands and water bodies that extend throughout the Community. Inundation due to tidal flooding during Superstorm Sandy ranged from one to four feet, with the most severe flooding occurring in low-lying areas and tidal wetlands, including Idlewild Park Preserve. Flood waters extended from Hook Creek nearly as far north as the intersection of Rockaway Boulevard and the Belt Parkway in Springfield Gardens, to 145th Road and through Brookville Park in Brookville, and past 147th Avenue in Rosedale. Brookville Boulevard was washed out with floodwaters, as were segments of Rockaway Boulevard.

Tidal flooding from creeks and inlets, referred to as “backwater flooding,” caused backups in the stormwater systems in low-lying areas. The Rosedale Pumping Station was flooded during Superstorm Sandy, requiring reconstruction, including replacing pump controls, sump pumps, ventilation and heating equipment, and compressors. The storm also resulted in downed trees, damaged roofs, and damage to power lines due to sustained winds estimated at greater than 60 mph.

In comparison to Superstorm Sandy, the impacts from Hurricane Irene in the fall of 2011 were largely a result of precipitation and wind. Localized rainfall totals during Irene ranged from seven to ten inches while storm tide levels ranged from three to six feet. Maximum wind gusts in New York City ranged from 60 to 70 mph. Stormwater flooding from Hurricane

Irene was exacerbated due to a summer of high precipitation and saturated soils.

The Community is vulnerable to extreme weather events such as Superstorm Sandy and Hurricane Irene, but it also experiences frequent stormwater flooding on a smaller scale during high tide events, heavy rainstorms, and nor’easters. The Idlewild Watershed Communities are low-lying, have a high groundwater table, are partially built on historic wetlands, and are interwoven with tidal wetlands.

Superstorm Sandy and Hurricane Irene exposed several challenges within the Community, which the NYRCR Plan addresses. These critical issues were identified throughout the NYRCR Process during Planning Committee Meetings, Public Engagement Events, and meetings with representatives of New York City and state agencies. These issues helped to guide the development of the NYRCR Plan and identification of implementable projects to address problems faced by the Community.

In particular, the Plan addresses the need for expansion of green infrastructure to mitigate stormwater flooding, coordination of green infrastructure initiatives with ongoing City storm sewer projects, increased local capacity for disaster recovery, support for local businesses that provide critical services, adequate resources and planning for local disaster recovery organizations, and education and training to help home and business owners better prepare for disasters.

## Idlewild Watershed Communities

### Community-Driven Process

In July 2014, a Committee of residents and civic leaders from the Idlewild Watershed Communities 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. Since that time, the Committee has worked closely with a team of planning consultants and representatives of the Governor's Office of Storm Recovery to develop this NY Rising Community Reconstruction Plan.

The Committee created a Community Vision to guide the NYRCR Process and ensure that the plan was responsive to the Community's long-term needs to reduce flood risks and improve disaster recovery.

Public outreach during the NYRCR Process for the Idlewild Watershed Communities was structured to encourage broad community participation. Through advertisements, flyers, and—most importantly—the Committee's broad network of contacts, public engagement events were publicized broadly throughout the Community. During public engagement events, attendees were encouraged to review the Committee's process at key steps along the way, providing feedback on the Community's needs and opportunities to increase resilience, reconstruction strategies to guide project development in support of the Community Vision, and the projects identified by the Committee for inclusion in the NYRCR Plan.

#### Community Vision

The Idlewild Watershed Communities of Brookville, Rosedale, and Springfield Gardens are dedicated to the creation and maintenance of resilient neighborhoods that guarantee a high quality of life for all who live and work within them, both now and in the future. Towards this end, our vision calls for the following:

##### *Fully Functional Infrastructure*

Communities in which our natural and manmade systems are maintained, improved, extended, and maximized so that they are fully functional in terms of flood prevention, control, and alleviation throughout the target Idlewild Watershed Communities of Brookville, Rosedale, and Springfield Gardens.

##### *Appropriate Levels of Social Supports and Services*

Communities that have effective, efficient systems in place to address the needs of all of the people, with special emphasis on our vulnerable populations.

##### *Effective Emergency Management*

Communities which, in the event of natural, manmade, and technological disasters, have in place coordinated disaster recovery, response plans that operate effectively before, during, and after the emergency.



Public input on the Community Vision and Proposed Projects at Public Engagement Events

## **NYRCR Plan: A Blueprint for Implementation**

The NYRCR Plan for the Idlewild Watershed Communities includes an Assessment of Needs and Opportunities to evaluate the potential for increased resilience to flooding and extreme weather in the short-, medium-, and long-term. The Assessment of Needs and Opportunities was refined through detailed analysis of the assets and risks within the Community, analysis of demographic and economic data, guidance from the Committee, site visits, and input from attendees at Public Engagement Events.

The Assessment of Needs and Opportunities identifies areas in which the Community could improve its resilience to major storms and other disasters. This analysis helped to guide the Committee in identifying Reconstruction Strategies and Proposed and Featured Projects that will increase the Community’s resilience.

The Committee developed Reconstruction Strategies based on the findings of the Assessment of Needs and Opportunities and feedback from Public Engagement Events. The Reconstruction Strategies represent a framework that guided development and evaluation of the Proposed and Featured Projects included in the NYRCR Plan.

The key strategies that guided the NYRCR Plan for the Idlewild Watershed Communities are:

### **Strategy A: Alleviate Localized Flooding Conditions**

The objective of Strategy A is to develop a comprehensive approach to address localized flooding in the Community that leverages ongoing and planned stormwater infrastructure projects conducted by City agencies, identifies gaps in protection from flooding that are not addressed by ongoing and planned projects, and identifies additional projects that will increase stormwater retention capacity of parks and wetlands, address coastal flooding, and expand the green infrastructure network throughout the Community.

### **Strategy B: Strengthen the Emergency Response Capacity of the Community**

The objective of Strategy B is to expand the ability of existing Community Based Organizations (CBOs) to assist in disaster preparation and recovery by providing training and education to local non-profit organizations, ensuring that critical facilities have resources they need to help vulnerable populations recover from major storms, expanding the services of CBOs to include disaster preparedness and response, and increasing coordination between local groups and the New York City Office of Emergency Management (NYC OEM) to increase the reach of existing educational materials, training programs, and recovery assistance.



Rosedale Station Community Gateway Green Street

## Idlewild Watershed Communities

### Strategy C: Support Environmental Stewardship of the Community's Natural and Manmade Resources

The objective of Strategy C is to lay out a plan that gives the Community the resources it needs to promote, support, and enforce stewardship of the environment to foster sustainability and assure that natural and manmade resources can provide protections from flooding. Strategy C enhances the environmental stewardship of the Community by better maintaining and improving the ecosystem of Community parks and wetlands, supporting increased enforcement of illegal dumping and other threats to the health of parks, open space, and wetlands, and expanding educational campaigns about environmental stewardship.

### Strategy D: Provide Safe and Reliable Access to Critical Goods and Services

The objective of Strategy D is to provide for reliable transportation, communication, and backup power networks so that the Community is not isolated from critical goods and services after disasters. This objective is achieved through Strategy D by supporting retail/commercial districts so that businesses can quickly recover from disasters and residents have access to essential goods after storms, strengthening the area's transportation infrastructure, power grid, and communications networks, and strengthening key connections to critical support services and regional shopping districts outside of the Community.

Based on the framework provided by these four strategies, projects evolved that addressed the needs of and risk to Community assets.

Proposed Projects and Featured Projects have been assessed for their ability to mitigate future risk, were vetted by the Planning Committee and the public, and were categorized by their capacity to address needs within one or more of the Reconstruction Strategies.

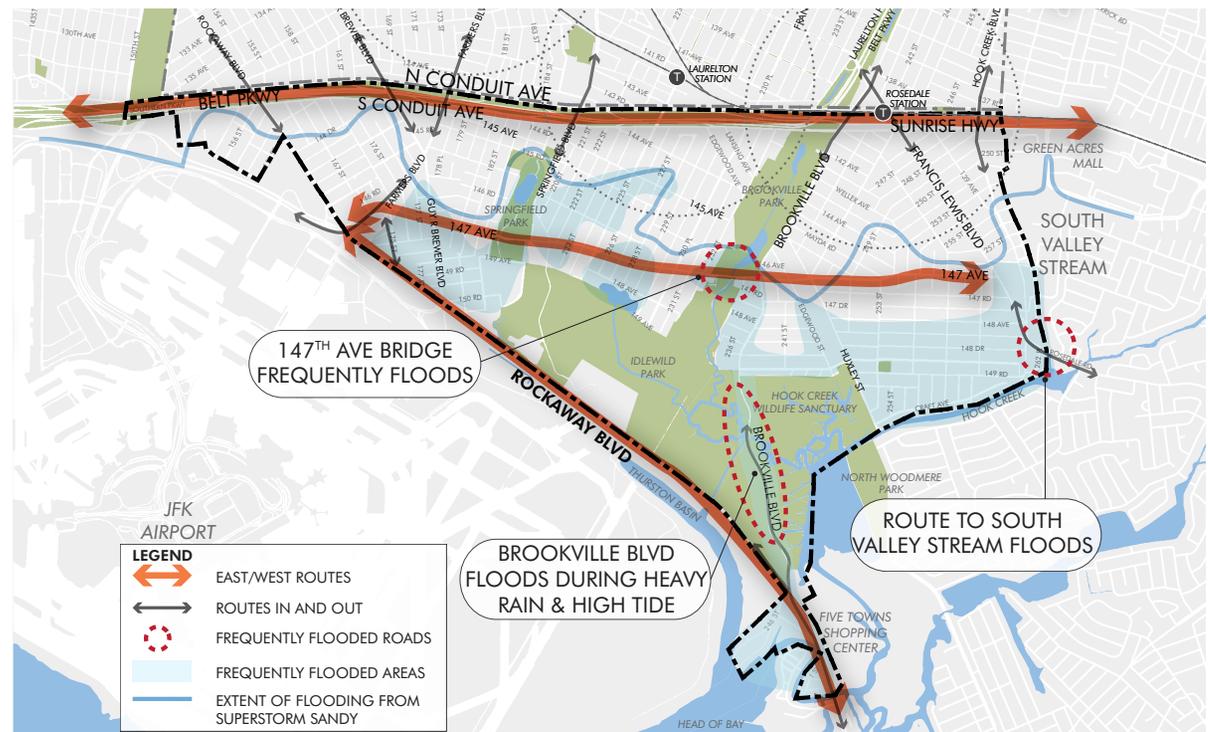
**Proposed Projects** are projects proposed for funding through the Community's allotment of Community Development Block Grant-Disaster Recovery (CDBG-DR) funding.

**Featured Projects** are projects and actions that the Committee has identified as important for the Community's resilience and has analyzed

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

**Additional Resiliency Recommendations** are projects and actions the Committee would like to highlight for further consideration.

With a fundamental focus on implementation, the NYRCR Planning Process incorporated extensive discussions with New York City and State agencies to discuss project feasibility. As a result, the projects featured in the NYRCR Plan are supportive and complementary of ongoing and planned projects, rather than duplicative.



Access to Critical Goods and Services

## NY Rising Community Reconstruction Plan

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 Community. The NYRCR Plan includes a menu of short-term projects that can be implemented immediately; medium-term projects that can be implemented within two-five years; and long-term actions that require resources beyond the NYRCR funding allotment and are largely addressed through planning projects and advocacy initiatives.

Projects are not listed in order of priority.

### Strategy A: Alleviate Localized Flooding Conditions

A1: Green Infrastructure Community Master Plan [Proposed]

A1a: Brookville Park Pond Restoration [Proposed]

A1b: Community Gateway Green Streets [Proposed]

A1c: Green Infrastructure Pilot Project [Proposed]

A1d: Twin Pond Park Bluebelt Enhancement [Featured]

A2: DEP Oyster Restoration in Thurston Basin [Featured]

A3: Coastal Management Plan [Featured]

### Strategy B: Strengthen the Emergency Response Capacity of the Community

B1a: Southeast Queens Disaster Recovery Plan [Proposed]

B1b: Implement Recommendations of the Southeast Queens Disaster Recovery Plan [Proposed]

### Strategy C: Support Environmental Stewardship of the Community's Natural and Manmade Resources

C1: Phase 1— Green Infrastructure Workforce Training Program [Proposed]

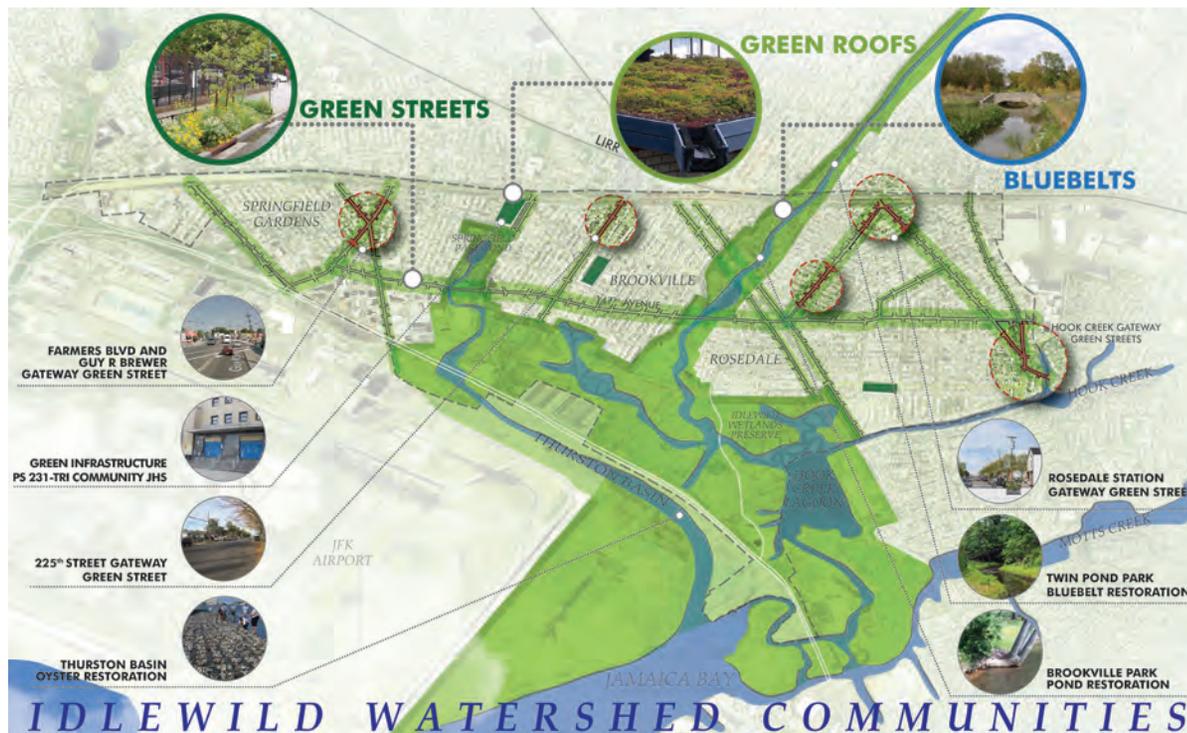
C1: Phase 2—Idlewild Watershed Communities Open Space Restoration Fund [Featured]

C2: Home and Business Owner Education and Technical Assistance Program [Featured]

### Strategy D: Provide Safe and Reliable Access to Critical Goods and Services

D1: Install Backup Power Supply Systems at Critical Facilities [Proposed]

D2: Study to Elevate Brookville Boulevard (Snake Road) [Featured]



Green Infrastructure Community Master Plan

## Idlewild Watershed Communities

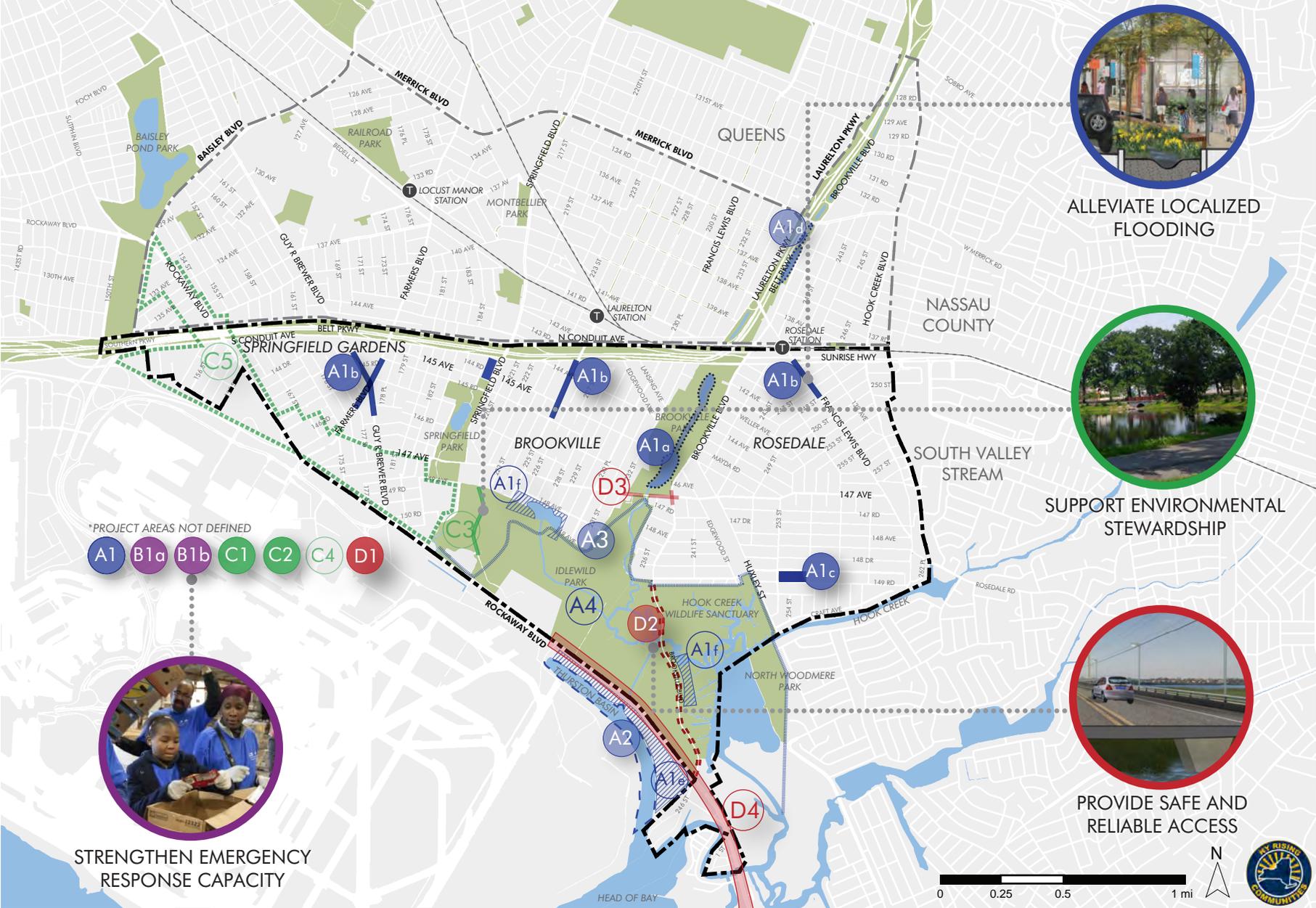
### Proposed and Featured Projects

Strategy A Alleviate Localized Flooding Conditions	Strategy B Strengthen the Emergency Response Capacity of the Community	Strategy C Support Environmental Stewardship of the Community's Natural and Manmade Resources	Strategy D Provide Safe and Reliable Access to Critical Goods and Services
A1 Green Infrastructure Community Master Plan	B1a Southeast Queens Disaster Recovery Plan	C1 Phase 1: Green Infrastructure Workforce Training Program	D1 Install Backup Power Supply Systems at Critical Facilities
A1a Brookville Park Pond Restoration	B1b Implement Recommendations of the Southeast Queens Disaster Recovery Plan	C1 Phase 2: Idlewild Watershed Communities Open Space Restoration Fund *Featured Project	D2 Study to Elevate Brookville Boulevard (Snake Road) *Featured Project
A1b Community Gateway Green Streets		C2 Home and Business Owner Education and Technical Assistance Program *Featured Project	
A1c Green Infrastructure Pilot Project			
A1d Twin Pond Park Bluebelt Enhancement *Featured Project			
A2 DEP Oyster Restoration in Thurston Basin *Featured Project			
A3 Coastal Management Plan *Featured Project			

### Additional Resiliency Recommendations

A1e Advocate for the Construction of Thurston Basin Park	C3 Advocate for Idlewild Park Preserve Trail Network and Overlook Restoration	D3 Elevate 147th Avenue Bridge at Brookville Park
A1f City Purchase of Privately Owned Parcels on Edges of Idlewild Park Preserve for Preservation as Wetland	C4 Advocate for Municipal Agency Coordination to Prioritize Resilience	D4 Support Rockaway Turnpike/Nassau Expressway Resilient Corridor Study (NYRCR Plan for Five Towns)
A4 Idlewild Park Preserve Culvert Expansion	C5 Support for Creation of Greater JFK IBID	

Eight Proposed and five Featured Projects included in the NYRCR Plan for the Idlewild Watershed Communities





**Upstate**

# **NYRCR** **City of** **Middletown**

NY Rising Community  
Reconstruction Plan

**DECEMBER 2014**

**NY RISING  
COMMUNITY  
RECONSTRUCTION  
PROGRAM**





# Executive Summary

## Overview

**N**estled between the Shawangunk Mountains and the Wallkill River, the City of Middletown (City) is located in the heart of the Hudson Valley. The City primarily consists of a residential community with commercial and industrial properties scattered throughout. Commercial businesses can be found along the City’s major arterial roads – East Main Street, West Main Street, Route 211, and Route 17M.

The City’s Central Business District is made up of residential, commercial, industrial, and mixed-use properties and is considered the lifeblood of Middletown. The Monhagen Brook also bisects this area of the City. The Brook and its tributaries serve as the main source of drinking water for the City; however, it is also the City’s main source of flooding. Hurricane Irene caused major flooding along Monhagen Brook, which inundated and severely damaged or destroyed homes and businesses in the center of Middletown. Flooding incapacitated the City’s emergency services and its ability to reach its population of 28,086 people.

To address the impacts of regular flooding and to bolster resiliency against future storms, the City of Middletown formed a planning area under the guidance and funding of New York Governor Andrew M. Cuomo’s NY Rising Community Reconstruction (NYRCR) Program. The City of Middletown NYRCR Plan aims to address the most critical needs and impacts from major storm events while identifying projects and strategies to encourage future resiliency, increase safety and quality of life, and inject incentives for economic growth. The Committee’s highest priorities in the City of Middletown NYRCR Plan are synthesized into projects that could become realities with an NYRCR Program allotment of up to \$3 million.

The NYRCR Plan, an eight-month exercise of intense community collaboration, public engagement and input, and scientific observation and analysis, reflects the Community’s can-do spirit through achievable projects and implementation strategies to rebuild with resiliency and to guard against future natural disasters.

## Critical Issues

During the initial City of Middletown NYRCR Planning Committee Meetings (Committee Meetings), the City of Middletown NYRCR Committee (Committee) identified several key challenges to creating resiliency, developing economic growth, and enhancing the quality of life in the City. These critical issues include:

- Aging, undersized, and damaged stormwater infrastructure;
- Deterioration and prevalence of lingering damages to roadways from increasingly intense storm events;
- Lack of appropriate emergency response access to the southern side of the City during intense storm events;
- Uncoordinated development in the upstream Monhagen and Draper Brook watersheds;
- Lack of strategically located open space and green/infiltration areas within the densely developed City;
- Lack of interconnected green infrastructure and open space;
- Socially vulnerable populations located in flood hazard areas;
- Local business interruptions and economic loss due to flooding damages, power loss, and flooded access routes during storm events;



- Extreme flood events that adversely affect performance of the City's wastewater treatment plant and its available capacity due to inflow/infiltration systems;
- Underutilization of vacant properties and lack of strategic investment; and
- Disinvestment of commercial and retail within the Central Business District due to the high density shopping and retail center in the Town of Wallkill.

*In the wake of the devastation caused by recent significant storm events, the City of Middletown will embark on a comprehensive planning process focused on building more resilient infrastructure, economy, and open space. Developing a coordinated plan to attract economic and housing reinvestment will enrich the quality of living for the City's residents.*

## A Community-Driven Process

Meeting this planning challenge with the same collaborative spirit that drove response and recovery efforts, the 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 residents and homeowners; non-resident property owners; business owners; and educational, community, faith-based, and social service organizations across the public and private sectors.

Specific venues for public involvement and engagement included open weekly or bi-weekly NYRCR Committee Meetings, online and hard copy surveys, door-to-door visits, interviews of community, first response, and social service agencies, televised community-wide public meetings.

## Vision Statement

Through collaborative discussions, stakeholder engagement, reviews 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 effort for the City of Middletown NYRCR Plan.

## A Blueprint for Implementation

The storms of 2011 and 2012, although extreme events, were just the latest in a series of natural disasters that have devastated the City of Middletown. The Committee and the public relied on a multi-generational body of knowledge and experience, augmented by anecdotal evidence and scientific analysis, including hydraulic modeling, to identify Middletown's primary needs, risks, and critical issues, all of which provided a blueprint for project and strategy realization.

The City of Middletown NYRCR Plan aims to bolster the resiliency of existing critical assets and any proposed post-storm new construction projects to future storm events. The Committee first identified and analyzed the City's economic, healthcare and social services, housing, infrastructure, and natural and cultural resources to assess prospective risk if these assets were lost or impaired due to flooding. The Committee then evaluated overall risk to these assets, with a particular eye toward flooding by the Monhagen and Draper Brooks and their tributaries that wind through the City.

Next, the Committee developed a number of strategies to address the most critical health, safety, resiliency, and quality of life needs identified by the Community and the Committee. Analysis, ongoing discussions during Committee Meetings, and public feedback served as the basis for these strategies. These strategies reflect the community's values, issues, needs, and opportunities. They are the foundation for identifying and prioritizing projects that will work towards the comprehensive recovery and resiliency of the City. The strategies became the foundation for projects and actions proposed in this Plan for available Community



Development Block Grant – Disaster Recovery (CDBG-DR) funding.

After months of analysis, Public Engagement Events, and strategizing at Committee Meetings, the Committee developed a finalized project list for inclusion in the Middletown NYRCR Plan. The projects were classified in three categories. The three-tiered methodology was designed to identify and consider the full range of potential actions and outcomes, while providing a clear direction toward project implementation.

**Proposed Projects** are those recommended for funding through the City’s allotment 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 the Committee has highlighted, but which are not categorized as Proposed or Featured Projects.

## From Strategies to Implementable Projects

The City of Middletown NYRCR Plan is grounded in six strategies that capture critical needs expressed by the Community and analyzed during the planning process. Strategies yielded proposed and featured projects, and additional resiliency recommendations to collectively remediate, mitigate, rebuild, and incentivize a renewed City of Middletown.

### Strategies

**Strategy 1:** Reduce the impact of flooding on the built environment in the City, including critical facilities, infrastructure, businesses, and housing.

**Strategy 2:** Enhance and repair existing stormwater infrastructure, culverts, and drainage ways to ensure the

City can safely grow the economy, improve safety, and reduce future losses.

**Strategy 3:** Develop planning capacity and zoning capabilities to help promote integrated and functional relationships with Community partners.

**Strategy 4:** Provide and promote services that sustain human health and well-being throughout the life cycle of a disaster.

**Strategy 5:** Ensure housing opportunities are both flood-resilient and affordable for current and future residents, of all needs and ages, through local ordinances and mitigation initiatives.

**Strategy 6:** Preserve, protect, restore, and where possible, enhance or develop the natural, recreational, and cultural assets of the City.

## Projects

### MONHAGEN BROOK CULVERT AND DREDGING PROJECT

This project includes the following:

- Dredging and removal of sediment in and along the culvert;
- Removal of piers at the confluence of the Monhagen and Draper Brooks, and the replacement of this section and other damaged sections of culverts; and
- Re-channelization of the section of Monhagen Brook directly downstream of Genung Street. **(Proposed Project)**

### DOROTHEA DIX DRIVE FLOOD RETENTION/WETLAND CONSTRUCTION/RESTORATION PROJECT

The first phase of the project will include the acquisition of the 8.2-acre property and the demolition and removal of the existing parking lot area. It will include the engineering, construction, and re-channelization of the Monhagen Brook; the development of the first



phase of wetland mitigation areas; and the construction of the first phase of recreational features that include some sections of the proposed trail system and interpretive signage.

The second phase will include the renovation of the existing vacant building to be used as a community recreation center, which could also function as an Emergency Operation Center (EOC) and shelter. This phase would also include (1) the acquisition and preparation of a portion of the 63-acre property adjacent to the Phase I potential project site to create additional areas of mitigated wetlands, and (2) the development of the second phase of boardwalk and trail construction, along with other recreation features. Phase II is not proposed as part of this funding round. **(Proposed Project – Phase I)**

### **CULVERT IMPROVEMENTS AT WEST MAIN STREET AND MONHAGEN AVENUE**

The project will include the removal of the existing twin culverts and the upgrade of that section of culvert to a single, continuous culvert with improved entrance conditions that would increase flow through the culvert and reduce potential flooding damages to surrounding infrastructure, residences, and businesses. The project will also include streambank mitigation of the day-lighted section of Monhagen Brook between Monhagen Avenue and the entrance of the culvert. **(Proposed Project)**

### **WEST MAIN STREET STREAMBANK MITIGATION**

This project includes the restoration of streambanks and surrounding riparian area by West Main Street to improve flow conditions, reduce erosion, and provide additional flood attenuation, if possible. Consideration for regenerative design techniques could be used. **(Proposed Project)**

### **MAPLE HILL PARK IMPROVEMENTS**

This project will improve the existing berm/dam to create additional floodwater retention while enhancing the facility as a recreational amenity. This can work in concert with the other upstream wetland construction

and stormwater retention projects to alleviate or reduce flooding downstream along West Main Street, Monhagen Avenue, Fulton Avenue, Sterling Street, and Dolson Avenue. **(Proposed Project)**

### **BRIDGE UPGRADE TO MIDDLETOWN NEW JERSEY RAILROAD BRIDGE**

The Middletown New Jersey Railroad Bridge is identified as a pinch point as it crosses the Monhagen Brook. The proposed project would upgrade the bridge, which would include widening the culvert and bridge. This project will improve flow capacity and convey floodwaters. Reducing the threat of damage to the railroad line allows commerce to continue during and after a storm event. **(Featured Project)**

### **STERLING/GENUNG/WEST MAIN BUY-OUT/ELEVATION PROGRAM**

The goal of this project is to create a fund establishing a buy-out or elevation program for those properties repetitively flooded in the Sterling Street, Genung Street, and West Main Street neighborhoods. The buy-out/elevation program will enhance recreational opportunities for citizens within the newly formed open space while also helping to mitigate flooding. **(Featured Project)**

### **EMERGENCY EVACUATION EQUIPMENT**

This project seeks to expand the capability of the local response community through existing equipment donations programs to provide evacuation support in times where the local community is impacted by flooding. Participation in military surplus donation programs will allow the jurisdiction, with little to no cost, to secure high water capable vehicles that would aid them in times of disaster and provide valuable resources to the general public. **(Featured Project)**

Note: Proposed and Featured Projects are captured according to their associated strategy in the table that follows.



## CITY OF MIDDLETOWN NYRCR PLAN

City of Middletown NYRCR Projects	Proposed Project	Featured Project	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6
Monhagen Brook Culvert and Dredging Project	<b>X</b>		<b>X</b>	<b>X</b>			<b>X</b>	<b>X</b>
Dorothea Dix Drive Flood Retention/Wetland Construction/Restoration Project	<b>X</b>		<b>X</b>	<b>X</b>			<b>X</b>	<b>X</b>
West Main Street Stream Bank Mitigation	<b>X</b>		<b>X</b>	<b>X</b>			<b>X</b>	<b>X</b>
Culvert Improvements at West Main Street and Monhagen Ave	<b>X</b>		<b>X</b>	<b>X</b>				
Maple Hill Park Improvements		<b>X</b>	<b>X</b>	<b>X</b>			<b>X</b>	<b>X</b>
Bridge Upgrade to Middletown New Jersey Railroad Bridge		<b>X</b>	<b>X</b>	<b>X</b>				
Emergency Evacuation Equipment		<b>X</b>				<b>X</b>		
Sterling/Genung/West Main Buy-out/Elevation Program		<b>X</b>			<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

# **NYRCR** Town of Blooming Grove

NY Rising Community  
Reconstruction Plan

**DECEMBER 2014**

**NY RISING  
COMMUNITY  
RECONSTRUCTION  
PROGRAM**





# Executive Summary

## Overview

When visitors arrive in the Town of Blooming Grove for the first time, they are stunned by its breathtaking views and majestic mountains, charming creeks, and picturesque valleys. The Town, located in the central/south-central portion of Orange County and about an hour's commute from Manhattan, creates an ideal location for people seeking the charm of a small town and the convenience of a nearby large city. The natural vistas that contribute to the Town's attractiveness also serve to heighten its vulnerability to flooding disasters.

In late summer 2011, Hurricane Irene showed exactly how vulnerable the Town could be. In Orange County, 7 to 15 inches of rain fell from August 24 to 30. In addition to numerous flooded homes, residential developments were frequently cut off from the world by flood-swollen creeks and rivers, as was the case for the Merriewold Lake neighborhood on either side of Satterly Creek. Equally as concerning, the access roads to the Mountain Lodge community remained impassable for several days, even after the storm ended. Emergency medical and services personnel could not treat trapped residents, and feelings of anxiety and fear resounded through the Town of Blooming Grove (Town). Tropical Storm Lee, while not as severe as Hurricane Irene, exacerbated damages and increased stress.

The Town, however, used the storm as a chance to test its mettle. Like the Town's original settlers, many of whom participated in the American Revolutionary War, local citizens refused to let defeat be the final answer and committed to developing a long-term strategy to create a more resilient community. New York Governor Andrew M. Cuomo's NY Rising Community

Reconstruction Program (NYRCR) Program struck the right balance between recovery efforts and a resolve for future resiliency.

The Town of Blooming Grove, with participation from the Village of South Blooming Grove, formed a 40.3 square mile planning area focused on identifying flood mitigation and community resiliency activities under the purview of the NYRCR Program. The Town of Blooming Grove NYRCR Plan identifies the most critical needs and impacts from recent major storms, and highlights potential solutions to bolster future resiliency, increase safety and quality of life, and inject incentives for economic growth.

## Critical Issues

The Town of Blooming Grove NYRCR Plan process recognized several critical issues surrounding the Town's ability to successfully recover from natural disasters and to enhance its overall resiliency. The Town of Blooming Grove NYRCR Planning Committee (Committee) used a combination of existing plan reviews, technical analyses, public input, interagency guidance, and active discussion to identify these issues. As with any worthwhile challenge, these issues have multiple facets and are interconnected, requiring complex and innovative solutions.

The Town of Blooming Grove NYRCR Plan (NYRCR Plan) summarizes the critical issues and challenges into three major factors to most effectively address and overcome these concerns.

## The Double-Edged Sword of Picturesque Landscapes

Many communities with significant historical ties to the land prosper because of their proximity to waterways, their charming scenery, and the abundance of local nature. The Town of Blooming Grove is no exception to this trend. While agriculture is no longer the predominate land use, the lush valleys and mountains



help to draw new residents to the Town (in addition to the other draw for residents—the convenience of its proximity to New York City).

The visual amenities that attract new residents to the Town, however, increase its risk and susceptibility to storm damage. The rugged and hilly terrain encourages fast-moving water, while the local waterways frequently overtop and flood the restful retreats and charming homes next to them. Intense storms, such as Hurricane Irene and Tropical Storm Lee, have inflicted significant economic hardship on the Town. Some of this hardship was more apparent, such as the isolated and damaged homes and businesses. Meanwhile, other damage, including the impact to agriculture and long-term economic sustainability, was more difficult to discern.

**The Committee is determined to live in harmony with nature and to seek avenues that allow the community to enjoy its greatest natural features, while minimizing their threat.**

## Impassable Roadways and Unintended Isolation

The waterways and bodies of water that serve as the Town’s most appealing natural amenities are often its greatest threat. Many neighborhoods were built near the water and due to geographic considerations, have a limited number of access routes or have access routes that are easily flooded.

Recent severe storm events provided a graphic illustration of the vulnerability of certain neighborhoods with regards to roadway vulnerability. Lakeshore Drive, Mountain Lodge Park, and State Route 94 all experienced unintended isolation from flooded streams or sheet flow. This prevented emergency personnel from entering and unprepared residents from seeking more secure shelter. In some instances, neighborhoods remained isolated and inaccessible for a few days, even after the storm ended. The NYRCR Plan recognizes this concern and developed projects designed to increase

safe neighborhood accessibility.

## The Resilient Mindset: More than Just Infrastructure Projects

Through the course of the planning process, the Town of Blooming Grove discovered how frequently a lack of understanding about flooding and its causes can contribute to exacerbated conditions and increased risk. Although many of the projects identified by the Committee focus on infrastructure and structural improvements, the Committee recognized one of the most effective solutions to reduce Town vulnerability and increase resiliency is to create a resilient mindset.

Efforts to educate the community about factors that contribute to flood damage and how they can self-protect can create positive, long-lasting resiliency.

## A Community-Driven Process

Both the Committee and the Town met NYRCR planning and organizational challenges with the same indomitable spirit that saw them through the 2011 flooding and storms. The Committee formed a multi-pronged public engagement process to incorporate data from as many sources as possible. In addition to the review of existing plans and studies, the Committee promoted scientific, detailed cost-benefit analyses and assessments.

**Most importantly, at every step, the process deliberately included public participation.**

The Committee organized and conducted extensive, multi-media outreach and Public Engagement Events to offer residents every opportunity to ensure their concerns and ideas were addressed. Residents could choose to participate through attendance at bi-weekly Committee Meetings, online and hard-copy surveys, door-to-door visits, radio/social media channels, and Public Engagement Events.



The Public Engagement Events were held at both the Town Hall and the Senior Center, to take advantage of local resources and to attract as wide an audience as possible. The Committee worked to ensure that all Town residents knew about the opportunities presented through the NYRCR Program, and that nobody was excluded from participating by a lack of access to transportation, lack of access to technology, or because of a functional or other access need.

The comprehensive communications strategy deliberately targeted home and business owners; residents of low to moderate income, the elderly, and other vulnerable populations; and organizations in both the public and private sectors.

## Vision Statement

Overarching this effort was a vision adopted by the Committee early in the planning process.

*To provide a stronger, safer, more resilient community for the residents of the Town of Blooming Grove and the Village of South Blooming Grove by restoring natural systems, expanding the body of knowledge regarding the causes of local flood events, creating and implementing projects to address those causes and current damage, and planning for flood-safe neighborhoods to reduce future damage, while maintaining the vitality and viability of the Town of Blooming Grove.*

## A Blueprint For Success

The Blooming Grove Committee chose to promote projects that focus on long-term resiliency. The NYRCR Plan seeks to create a sustainable blueprint that effectively target the communities greatest at-risk assets and recommends implementable solutions that bolster critical facilities and essential services.

The Committee and the public used a multi-generational body of knowledge and experience, augmented by both personal experiences and technical analysis, to determine the Town’s primary needs, risks, and critical issues. This culminated in proposed projects to bolster the Town’s resiliency.

The Committee began by analyzing economic, healthcare, social services, housing, infrastructure, and natural and cultural resources to determine prospective risk and impact. It then developed preliminary strategies to reduce this risk and to meet the most critical needs. These needs focus on community health and safety, resiliency, quality of life, economic growth, and environmental stewardship.

These strategies became the foundation for projects and actions proposed in the Town of Blooming Grove NYRCR Plan.

The Committee chose not to limit itself to structure and infrastructure projects, which can have a limited useful life; instead, the planning process explored projects that fall under a variety of categories: structure and infrastructure; planning and regulatory processes; natural resource protection; and education and outreach.

Projects were organized into three project categories. This methodology was designed to identify and consider the full range of potential actions and outcomes, while providing the Town with clear direction toward project implementation.

**Proposed Projects** are projects proposed for funding through an NYRCR Plan Area’s allotment 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 Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects.

## From Strategies to Implementable Projects

The Committee identified five strategies in its NYRCR Plan, around which potential projects and resiliency actions would center. These strategies highlight the Town's overall reconstruction and resiliency needs, while offering opportunities to address them.

The following strategies resulted in Proposed and Featured Projects, along with Additional Resiliency Recommendations. These collectively remediate, mitigate, rebuild, and promote a resilient Town of Blooming Grove.

### Strategies

**STRATEGY 1:** Reduce the impact of riverine flooding on the built environment, including critical facilities, infrastructure, businesses, and housing.

**STRATEGY 2:** Improve stormwater management and drainage systems throughout the Town to decrease risk for homes, businesses, and residents.

**STRATEGY 3:** Improve upon existing capabilities for emergency preparedness, response, sheltering, and communication.

**STRATEGY 4:** Preserve, protect, and enhance the Town's natural, recreational, and cultural resources, and restore natural floodplain capabilities.

**STRATEGY 5:** Assist Town residents, officials, and business owners in becoming better protected from future flood damages through education, programming, outreach, and policy initiatives.

## Projects

The following projects were selected for the Proposed Project category, due to the multitude of benefits to the community and project contribution towards increased resiliency.

### Additional Hydrologic (Flood Routing), Hydraulic, and Stormwater Analysis

This project seeks to conduct a comprehensive study of all local waterways, lakes, and dams affecting flood conditions in the NYRCR Plan Area. Additional riverine and overland (stormwater) hydraulic analyses would provide information and recommendations. These would be helpful in the planning and development of further actions to reduce the extent and severity of flooding in the Town.

### Detailed Inspection Program and Investment Prioritization Protocol

This project seeks a holistic, sustainable approach to increase transportation system resiliency toward future storms, and to address repetitive failures on vulnerable roadway segments throughout the NYRCR Plan Area. After fully evaluating the components of the existing transportation network in the Town, and findings from the proposed Additional Hydrologic (Flood Routing), Hydraulic, and Stormwater Analysis Project, the Committee recommended implementation of a detailed inspection program and investment protocol for Town-owned bridges and culverts.

### Install Natural Gas or Solar Back-up Power for Critical Facilities and Infrastructure

This project aims to obtain and install permanent back-up power sources for the critical facilities and infrastructure in the Town that are not addressed in other Proposed Projects. This project would include



an evaluation of existing critical facilities' needs for redundant power generation.

The Town could consider the use of solar or green energy, where feasible, at these locations:

- South Blooming Grove Village Hall; and
- Town Highway Garage at 2741 State Route 94 (also the proposed site for relocation of the Town of Blooming Grove Central Garage, providing a secondary benefit to installing a back-up power source here).

## **Mountain Lodge Drainage Improvements and Flood Damage Reduction**

This project would provide a series of standard plans and detailed drawings to repair or upgrade existing degraded stormwater ditches. It would then implement a revolving loan, grant, or cost-share program to help low-income residents of Mountain Lodge Park implement improvements on a property-by-property basis.

In addition to providing standard plans, this project would provide outreach and education to homeowners through the Homeowners Association to assist in the implementation of the plans.

## **Strategic Critical Facility Flood-Proofing and Structural Mitigation Program**

This project aims to strengthen key critical facilities that experienced service interruptions due to flooding during Hurricane Irene and Tropical Storm Lee. It would be informed by the Town's new Detailed Program and Investment Prioritization Tool. The following projects are proposed:

- Town Maintenance Garage Relocation;
- Salisbury Mills Fire Department Stormwater Retrofit;

- South Blooming Grove Firehouse Stream Bank Stabilization;
- Merriewold Lake Outlet Channel Bank Restoration;
- Flood mitigation measures for Tappan Waste Water Treatment Plant (Barnes Road); and
- Flood mitigation measures for Village of South Blooming Grove.

## **Update Local Codes and Ordinances**

This project would include a comprehensive review of the zoning and subdivision regulations to identify areas of improvement that would enhance the Community's ability to be more resilient to future storm events and would address the feasibility related to code changes.

## **Vulnerable Populations and Community Emergency Alert, Warning, and Support**

Implement and disseminate education materials regarding a coordinated alerting system and general disaster readiness. These materials would be designed for public and private sectors, families and individuals, and Persons with Access and Functional Needs (PAFN) and vulnerable populations. The materials can also benefit low and moderate income populations who may be without reliable access to Internet service.



<b>TOWN OF BLOOMING GROVE NYRCR PLAN</b>							
<b>Town of Blooming Grove NYRCR Plan Projects By Strategy</b>	<b>Proposed Project</b>	<b>Featured Project</b>	<b>Strategy 1</b>	<b>Strategy 2</b>	<b>Strategy 3</b>	<b>Strategy 4</b>	<b>Strategy 5</b>
Additional Hydrologic (Flood Routing), Hydraulic, and Stormwater Analysis	X		X	X	X	X	X
Detailed Inspection Program and Investment Prioritization Protocol	X		X	X			
Install Natural Gas or Solar Back-up Power for Critical Facilities and Infrastructure	X				X		
Mountain Lodge Drainage Improvements and Flood Damage Reduction	X		X	X	X	X	X
Strategic Critical Facility Flood Proofing and Structural Mitigation Program	X		X		X		
Update Local Codes and Ordinances	X		X	X		X	
Vulnerable Populations and Community Emergency Alert, Warning and Support	X				X		X
Barnes Road Levee		X	X				
Community Rating System Participation		X	X				X
Update the Comprehensive Emergency Management Plan and Develop Hazard and Operational Specific Annexes		X			X		X

# **NYRCR** **Town of** **Chenango**

NY Rising Community  
Reconstruction Plan

**DECEMBER 2014**

**NY RISING COMMUNITY  
RECONSTRUCTION  
PROGRAM**





# Executive Summary

## Overview

The Town of Chenango is tucked among the hills of Broome County in the Southern Tier region of New York. The Town sits along the Chenango River just north of the City of Binghamton. The Town is part of the Binghamton Metropolitan Statistical Area (MSA) and exists as part of the northern suburbs of the greater Binghamton area.

The Town of Chenango is mostly comprised of natural land among the rolling hills, agricultural land, and large residential parcels scattered through the western and northern parts of the Town. The heart of the town stretches along the Chenango River, however, and is located in the southern and eastern parts of the Town. This area contains the Town's primary commercial corridor, along Route 11 (Front Street), as well as several significant state highways. This "downtown" region is the most densely developed region in the town and contains most of the Town's commercial development as well as service providers. The area also contains the densest residential development within the Town.

In late August, the Town of Chenango was subject to the heavy rain from Hurricane Irene. This resulted in ground saturation during the storm. Ten days later Tropical Storm Lee hit the Town of Chenango. A combination of extremely heavy rain combined with the ground saturation from Hurricane Irene resulted in substantial flooding and the failure of stormwater management systems (SWMS) throughout the Town.

Tropical Storm Lee resulted in millions of dollars in commercial and residential property damage. The Town suffered significant impacts to infrastructure as well including damages to SWMSs, road washouts and erosion, and scouring along bridges, roads and culverts.

In order to address these issues and increase future resiliency against such events, the Town of Chenango was included as part of New York Governor Andrew M. Cuomo's NY Rising Community Reconstruction (NYRCR) Program. A committee was organized to represent the Town and help identify the impacts and critical needs of the community as a result of Tropical Storm Lee. The committee, in coordination with public participation, also identified community assets and developed strategies to begin to address the critical needs previously identified. This resulted in the identification of a variety of projects to address impacts of the storm while helping to ensure future resiliency.

## Critical Issues

Over the course of several early NYRCR committee meetings, the Town of Chenango identified several factors that contributed to some of the impacts and posed challenges to preventing a similar situation in the future and creating resiliency. The critical issues contributing to these include:

- Disruption of the connectivity in the community and to the larger region;
- Damage and risk to businesses and the economic well-being of the community, particularly in the commercial corridor along Front Street;
- Damage and risk to critical infrastructure, including transportation, water utilities, and stormwater management facilities;
- Substantial flooding in residential neighborhoods; and
- Future risk for flooding of community assets and homes.



## A Community-Driven Process

The NYRCR Program is designed as a community driven, bottom-up approach to addressing the impacts experienced due to Tropical Storm Lee. This began with an analysis of existing plans and studies relevant to the recovery and resiliency process. This process also involved significant public outreach, input and interaction throughout the entire plan development process. In addition, the committee and its consultants worked with key stakeholders to gather and verify information critical to the planning process.

The planning process involved a comprehensive outreach process. The committee held bi-weekly meetings that were open to the public at the Town Hall. This allowed the public to stay engaged in the process and with the committee throughout. As part of the public outreach process, the committee and its consultants utilized a variety of media outlets, attended public outreach events, provided promotional material, sent mailers, and provided advertising to keep the public informed of events and the plan's progress.

This culminated in a set of four public meetings held at different stages of the plan to ensure community involvement from beginning to end of the plan's development.

## Vision Statement

Through open discussion, community and stakeholder input, a review of local goals and objectives, and through review of other local and regional plans, the Committee adopted the following vision statement. This vision statement was specifically written to address the particular needs, goals, and desires on the Town of Chenango.

*“The Town of Chenango is a beautiful, quiet, and safe community that is part suburban and part rural. We take pride in the quality of our residential neighborhoods, vibrant business district, schools, and recreational*

*opportunities. We make a high priority of ensuring the safety and preservation of our private, commercial, and public property, while promoting our community as a great place to live, work, and raise a family.*

*We are a resilient community that prioritizes the concerns of our residents, businesses, and other property owners facing natural and man-made disasters. The Town is committed to working with its citizens, neighboring communities, and other public entities to provide a sense of security and well-being now, and in the future.”*

## A Blueprint for Implementation

The community and the Committee made a specific point during the planning process to identify issues, develop strategies, identify projects, and create a plan that will result in recovery from Tropical Storm Lee and make the Town more resilient against future storms. The Committee had a great desire to see that any projects stemming from this plan could be implemented and benefit the community in a realistic and manageable timeframe. To this end, the Town had some very specific issues it knew needed to be addressed early on in the process.

As the process continued, additional public input was obtained and engineers and other specialists became involved. Additional issues and projects came to the surface. The Committee, however, never lost track of the fact that the Town wanted projects that would provide real, measurable benefits to the community.

During the process, the committee recognized that there may be a variety of roadblocks that could inhibit or prevent certain projects from moving forward. The committee worked with the public through each of these items in order to develop projects that could be implemented while benefiting the community as a whole to the greatest extent possible.



After working through asset identification, community visioning, critical issue identification, strategy development, risk assessment, and several public engagement events, the Committee developed a finalized project list for the Town of Chenango. The projects were classified in three categories.

**Proposed Projects** – Projects are proposed for funding through a NYRCR Plan Area’s allotment of CDBG-DR funding.

**Featured Projects** – 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** – Projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed or Featured Projects.

## From Strategies to Implementable Projects

The Town’s projects grew from a core set of strategies developed by the committee in coordination with the public. These strategies evolved from the critical needs identified by the committee and public and were designed to help address those needs.

### STRATEGIES

**Strategy 1:** Improve stormwater management facilities to better handle significant storm events, increase capacity and effectiveness, and help prevent or reduce risk and damage to persons and property.

**Strategy 2:** Maintain and improve key infrastructure components and facilities to ensure the safe and efficient functions of the Community, especially during and after disaster events.

**Strategy 3:** Ensure that adequate resources, services, and facilities are available to address emergency

response and disaster recovery needs.

**Strategy 4:** Preserve and protect the Town of Chenango’s natural, recreational, and cultural resources from manmade and natural threats and hazards.

**Strategy 5:** Protect and promote safe, quality housing for all residents in the Town.

**Strategy 6:** Develop local zoning, codes, and programs, and provide legal and other professional assistance to help municipal staff ensure public safety, preserve property, and limit disaster impacts to the greatest extent possible, while securing long-term resiliency in the Town.

**Strategy 7:** Promote business development and improvements to necessary infrastructure to support commercial business expansion.

### PROJECTS

#### Smith Hill Creek (Wallace Road) Stormwater Management System

Redesign, rebuild, and improve the stormwater management system along Smith Hill Creek to improve stormwater management. This includes increasing culvert sizes and installing trash racks and channel improvements, and installing storm drains along Wallace Road that tie into the stormwater management system on Front Street. **(Proposed Project)**

#### Northgate Plaza Flap Gate Installation

Replace sections of the drainage pipes under Northgate Plaza, and install a flap gate on the outlet end of each of the two pipes. Construct a retention wall between the Weis Market site and the Waste Water Treatment Plant. **(Proposed Project)**

#### Fox Road Stormwater Improvements

Remove three existing culverts underneath Fox Road along Brooks Creek and replace with a bridge to allow for greater flow. **(Proposed Project)**



### **Grant Road Stormwater Pipe Replacement**

Remove approximately 200 linear feet of galvanized stormwater pipe (3' diameter) and replace pipe with 3' diameter piping with access for clean-out midway along the pipe. **(Proposed Project)**

### **Nimmonsburg Neighborhood Stormwater Management System Master Plan**

Conduct a comprehensive analysis of the Smith Hill Creek (Wallace Road) Stormwater Management System with recommendations for long-term solutions that permanently address flooding issues in the most efficient way. **(Proposed Project)**

### **Northgate Water Pump Station Upgrades**

Raise electrical systems at Northgate Pump Station above flood levels. **(Proposed Project)**

### **McGirk's Sewer Lift Station Upgrades**

Raise electrical systems above flood levels. **(Proposed Project)**

### **Route 12A Water Pump Station Upgrades**

Raise electrical systems above flood levels and install a back-up generator. **(Proposed Project)**

### **Surveys, Site Analysis, and Testing for Well in the Northern Section of Town**

Conduct studies and testing necessary for well siting and development. **(Proposed Project)**

### **Route 12A Sewer Lift Station Improvements**

Raise electrical systems and install a flood wall around the pump station to prevent inundation from adjacent low areas, and allow access to the pump station during floods. The electrical panel also should be relocated inside the flood wall to improve access to electrical controls during maintenance operations. **(Proposed Project)**

### **Municipal Complex Back-up Generator**

Install a back-up generator for municipal complex. **(Proposed Project)**

### **Regional Shelter Funding**

Provide funds for a regional shelter feasibility study in coordination with Broome County and six Broome NYRCR Communities. **(Proposed Project)**

### **Bank Restoration and Erosion Prevention at Chenango Commons Golf Course**

Restore an estimated 385 feet of stream bank to prevent further channel migration and to reduce sediment pollution in the Chenango River. **(Proposed Project)**

### **Community Rating System (CRS) Analysis**

Identify opportunities and methods to achieve accomplishments in the NFIP's six core flood loss reduction areas. Provide education services on CRS and assist residents with resiliency. **(Proposed Project)**

### **Stormwater Enforcement and Legal Assistance**

Provide assistance to the Town regarding ongoing enforcement issues, and assist with legal and other related services to address sites that contribute to stormwater issues. **(Proposed Project)**

### **Front Street Commercial Corridor Economic Development Analysis**

Conduct a comprehensive economic development study with a market analysis for the Front Street commercial corridor. **(Proposed Project)**

### **New Well in the Northern Section of Town**

Construct well, housing, and necessary piping. **(Featured Project)**



## TOWN OF CHENANGO NYRCR PLAN PROJECTS BY STRATEGY

Project Name	Proposed Project	Featured Project	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6	Strategy 7
Smith Hill Creek (Wallace Road) Stormwater Management System	<b>X</b>		<b>X</b>						
Northgate Plaza Flap Gate Installation	<b>X</b>		<b>X</b>						
Fox Road Stormwater Improvements	<b>X</b>		<b>X</b>						
Grant Road Stormwater Pipe Replacement	<b>X</b>		<b>X</b>						
Nimmonsburg Neighborhood Stormwater Management System Master Plan	<b>X</b>		<b>X</b>						
Northgate Water Pump Station Upgrades	<b>X</b>			<b>X</b>					
McGirk's Sewer Lift Station Upgrades	<b>X</b>			<b>X</b>					
Route 12A Water Pump Station Upgrades	<b>X</b>			<b>X</b>					
Surveys, Site Analysis, and Testing for Well in the Northern Section of Town	<b>X</b>			<b>X</b>					
Route 12A Sewer Lift Station Improvements	<b>X</b>			<b>X</b>					
Municipal Complex Back-up Generator	<b>X</b>				<b>X</b>				
Regional Shelter Funding	<b>X</b>				<b>X</b>				
Bank Restoration and Erosion Prevention at Chenango Commons Golf Course	<b>X</b>					<b>X</b>			
Community Rating System (CRS) Analysis	<b>X</b>							<b>X</b>	
Stormwater Enforcement and Legal Assistance	<b>X</b>							<b>X</b>	
Front Street Commercial Corridor Economic Development Analysis	<b>X</b>								<b>X</b>
New Well in the Northern Section of Town		<b>X</b>		<b>X</b>					



# CLARKSTOWN NYRCR



## NY RISING COMMUNITY RECONSTRUCTION PLAN

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**December 2014**

NY Rising Community  
Reconstruction Program



# Clarkstown NYRCR Executive Summary

## I. Overview

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 goal of the program is to rebuild from these storms and to increase communities' physical, economic, and social resilience to future storm events. The NYRCR Program provides an opportunity for residents, business owners and community leaders to actively participate in planning for a stronger future. The NYRCR 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.

The Clarkstown NYRCR Plan was developed during six months of community stakeholder engagement. The NYRCR Plan reflects Clarkstown's vision and goals, honoring its unique qualities and assets for building a safer, more resilient and sustainable future.

### a. Community Location and Allotment Amount

The Town of Clarkstown is 41-square miles located approximately 25 miles northwest and a one-hour drive from New York City. The Town comprises eight hamlets: Bardonia, Central Nyack, West Nyack, Congers, Nanuet, New City, Rockland Lake, and Valley Cottage, as well as the Village of Upper Nyack and a portion of the Villages of Nyack and Spring Valley. The majority of the Town is within the Upper

Hackensack River watershed. As of the 2010 census, the Town's population was just under 85,000 residents.

The Town of Clarkstown is eligible for up to \$3 million in Community Development Block Grant – Disaster Recovery (CDBG-DR) funding through the NYRCR Program.

### b. Scope of Planning Area

The Clarkstown NYRCR planning area is coterminous with the municipal boundaries and includes all eight hamlets. Although some Clarkstown neighborhoods were not directly impacted by flooding or wind damage, these areas contain important recovery and resiliency assets and serve as resources for resilient reconstruction.

### c. Summary of Storm Impacts

Both Hurricane Irene (August 28, 2011), and Superstorm Sandy (October 29, 2012) resulted in widespread flooding, wind damage and prolonged power outages throughout Clarkstown.

The torrential rains, strong winds, and heavy down-pour from Hurricane Irene caused extensive flooding, uprooted trees, and downed power lines, resulting in widespread and protracted road closures. Many homes and businesses were flooded up to six feet in their basements. Clarkstown Supervisor Alexander Gromack declared a local State of Emergency that lasted five days, ordering 1,400 homes in West Nyack to evacuate because of potential flooding by the Lake DeForest reservoir.

Following Superstorm Sandy, a State of Emergency was declared at both the County and local level. Although the flooding was less severe than during Hurricane Irene, strong winds with gusts up to 60 to 70 mph brought down trees and power lines, causing severe power outages and damaging buildings and infrastructure.

The physical damage to roads, homes and Town infrastructure, caused by Superstorm Sandy and Hurricane Irene, combined with the economic impacts of displaced and closed businesses continue to affect Clarkstown today. The Town continues to recover as they plan to build back better to become more resilient to both extreme storm events, and also the more frequent high intensity short duration storms.

#### d. Summary of Critical Issues

Since 1999, 10 serious flooding events have impacted the residents and businesses, roads, critical infrastructure systems, and natural resources throughout the Town. It is important to note that it is not only the named storm events that impact the Town, but also flash flooding that accompanies summer storms, the spring thaw, and power outages that occur during high wind events.

The key critical issues facing Clarkstown include:

- ▶ Emergency Service Provider Access;
- ▶ Flooding in Residential Neighborhoods;
- ▶ Interruptions to Town Services and Facilities;
- ▶ Repeated Flooding of Businesses;
- ▶ Road Closures; and
- ▶ Widespread and Prolonged Power Outages.

## II. Community-Driven Process

The NYRCR Program is fundamentally a grassroots initiative. Initial project recommendations were generated by the Clarkstown NYRCR Planning Committee (Committee), which comprises elected officials, community leaders, residents, and business owners who came together to discuss how to help their Town recover from and become more resilient to future storms. The Committee met approximately ten times—every other week from June 2014 through November 2014.

All of the material presented in the Clarkstown NYRCR Plan has been developed collaboratively. The NYRCR Program provided the Community with a unique opportunity to participate in a bottom-up/community-driven planning effort to shape the communities’ more resilient future.

### EIGHT STEPS TOWARD RESILIENCY:

- ▶ 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; and
- ▶ Deliver Final NYRCR Plan.

## a. Community Vision and Goals

### Clarkstown NYRCR Vision

Clarkstown, the economic hub and Rockland County seat, is a safe, centrally located, diverse, and resilient Town. The community is a geographic crossroads between New York City, New Jersey, and the rest of New York State. The Town enjoys access to multi-modal transportation options, diverse housing choices, a variety of small and large commercial venues, and robust educational, recreational, and cultural facilities in a bicycle and pedestrian friendly environment.

Clarkstown values and will continue to protect its natural resources including the Palisades Ridgeline, Hackensack, and Hudson Rivers, wetland systems, and stream corridors that together provide significant benefits to the community including environmental and water quality protection, flood mitigation, recreational opportunities, and preservation of community character.

Our vision is to embrace and enhance the many strengths of our Town while planning for a more resilient community so that we may build back better from future disasters.

The following goals were developed to help the Community realize the vision:

- ▶ Augment emergency services including providing back-up power during storm events;
- ▶ Build closer working relationships and coordination with the States of New York and New Jersey to address flooding issues associated with the Hackensack River;
- ▶ Continue to balance commercial, industrial and residential development with the preservation of open space and agricultural lands;
- ▶ Enhance infrastructure and stormwater systems where needed;

- ▶ Enhance multi-modal opportunities including safe bicycle and pedestrian facilities;
- ▶ Preserve the unique community fabric made up of rural, suburban, and urban settings; and
- ▶ Protect natural resources including the Hackensack and Hudson Rivers, wetland systems, stream corridors, and Clarkstown's lakes.

## b. Summary of Public Outreach

Three Public Engagement Events were held throughout the six month planning process, with a fourth to be conducted after the final NYRCR Plans are completed in January 2015. These events provided the opportunity for Clarkstown residents to learn about the NYRCR Program, assets, and projects, and provide input to help develop community-driven plans for a more resilient future. The format of the Public Engagement Events varied throughout the process, but generally included PowerPoint presentations, display boards and mapping, workgroups, and discussion with maps and markers, survey sheets, and photo booths.

Materials were circulated to the Committee and posted to a dedicated Clarkstown webpage on the NYRCR Program website. Committee Members also shared project information with their community by posting relevant materials to the Town's website, leaving materials in the various Town libraries and other community facilities, posting information throughout the Town, reaching out to friends and neighbors through email and conversation, and attending municipal meetings and community functions to report on their NYRCR Plan progress. In addition, the Committee utilized social media, emailing via the Town's direct email system, and also sent flyers home with students enrolled in Town summer camps and schools.

### III. Final Plan as Blueprint for Implementation

#### a. Needs and Risks Underpin Projects

The Clarkstown NYRCR Planning Committee understands where the Town is vulnerable, where the critical assets are located, and what the risks are to those assets. To address their specific vulnerabilities, a comprehensive needs and opportunities analysis was prepared through a combination of research, analysis, Committee and community feedback. A sample of the needs and the opportunities identified to address those needs is presented below:

##### NEEDS:

- ▶ Protection of businesses and commercial centers subject to repetitive flooding from future storm damage;
- ▶ Backup power supply for and installation of permanent generators at key facilities;
- ▶ Protection of single family and multi-family residential neighborhoods from flooding;
- ▶ Upgrades to stormwater infrastructure and improvement of drainage systems;
- ▶ Protection of open space assets for recreation and tourism, and as a means to assist with stormwater management; and
- ▶ Development balanced with open space preservation.

##### OPPORTUNITIES:

- ▶ Evaluate options and various technologies to alleviate flooding conditions to commercial centers;
- ▶ Locate and evaluate the vulnerability of health and social service facilities, including access to medicine;
- ▶ Investigate and pinpoint causes of neighborhood flooding (i.e., stormwater systems, stream alignment, watershed development, location in mapped floodplain, etc.) and develop plans for flood mitigation;
- ▶ Inventory stormwater infrastructure including age and condition of facilities and continue to prioritize and identify funding sources for maintenance and/or replacement;
- ▶ Determine impacts on recreational assets from flooding and evaluate measures to protect from future flood events; and
- ▶ Evaluate local regulations to ensure a proper balance is maintained between new development and open space protection.

#### b. Strategies

The strategies developed in the NYRCR Plan consider emergency, disaster recovery, long-term resiliency, and economic development needs that either remain unmet or can be strengthened. They represent statements of action that address how to best fortify community assets, capitalize on opportunities, resolve critical issues, and meet short-, medium-, and long-term goals. The projects developed throughout the planning process are a path to executing the strategies and realizing the vision the community has for the Town of Clarkstown. Although not every strategy presented in the NYRCR Plan has a specific corresponding project, the strategies remain important guides to developing additional resiliency measures to help strengthen the future of the community.

## Clarkstown NYRCR Strategies

- ▶ Develop initiatives and financial assistance programs to better protect residents, businesses, and commercial centers from future storm damage and to allow them to recover more quickly;
- ▶ Ensure access to and improve resiliency of critical health and social service facilities and safe havens during and after storm events;
- ▶ Improve regional coordination with neighboring communities and local and state agencies for watershed management to better mitigate flooding and plan for future disasters;
- ▶ Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective;
- ▶ Preserve open spaces and restore natural resources to better support flood mitigation;
- ▶ Promote resilience and flood management best practices through land-use planning, policy, and regulation;
- ▶ Provide education, outreach and implementation assistance regarding pre-storm preparedness (including proper maintenance of waterbodies and stormwater runoff mitigation on private properties), storm protection procedures and post-storm recovery initiatives to protect from future flooding; and
- ▶ Restore and protect critical infrastructure and transportation assets.

## c. Projects are the Path to Executing the Strategies

Proposed Projects are proposed for funding through a community's allotment 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; and regulatory reforms and other programs that do not involve capital expenditures.

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

The strategies presented in Table A, and the Proposed or Featured Projects to implement them, specifically address the stated needs and transform opportunities into action items. The Proposed and Featured Projects are not presented in any particular order of priority.

**Table A**  
**Proposed and Featured Projects**

Strategy	Project Name	Project Category
Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective	Cranford Drive Drainage Improvements	Proposed Project
	Drainage Improvements to the Demarest Kill Stream	Proposed Project
	Drainage Improvements to the Nauraushaun Brook Basin	Proposed Project
	South Mountain Road Drainage Improvements	Proposed Project
	Cul-de-sac Island Reconstruction	Featured Project
	Jeffrey Place Drainage Improvements	Featured Project
	Pineview Road Storm Drainage Improvements	Featured Project
Preserve open spaces and restore natural resources to better support flood mitigation	Implementation of Post-Residential Buyout Program Measures for Flood Protection	Featured Project
Promote resilience and flood management best practices through land-use planning, policy, and regulation	Digital Inventory of Stormwater Infrastructure	Featured Project
	Tree Maintenance Program	Featured Project
Restore and protect critical infrastructure and transportation assets	Fredric Street Drainage Improvements	Proposed Project
	Old Haverstraw Road Drainage Improvements	Proposed Project

# **NYRCR** **Town of** **Walkill**

NY Rising Community  
Reconstruction Plan

**DECEMBER 2014**

**NY RISING  
COMMUNITY  
RECONSTRUCTION  
PROGRAM**





# Executive Summary

## Overview

The Town of Wallkill (Town) presents visitors with a unique opportunity to experience everything from farmlands to fashion. The Town, nestled in the Lower Hudson Valley, encompasses 62.2 square miles in Orange County. Recently, the Town has experienced a relatively major transformation from a primarily agricultural, rural community to a thriving retail economic center. In fact, the Town’s population has more than doubled in less than 50 years. As the Town continues to attract new businesses and residents, municipal services, including local utilities and emergency responders, are under constant strain to meet new demands.

In 2011, Hurricane Irene and Tropical Storm Lee demonstrated just how vulnerable the Town could be. Between 4 and 11.5 inches of rain fell during Hurricane Irene, causing catastrophic flooding in the areas along the Wallkill River. In fact, Orange County was one of the seven hardest hit counties in New York State. The Town experienced significant road washouts and direct flooding damage, as well as secondary damage from fallen trees and downed power lines. During Hurricane Irene, 11 of the 86 National Flood Insurance Program (NFIP) policyholders in the Town of Wallkill filed claims for over \$197,000 in damages due to the storm.

Less than two weeks later, the Town of Wallkill faced the challenge of Tropical Storm Lee, which brought rainfall of 4.6 to 8.3 inches, high winds, and more floodwaters. Tropical Storm Lee took an already tenuous situation and made it exponentially worse.

Only a little over a year later, the Town of Wallkill was threatened again, this time by Superstorm Sandy. Superstorm Sandy tested the Town not just through floodwaters, but through the force of its winds. Gusts of up to 61 mph downed trees and caused sustained

power outages that threatened the safety of motorists and residents Town-wide. The Federal Emergency Management Agency (FEMA) indicated that the Town incurred \$120,000 in costs because of Superstorm Sandy.

The Community, however, used the storms and resulting damages as a chance to showcase its spirit. Local residents demonstrated resolve that would have mirrored the original settlers of the Town, primarily farmers who frequently suffered from the vagaries of Mother Nature.

**New York Governor Andrew M. Cuomo’s NY Rising Community Reconstruction (NYRCR) Program presented the Town with an opportunity to leverage this resolve into long-term resiliency strategies.**

The Town of Wallkill formed a community-based NYRCR Planning Committee that identified flood mitigation and community resiliency activities under the purview of the NYRCR Program. The Town of Wallkill NYRCR Plan identifies the most critical needs and impacts from recent major storm events. In addition, it seeks to not only foster increased resiliency and safety at a local level but also, to encourage community and economic development.

## Critical Issues

The Town of Wallkill NYRCR planning process recognized several critical issues surrounding the Town’s ability to successfully recover from natural disasters and to enhance its overall resiliency. The Town of Wallkill NYRCR Planning Committee (Committee) utilized a wide variety of resources to accomplish its goal. Sources included existing plans, technical analyses, public input, interagency guidance, and Committee discussion.



As with any worthwhile challenge, these issues have multiple facets and are interconnected, requiring complex and innovative solutions.

## There's No Place Like Home

The Town of Wallkill has experienced many significant changes in the past few decades, as it has transitioned into a regional shopping area and employment hub. At the same time, the new residential developments and housing complexes have emerged to serve the demand of new, large local employers. As with any major change, this evolution has had many unintended effects, including the loss of a sense of community or home among residents.

**This lack of a sense of place affects both long-term residents, who feel that the historic character of the Town has been lost, and newer residents, who have not yet been able to develop strong ties to the community.**

In fact, one resident went so far as to state, “Lots of people who live in the Town of Wallkill don’t even know that they live in the Town of Wallkill.”

Although the Town of Wallkill NYRCR Plan focuses primarily on structural and infrastructural integrity as a way to enhance resiliency, the Town recognizes it cannot be truly resilient until it comes together as a community. To that end, the Committee identified many projects with a secondary goal of strengthening a sense of community and developing a Town of Wallkill identity.

## Critical Infrastructure Cannot Experience Critical Failure

The Town’s recent population growth has not only strained the Town’s sense of identity, but the Town’s housing and public services’ resources, as well. Some of these residents commute daily to New York City, relying on the Town of Wallkill transportation corridors and public transit to get to workplaces. Many more

commute locally, either to jobs along the Town’s regional medical corridor or to other major local employers. The Town can also see up to 250,000 visitors on busy shopping days. This creates more demand on public services.

Although the Town typically manages these demands during non-disaster times, the increased dependency on an uninterrupted transportation and public services network creates a concern for the Town of Wallkill.

**While the direct damages of flooding are serious enough, a subsequent or secondary hazard of transportation or utility interruption could bring the Town to a standstill. Such a standstill can inhibit residents and emergency personnel from getting to where they need to be.**

The Committee sought out ways to create redundancy and support additional efforts to bolster public services, especially during severe storm and flood events.

## Protecting the Community

The Committee identified its most significant concern in the *Town of Wallkill/City of Middletown Natural Hazards Mitigation Plan* (2014). Specifically, this issue concerns the Town’s ability to respond to the direct damages and impacts caused by flooding.

As in many communities, the natural resources and waterways of the Town present both opportunity and danger for residents. These waterways have strengthened the Town’s economy, but have also increased risk to residents’ safety, residential homes, and other community assets. Development projects and a lack of understanding about flooding (i.e., specifically about exacerbating factors, such as the effect of residential debris) have amplified this vulnerability.



The Town of Wallkill NYRCR Plan seeks to improve the Town's existing mechanisms for flood control, and create more resilient infrastructure through a sustainable approach and a mindset aimed at long-term success.

## A Community-Driven Process

Both the Committee and the community met NYRCR planning and organizational challenges with the same indomitable spirit that saw them through the 2011 flooding and subsequent storms. The Committee carried out a multi-pronged engagement process to incorporate quantitative and qualitative data from as many sources as possible.

Most importantly, from inception through the publishing of the Town of Wallkill NYRCR Plan, the planning process deliberately included public participation.

The Committee organized and conducted extensive, multi-media public outreach and events to offer residents every opportunity to ensure that their concerns and ideas were addressed. Residents could choose to participate through attendance at bi-weekly Committee Meetings, online and hard-copy surveys, door-to-door visits, radio/social media channels, and Public Engagement Events.

Four Public Engagement Events were held at the Town Hall to attract as wide an audience as possible. The Committee wanted to ensure that all its residents knew about the opportunities presented through the NYRCR Program, and that nobody was limited from participating by a lack of access to either transportation or technology, or because of a functional or access need.

## Vision Statement

Overarching this effort was the following vision adopted by the Committee early in the planning process:

*For the preservation of our future, the Town of Wallkill stands united to build a more resilient community of tomorrow. The Town of Wallkill aspires to strengthen our infrastructure, not only to manage future storms, but also to ensure the future growth, development, and sustainability of our community. Together with our neighbors of all ages and abilities, both within the Town of Wallkill and in the surrounding areas, we can establish a safer, more economically viable community and protect the spirit of the Town for generations to come.*

## A Blueprint for Success

The Committee chose to take an expansive approach to promote long-term resiliency and success at multiple levels, including flood damage reduction, improved emergency services, and promotion of community initiatives. The NYRCR Plan creates a blueprint that effectively targets the Town's greatest at-risk assets and recommends solutions to bolster critical facilities and essential services.

The Committee and the public used a multi-generational body of knowledge and experience, augmented by both personal experiences and technical analysis, to determine the Town's primary needs, risks, and critical issues. This catalyzed the development of resiliency and recovery activities.

After identifying and analyzing economic, healthcare, social services, housing, infrastructure, and natural and cultural resources to determine prospective flood vulnerability and overall impact to the Town, the Committee developed preliminary strategies to reduce risk and to meet the most critical community needs. These needs focus on community health and safety, resiliency, quality of life, economic growth, and environmental stewardship. The strategies are



the foundation for projects and actions proposed in the Town of Wallkill NYRCR Plan for Community Development Block Grant – Disaster Recovery (CDBG-DR) funding.

The Committee chose not to limit itself only to transportation and infrastructure projects, which can have a limited useful life. Instead, the planning process explored projects in variety of categories: transportation and infrastructure; planning and regulatory processes; natural resource protection; and education and outreach.

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 a clear direction toward project implementation.

**Proposed Projects** are projects proposed for funding through an NYRCR Plan Area’s allotment 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.

## From Strategies to Implementable Projects

The Committee identified five strategies in its NYRCR Plan, around which potential projects and resiliency actions center. These strategies highlight the Community’s overall reconstruction and resiliency needs, while offering opportunities to address them.

The following strategies resulted in projects and actions that collectively remediate, mitigate, rebuild, and promote a resilient Town of Wallkill.

## Strategies

**Strategy 1:** Ensure an efficient, safe, and resilient transportation system.

**Strategy 2:** Improve stormwater management and drainage systems throughout the Town to decrease risk for homes, businesses, and residents.

**Strategy 3:** Improve on existing emergency preparedness, response, and communications, including public outreach and education.

**Strategy 4:** Preserve, protect, and enhance the Town’s natural, recreational, and cultural resources, and strengthen the local sense of place and community.

**Strategy 5:** Promote sustainability and resilience through local planning mechanisms and regulation/ code enforcement.

## Projects

The following projects were selected for the Proposed Project category, due to the multitude of benefits to the community and project contribution towards increased resiliency.

### Ballard Road at East Galleria Drive Flood Mitigation

This project seeks to replace an undersized culvert to improve flood-level flow capacity, increase floodwater conveyance, and access the available floodplain downstream.

The roadway and shoulder sustained costly flood damages during Hurricane Irene and Superstorm Sandy, resulting in temporary road closure and sustained lane closure. Additionally, the intersection is a high traffic area for both regional and local motorists who access the Middletown train station or shopping centers, as well as industrial traffic.



## **Interoperable Communications Program**

This project seeks to develop and implement an interoperable communications program to support effective and strategic emergency management activities. Interoperable communications refers to the ability of emergency responders to communicate and share voice and data information. These communications will ultimately lead to more efficient disaster response and recovery.

## **Natural Gas or Solar Backup Power for Critical Facilities and Infrastructure**

The focus of this project is the installation of permanent natural gas or solar back-up power sources for critical facilities and infrastructure in the Town, including: traffic signals near Route 211 and Route 17 intersection; Wallkill Senior Housing, 88 Senior Way; and Senior Horizons, 141 Bert Crawford Road.

Power sources would be obtained for specific facilities that service functional needs and vulnerable populations. This project would reduce the need to rely on emergency services and responders to meet basic health and safety needs during large-scale power outages. This project would also include an evaluation of existing shelter and other critical facility needs for redundant power generation. Use of solar or green energy would be considered, where feasible.

## **Silver Lake Dam Modifications and Emergency Operations Agreement**

This project aims to mitigate future flood damages at repetitively damaged roadways in the area, including the Silver Lake-Scotchtown Road and “Twin Bridges,” along Bert Crawford Road near the inlet for Silver Lake; at the intersection of Fitzgerald Drive and Neely Street; and at State Route 211 East near Wallkill Plaza. Phase 1 of the project would improve the Silver Lake outlet structure to enable timely water surface reduction in Silver Lake to increase flood storage capacity and reduce localized flooding. Phase 2 of the project calls for coordination with the owners of the Silver Lake Dam

to secure access for Town officials, and the authority to lower the water level prior to a storm event.

## **Sump Pump Backflow Prevention and Cross-Connection Control**

This project would include an education and outreach program. The intent is to minimize the occurrences of improper sump pump connections to the municipal sanitary sewer system and to increase the number of residences who are equipped with backflow preventers that meet current standards. This project aims to reduce unnecessary and inappropriate load on the municipal sanitary system during flood events, and to prevent basement sewage backflow with voluntary backflow installation and improper connection repair programs.

## **Water and Sewer Treatment Plant Flood Damage Mitigation Measures**

This project would implement strategic flood-proofing and operational mitigation activities to reduce further service interruptions and costly damage repairs. The project proposes upgrades to the Kosuga, Braeside, Crystal Run, and Rykowski Well Roads; the Braeside and Kosuga Water Treatment Plants; the Braeside Sewer Treatment Plant; and the Northern Woods and Woodland Acres Sewer Pump Stations.

## **Winding Brook Floodplain Improvements**

This project would mitigate future flood damages throughout the Winding Brook floodplain in the Scotchtown neighborhoods. The project would focus on the Ben Lomond Drive culvert, as its current state threatens several buried Town utilities. The current culvert would be replaced with an upgraded structure. The project would also reactivate two capped ends of the water main pipe under Ben Lomond Drive, which was broken during Tropical Storm Lee due to roadway collapse around the Ben Lomond culvert.

## TOWN OF WALKILL NYRCR PLAN PROJECTS BY STRATEGY

Town of Walkill NYRCR Projects	Proposed Project	Featured Project	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5
Ballard Road at East Galleria Drive Flood Mitigation	<b>X</b>		<b>X</b>	<b>X</b>			
Natural Gas or Solar Back-up Power for Critical Facilities and Infrastructure	<b>X</b>		<b>X</b>		<b>X</b>		
Interoperable Communications Program	<b>X</b>				<b>X</b>		
Silver Lake Dam Modifications and Emergency Operations Agreement	<b>X</b>			<b>X</b>		<b>X</b>	
Water and Sewer Treatment Plant Flood Damage Mitigation Measures	<b>X</b>				<b>X</b>		
Winding Brook Floodplain Improvements	<b>X</b>		<b>X</b>	<b>X</b>			
Channel Daylighting and Riparian Improvements		<b>X</b>		<b>X</b>			
Circleville Hamlet Preparedness and Public Space Improvements		<b>X</b>				<b>X</b>	
Marketing and Outreach Campaign about Life in the Town of Walkill		<b>X</b>				<b>X</b>	
Masonic Creek Watershed Stormwater Storage: Fredrick's Farm Stormwater Storage and Public Park		<b>X</b>		<b>X</b>			
Sump Pump Backflow Prevention and Cross-Connection Control		<b>X</b>			<b>X</b>		
Vulnerable Populations and Community Emergency Alert, Education, and Support		<b>X</b>			<b>X</b>		

# **NYRCR** **Town of** **Windham**

NY Rising Community  
Reconstruction Plan

**DECEMBER 2014**

**NY RISING  
COMMUNITY  
RECONSTRUCTION  
PROGRAM**





# Executive Summary

## Overview

The Town of Windham is a charming, historic small town, nestled high amidst the Catskill Mountains in Greene County, with populations and activities that ebb and flow with the changing seasons. Windham is a tight-knit community, a popular second-home destination, and a major contributor to a regional economy based on tourism and recreation. Windham's tourism industry is bolstered by the many outdoor activities and vistas made possible by the peaks, valleys, and natural resources of the surrounding Catskill Mountains.

August 28, 2011, brought Hurricane Irene and nearly 18 inches of rain to the Town of Windham. Runoff rushed down steep slopes, swelling the Batavia Kill, overtopping its banks and inundating the Town. Raging floodwaters enveloped Main Street, uprooting trees and washing away almost everything in its path. Residents in this remote community of New York banded together as best they could, but many were isolated and forced to seek impromptu sheltering, watching in horror as homes, businesses, and roads were washed away and as stranded residents called out for help. The deadly flooding scarred the Town and its residents, but it also emboldened their resolve to see the Town recover and to make their community more resilient during future flooding and disasters.

To address the impacts of regular flooding and to bolster resiliency against future storms, the Town of Windham formed a planning area under the guidance and funding of New York Governor Andrew M. Cuomo's NY Rising Community Reconstruction (NYRCR) Program. The Town of Windham NYRCR Plan aims to address the most critical needs and impacts from major storm events while identifying projects and strategies to encourage future resiliency, increase safety and quality of life, and

serve as incentives for economic growth. This NYRCR Plan presents projects and actions that could become realities with an NYRCR Program allotment of up to \$3 million.

The NYRCR Plan, an intense seven-month effort of community collaboration, public engagement and input, and scientific observation and analysis, reflects the Town's commitment to achievable projects and implementation strategies to rebuild, become more resilient, and guard against future natural disasters.

## Critical Issues

During the initial Town of Windham NYRCR Planning Committee Meetings (Committee Meetings), the Town of Windham NYRCR Committee (Committee) identified key challenges, including repetitive flooding and barriers to economic and community development. These challenges were necessary to overcome to create resiliency, develop economic growth, and enhance the quality of life in the Town. These critical issues informed the development of recovery strategies and project identification. Although they are discussed in further detail in the NYRCR Plan, these critical issues include:

## Repetitive Flooding

- **Flood-prone Conditions** – The natural conditions of the Batavia Kill watershed have contributed to frequent flooding since the first settlers moved to the area in the late eighteenth century;
- **Property, Infrastructure, and Facility Damage** – The juxtaposition of the Batavia Kill with developed property in the Town not only poses serious safety risks for residents, it also places numerous homes, businesses, and



essential infrastructure systems at significant risk for flood-related damages;

- **Economic Loss** – If resilience efforts are not undertaken, future floods will continue to damage local and regional economies. Business interruption, losses to the local tax base, rebuilding costs, as well as intangible fears, all negatively impact the economic potential of the Town of Windham;
- **Lack of Back-up Power** – Many important local facilities, including Windham Town Hall, the Town’s well water pump stations, the local bus garage, the Centre Church property (that serves as a community center), and the Town Highway Garage, are not equipped with permanent emergency power generation;
- **Isolated Population** – Residents expressed major concern over both physical and communications-related isolation with regards to future health and resiliency. Repetitive flooding, failing infrastructure, and limited access routes can cause significant potential safety risks for local residents during major flood events;
- **Natural System Impacts** – In addition to threatening human life and the built environment, severe flood events have also negatively impacted natural systems, creating stream instability along the Batavia Kill and increasing the rate of erosion; and
- **Stream Project Challenges** – The Town of Windham faces several challenges in strengthening the streambanks of the Batavia Kill. Developing a solution requires a balance among the often competing goals and preferences of the stream’s diverse stakeholders. These stakeholders and priorities include property owners concerned with erosion; outdoor recreation users; public officials concerned with infrastructure safety; and those who use the water supply for snow, irrigation, or drinking water.

## Economic and Community Development

- **Seasonal Shifts, Limited Amenities, and Services** – The Town’s hamlets are commercial and tourism hubs that provide shopping, recreation, and cultural opportunities for residents and visitors. These amenities, however, are currently limited in number and diversity, partially due to the seasonal nature of the economy;
- **Underutilized Recreational Challenges** – Despite a thriving recreation and tourism industry, Windham does not yet fully leverage the year-round tourism potential of local and regional assets. While outdoor recreation and enjoyment of local assets is an important part of everyday life for many Windham residents, multiple historically important recreational amenities have been under-utilized in recent years;
- **Insufficient Communication Capability** – Cellular telephone and Internet service in Windham can be unreliable. As cell and high-speed Internet access become increasingly important for business operations and quality of life, the lack of reliable telecommunications and Internet service in the Town can discourage entrepreneurs, business owners, and even tourists;
- **Housing Affordability** – With almost 35% of homes valued at more than \$300,000 and a median rent of \$810 per month, it becomes increasingly difficult for young families and locally employed, first-time homebuyers to afford housing in Windham;
- **Insufficient Workforce** – Currently, multiple interrelated conditions contribute to an insufficient number of qualified and reliable workers to support growth in the local economy. In addition to the housing affordability challenges that deter young families and workers, the ebb and flow of the seasonal economy further exacerbates this issue;



- **Lack of Medical Care and Senior Care Facilities** – With an increasingly aging population, physical isolation, and limited communications capability, the Town of Windham is increasingly in need of access to quality healthcare and senior care facilities; and
- **Development Challenges** – Steep terrain and difficult soils, along with a significant amount of land being owned by New York State and New York City, limits potential development areas in the Town.

## A Community-Driven Process

Meeting this planning challenge with the same collaborative spirit that drove response and recovery efforts, the Committee reviewed existing plans and studies, engaged in quantitative and qualitative analyses and risk assessments, and conducted extensive, multimedia public outreach and engagement.

Public input was paramount in 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 residents and homeowners; non-resident property owners; business owners; and educational, community, faith-based, and social service organizations across the public and private sectors.

Specific venues for public involvement and engagement included open weekly or bi-weekly NYRCR Committee Meetings, and community-wide public meetings.

## Vision Statement

Through collaborative discussions, stakeholder engagement, reviews 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 effort for the Town of Windham NYRCR Plan.

### Vision Statement

*“The Town of Windham will protect and leverage rich natural and cultural resources to become a world-class, four-seasons destination, and an unwavering example of community resolve, sustainability, and economic growth.*

*The Town will increase prosperity, vitality, and long-term growth by addressing critical issues, building strategic alliances, and focusing on improving quality of life, while sustaining Windham’s unique rural and historic character.*

*Furthermore, we recognize our community’s strength of the human spirit and ongoing neighbor-helping-neighbor capacity, and we are dedicated to protecting the health and welfare of each each of our residents.”*

## A Blueprint for Implementation

While Hurricane Irene was certainly an extreme event, the damage it wrought on the Town of Windham was only the latest in a series of flood disasters that have impacted and at times, devastated the Town.

The Committee and the public relied on a multi-generational body of knowledge and experience, augmented by anecdotal evidence and scientific analysis, including hydraulic modeling, to identify the Town of Windham’s primary needs, risks, and critical issues, all of which provide a blueprint for project and strategy realization.

The Town of Windham NYRCR Plan aims to bolster the resiliency of existing critical assets and any proposed post-storm new construction projects to future storm events. The Committee first identified and analyzed the Town’s economic, healthcare and social services, housing, infrastructure, and natural and cultural resources to assess the prospective risk if these assets were lost or impaired. The Committee then evaluated overall risk to these assets, focusing on the Batavia Kill and the flood hazard it represents to the Town.



Next, the Committee developed a number of strategies to address the most critical health, safety, resiliency, and quality of life needs identified by the Town of Windham and the Committee. Analysis, ongoing discussions during Committee Meetings, and public feedback served as the basis for these strategies. These strategies reflect the Town’s values, issues, needs, and opportunities. They are the foundation for identifying and categorizing projects that will work towards the comprehensive recovery and resilience of the Town. The strategies became the foundation for projects and actions proposed in this NYRCR Plan.

After months of analysis, Public Engagement Events, and strategizing at Committee Meetings, the Committee developed a finalized project list for the Town of Windham. The projects were classified in three categories. The three-tiered methodology was designed to identify and consider the full range of potential actions and outcomes.

**Proposed Projects** are those proposed for funding through the Town of Windham’s allotment 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 the Committee has highlighted but which are not categorized as Proposed or Featured Projects.

**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 Town of Windham NYRCR Plan is grounded in five strategies that capture the critical needs expressed by the Community and analyzed during the planning process. Strategies yielded proposed

and featured projects, along with additional resiliency recommendations, to collectively remediate, mitigate, rebuild, and incentivize resiliency in the Town of Windham.

## Strategies

**Strategy 1:** Improve communications and emergency response capabilities to ensure the provision of essential services before, during, and after hazardous events; to enhance quality of life; and to promote economic growth.

**Strategy 2:** Increase the resilience of public infrastructure to improve mobility and safety in times of disaster, and to protect property and infrastructure from future storm damage.

**Strategy 3:** Reduce risks for residents and visitors by addressing stream conditions that cause or contribute to repetitive flood damage, increasing property protection from future flood damage, and promoting safe and adequate housing for all residents.

**Strategy 4:** Enhance the local economy and quality of life by expanding outdoor recreational amenities and capitalizing on underutilized assets and four-season tourism opportunities.

**Strategy 5:** Promote economic growth, emergency preparedness, sense of place, and community cohesion through support for non-profit and community-based organizations, expanded marketing initiatives, and community events to strengthen “neighbor-to-neighbor” support networks, and to foster local arts and entertainment.

## Projects

### SILVER LAKE PROJECT

This proposed project would create access to new passive and active recreational opportunities, an emergency shelter, and a multi-purpose community facility at Silver Lake and Camp Oh-Neh-Tah. The retrofit of several existing camp buildings will leverage



the significance of this unique asset to serve multiple functions, including improved emergency sheltering, access to recreation, alternative emergency operations center (EOC), and additional resources and flexible space for local organizations, groups, and events.

**(Proposed Project)**

### BACK-UP GENERATORS FOR CRITICAL FACILITIES PROJECT

This project seeks to secure the purchase and installation of fixed back-up generators for local facilities to ensure service and emergency capability during and after disaster events. Locations include one at each of the two Windham well water pump stations, one at Town Hall, and one at the Town Highway Garage.

**(Proposed Project)**

### MAD BROOK RETAINING WALL IMPROVEMENTS

This project involves repairs and improvements to the Mad Brook retaining wall and drainage system to increase structural stabilization and to ensure continued functionality and flood protection. Project work would include repairs to damaged sections of the wall and consideration for extending the length of the wall and gravel harvesting to create better channel capacity.

**(Proposed Project)**

### ROUTE 56 CULVERT UPGRADE

This project involves the upgrade and improvement of an undersized, four-foot corrugated metal pipe culvert on Route 56 with a larger 6-foot-by-6-foot box culvert to expand capacity, improve mobility, ensure access to the dam, and reduce localized flood impacts.

**(Proposed Project)**

### SOUTH STREET STORMWATER COLLECTION SYSTEM

This project is a proposed culvert improvement, wetland treatment system, and passive recreation project along South Street. It includes the creation of a stormwater collection system, wetland area, and retaining pond on a 44-acre New York City Department of Environmental Protection property at west end of South Street in the Hamlet of Windham to provide stormwater treatment, flood storage, recreational use, and economic growth.

**(Proposed Project)**

### NEW TRAILS AND CONNECTIONS

This project would develop new trails and trail connections to expand the existing network; provide support for additional users, e.g., biking, hiking, horses, etc.; and better link local and regional recreational assets. Expanded trail systems will also provide additional mobility options in emergency situations and will create redundant access and evacuation routes.

**(Proposed Project)**

### COMMUNICATIONS IMPROVEMENTS

This project would provide for communications infrastructure upgrades to improve emergency response capabilities. It would also provide personal cellular and broadband Internet service to increase quality of life and to promote economic growth. **(Featured Project)**

### MAD BROOK HYDRAULIC FEASIBILITY STUDY

This project would conduct detailed hydrologic, hydraulic, and sediment transport analyses of Mad Brook from Mountain View Road to the confluence with the Batavia Kill. The study would help better define the flooding and channel stability risks of the current channel configuration and would evaluate options to restore channel capacity, improve flood conveyance, and reduce sediment transport while improving water quality and habitat. This study would complement the recently completed Local Flood Analysis to jointly pursue long-term solutions to flood conditions.

**(Featured Project)**

Note: Proposed and Featured Projects are captured according to their associated strategy in the table that follows.



## TOWN OF WINDHAM NYRCR PLAN

Town of Windham NYRCR Projects	Proposed Project	Featured Project	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5
Silver Lake Project	X		X			X	X
Back-Up Generators for Critical Facilities Project	X		X	X			
Mad Brook Retaining Wall Improvements	X			X	X		
Route 56 Culvert Upgrade	X			X	X		
South Street Stormwater Collection System	X			X	X	X	
New Trails and Connections	X					X	
Communications Improvements		X	X			X	X
Mad Brook Hydraulic Feasibility Study		X		X	X		

# **NYRCR** **Towns of** **Fulton and** **Blenheim**

NY Rising Community  
Reconstruction Plan

**DECEMBER 2014**

**NY RISING  
COMMUNITY  
RECONSTRUCTION  
PROGRAM**





# Executive Summary

## Overview

The Towns of Fulton and Blenheim (Towns) are small, rural communities surrounded by miles of forest, farmland, and significant recreational resources. The Towns are located in the Schoharie Valley, known for its natural beauty and long history as an agricultural powerhouse. The area was once known as “the Breadbasket of the American Revolution” during the Revolutionary War, due to its role in supplying grain to General George Washington and his army. Agriculture remains an important component of the Schoharie Valley’s economy.

On August 28, 2011, Hurricane Irene made landfall in New York. The Schoharie Creek rose more than 20 feet due to the flash flooding caused by unprecedented rainfall associated with the hurricane. Powerful winds and raging floodwaters caused extraordinary damage in the Towns of Fulton and Blenheim; power was knocked out, homes and businesses were flooded, infrastructure was destroyed, and residents’ access to safe shelter, food, clean water, and medical services was compromised.

The Towns were still in states of emergency when Tropical Storm Lee hit less than two weeks later. Tropical Storm Lee undermined recovery efforts made after Hurricane Irene and further strained emergency response operations.

Because extreme flooding affects all residents and businesses in the Towns, even those outside of the flood hazard area, the NY Rising Community Reconstruction Program (NYRCR) Towns of Fulton and Blenheim Planning Committee (Committee) identified the geographic scope (NYRCR Planning Area) of the Towns of Fulton and Blenheim NYRCR Plan (NYRCR Plan) as the boundaries of both Towns. The area includes the

Towns’ agricultural and commercial areas, hamlets and residential areas, and areas damaged during Hurricane Irene and Tropical Storm Lee.

## Critical Issues

The Towns of Fulton and Blenheim NYRCR Plan details critical issues among six categories that were identified as Recovery Support Functions (RSFs) in the 2011 National Disaster Recovery Framework. The six RSFs are: Infrastructure, Housing, Economic Development, Community Planning and Capacity Building, Health and Social Services, and Natural and Cultural Resources.

Throughout the planning process, the Committee and members of the public detailed critical issues facing their communities. These include:

## Infrastructure

- **Communications Infrastructure Deficiencies -** Infrastructure was one of the most important critical issues expressed by the Committee and the public. Concerns centered around the lack of cellular telephone coverage and the need for improvements to Internet connectivity.
- **Transportation Infrastructure Improvements -** During Irene, roadway infrastructure was impacted and damaged by flooding, cutting off parts of the region, stranding residents, and making emergency access difficult for damage assessments.
- **Critical Facility and Infrastructure Protection -** There is a need to relocate and improve vital municipal facilities, especially those located in flood-prone areas. The Committee also identified protection from hazardous materials, such as oil spills and free floating natural gas tanks, as a concern.



- **Energy** - The Committee expressed significant interest in reducing the cost of energy, developing alternative green energy sources, and exploring the possibility of a rural utility service.

## Economic Development

- **Better Access to Goods and Services** - During the NYRCR Plan's development, concern was expressed about the need to improve local access to retail goods and services such as grocery stores and pharmacies.
- **Expanded Tourism Opportunities** - Tourism holds significant potential for the Towns. The Committee considered how to utilize existing tourism-related assets to increase economic development.

## Community Planning and Capacity Building

- **Emergency Management, Planning, and Communications Inadequacies** - During Hurricane Irene, government response services were unable to communicate with each other due to power outages and lack of cell phone coverage. This exacerbated the challenge of responding to emergency needs during the storm.
- **Park and Recreation Planning** - Improved quality of life through increased recreation-related opportunities for residents was identified as a critical community planning and capacity building issue.

## Natural and Cultural Resources

- **Access to the Schoharie Creek** - For both Towns, there is a need to address access to the Creek and to highlight local points of recreational interest.
- **Enhancing Cultural Resources** - Since several existing cultural resources were damaged and one was completely destroyed, there was a large hole not only in the hearts of those in the Community but in potential tourism. Enhancements to improve these resources was identified as a

critical issue to be able to renew and expand local tourism capabilities.

- **Slope and Streambank Stabilization** - The Committee identified stabilization as a critical natural resource issue.
- **Dams and Other Hazards Concerns** - Similarly, dam breaks and other hazardous threats present a natural resource issue, as well as impacting transportation infrastructure protection.

## Health and Social Services

- **Relocation of Facilities, Improved Access to Shelters, and Expansion of Emergency Operations Capacity** - The Committee consistently identified the need to establish shelters with expanded capacity that remains accessible during flooding events, relocate facilities that are in the floodplain, and improve emergency operations capacity to remain operational during a storm event.

## Housing

- **Homeowner Resiliency Implementation Assistance** - The Committee noted that homeowners are interested in making their properties more resilient and are in need of additional assistance in finding resources that could both help identify potential resiliency improvements for their homes and assist in determining the most effective approach to undertaking improvements.



## A Community-Driven Process

From the start of the planning process, the Committee was interested in collaboration between the Towns of Fulton and Blenheim, as has traditionally been done, but also with neighboring communities and the general public. Throughout the planning process, the Committee considered opportunities to build on current ongoing projects; to find more efficiencies; and to coordinate with regional organizations and agencies.

Public outreach included newspaper advertisements, email blasts, placards posted around the community, and four Public Engagement Events. These events offered the community an ideal forum to identify critical issues, share personal experiences related to storm impacts and challenges in response efforts, and recommend resiliency measures.

## Vision Statement

The Committee created the following vision statement to drive development of this NYRCR Plan:

### VISION STATEMENT

*The Towns of Fulton and Blenheim are peaceful, resilient, rural communities. Our unique quality of life is strengthened by traditional and niche agriculture, a historical heritage, natural resources, an entrepreneurial spirit, and rich culture. We strive to provide our residents and visitors with a place to reside and meander, where values are intrinsic and the environment pristine. And above all, our greatest assets are our families, friends, and neighbors, near and far.*

The Committee invited and encouraged community participation in bi-weekly Committee Meetings and four Public Engagement Events. These meetings and events were vital forums for discussion, collaboration, and project identification.

## A Blueprint for Implementation

While Hurricane Irene and Tropical Storm Lee were particularly severe storm events, the Towns have endured flooding throughout their history. The quantitative and qualitative findings that emerged from the NYRCR planning process underpin the projects and recovery strategies in this NYRCR Plan.

The Committee, with the help of the public and Consultant Team, identified critical community assets and analyzed the degree of risk from flooding. They also identified the needs, risks, and critical issues related to their recovery from Hurricane Irene and Tropical Storm Lee. The sum of this effort is the development of a blueprint for implementation.

## From Strategies to Implementable Projects

The Towns of Fulton and Blenheim NYRCR Plan is based upon five strategies that capture the critical needs and opportunities expressed by the Community and analyzed during the planning process. Strategies yielded Proposed and Featured Projects, along with Additional Resiliency Recommendations, to assist Community efforts in rebuilding to mitigate against future risks and increasing resiliency.

## Strategies

### Strategy 1 - Emergency Preparedness and Response:

Improve emergency preparedness and response capabilities, and expand the capacity to mitigate potential storm impacts, especially with respect to socially vulnerable populations, ensuring coordination before, during, and after storms.

### Strategy 2 - Critical Infrastructure Resiliency:

Protect critical infrastructure, improve communications, and explore additional energy resiliency measures.



**Strategy 3 - Economic Resiliency:** Promote economic and tourism growth by providing new and expanded opportunities and marketing resources for agri-business, as well as existing and emerging local businesses.

**Strategy 4 - Regional Development:** Protect, preserve, and enhance important cultural, historic, and natural resource assets.

**Strategy 5 - Residential and Business Flood Mitigation Support:** Reduce the impact of flooding on housing, and create initiatives to assist with implementation of additional resiliency measures.

## Projects

### UNDERTAKE EMERGENCY MANAGEMENT PREPAREDNESS AND PLANNING

This Proposed Project would create a comprehensive, Multi-municipal Emergency Preparedness and Response Plan to improve the overall preparedness and future response to flooding related disasters. (Proposed Project)

### PROVIDE COMMUNITY EMERGENCY ALERT AND WARNING SYSTEMS AND SUPPORT FOR VULNERABLE POPULATIONS

This Proposed Project would coordinate existing emergency monitoring, communications, and alerting systems with new and expanded technologies and systems. (Proposed Project)

### CONSTRUCT A BLENHEIM MUNICIPAL COMPLEX

This Proposed Project involves construction of a new, consolidated Blenheim Municipal Complex to include Town Hall (municipal offices), the Fire Department, the Department of Public Works, emergency sheltering space, and an Emergency Operations Center (EOC). It is important to move and co-locate these critical facilities out of the floodplain to a more secure location (to be determined) with adequate road access, to allow responders to reach all parts of the Town, particularly during emergencies. (Proposed Project)

### REBUILD FULTON TOWN HALL TO MORE EFFECTIVELY OPERATE AS THE TOWN EMERGENCY OPERATIONS CENTER

The proposed project would update the existing Town of Fulton municipal building and enhance its ability to properly serve as an EOC. (Proposed Project)

### IMPROVE THE WEST FULTON FIRE DEPARTMENT

This Proposed Project would include the upgrade and expansion of the current property and building to provide additional capacity, reduce conflicts between different uses during emergency events, and harden the property from potential future events that could render it unusable as a shelter. (Proposed Project)

### REPLACE UNDERSIZED CULVERTS

This Proposed Project would replace six existing, undersized culverts with new culverts, sized to withstand a 1% annual flood/storm occurrence. (Proposed Project)

### UNDERTAKE A HYDROLOGY AND ENGINEERING STUDY OF THE SCHOHARIE CREEK AND ITS TRIBUTARIES

This Proposed Project would include a Hydrologic and Engineering Study of the Schoharie Creek and its tributaries to assess the condition of the Creek, its capacity during flood events, potential immediate concerns, and longer-term actions. (Proposed Project)

### INCORPORATE RESILIENCY MEASURES INTO THE BRIDGE SCHOOLHOUSE MUSEUM

This Proposed Project would rehabilitate the damaged portions of the Schoolhouse Museum structure by incorporating resiliency measures into the rehabilitation process to make the structure less prone to flood damage from future storms. (Proposed Project)



### **INCORPORATE RESILIENCY MEASURES INTO THE NEW COMMUNITY CENTER**

This Proposed Project supports the adaptive reuse of the historic structure into a community center, by incorporating resiliency measures into the rehabilitation process to make the recently-purchased structure less prone to flood damage from future storms. (Proposed Project)

### **BECOME A DESTINATION CORRIDOR BETWEEN THE CATSKILLS AND THE ADIRONDACKS**

This Featured Project would increase the visibility of the Route 30 corridor as a primary north-south route with significant tourism and recreation opportunities in both Fulton and Blenheim. (Featured Project)

### **UNDERTAKE SLOPE STABILIZATION AND ROCK SLIDE STABILIZATION EFFORTS**

This Featured Project would include stabilization efforts at two identified locations and any others identified prior to project implementation. (Featured Project)

### **DEVELOP A LOCAL STREAM MANAGEMENT AND MAINTENANCE PLAN**

This Featured Project would include development of a local Stream Management and Maintenance Plan. (Featured Project)



## TOWNS OF FULTON AND BLENHEIM NYRCR PLAN PROJECTS BY STRATEGY

Towns of Fulton and Blenheim NYRCR Plan Projects	Proposed Project	Featured Project	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5
Undertake Emergency Management Preparedness and Planning	X		X	X		X	X
Provide Community Emergency Alert and Warning Systems and Support for Vulnerable Populations	X		X	X		X	X
Construct a Blenheim Municipal Complex	X		X	X			
Rebuild Fulton Town Hall to More Effectively Operate as the Town Emergency Operations Center	X		X	X			
Improve the West Fulton Fire Department	X		X	X			
Replace Undersized Culverts	X			X			
Undertake a Hydrology and Engineering Study of the Schoharie Creek and its Tributaries	X			X		X	X
Incorporate Resiliency Measures into the Bridge Schoolhouse Museum	X					X	
Incorporate Resiliency Measures into the New Community Center	X					X	
Become a Destination Corridor Between the Catskills and the Adirondacks		X			X		
Undertake Slope Stabilization and Rock Slide Stabilization Efforts		X		X		X	
Develop a Local Stream Management and Maintenance Plan		X		X		X	X

# SUFFERN NYRCR



## NY RISING COMMUNITY RECONSTRUCTION PLAN

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**December 2014**

NY Rising Community  
Reconstruction Program



# Suffern NYRCR Executive Summary

## I. Overview

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. Recovery and reconstruction initiatives began immediately following these storm events. The goal of the program is to rebuild from these storms and to increase communities' physical, economic, and social resilience to future storm events. The NYRCR Program provides an opportunity for residents, business owners, and community leaders to actively participate in planning for a stronger future. The 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 are becoming increasingly common.

The Suffern NYRCR Plan was developed during six months of community stakeholder engagement. The NYRCR Plan reflects Suffern's vision and goals, honoring its unique qualities and assets for building a safer, more resilient, and sustainable future.

### a. Community Location and Allotment Amount

The Village of Suffern, located within the Town of Ramapo in Rockland County, 20 miles west of the Hudson River, measures 2.1 square miles. The community has just over 10,000 residents and maintains true small town charm while being just an hour drive or train ride from the heart of New York City. The Ramapo River Watershed, which is part of the Passaic River Basin, encompasses the entire Village.

Suffern has been allotted up to \$3 million in Community Development Block Grant – Disaster Recovery (CDBG-DR) funding through the NYRCR program.

### b. Scope of Planning Area

The Suffern NYRCR planning area encompasses the entire Village of Suffern, and a small part of the New Jersey Township of Mahwah at the New York and New Jersey border. The portion of Mahwah contained in the geographic scope includes an important access point for residents and emergency vehicles to the West Ward neighborhood of the Village. The Suffern NYRCR Planning Committee (Committee) agreed that they would include the entire Village in the planning area since important community assets are located throughout. In addition, upland areas have potential for resilient reconstruction and stormwater management practices that can absorb stormwater and potentially reduce flooding impacts in lower lying areas.

### c. Summary of Storm Impacts

Hurricane Irene (August 28, 2011) hit Suffern with its full force. The heavy and sustained rains caused the Village's two rivers (Mahwah and Ramapo) to reach historic levels and flow into and beyond their floodplains resulting in significant damage to roads, homes, and businesses throughout the Village. The majority of storm damage from Hurricane Irene was concentrated along the rivers and in the area surrounding Lake Antrim. Roads were flooded, and a bridge washed out severing the link between residents and emergency services providers. The flooding caused the wastewater and water treatment plants to be taken offline, leaving the Village no way to process sewage and unable to produce potable water.

During Superstorm Sandy (October 29, 2012), it was not water but the high speed winds that wreaked havoc throughout the Village. The storm's strong winds took down trees and power lines, blew off roofs, and compromised utilities and Village infrastructure. Following Superstorm Sandy, a State of Emergency was declared at both the County and local level. Throughout Rockland County, over 75,000 homes lost power, some for as long as two weeks.

Unfortunately these storm events are not isolated incidents. Businesses, home owners, and Village government services are barely able to recover financially and structurally in time for the next storm. Today, the Village of Suffern is still working to repair damages caused by Superstorm Sandy and Hurricane Irene.

#### d. Summary of Critical Issues

Hurricane Irene and Superstorm Sandy caused damage that directly and indirectly impacted homes, businesses, roads, critical infrastructure systems, and natural resources throughout the Village. These storms exposed many vulnerabilities and revealed critical issues affecting the community and its ability to respond to and recover from natural disasters. The key critical issues facing the Village of Suffern include:

- ▶ Emergency Access
- ▶ Flooding in Residential Neighborhoods
- ▶ Road Closures
- ▶ Inundation of Critical Facilities
- ▶ Stream Bank Erosion
- ▶ Business Closures
- ▶ Loss of Power

## II. Community-Driven Process

All of the material presented in this Suffern NYRCR Plan has been developed collaboratively. The NYRCR Program provided the Community with a unique opportunity to participate in a bottom-up/community-driven planning effort to shape its resilient future.

### a. Community Vision and Goals

#### The Suffern NYRCR Vision Statement:

Suffern is a quaint, resilient, easily accessible community dedicated to building back better. We are a united community that works together to maintain our quality of life, small town charm, multi-modal transportation options, educational framework, and cultural attractions as investments in future generations. Residents are dedicated to restoring, redeveloping, revitalizing, and making more resilient our downtown, infrastructure, stormwater systems, natural and cultural resources, all of which make Suffern a unique, historic, and vibrant place.

#### Goals:

To realize the vision, NYRCR Suffern has developed the following goals:

- ▶ Build closer working relationships with neighboring communities and the State of New Jersey to address flooding issues that do not respect municipal boundaries.
- ▶ Continue high level of emergency services and enhance physical access to neighborhoods.
- ▶ Enhance infrastructure and stormwater systems where needed.
- ▶ Preserve community character to maintain small town charm.
- ▶ Protect and clean Lake Antrim and the Mahwah and Ramapo Rivers.
- ▶ Protect, promote and enhance cultural attractions that draw people to the village.
- ▶ Revitalize downtown businesses and protect from future storm damage.

## b. Summary of Public Outreach

The NYRCR Program is fundamentally a grassroots initiative. Initial project recommendations were generated by the Suffern NYRCR Planning Committee, which comprised residents, past and present Village staff, and elected officials. The Committee met 10 times, approximately every other week from the end of June 2014 through mid-November 2014. Materials were circulated to the Committee before and after each meeting and also posted to the Village page on the NYRCR website. Interested members of the public attended each of the Planning Committees Meetings.

Three Public Engagement Events were held throughout the six month planning process, with a fourth to be conducted on January 14, 2015 after the final NYRCR Plan is complete. These meetings provided the opportunity for Suffern residents to learn about the NYRCR planning process, assets, and projects, and provide input to community-driven plans for a more resilient future. The format of the Public Engagement Events varied throughout the process, but generally included PowerPoint presentations, display boards and mapping, workgroups and discussion supported by maps and markers, survey sheets, and a photo booth.

Committee Members also shared information with their community by posting relevant materials to the Village website, leaving materials in the Library and other high traffic areas, posting information throughout the Village, reaching out to friends and neighbors through email and conversation, and attending municipal meetings and functions to report on their NYRCR Plan progress. In addition, Committee Members and the Village spread the word by distributing emails through the Village's network and sending materials home with school-aged students.

## III. Final Plan as Blueprint for Implementation

### a. Needs and Risks Underpin Projects

The Suffern NYRCR Planning Committee understands where the Village is vulnerable, where the critical assets are located, and what the risks are to those assets. To address their specific vulnerabilities, a comprehensive Needs and Opportunities analysis was prepared through a combination of research, analysis, and Committee and community feedback. A sample of the needs and the opportunities identified to address those needs, follows:

#### NEEDS:

- ▶ Continue high level emergency services operation and communication among responders.
- ▶ Improve regional coordination with state, federal, and municipal governments to protect the community and plan for future disasters.
- ▶ Investigate floodplain protection/restoration and alternative stormwater management measures (i.e., green technology).
- ▶ Protect existing residential neighborhoods and their access points from flooding.
- ▶ Protect identified road, bridge, and culvert infrastructure assets.
- ▶ Provide businesses with assistance to improve recovery time following a storm event.

## OPPORTUNITIES:

- ▶ Create a Regional Coordination Committee to address flooding issues across state and municipal boundaries.
- ▶ Encourage continued training and education on cutting edge technologies for emergency service operations.
- ▶ Evaluate ingress and egress routes to vulnerable neighborhoods to develop safe emergency access and evacuation routes during storm events.
- ▶ Examine resources such as low interest loans and/or grants to help small businesses recover from storm events.
- ▶ Identify areas where floodplains can be protected and/or restored and where green infrastructure techniques can be used to alleviate flooding from stormwater runoff.
- ▶ Inventory infrastructure needs including age and condition of facilities and preparation of a maintenance and/or replacement/relocation plan.



*Flooded Wastewater Treatment Plant along Ramapo River  
(Charles Sawicki)*

## b. Strategies

The strategies proposed in the NYRCR Plan consider emergency, disaster recovery, long-term resiliency, and economic development needs that remain unmet. They represent statements of action that address how to best fortify community assets, address stated needs, capitalize on opportunities, resolve critical issues, and meet short-, medium-, and long-term goals identified during the planning process.

- ▶ Assist residents with preparation for, response to, and recovery from future storm events through emergency communication, outreach, and education initiatives.
- ▶ Broaden services at existing storm shelter facilities to more fully cover basic needs, accommodate pets, and, where needed, investigate new shelter opportunities.
- ▶ Collaborate with municipal neighbors in New York and New Jersey to manage watershed development and control flooding.
- ▶ Develop storm assistance programs and provide consolidated information on financial initiatives that allow residents and businesses to better protect themselves and their assets from future storm damage.
- ▶ Improve stormwater management and drainage systems throughout the Village to improve resiliency.
- ▶ Promote resilience and flood management practices through land-use planning, policy, and regulation.
- ▶ Repair, protect, and improve resiliency of critical infrastructure and transportation assets such as water and wastewater systems, utilities, roads, culverts, and bridges.
- ▶ Restore, preserve, and augment natural resources—including floodplains, streams, rivers, lakes and wetlands—to help mitigate flooding and support flood resiliency.

### c. Projects are the Path to Executing the Strategies

The strategies presented in the Table A, and the Proposed or Featured Projects that implement them, specifically address the stated needs and transform opportunities into action items. While certain Proposed and Featured Projects can be associated with more than one strategy, each of these projects is presented within this NYRCR Plan in conjunction with the most applicable strategy that they fulfill. Projects and Strategies are not presented in any particular order of priority.

#### PROJECT CATEGORIES:

Proposed Projects are proposed for funding through a community’s allotment 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; and regulatory reforms and other programs that do not involve capital expenditures.

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

**Table A: Proposed and Featured Projects**

Strategy	Project Name	Project Category
Broaden services at existing storm shelter facilities to more fully cover basic needs and accommodate pets, and investigate new shelter opportunities	VFW Building Emergency Power and Electrical Upgrades	Featured Project
Develop storm assistance programs and provide consolidated information on financial initiatives that allow residents and businesses to better protect themselves and their assets from future storm damage	Homeowner Buyout Program Support and Economic Development Plan	Proposed Project
	Homeowner Support for Raising Utility Connections and Mechanicals	Proposed Project
Improve stormwater management and drainage systems throughout the Village to improve resiliency	Inventory of Existing Stormwater Management Infrastructure	Proposed Project
	Village-wide Stormwater Management: Green Infrastructure and Storage Systems Feasibility Study	Proposed Project
	Stormwater Management Facilities in Village Parking Lots A and B	Featured Project
Repair, protect, and improve resiliency of critical infrastructure and transportation assets such as water and wastewater systems, utilities, roads, culverts, and bridges	Backup Power for Critical Community Facilities	Proposed Project
	Emergency Railroad Crossing into the West Ward	Proposed Project
	Drainage Improvements to Transportation Assets	Proposed Project
	Hardening of Wastewater Treatment Plant and Facilities through Physical Protective Measures	Proposed Project
	Hardening of Water Treatment Plant and Facilities through Physical Protective Measures	Proposed Project
Restore, preserve, and augment natural resources, including floodplains, streams, rivers, lakes, and wetlands, to help mitigate flooding and support flood resiliency	Flood Mitigation Assessment – Mahwah and Ramapo River Watersheds	Proposed Project