

Broad Channel Community Reconstruction

Conceptual Plan
October 2013



This document was produced by the Broad Channel Planning Committee as part of the New York Rising Community Reconstruction (NYRCR) Program within the Governor's Office of Storm Recovery. The NYRCR Program is supported by NYS Homes and Community Renewal, NYS Department of State, and NYS Department of Transportation. Assistance was led by the following consulting firms: Parsons Brinckerhoff and HR&A Advisors, and supported by SCAPE Studio, OpenPlans, and Hammes Company. All photographs were taken by the planning team unless otherwise noted.



FOREWORD

The New York Rising Community Reconstruction (NYRCR) program was established by Governor Andrew M. Cuomo to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. This program empowers communities to prepare locally-driven recovery plans to identify innovative reconstruction projects and other needed actions to allow each community not only to survive, but also to thrive in an era when natural risks will become increasingly common.

The NYRCR program is managed by the Governor's Office of Storm Recovery in conjunction with New York State Homes and Community Renewal and the Department of State. The NYRCR program consists of both planning and implementation phases, to assist communities in making informed recovery decisions.

The development of this conceptual plan is the result of innumerable hours of effort from volunteer planning committee members, members of the public, municipal employees, elected officials, state employees, and planning consultants. Across the state, over 102 communities are working together to build back better and stronger.

This conceptual plan is a snapshot of the current thoughts of the community and planning committee. The plans will evolve as communities analyze the risk to their assets, their needs and opportunities,

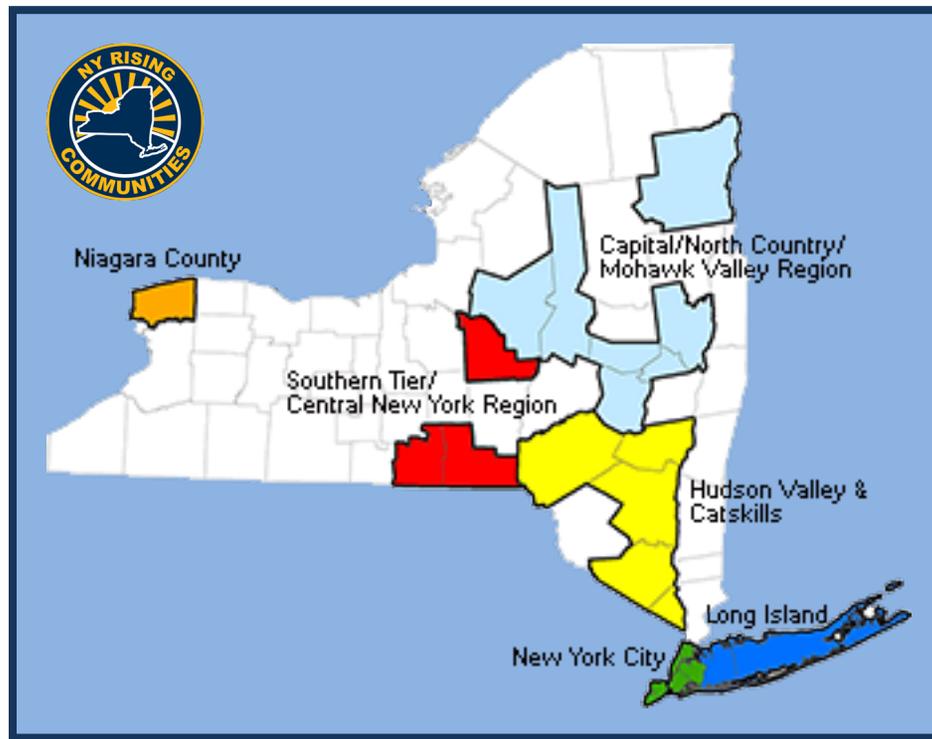
the potential costs and benefits of projects and actions, and their priorities. As projects are more fully defined, the potential impact on neighboring municipalities or the region as a whole may lead to further modifications.

In the months ahead, communities will develop ways to implement additional strategies for economic revitalization, human services, housing, infrastructure, natural and cultural resources, and the community's capacity to implement changes.

Implementation of the proposed projects and actions found in this conceptual plan is subject to applicable federal, state, and local laws and regulations. Inclusion of a project or action in this conceptual plan does not guarantee that a particular project or action will be eligible for Community Development Block Grant – Disaster Recovery (CDBG-DR) funding. Proposed projects or actions may be eligible for other state or federal funding, or could be accomplished with municipal, nonprofit or private investment.

Each NYRCR Community will continue to engage the public as they develop a final plan for community reconstruction. Events will be held to receive feedback on the conceptual plan, to provide an understanding of risk to assets, and to gather additional ideas for strategies, projects and actions.

October 31, 2013



NYRRCR Communities

Find out more at:

StormRecovery.ny.gov/Community-Reconstruction-Program



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I. Introduction

Program Overview

The New York Rising Community Reconstruction Program (NYRCR) was established to provide additional rebuilding and revitalization assistance to communities that were severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The Program will enable communities to identify reconstruction and resiliency projects that address current damage, future threats, and the community’s economic opportunities. In connection with the program, New York State has allocated funds for community planning in 50 communities across the state, 10 of which are in New York City.

New York State has allocated up to \$6.06 million to Broad Channel in Community Development Block Grant Disaster Recovery (CDBG-DR) funding from the U.S. Department of Housing and Urban Development. These funds can be used for a wide variety of projects, and Broad Channel will likely be eligible to receive additional project funding from federal, state, and local sources. The purpose of the NYRCR Program is to develop a prioritized list of projects for the allocated CDBG-DR funding and other sources.

As shown on the opposite page, this process will include five steps:

- Identify **Assets, Risks, Needs, Opportunities**

- Define **Community Vision**
- Identify, evaluate, and **Prioritize Projects and Actions**
- Identify **Funding Sources** and develop **Implementation Plan**
- Create **Final Community Reconstruction Plan**

The NYRCR Program will focus on needs, opportunities, and projects that address six recovery functions:

- Community Planning and Capacity Building
- Housing
- Economic
- Health and Social Services
- Infrastructure Systems
- Natural and Cultural Resources

Each NYRCR community is led by a Community Reconstruction Planning Committee (Planning Committee), made up of community leaders and residents. The Planning Committee takes the lead in developing the Conceptual and Final Plans.

The State has also provided each NYRCR community with a planning team to prepare a plan. The New York State planning team includes: Regional Leads Claudia Filomena and Chelsea Muller; NYC Lead Planner Steve Ridler; and Broad

Channel Community Planners Ken Smith and Fred Landa. The planning team for Broad Channel is being led by Parsons Brinckerhoff (planning, coastal protection, infrastructure engineering, and natural/coastal management) and HR&A Advisors (project management, community planning, economic development, and housing analysis). They are being supported by SCAPE Studios (landscape architecture), OpenPlans (participatory mapping), and Hammes Company (healthcare).

By the end of this process, the NYRCR Program will produce two public deliverables:

- **Conceptual Plan, Fall 2013** – This document summarizes the work to date on Broad Channel’s opportunities for rebuilding and resiliency after Superstorm Sandy. Led by the Broad Channel Planning Committee, this plan is based on deliberation during two planning committee meetings and one public meeting that were held in September and October 2013. A minimum of three more planning committee meetings and three more public meetings will be held through March 2014 to refine the plan and to propose concrete projects and actions and develop a final Community Reconstruction Plan. The contents of this plan include the following:
 1. Introduction



NYRCR Work Schedule

● Planning Committee Meeting
 ○ Public Meeting
 ● Deliverable Due Date

Deliverables	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Work Plan		●					
Vision, Assets & Risk Assessment	1	●					
Draft Conceptual Plan		2 1	●				
List of Strategies			3	2	●		
List of Priority Projects					●		
Community Reconstruction Plan					4	3	5 4 ●

5-Step Process





2. Community Context
3. Storm Impacts and Risk
4. Rebuilding and Resiliency Planning
5. Next Steps

- **Final Community Reconstruction Plan, Spring 2014** – This document will include more in-depth discussion of above, as well as:

Overview

- Geographic Scope of Plan
- Description of Storm Damage
- Critical Issues
- Community Vision
- Relationship to Regional Plans

Assessment of Risk and Needs

- Community Assets
- Assessment of Risk to Assets
- Assessment of Risk to Systems
- Assessment of Needs and Opportunities

Reconstruction Strategies

- Community Planning and Capacity Building
- Economic Development
- Health and Social Services
- Housing
- Infrastructure
- Natural and Cultural Resources

Implementation Schedule

- Schedule of Implementation Actions

Appendices

- List of NYRCCR Planning Committee Members
- Description of Public Engagement Process
- Description of Priority Projects and their Costs and Benefits
- Inventory of Assets



Approach to Public Outreach

Extensive public outreach and involvement is a key component of the NYRCR Program's planning process. This is a community-driven process that believes that outreach and community engagement are critical to creating neighborhood-specific ideas, setting direction, and ensuring the overall success of the program.

At the heart of the public-outreach process is the Planning Committee. The Planning Committee is responsible for facilitating public discussion and providing a meaningful link between the planning team and the local community. At the inception of the program, New York State appointed the following Broad Channel Planning Committee members:

- Daniel Mundy, Jr. (Chair)
- Daniel McIntyre
- Leo Chavanne
- Frank Bassetti
- Robert Pisani
- Daniel Mundy Sr.
- Michelle Green
- Barbara Toborg
- John McCambridge
- Rick Sorrentino
- James Harper

Committees were developed through direct engagement with community leaders and community members. Broad Channel committee members are community leaders, life-time residents and business owners who are active in the community. This committee has access to an extensive network that can be used to disseminate and gather information. The Broad Channel Planning Committee has worked with the planning team to develop agendas for all meetings, and to provide input on draft documents and presentations prior to circulation and presentation at meetings. They also have spearheaded the outreach process for meetings, coordinating a strategy for publicizing meetings and the NYRCR Program to Broad Channel community members.

Community Outreach Strategy

In consultation with the project team, the Planning Committee has developed and executed a comprehensive outreach strategy.

This strategy has entailed reaching out directly to several key community organizations and community leaders and attending meetings of these groups to explain the project and promote meeting attendance, and strategically placing meeting announcements in local media, on the NYRCR website, and on Facebook.

The Planning Committee has connected the public process for NYRCR to the established monthly civic

association meeting schedule, which is a known and well-attended monthly meeting recognized by the community. To the extent possible, the NYRCR meetings will continue to be held at the time of the monthly civic meeting, but the committee will monitor each meeting with the overall schedule and plan accordingly.

Going forward, the Planning Committee will determine how to evolve their outreach strategies through the steps in the process after seeing the level of turnout at the first and subsequent public meetings.

Public Feedback Opportunities

Thus far, two Planning Committee meetings have been held to jump-start and structure the community visioning process for the area.

The first community meeting was held on October 24th and insights and input from the community will be incorporated into future meetings and future refinement of the plan.

Dedicated time is set aside at each meeting to incorporate public input.

Members of the public have attended the committee meetings, and are welcome to attend the meetings of NYRCR communities outside of Broad Channel as well. The results of the committee meetings thus far include:



- **Planning Committee Meeting #1 (September 19, 2013):**

- Reviewed NYRCR Program scope, workplan, and timeline;
- Discussed current issues post-Superstorm Sandy and began to identify recovery and resiliency needs;
- Initial asset inventory and planning area boundary were presented for input and review

- **Planning Committee Meeting #2 (October 1, 2013):**

- Planning Committee formed breakout groups, moderated by members of the planning team, to review asset maps, confirm priority assets, and report back comments from asset inventory;
- Further brainstormed community needs and opportunities, and began to define a community vision;
- Discussed agenda for public meeting, venue, and outreach materials.

Following these two Planning Committee meetings, the first public meeting was held on October 24, 2013.

Each public meeting is designed to maximize interaction between members of the public, the Planning Committee, and the consulting team. The meeting was used to review the purpose, scope, and timing of NYRCR and to gather public input around 1) assets; 2) needs and opportunities that had been identified thus far by the Planning Committee; and 3) short- and long-term goals to inform a community vision. The meeting was announced in advance through an extensive public outreach campaign conducted by the Planning Committee, which included postings on the NYRCR website, Facebook, and the NYRCR Twitter feed; ads in local newspapers; a series of announcements made at local community groups, and distribution of flyers and palm cards.

Four public meetings are projected to take place before submission of the Final Plan on March 31st, 2014.

A second public meeting will be held on November 21st, 2013 where initial short-term and long-term project concepts will be presented and the concept plan will be reviewed. Subsequent meetings will be held to refine the concept plan and develop the Final Reconstruction Plan.



NYRCR Planning Committee member Dan Mundy, Sr. addressing the Rebuild by Design Competition teams during a Jamaica Bay site visit



Football practice at Broad Channel Athletic Club



Broad Channel Park



Public Meeting #1



II. Community Context

Geographic Scope

Broad Channel is one of 10 community planning units in New York City participating in the NYRCR Program, and one of 45 community planning units participating in New York State.

The Broad Channel planning area was defined by the Planning Committee and the state according to consideration of multiple factors, which include: local understanding of community boundaries, areas that were impacted by Sandy, areas that are most at risk from future storms and sea level rise, and places where key investments to improve the local economy and infrastructure can be made.

Broad Channel is located on an Island within Jamaica Bay. Surrounded entirely by water and National Parkland (Gateway National Recreation Area), Broad Channel is connected to the surrounding communities of Howard Beach (to the North) and the Rockaways (to the South) by the Cross Bay Bridge. The island is also connected by mass transit. The MTA A line, which runs out to the Rockaways, maintains a stop on Broad Channel. It also has water-based connections, by private boats. There is no public ferry service to the island.

Broad Channel is a water-oriented community with many of its houses built directly on the water and a strong historic connection to the surrounding Jamaica Bay.

The map on the following page indicates the planning area designated by the Broad Channel Planning Committee. The planning area has been defined around the places where people reside and therefore much of the land on the island that make up the Gateway National Recreation Area have been placed outside the boundary line, but remain integral to the strategies for protection that will be developed. The Committee will focus on assets, needs, opportunities, and strategies for the community within this planning area. It will also consider broader regional issues facing other Jamaica Bay communities.



Broad Channel 1924

source: NYCity Map, NYC DOITT



Broad Channel 1951



Broad Channel 1996



Broad Channel Project Boundary



Community Overview

Broad Channel is a long thin island with a small primarily residential community tucked in between two Gateway National Recreation Area parks. The Broad Channel planning area is home to 915 houses and 2443 residents, according to 2010 census reports.

While incomes vary, the Broad Channel area is home to residents with a higher-than-average income when compared to statistics for Queens and New York City. The median household income in the area in 2012 was \$68,627, higher than Queens and New York City as a whole.

Broad Channel's residents are slightly older than the New York City average. Currently, the median age in Broad Channel is 40.7 years, as compared to 35.5 in New York City as a whole and 37.2 for Queens. This suggests a large senior population in the coming years and may require special consideration of accessibility challenges

related to rebuilding and resiliency planning.

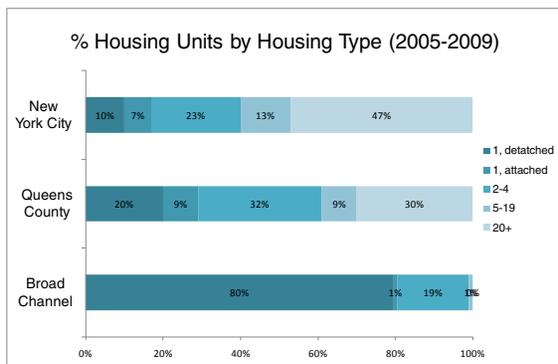
Higher than the citywide average, 97 percent of homes in Broad Channel were built before 1960, and many are constructed of combustible materials. Both these characteristics were associated with greater damage from Superstorm Sandy's impacts; the NYC Mayor's Office's Special Initiative for Rebuilding and Resiliency (SIRR) report found that 95 percent of buildings throughout New York City tagged by the NYC Department of Buildings as red (for structural damage) or destroyed were built before 1961.

Broad Channel is almost exclusively residential, with a small number of supporting businesses and restaurants. Zoned as a "lower-density residential district," 80 percent of the area's building stock comprises single-family detached houses. The majority (71 percent) of these homes are owner-occupied, as compared to 43 percent

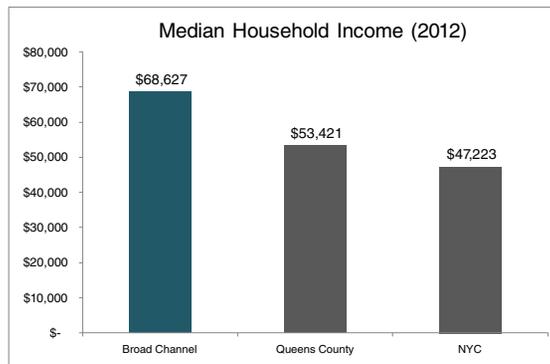
for Queens County and 31 percent for New York City at-large. There are few retail and recreational amenities in Broad Channel, and most community members travel outside of the community for these services.

Most residents also travel outside of Broad Channel for work. In 2000, 100 percent of the labor force did not work at home, and a majority (52 percent) traveled outside of Queens County to their place of employment, with 25.3 percent of residents (the most predominant group) traveling 60–89 minutes.

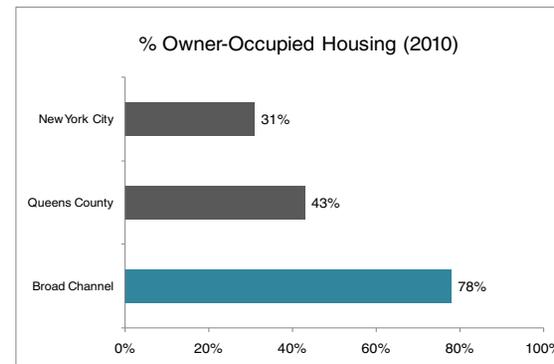
While limited in number, the community amenities and services available within Broad Channel are critical, especially in an emergency. This includes a volunteer firehouse and several civic and religious institutions, including the Broad Channel Athletic Club, American Legion, the Veterans of Foreign Wars, and the Broad Channel Historical Society.



Source: American Community Survey Housing Summary 2005-2009



Source: 2010 U.S. Census, ESRI



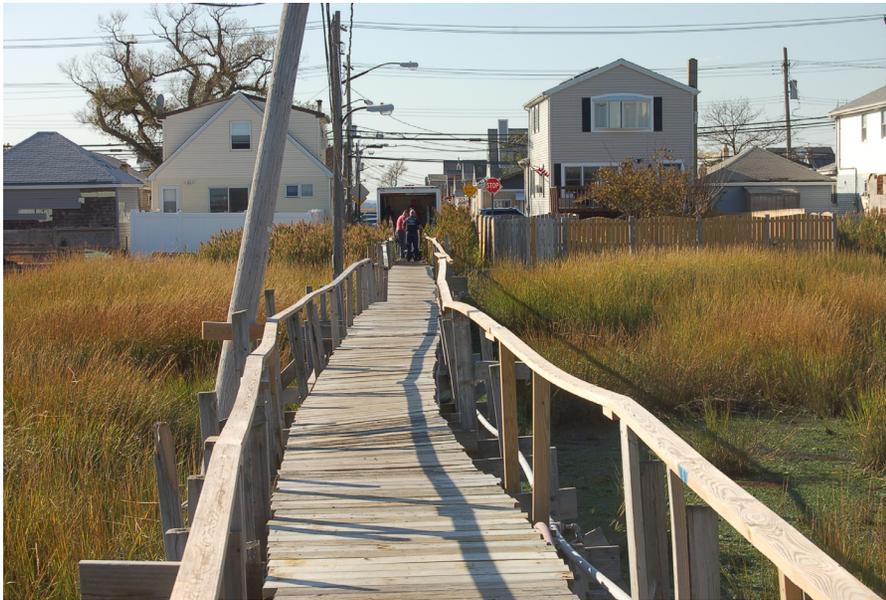
Source: 2010 U.S. Census



Marsh on the eastern shore of Broad Channel



House on the water's edge



East 12th Road boardwalk



Houses facing Cross Bay Boulevard



III. Storm Impacts and Risk

Summary of Storm Impacts

Local Impacts

The Broad Channel community began to feel the effects of Superstorm Sandy well before the surge hit the island. The low tide that occurred a full two cycles prior to when Superstorm Sandy hit was unusually high, so the community recognized that the storm was going to be combined with a significant moon tide condition that would exacerbate the effects of the storm. The storm enveloped the island in water, causing significant flooding throughout the entire populated zone. The surge was strong enough to severely damage houses and flood businesses, impacting housing on both sides of the island. Due to the unique timing of the storm and the wind direction, a significant surge met the east side of the island, inward from the mouth of Jamaica Bay, where some of the greatest damage was incurred.

Recovering from the Storm

Many residents suffered significant damage, all lost power, all were without cell phone communication and most lost their propane tanks which were attached to their structures and the heating oil tanks spilled, so many were without access to gas heat or ability to cook. Without power and without a community gathering place, the Broad Channel community facilities, despite being heavily damaged themselves became a local refuge where supplies were doled out and other recovery efforts were concentrated.

Lingering Affects

The lasting damage of Sandy continues to linger in Broad Channel. Some of the stores and businesses have come back, but others have been unable to reopen. Many homes and businesses took several months to clean up, become habitable, and reopen. Many are still rebuilding. Some were completely lost. The community centers around the island continue to serve the community but are in need of improvements. Access, electrical power, and flood damage to interiors continue to plague homes, businesses, and community centers. At the one-year anniversary of Superstorm Sandy, recovery and rebuilding are still taking place and continue to be major focal points of the community.



Former water pipe on Broad Channel



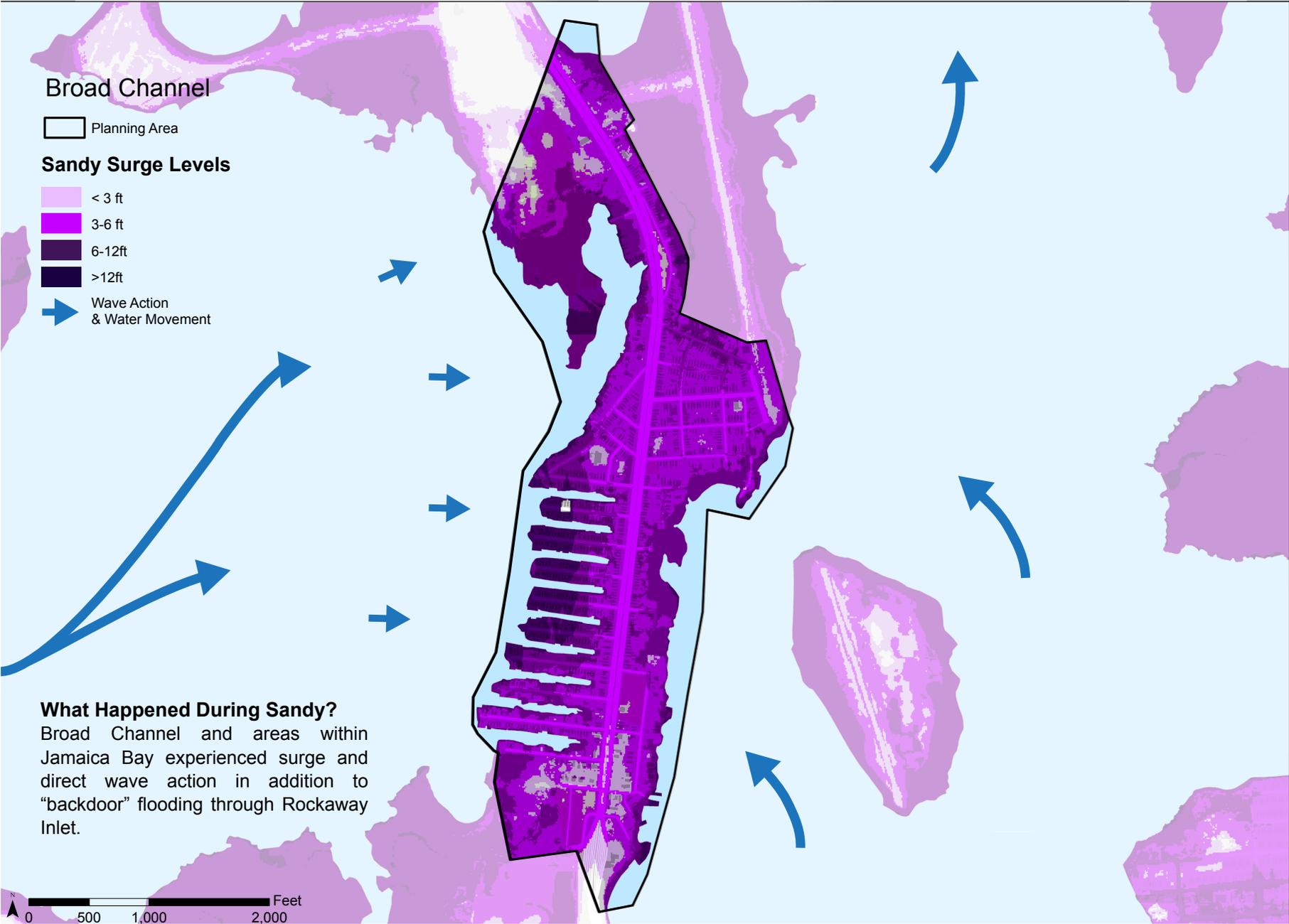
Damaged house on Cross Bay Boulevard



Broad Channel house on stilts



Source: FEMA MOTF



Broad Channel Sandy inundation map



Future Risk

All of the Broad Channel planning area lies in the extreme and high risk zones according to NYS DOS risk analysis. Located on an island in Jamaica Bay, Broad Channel is highly exposed to flooding from coastal storms.

NY Department of State Risk Areas

While the Federal Emergency Management Agency's (FEMA) flood insurance rate maps incorporate detailed analysis of possible storm scenarios, they do not consider future factors such as sea level rise. In order to map and assess risk, taking into account sea level rise and differences in exposure of the landscape, NYS Department of State developed its own Risk Assessment Area Mapping which takes additional factors into account. This includes a sea level rise estimate of three feet, areas expected to be inundated by

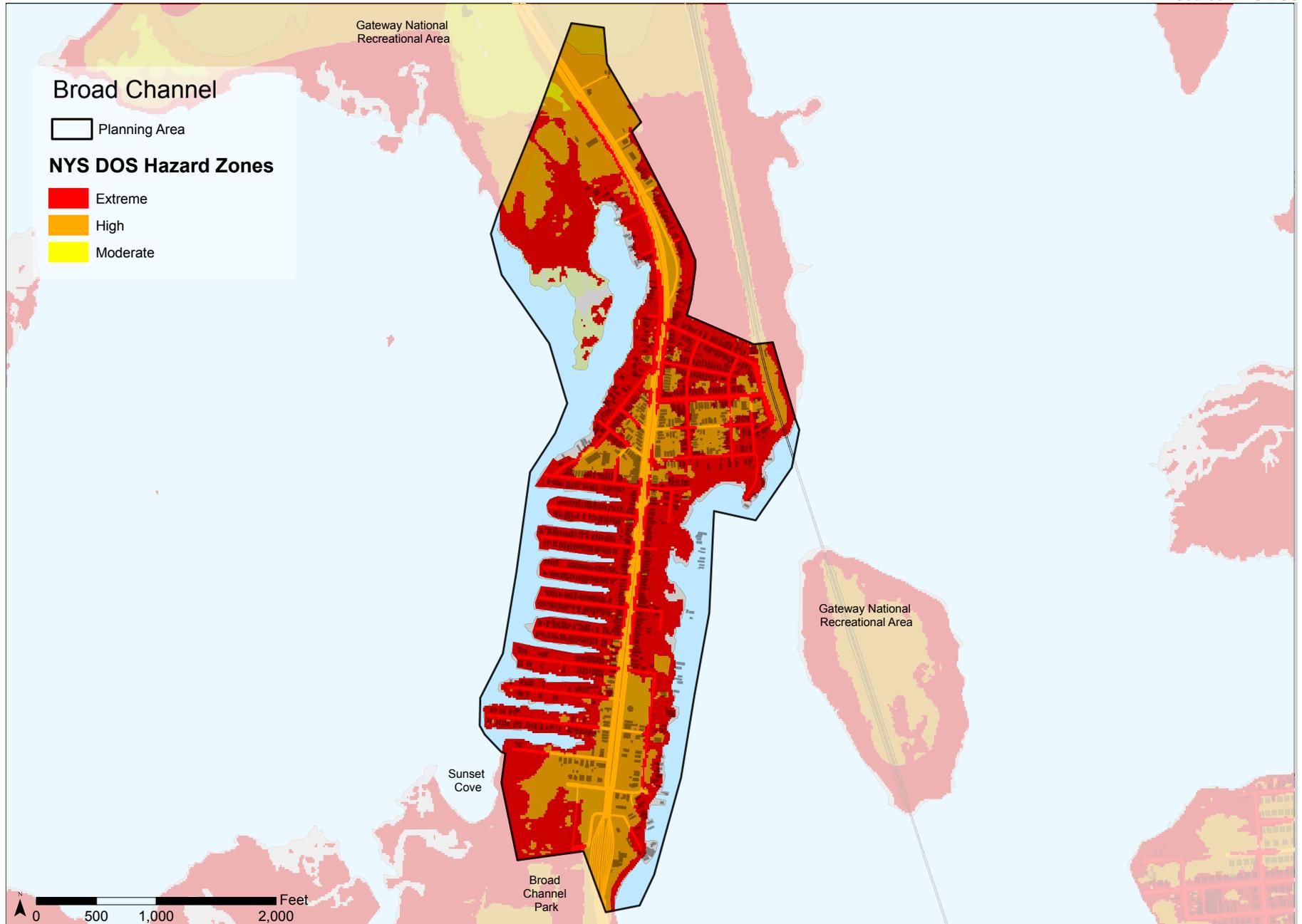
a category 3 hurricane, areas subject to shallow coastal flooding, and areas of the coast subject to shoreline erosion. Considering these factors, as well as the FEMA flood zones, the state established three risk assessment areas:

- **Extreme:** Areas currently at risk of frequent inundation and vulnerable to erosion and heavy wave action (in the FEMA V-zone), subject to shallow coastal flooding, or likely to be inundated in the future due to sea level rise (assumption of 3 feet).
- **High:** Areas outside the Extreme Risk Area that are currently at risk of frequent inundation (in the 100 year floodplain, the FEMA A-Zone) or at future risk of shallow coastal flooding with sea level rise (assumption of 3 feet).
- **Moderate:** Areas outside the Extreme and High Risk Areas but currently at moderate

risk of inundation from infrequent events (in the 500 year floodplain) or at risk of being in the 100 year floodplain with sea level rise (assumption of 3 feet), and any areas expected to be inundated by a category 3 hurricane.

A more detailed description of the State's Risk Assessment Area Mapping Methodology can be found on the NYRRCR website, as can a link to an online viewer for the risk assessment area maps, at <http://stormrecovery.ny.gov/community-reconstruction-program>

Source: NYS DOS



New York Department of State Hazard Zones map



IV. Rebuilding and Resiliency Planning

Process Overview

As previously mentioned, the NYRCR Program contains 5 key steps for rebuilding and resiliency planning. This section summarizes the outcomes of the two steps of the NYRCR that have been completed thus far: Identifying Assets, Needs and Opportunities, and Defining Community Goals and Vision.

Through a series of Planning Committee and Public meetings, the community:

- **Identified community assets and risks**, noting places or resources within the community that residents value and/or deem at risk.
- **Defined community needs and opportunities** by evaluating the issues and challenges as well as the resources

presented by the unique landscape, housing, economies, demographics, and services within the community. These recovery and resiliency needs and opportunities may be associated with a specific asset or apply to the community as a whole.

- **Established a vision** for resiliency and recovery in Broad Channel.

The results of this collective work will support the next steps in the rebuilding and resiliency planning process, starting with drafting strategies and identifying potential projects in November 2013. Content completed in the first two steps will evolve through the process and revised content will be presented in the Final Community Reconstruction Plan delivered at the end of March 2014.

Community Assets

Housing Assets

The entire housing stock on Broad Channel has been deemed as a critical asset. Much like many other communities hard hit by Superstorm Sandy, housing on Broad Channel suffered significant damage. Every home in Broad Channel located in either the extreme or high risk zone.

Houses line the main central spine of Cross Bay Boulevard and run east-west along a series of connecting streets both to the east and to the west. When Sandy hit, all areas were inundated by water, with significant waves breaching over the ends of streets on both the east and west side of the island. Broad Channel contains mostly wood-frame houses, many of which are either directly fronting or backing onto water, all within close proximity to



Source: NYC Department of City Planning MapPluto, 13v1



Economic, health & social services and housing asset map



open water. There are a large number of houses that are either built on stilts or raised on blocks. Almost all homes are either single or two family residences of one or two story construction.

Economic

Broad Channel has a limited amount of economic assets, and even fewer after Superstorm Sandy inundated many of the businesses on the island. The economic assets are largely located at the northern and southern edges of the community, the main business district, is between 9th and 10th Roads with additional businesses dotted along Cross Bay Boulevard. The largest business operation, Call-A-Head Corporation, sits at the northern end of the island, and there are a few maritime-related economic assets along the water's edge. The entire island, and therefore all of its economic assets, lie within the 100 year floodplain meaning they have at least a one percent annual chance of flooding and are deemed as either extreme or high risk by the state of New York.

Health and Social Services

Broad Channel has a few, critical **health and social services**. Public School 47 sits west of Cross Bay Boulevard and just north of 10th Road. The local library and post office make up a campus within Broad Channel Park in the southern part of the island on the east side of Cross Bay Boulevard. The

Broad Channel Volunteer Fire Department sits at the corner of Church and Noel Roads in the northeast section of the island, but it has plans to move to the northernmost section of the inhabited part of the island to merge with the largest concentration of community assets serving the community.

This northern edge of the community is home to **multiple community facilities, including the Broad Channel Athletic Club and the American Legion Hall. Slightly to the south lie the VFW Hall and the Shad Creek Association building.** This concentration of community uses for recreation, meetings, and community events lie in a high-risk area, adjacent to a large section of Broad Channel wetlands, but it is one of the highest points on the island. The community highly values the Broad Channel Athletic Club, the American Legion, and the VFW and would like to protect them as part of larger asset and community resiliency projects.

Natural and Cultural Resources

In addition to the Broad Channel Athletic Club, recreational resources include Broad Channel Park, Broad Channel American Park, and Gene Gray Playground. In addition, the wetlands and natural features of Gateway Natural Recreation Area provide a natural barrier against future storm surge. Gateway National Park lands extend both on the north and south side of the island.

Infrastructure Systems

There are a number of critical infrastructure assets in the Broad Channel community, given the community's size and location within Jamaica Bay, making them all the more vulnerable and lacking in redundant systems.

Cross Bay Boulevard is the main road in the community and Joseph P. Addabbo Memorial Bridge provides access to Howard Beach to the north and the Cross Bay Bridge connects to the Rockaways to the south; these assets are the main access routes to Broad Channel and were deemed critical. Cross Bay Boulevard itself is a critical roadway linking the community to the Rockaways and the mainland via Howard Beach.

The community is served by the A Train with a single stop on the island and there is bus service that runs along Cross Bay Boulevard. Other critical infrastructure includes the wooden piers that form the only connection between some houses and land. The community highlighted **East 12th Road Boardwalk** in particular as a critical access point, which provides access to areas in the community that have no other access points besides those roads. **The Broad Channel Station**, which is the only subway station in the community, provides another means to access the island.



Source: NYC Department of City Planning MapPluto, 13v1



Infrastructure systems and natural & cultural asset map



Needs and Opportunities

Broad Channel's needs are focused first and foremost on immediate recovery and short-term resiliency. The community suffered significant damage to private homes and businesses during Sandy. An event of this magnitude has the potential to have lasting and long-term impacts on the social infrastructure, cultural identity and economy of the community. Recognizing that this storm has affected both individuals and the larger structure of the community, the NYRCR Planning Committee is focused on rebuilding those facilities that are central to the culture of Broad Channel.

Housing

Historically some Broad Channel houses were built on stilts and a large percentage of houses are either on stilts or raised above the ground plane. Most houses on the island do not have basements. One opportunity to make housing more resilient is to raise the housing stock to guard against future flooding. The raising of houses is financially and physically challenging but may not profoundly transform the nature of this waterfront community.

Economic

Cross Bay Boulevard is home to businesses, restaurants and stores that service the community. Multiple businesses hit hard by the flooding have been unable to re-open, leaving this small community even more dependent upon neighboring Howard Beach and the Rockaways for goods and services. Overall, there is a need to increase the business presence on the island to

help it to remain a thriving community. Given Broad Channel's relationship to the water, various resiliency needs must be addressed to help protect the existing economic assets and to attract additional businesses to the island. Cross Bay Boulevard, although in a high-risk zone, is one of the high points on the island. As a location to concentrate economic activity, there may be localized protection strategies that can make these businesses more resilient to climate change conditions.

Health and Social Services

Many important community spaces were damaged in the storm and the community is looking to rebuild these and to improve upon them so that they will be resilient in future storm events, support community life, and serve as recovery stations as needed in the future. The concentration of community uses, especially in the north, could translate into the opportunity for shared protection, power, and other resiliency strategies to protect what is effectively a campus of community uses that serve Broad Channel's community, recreation, and public gathering needs.

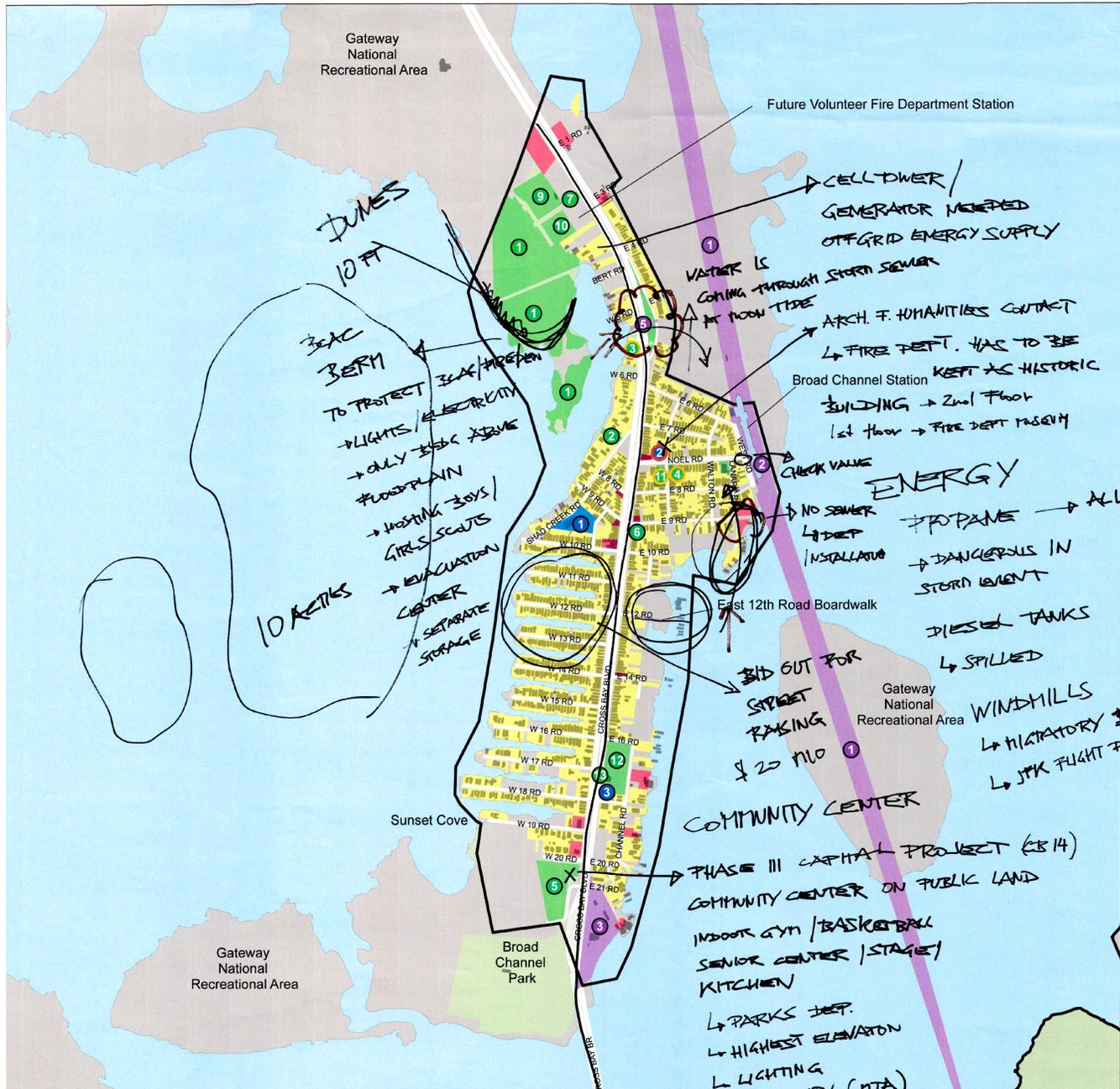
Overall, Broad Channel needs more emergency and health services, available on a regular basis, but especially in an emergency. This is particularly the case for its senior and other vulnerable populations. Given the tight-knit nature of the community and the value residents place on having places to gather communally, there are opportunities to develop new multi-purpose resilient

community or social service centers that could also function as centers for emergency shelter and recovery during a storm.

Natural and Cultural Resources and Infrastructure Systems

The focus on short-term improvements extends to infrastructure needs, where the community has already been working to make improvements that will sustain the community moving forward. Extending the "green streets" program that is being piloted from 10th Road to 13th Road, identifying the critical "weak" points in the flood control systems like the backflow preventer at the end of West Road, and expanding efforts to build back the wetlands in Jamaica Bay are all elements of their vision to move forward pragmatically with a game plan that has largely been in the works for many years.

There are a number of major, long-term deficiencies that need to be addressed if the community is going to increase its resiliency in the face of climate change and future storm events. Lack of utility and roadway infrastructure to particularly isolated streets and neighborhoods is a major concern. A resilient energy plan is needed. There is no natural gas pipeline to Broad Channel. Homes and businesses are relegated to propane for cooking and heat. During the storm, many propane tanks were ripped from their supports and became part of the flotsam and jetsam created by the flood. Having propane tanks floating around the community and



Broad Channel

- Planning Area
- Socially Vulnerable Population

Assets

- A - Economic
- B - Health and Social Services
- C - Housing
- D - Infrastructure Systems
- E - Natural and Cultural

Assets

- Health and Social Services**
 - B-1--PS 47
 - B-2--BROAD CHANNEL VOLUNTEER FIRE DEPARTMENT
 - B-3--BROAD CHANNEL POST OFFICE
- Infrastructure Systems**
 - D-1--MTA SUBWAY LINE (A)
 - D-2--BROAD CHANNEL LTA SUBWAY STATION
 - D-3--MTA/TBTA OPERATIONS FACILITY
 - D-4--EAST 12TH ROAD BOARDWALK
 - D-5--CULVERT
- Natural and Cultural**
 - E-1--BROAD CHANNEL WETLANDS (P/O GNRA)
 - E-2--VFW HALL
 - E-3--SHAD CREEK ASSOCIATION
 - E-4--CHRIST PRESBYTERIAN BY THE SEA
 - E-5--BROAD CHANNEL AMERICAN PARK
 - E-6--GENE GRAY PLAYGROUND
 - E-7--AMERICAN LEGION
 - E-8--ST VIRGILIUS ROMAN RECTORY
 - E-9--BROAD CHANNEL ATHLETIC CLUB
 - E-10--PARKS AND RECREATION
 - E-11--ST VIRGILIUS ROMAN CATHOLIC CHURCH
 - E-12--BROAD CHANNEL PARK
 - E-13--BROAD CHANNEL BRANCH QUEENS PUBLIC LIBRARY
 - E-14--CROSS BAY BOULEVARD PARK

Map capturing a committee brainstorming session on needs & opportunities



the bay was a major problem, but this also meant that many in the community were then without gas for heat for days and even weeks. Local propane supply is limited and trending downwards, leaving this community highly dependent upon a single source of energy that is becoming more scarce. Home heating oil tanks over turned and polluted the environment. The need for a more resilient long-term energy solution here is keenly felt.

Broad Channel is blessed by its unique natural setting. It does not want for access to nature, with many houses having direct access to water and pristine tidal wetlands. The topography has been changing in Jamaica Bay, beaches have become wetlands, and the wetlands in the surrounding bay are disappearing.

Broad Channel recognizes that its fate is inextricably tied to the strategies being considered for Jamaica Bay, and there are active participants in this process from Broad Channel. The need to reduce the impact of flooding and storm surge will largely be resolved by the actions taken within the larger bay and remote from the island. However, the community sees a combination of actions in the short-term and long-term that are both local and regional to make Broad Channel a resilient community. The wildlife refuge and other natural features around the island present an opportunity to be part of the solution. Extending wetlands and building off the natural shoreline that protects the island are both opportunities that the community would like to see advanced.

Public Meeting 1: Needs and Opportunities Comments*

Infrastructure

Provide storm surge protection

"Stop water from coming through storm surge"

Infrastructure

Improve water drainage

"Stopping the flooding on Cross Bay Blvd during a heavy rain- main access in/out"
"Flap valve at sewer overflow at W. 10th and E. 6th"
"Sluice way between 5th & 6th roads on CBB"
"Fix check valves"
"Malfunctioning check valve to stop water from coming up the storm sewers into the streets"

Infrastructure

Make street improvements

"E 12th Rd (access to home)"
"Repairing wooden boardwalk on E. 12th Rd"

Infrastructure

Incorporate green projects

"Less us of cement/impermeable surfaces: greater use of natural ground cover to absorb rainwater"
"Build up Ruffle Bar Island & Sand Box Island by taking the fill from Jamaica Bay. Bulk head the outside areas to stop wave action"
"Use fill of Jamaica bay to rebuild islands.
Improvement of wetlands"
"Continued improvement of wetlands"

Infrastructure

Provide additional energy sources

"Natural gas line"

Health and Social Services:

Improve access to medical services

"Urgent care center (doable)"
"Hospitals & emergency rooms"

Health and Social Services

Enhance community resources

"Evacuation center needed- multi-purpose"
"Short-term evacuation"

Health and Social Services

Improve educational facilities

"Work with PS 47 to improve educational programs"
"Better lighting and security at P.S. 47"

*Representative list of needs and opportunities provided by the community at Public Meeting 1.



Vision

Perhaps more than any other community in this region, Broad Channel shares an affinity with water. This island community, in the center of Jamaica Bay, with many residents living within a block of water, is certainly no stranger to flooding. The connection to water is what drew people to this place and the reason that people wish to stay. This unique relationship with the water defines Broad Channel.

Broad Channel's vision for resilience is to focus first on the near-term recovery and rebuilding that must take place to build back as a functional community. Many homes and businesses were severely damaged and critical infrastructure that supports the community was also compromised during Superstorm Sandy. For the residents of

Broad Channel, the damage was not just physical. Those places that have always been the center of the community, where people gather to meet and recreate and share stories and conduct their business—the places that make a community a community—were also hard hit and need help to build back so that they can once again serve as the centers of a vibrant community. The immediate focus is on the projects that will help build back the community. Broad Channel recognizes that there are also larger longer-term needs that must be addressed. Protections against flooding, expanding and diversifying access to power and other utilities, building facilities to support the elderly and other vulnerable populations must all be considered as this community plans for the future.

Broad Channel is surrounded by natural beauty, both on the land in the Gateway Wildlife Refuge and the mostly natural coastal edge and in the surrounding waters and wetland islands of Jamaica Bay. Thinking both in the short-term and the long-term, the community supports solutions that can be integrated into this natural setting. Soft solutions for the bay, integrated with landside protection, fit into the context of this place.

Broad Channel residents are keenly interested in the plans for making Jamaica Bay resilient and recognize the importance of those strategies both to the ultimate plans for protection of the island, but also how those plans affect the bay itself, its wildlife, and the ecosystem it supports.





V. Additional Considerations

Regional Perspectives

Jamaica Bay and Rockaway Peninsula Overview

Connected hydrologically and ecologically, Jamaica Bay is a unifying feature tying together six NYRCR planning areas: Breezy Point, Rockaway West, Rockaway East, Broad Channel, New and Old Howard Beach, and Gerritsen Beach/Sheepshead Bay. A seventh planning area, Brighton Beach, Coney Island, Manhattan Beach, and Sea Gate, is also in close proximity at the mouth of the bay. With their shared shoreline, these communities share climate change-related risks, and collaboration can produce solutions that address recovery and resiliency needs affecting the bay as a whole.

Regional Resiliency Issues

Situated on land that originally made up a series of barrier islands and marshland, these Jamaica Bay communities have a similar geomorphology and feature soft, marshy soil. At the lowest elevation of any area in New York City, many of them are located at sea level, making some vulnerable to flooding even during normal high tides. Broad Channel, New and Old Howard Beach, and Hamilton Beach feature housing and important commercial corridors adjacent to the waterways or on piers and are protected by varying types of built bulkheads, barrier walls, and stilts.

Communities along the bay side of the 11 mile long Rockaway Peninsula are also at risk.

Some communities sit directly on open beaches and others are buffered by open space and marshland, but the bulk of the bayside is protected by a seawall which was overtopped during Sandy. Many natural and constructed protective features around the bay are insufficient, aging, or inadequately maintained, leaving significant flooding risk for all of these communities.

On the ocean side, the Rockaway Peninsula faces risks due to its extensive unobstructed coastline.

While much of the coastline contains beaches, many lack extensive protective features and experience regular erosion. At the same time, the Rockaway Peninsula provides valuable protection to communities within the bay, acting as a barrier island and reducing surge and wave heights within the bay itself. The beach nourishment and dune-building efforts being undertaken by the United States Army Corps of Engineers (USACE) on the Rockaway Peninsula therefore have potential risk-reducing impacts for all communities on the bay.

All of the Jamaica Bay communities suffered significantly during Superstorm Sandy, some from flooding or surge and some from wave action damage. According to an assessment conducted by NYC Department of Buildings, 37

percent of the buildings destroyed during Hurricane Sandy were located in this region. Homes, businesses, beaches and parklands, schools, roadways, and mass transit were all damaged; the area also endured one of the most extensive and long-lasting power outages in the City.

Flooding risks are likely to be exacerbated throughout the bay by projected sea level rise associated with climate change.

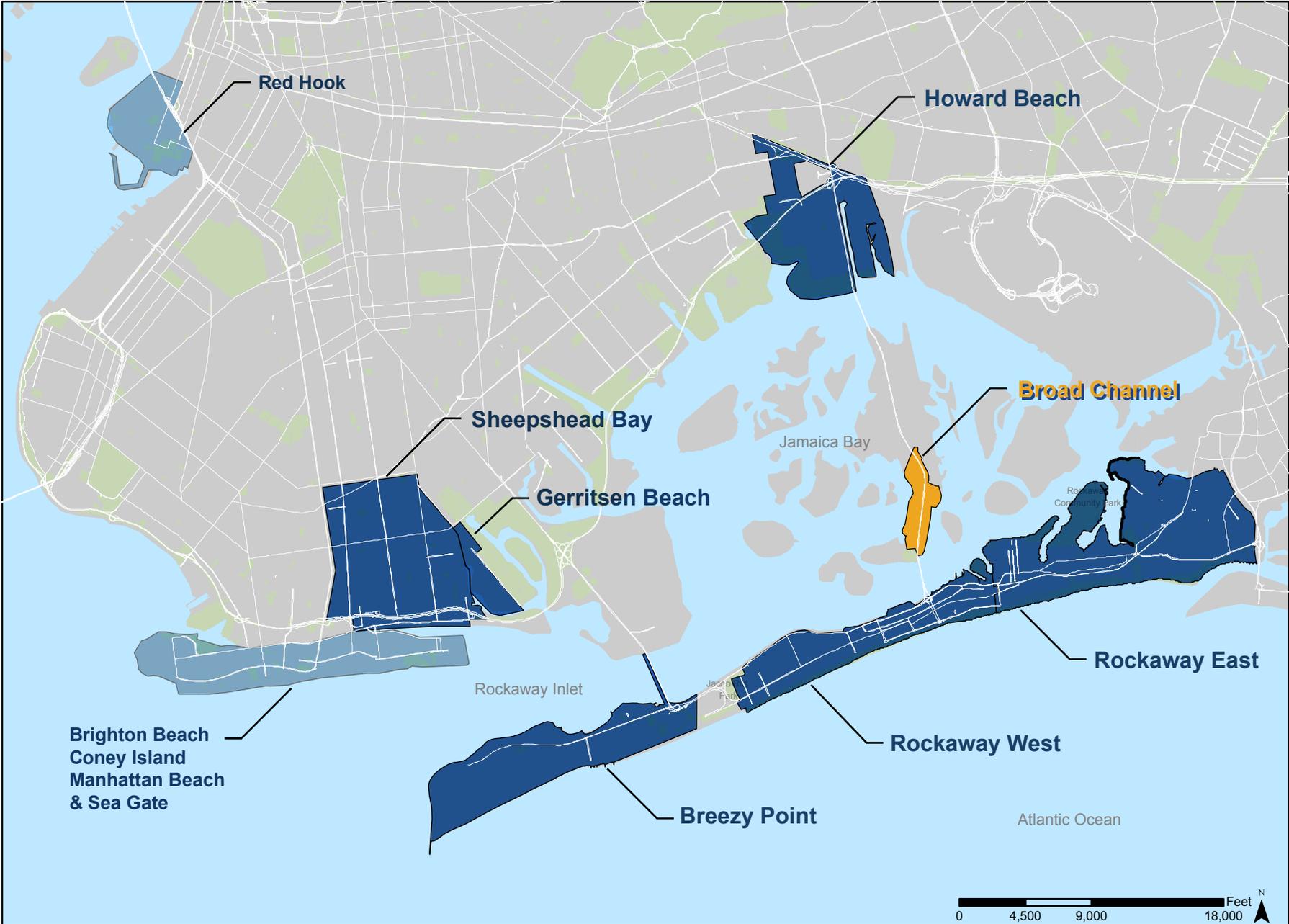
According to FEMA's Preliminary Work Maps, the 100-year floodplain in the area has expanded for the borough of Queens by 40 percent since 1983, and floodplain expansion has been especially dramatic for the Jamaica Bay/South Queens area.

Many Jamaica Bay communities also face insufficient emergency access.

Single access routes to communities such as Breezy Point and Broad Channel and certain parts of Old Howard Beach, including bridges and roadways that were damaged or flooded, also constrained emergency response and hindered evacuation.

There are also ecological factors to consider:

Jamaica Bay is a tidal estuary. Though severely degraded over the 19th and 20th centuries, it is still a dynamic ecosystem providing critical habitat to a variety of species, including a number of protected and threatened birds and other species who inhabit both the beach and bay. Habitat loss



NYRCR planning communities in Jamaica Bay



and degradation of the bay's chemical, physical and biological environment has largely been due to human activities, although by the city and federal agencies over the last two decades have yielded dramatic improvements in the bay's water and habitat quality.

In this hydrologically connected system, projects and interventions in one area of the bay can have ecological and coastal protection ramifications across the estuary. The cumulative impact of individual projects implemented in different locations around the bay can be greater than the sum of their individual impacts. At the same time, interactions between projects can sometimes have negative effects including, though rarely, induced wave or surge activity.

Because of these interdependencies, the six NYRCCR bay communities will form a Jamaica Bay NYRCCR Working Group. The group will review respective Conceptual Plans and assess opportunities to strategically protect their communities in concert. These regional strategies will be included in the Final Community Reconstruction Plans.

To maximize benefits and minimize risk, coordination among efforts by NYRCCR communities as well as the various City, State and Federal agencies active within the bay will be needed. The newly formed Jamaica Bay Resiliency Institute, established through an initiative to be led by CUNY in partnership with NYC, the National Parks Service (NPS), and Trust for Public

Land, among other organizations, is a potential partner and presents an opportunity for NYRCCR communities in Jamaica Bay to collaborate with other organizations and agencies.

Existing Plans, Studies, and Projects

In order to avoid duplication of plans and to best identify how the NYRCCR Program may fill existing gaps, the consulting team has reviewed past and ongoing plans, studies, and projects in Broad Channel and surrounding areas. Major existing plans, studies, and projects in Jamaica Bay and citywide are described below. Relevant plans and projects specific to Broad Channel are also described in more detail in the matrix that follows.

Jamaica Bay Initiatives

NYC Department of Environmental Protection's Jamaica Bay Watershed Protection Plan. Authorized in 2005 and ini number of ongoing studies and projects in the bay which could provide resiliency benefits for NYRCCR communities. These include studies that pre-dated Superstorm Sandy as well as post-Sandy updates to the previous plans and studies.

Hudson Raritan Estuary (HER) Comprehensive Restoration Plan (CRP). Adopted in 2009, The HER-CRP was developed in collaboration with federal, state, municipal, and non-governmental organizations as well as other regional stakeholders. It sets forth a consensus vision, master plan and

strategy for ecosystem future restoration in the New York/New Jersey Harbor. In Jamaica Bay, the plan identified 39 potential restoration sites. Some of these restoration projects have been acted upon, but most have not.

Jamaica Bay, Marine Park and Plumb Beach, New York Ecosystem Restoration Feasibility Study.

The study is a joint undertaking of the USACE and the NYCDEP and is intended to provide an expedited limited reevaluation of USACE restoration projects in the bay to address post-Sandy changes. The interim draft report identified 8 priority restoration sites (550 acres) from the HRE-CRP recommendations, 6 of which are in NYRCCR Communities: Dead Horse Bay, Paerdegat Basin, Fresh Creek, Spring Creek, Hawtree Point, Bayswater State Park, Dubos Point, and Brant Point. In addition, the feasibility study will look at Marsh Island Restoration Projects and two other restoration projects being undertaken under the USACE's Continuing Authorities Program – Gerritsen Creek and Upper Spring Creek, as well as ongoing USACE Storm Reduction Studies and Navigation projects in area.

East Rockaway Inlet to Rockaway Inlet (Rockaway Beach) Reformulation Study

This project reevaluates recommendations by the existing USACE plan for the area in light of the impacts of Sandy. Phase 1, for which the draft report should be completed this Fall, looks at beach nourishment and additional erosion control and/or storm damage risk reduction measures on the ocean side of the Rockaway Peninsula. Phase 2,



for which the draft report is expected in October of 2015, will investigate flooding on the Jamaica Bay side of the peninsula and evaluate potential coastal storm risk management reduction measures.

Additional Citywide Initiatives

Special Initiative for Rebuilding and Resiliency.

On June 11th, Mayor Michael Bloomberg announced the release of “A Stronger, More Resilient New York,” (SIRR Report) forming New York City’s plan for rebuilding post-Sandy and ensuring resiliency into the future. The plan contains actionable recommendations both for rebuilding communities in the City impacted by Sandy and for increasing the resiliency of buildings and infrastructure city-wide. All NYRCR communities within the city will need to coordinate their proposed projects with the initiatives proposed in the City’s Plan. Specific initiatives for Broad Channel proposed in the SIRR Report are summarized in the “Existing Plans and Projects” table at the end of this section. More broadly, the plan lays out numerous city-wide initiatives to improve resiliency for systems including coastal protection, buildings, insurance, utilities, liquid fuels, healthcare, telecommunications, transportation, parks, water and wastewater and other critical networks which NYRCR communities will need to coordinate with their own proposals.

Particularly relevant to NYRCR communities are ongoing and potential future updates to the building and zoning code. The City’s Building Resiliency Task Force identified 33 recommendations to the City Council. Many of these recommendations are still in various

states of review by the council, but five initiatives have been passed. In addition, the Department of City Planning’s Flood Resilience Zoning Text Amendment was approved by City Council on October 9th. The report and latest updates on implementation can be found on the SIRR website: <http://www.nyc.gov/html/sirr/>.

NYC Recovery Program. In addition to resiliency, the City has launched several initiatives to help residents across the five boroughs recover from the damage caused by Sandy. The City’s “Build It Back” program seeks to assist homeowners, landlords, and tenants whose homes were damaged by Sandy. The NYC Recovery Program is also offering business loans and grants to small business owners damaged by Sandy. Most of these recovery programs support resiliency investments and will help improve individual homes and businesses in the communities surrounding Jamaica Bay. More information on the NYC Recovery program can be found here: <http://www.nyc.gov/html/recovery/>.

FEMA Flood Maps and Flood Risk Assessment. The Federal Emergency Management Agency (FEMA) describes its assessment of flood risk through flood maps referred to as Flood Insurance Rate Maps (FIRMs). These maps are used by the National Flood Insurance Program (NFIP) to set flood insurance rates. When Superstorm Sandy hit New York City, the FIRMs in use were based on information from 1983. Sandy inundation extended well beyond what these maps estimated would be the 100 year floodplain, calling attention to the fact

that an update to these maps was needed. In fact, before Hurricane Sandy, FEMA had begun a coastal flood study to update Flood Insurance Rate Maps (FIRMs) for portions of New York and New Jersey using improved methods and data to better reflect coastal flood risk.

After Sandy, FEMA first released Advisory Base Flood Elevation (ABFE) maps based on the partially completed flood study for certain communities which were designed to help in rebuilding and recovery efforts. In June of 2013, FEMA released preliminary work maps for New York City, including the full results of the coastal flood study. The preliminary work maps are based on the same underlying data as the earlier ABFE maps, but include the results of a more refined analysis of shoreline conditions, including the effects of erosion and wave runup. The maps are a “draft” product that FEMA shared in advance of the preliminary FIRMs, which are expected to be released by the end of 2013. The final updated FIRMs are anticipated to be released in 2015. These final FIRMs will guide new Flood Insurance rates for homeowners and businesses in the floodplain.

FEMA’s flood maps do not take into account future conditions and thus do not factor in potential sea level rise. The New York City Panel on Climate Change (NPCC) is continuing to analyze potential climate change impacts on New York City, namely sea level rise. The NPCC released a report “Climate Risk Information 2013: Observations, Climate Change Projections, and Maps” in conjunction with the SIRR Report and provides New York City’s



estimates for sea level rise over various time frames. They are expected to update these estimates in the near future. In addition, New York City has hired the Steven's Institute of Technology to map flood zones with added sea level rise for future decades. This is being done within the NPCC framework and will be reported and released through NPCC this winter.

In Summary

Key takeaways from review of existing plans, studies, and projects that specifically address Broad Channel include:

- Planning for Jamaica Bay restoration and resilience is already being carried out, led by USACE.
- Infrastructure projects – including roadway, transit, sewer, and bulkhead – are under construction.

Based on review of existing plans and initial engagement, existing gaps in planning include:

- More wide-scale infrastructure improvements (such as additional street raisings or bulkhead repair) may not have yet been studied.
- While natural resources restoration has been studied, funding is not necessarily identified.
- The status of large-scale infrastructure improvements needs to be investigated.
- Hardening of community social services and evacuation plans for disabled and senior populations.

Existing plans, studies, and projects are summarized in the below matrix indicating the organization leading the planning process, key analysis and proposed initiatives, the Recovery Functions these initiatives address, and the status of the plan, study, or project.



Plan/Project Name	Lead Organization(s)	Initiative Description	6 Recovery Functions						Sub-Category (Pre-Planning, Planning, Under Construction, Complete/In Operation)	Status (Pre-Planning, Planning, Under Construction, Complete/In Operation)
			Community Planning & Capacity Building	Economic Development	Health & Social Services	Housing	Infrastructure	Natural & Cultural Resources		
NYC Department of Design & Construction (NYCDDC) Capital Projects (HWQ1182A)	NYCDDC/NYC Department of Transportation (NYCDOT)	Install bulkheads at the end of West 11th, 12th and 13th Roads, and perform roadway reconstruction from the new bulkheads back to Cross Bay Boulevard. This project includes installation of one-way storm water drain valves to decrease the frequency, severity and duration of flooding in this low lying area. Includes raising roadways above flood levels.					x		Coastal Protection / Infrastructure	In construction procurement; to be completed March 2017
NYCDDC Capital Projects (HW394FED)	NYCDDC/ NYCDOT	"Roadway resurfacing w, installation of pedestrian ramps at designated streets, and installation of new curbs and sidewalks where directed.					x		Infrastructure	
A Stronger More Resilient New York (SIRR Report)	NYC Office of Long-Term Planning and Sustainability (OLTPS)	Raise bulkheads in low-lying neighborhoods across the city to minimize inland tidal flooding (SIRR Coastal Protection Initiative # 6)					x		Coastal Protection	
A Stronger More Resilient New York (SIRR Report)	NYC Economic Development Corp. (NYCEDC)/ OLTPS	Develop an implementation plan to address frequent tidal inundation in Broad Channel and Hamilton Beach, incorporating international best practices. (SIRR, South Queens Initiative #2)					x		Coastal Protection	
A Stronger More Resilient New York (SIRR Report)	OLTPS	Call on USACE to study implementation of a surge barrier or other mechanisms to protect storm surge through Rockaway Inlet					x		Coastal Protection	
A Stronger More Resilient New York (SIRR Report)	NYC Department of City Planning (NYCDCP)/ OLTPS	Study and implement zoning changes to encourage retrofits of existing buildings and construction of new resilient buildings in the 100-year floodplain (SIRR, Buildings Initiative #3); Also additional Building Initiatives.					x		Coastal Protection	ongoing
A Stronger, More Resilient NY	National Park Service (NPS) & City of NYC	Jamaica Bay Resiliency Institute. Establish a center for resiliency and restoration efforts in the Jamaica Bay-Rockaway Parks (SIRR, Parks Initiative #13)							Ecological Restoration / Coastal Protection	Consortium to be lead by CUNY announced 8/12/2013. Resiliency symposium initiating the center held 10/18/2013.
Build It Back	NYC Recovery	Two Year Rental Subsidy; Renter Services				x			Social Services	ongoing



VI. Next Steps

Projects and Strategies

The next steps of the NYRCR Program planning process will fully explore new and complimentary strategies and projects, evaluate financial and regulatory feasibility, and help generate a priority list of projects to propose for funding. From this initial stage in the process, an early understanding of potential short-term and long-term projects is beginning to take shape.

The Broad Channel community has identified a number of initial projects and strategies for consideration. This section highlights and organizes these preliminary strategies and initiatives in order to share the ideas generated thus far from the process and meetings. This is not a set of formal proposals. Over the next two months, the next steps of the NYRCR Program planning process will be to more fully explore strategies and potential projects, evaluate their financial and regulatory feasibility, and prioritize a final list of projects to propose for funding. As such, the contents in the section will evolve.

When Superstorm Sandy struck, the damage to individual businesses and property owners was extensive. But there were significant community assets that also suffered. The Broad Channel committee wants to ensure that its strong sense of community is not eroded along with the beaches that line both sides of the island. To that end, many early proposals are focused on those facilities that

support the functions of the community, provide for its recreational outlets, serve as its meeting and gathering places, and capture its culture and history.

The committee is looking first and foremost at projects that can be implemented right away that will be of significant value to the community and will help to strengthen the community. The proposals are broken down into an initial phase of short term projects which may potentially be funded out of the current allocation of CDBG-DR funds, and which we have classified as priority projects because they are low cost, short term, and easy to implement. These projects are listed in no particular order, broken down by the NYS DOS Recovery Function categories.

Short Term Priority Projects

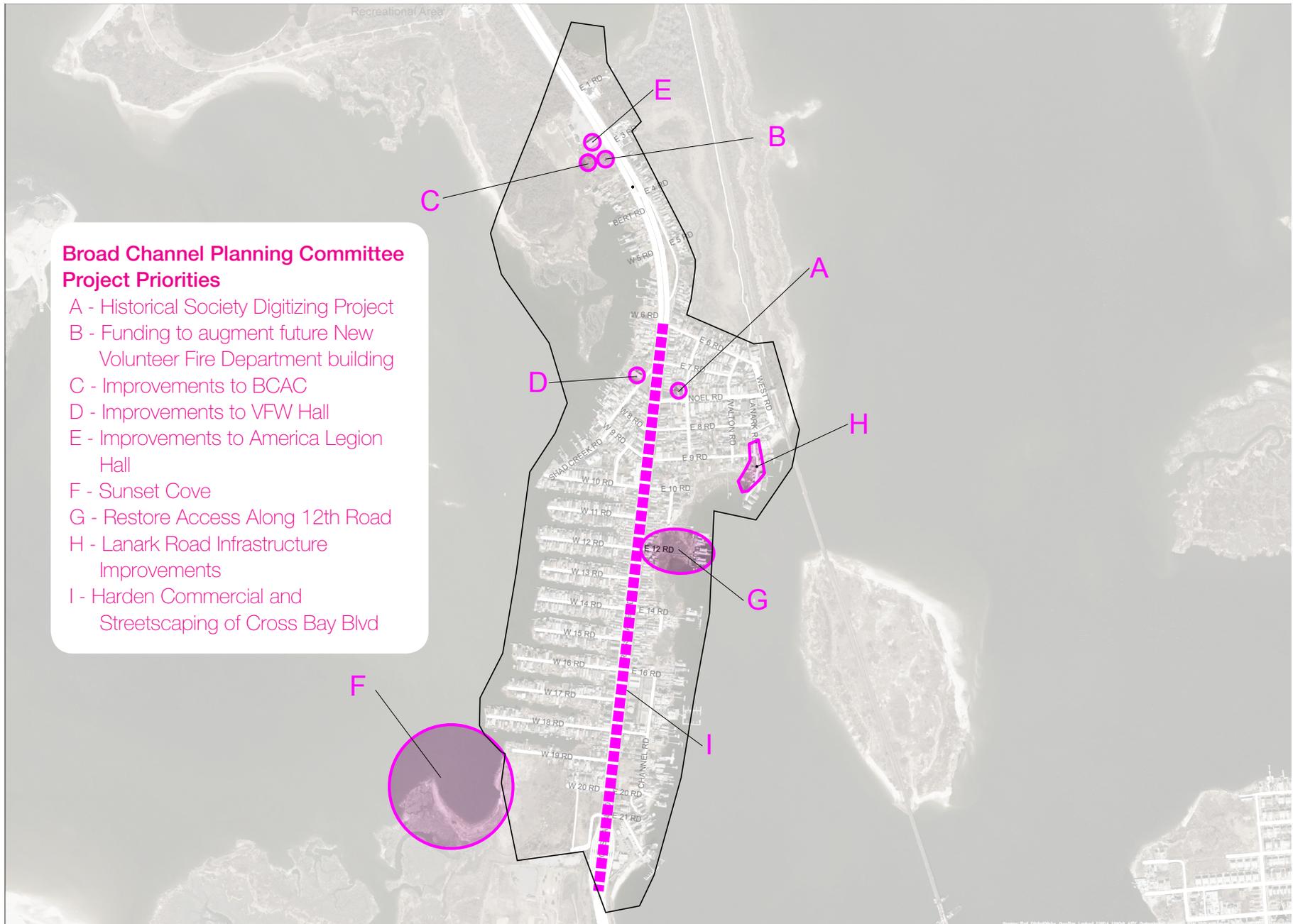
Economic Development

- **Project: The Business District Complete Street Strategy** – The business district was heavily damaged by Superstorm Sandy and in addition is a critical need in the town as the island geography of the town leaves residents entirely dependent on local businesses for supplies when critical supplies such as gasoline are in short supply. The proposal would develop a strategy for durable permeable pavement, a design aesthetic for

the buildings along Cross Bay Boulevard and additional landscape strategies to promote development, make the streets more resilient for flood damage, and reduce storm water runoff to reduce impacts on the combined sewer overflow system (CSO).

Health and Social Services

- **Project: Make Recovery and Resiliency Improvements to the American Legion Hall** – The American Legion Hall was the central location out of which relief efforts were conducted and supplies were initially distributed in the aftermath of Sandy. More than 800 people a day from Broad Channel and from around the region were fed in the aftermath of the storm. In the event of another storm event, a resilient facility will be critical to efforts to recover. The building, however, suffered flood and infrastructure damage (heating and electrical damage) and needs to be made more resilient to withstand another such event. The Committee has suggested an initiative to flood proof the building and retrofit the building with generators, solar powered phones and communication equipment. In addition, the Committee has suggested safeguarding critical equipment like the heating and ventilation system, by relocating it to the roof area. The goal is to create a



- Broad Channel Planning Committee Project Priorities**
- A - Historical Society Digitizing Project
 - B - Funding to augment future New Volunteer Fire Department building
 - C - Improvements to BCAC
 - D - Improvements to VFW Hall
 - E - Improvements to America Legion Hall
 - F - Sunset Cove
 - G - Restore Access Along 12th Road
 - H - Lanark Road Infrastructure Improvements
 - I - Harden Commercial and Streetscaping of Cross Bay Blvd

Broad Channel short-term priority projects



restoration center within Broad Channel that will be able to handle the needs of the town in the event of another Sandy-type storm event.

- **Project: Digitize the historical records for Broad Channel and seek to establish a physical historical society** – Broad Channel's extensive historical records have been kept and catalogued by the Broad Channel Historical Society and housed within the public library. When Superstorm Sandy hit, the library was flooded and the records damaged. The community sees this information as a treasure and as an important connection to the history of the island. The notion of preserving records is a first step in a larger and more ambitious plan to developing a physical home for the Broad Channel Historical Society, which would be both a beacon for the community and a potential source of tourism interest and revenue.
- **Project: Broad Channel Volunteer Fire Department (BCVFD) completion of the second floor electrical/mechanical/communications equipment that would enable multi-agency utilization during emergencies** – Broad Channel Volunteer Fire Department (BCVFD) fire house is a known fixture on Broad Channel. Many of the residents have served stints in the fire house. The BCVFD has long sought to construct a new facility that would more appropriately service its ability to respond to fire alarms and provide ambulance service. The effects of Superstorm Sandy reinforce the urgency of

this need. The goal has been to build the new facility near to other community facilities at the northern edge of the community. This project has been funded through the New York State Dormitory Authority and the hope is that the fire house will soon be able to proceed with construction. However, in the wake of Sandy, it is clear that additional components of the firehouse would increase its ability to serve the community during storm events and other crisis situations. This project seeks funding to make those additional improvements to the facility.

- **Project: Make recovery and resiliency improvements to the Broad Channel Athletic Club** – The Broad Channel Athletic Club, always a center of the community serving children of all ages (including a pre-K center, day care, summer day camp, scouts, organizations and general community) is currently the only community center with a second floor above the flood plain and became a key community center in the weeks and months after Superstorm Sandy. Damage to equipment, facilities, and fields was significant. The hope is to replace lost equipment, rebuild indoor and outdoor facilities that were damaged, construct a new resilient storage system, create an emergency power system, and protect the building and site from future storm surge.
- **Project: Make recovery and resiliency improvements to the Veterans of Foreign Wars (VFW) Hall** – The VFW hall is one of

the few meeting facilities on Broad Channel. It suffered damage during Sandy and needs to have its main access rebuilt and include a completely ADA accessible facility so that in the event of another storm event, it will play its key role as an additional resource center able to service the community in conformance with ADA guidelines.

Infrastructure Systems and Natural and Cultural Resources

- **Project: Rebuild the East 12th Road Boardwalk** – There is a group of homes that are only accessible by the East 12th Road Board Walk, a city-owned wooden structure that suffered severe damage during Sandy. The homes serviced by this walkway are historic “stilt-homes” that have been featured in numerous movies and films and represent Broad Channel's waterfront roots. This project would design for a new boardwalk and fund its reconstruction as an elevated, stronger and more resilient access point to these important historic waterfront homes, preserving an element of the unique character of Broad Channel into the next generation.
- **Project: Provide necessary infrastructure to Lanark Road** – Lanark Road homeowners saw serious impact to their homes during Superstorm Sandy. This is the only area in Broad Channel that is not currently serviced by a sanitary sewer system. The project would develop a strategy to build a new



sewer system which would run from house to house.

- **Project: Restore the bulkhead and convert the shoreline into a wetland habitat in Sunset Cove** – Sunset Cove lies along the southwestern edge of Broad Channel where the residential community butts up against the Gateway National Recreation Area wildlife refuge. There are 17 acres of undeveloped land at the southern portion of Broad Channel that have been identified for a potential restoration project. Although not currently funded, proposals have been made to convert the dilapidated bulkhead into a living shoreline including wetlands, natural-stone revetments, and oyster reefs as well as an on-land vegetated berm or dune. The Committee has proposed that this project be revisited and designed to protect against future projected storm conditions.

The committee has also focused on additional projects which are not yet funded but which may qualify for funding through identification of potential grant opportunities. These projects have been classified as long term projects because they will take longer to implement, involve greater complexity, and may be implemented by others. The following long term projects are listed in no particular order, broken down by the NYS DOS Recovery Function categories.

Long Term Projects

Economic Development

- **Project: Rebuild and make resilient businesses along Cross Bay Boulevard** – The collection of businesses along Cross Bay Boulevard serves as an important commercial anchor for the community. While at a higher elevation than other parts of Broad Channel, Cross Bay Boulevard is still in a high-risk zone and efforts should be made to make buildings along the corridor more resilient, including flood-proofing ground floors, in addition to ensuring power, medical, and food supply for the area through back-up generators, emergency medical supplies, or additional food.

Health and Social Services

- **Project: Expand healthcare infrastructure** Broad Channel lacks regular and emergency health services. This is particularly worrisome for the community's senior population, who may need additional assistance in cases of emergency. One way to expand health access would be to include health services within the offerings of any new multi-purpose community or social service centers that are developed in the area.
- **Project: Rebuild and enhance resiliency of community centers** – Several important community centers were damaged in the storm, and the community is interested in rebuilding these spaces and making them more resilient to sustain future storms. There

is a concentration of community uses in the north (an area at higher elevation), which could turn into a campus of community uses and serve important gathering functions during emergency events and for general recreational community needs.

Housing

- **Project: Financing to help residents fund building-resiliency improvements, and business-owners to fund both building and operational recovery** – Many businesses along Cross Bay Boulevard have been unable to reopen since Sandy. Financing for repairs and for covering business losses would support long-term economic recovery.
- **Project: Consider raising houses currently at ground level** – While many of the houses in Broad Channel are on stilts or raised above the ground plane, there are still others at ground level that face increased flood risk. Projects should be investigated to elevate such houses, especially those without basements, to guard against future flooding. When analyzing the opportunity for elevating homes, we will need to analyze the impact on access and the relationship to the street.

Infrastructure Systems and Natural and Cultural Resources

- **Project: Expand the street-raising pilot that will be implemented on West 10th–13th Roads to other similar areas on the island** – Broad Channel is proceeding with a capital project (Project ID: HWQ1182A), which will see three initial streets in Broad Channel



raised as much as 3 feet in a shared-streets design concept to mitigate tidal flooding. The western side of Broad Channel west of Cross Bay Boulevard is characterized by a number of dead-end streets sandwiched between inlets. By expanding the initial pilot south to encompass all of the blocks down to 19th Street, a comprehensive approach to flood protection for a large section of the western side of Broad Channel could be implemented. Additional streets should be considered under the current study to be funded for replication of the initial project design and based upon observations of its relative success.

- **Project: Create a wetland and rock revetment at the end of the western canal blocks** – While there may be a number of locations that should be taken into consideration for new combined wetland and upland strategies, the committee noted the particular location of Western Canal as a priority concern. The goal would be to establish a rock revetment and then, similar to the effort undertaken with the Big Egg restoration project, sediment could be pumped behind the revetment to create a zone that would help to dissipate wave action and storm energy prior to reaching the adjacent community.
- **Project: Create combined berm and wetland strategy to protect the eastern side of Broad Channel** – South of 9th Road on the east side of Cross Bay Boulevard, the island quickly becomes an area of

wetlands and tidal flats. The houses along this side are mostly clustered against Cross Bay Boulevard and the finger roads that jut eastward into the Bay. To the west is Cross Bay Boulevard and to the east is the right-of-way for the A train and the island and structure that support that piece of infrastructure. During Superstorm Sandy, wind direction came up this channel. Similar wind-aided wave action has been experienced during nor'easters. A strategy to reduce wave action on or off-shore could reduce the impact of wave action to this part of Broad Channel.

Beyond local needs and strategies, the Broad Channel committee has raised issues relating to the larger region and its impact upon Broad Channel. The community is focused on major connections and larger regional strategies that will benefit Broad Channel.

- **Project: Develop a strategy to control flood waters in the northeast section of the island** – When Superstorm Sandy struck, the residents on the east side of Cross Bay Boulevard and north of East 9th Road, like all of the neighborhoods in Broad Channel, were flooded. In this area, two critical weak points were seen as the most important locations to focus on to try and control flooding in this section of the island. There is a culvert that sits under Cross Bay Boulevard along the neck of the island allowing water to flush between the wetlands on the west and the wildlife refuge on the east. Floodwaters poured through

this area, bringing water across the land and into this community. In the south, there is a backflow preventer at the southern end of West Road that allows tidewaters to funnel into the community from the south. These two weak points should be investigated.

- **Project: Extend the natural gas pipeline to Broad Channel** – This island community is the only area in the city of New York that is not currently supplied with a natural gas supply main. This was originally due to the geography and the difficulty of running a gas main across Jamaica Bay. With the advent of recent technological advances, particularly horizontal directional drilling, it is now possible to run a gas main under Jamaica Bay from Rockaway. Considering the impact that the island experienced during Superstorm Sandy (hundreds of overturned oil tanks and thousands of gallons of oil spilling into the fragile environment of Jamaica Bay), a gas main could mitigate such future events. In addition, the impact on the environment would be greatly enhanced if the potential existed to convert these homes from fuel oil to natural gas.
- **Project: Create oyster reefs within Jamaica Bay to reduce storm energy and combat eutrophication of the bay** – The creation of oyster reefs within Jamaica Bay could help to reduce storm energy and help mitigate the eutrophication problem that the bay is experiencing. Preliminary data indicates that not only will oysters survive in



Jamaica Bay, but also that they are found to be reproducing near the test site areas used to date.

- **Project: Create additional wetland islands in Jamaica Bay to minimize wave heights** – In coordination with the agencies working towards wetland expansion solutions in Jamaica Bay, there is an opportunity to create additional wetland islands to help reduce wave heights during storm events and lessen the impact to Broad Channel and all neighborhoods fronting on the Bay. The committee has suggested that this opportunity should be approached in the following priority order:
 - Pumpkin Patch island
 - Duck Point
 - Big Egg (South)
 - Little Egg
- **Project: Explore the development of a surge barrier or other protection measures to protect Jamaica Bay against future storm events** – On a much larger scale, the Committee supports the further investigation of a protection plan at the mouth of Jamaica Bay as proposed in the City's plan, "A Stronger, More Resilient New York." There are a number of agencies looking into a larger regional Jamaica Bay solution, but the committee saw an opportunity to look at existing infrastructure like the Gil Hodges Bridge and adjacent lands on both sides of the bay to formulate a plan for a

large floodgate. Such a gate would need to be coordinated with other projects, including a proposed dune to protect the seaward edge of the Rockaway Peninsula as well as other protection measures along the Bayside seawall that protects the Rockaways, and wetland expansion and restoration within the bay. A strategy of this magnitude would be implemented with the recognition that it is being designed to protect the assets of the entire Rockaway Peninsula, all of the bayside communities of Bayswater, Howard Beach, Broad Channel, and Hamilton Beach, Mill Basin, Canarsie, and Gerritsen Beach, as well as JFK Airport.

Next Steps

The Conceptual Plan is the first critical milestone in the NYRCR effort. The next step in the plan will be to evaluate these proposal concepts and any others brought forth by the community through our next public meeting. These proposals will be researched to understand their ability to reduce risk, whether they are technically feasible, their order-of-magnitude cost, whether there is a funding source and/or funds available, and what co-benefits can be achieved.

Short-term and long-term projects will then be coordinated to formulate an overall plan of action for resilience for the community. There will be three additional public meetings to refine the plan and the projects. The final plan will be completed on March 31st of 2014.

Implementation Planning

After defining priority projects and actions, the Committee will utilize the expertise of its planning team to identify a path towards implementation.

The goal for the implementation plan will be to achieve actionable results for the community which focuses on four core components: **regulation, funding, complementary programs, and building capacity to implement.**

The plan will identify:

- Order-of-magnitude project costs associated with implementing resiliency projects
- Potential funding sources for projects
- Detailed work plan outlining activities to implement proposed actions including regulatory actions and program development as well as infrastructure investment
- Responsible parties for each of the activities to be conducted in accordance with the recommended project
- Target goals, timelines and project budget for each responsible party
- Process for amending the work plan should timeline lapse or costs exceeding the projected budgets

To accomplish certain infrastructure projects, regulatory and legislative changes may be required. In these instances, the plan will include the process for which these changes can be achieved. Regulatory and legislative changes could



include changes to current zoning and/or permitted uses in a specific area. The implementation plan will identify the regulatory and legislative entities that will be engaged to initiate the changes as well as the community representative who will champion and push for the appropriate regulatory

or legislative change. The implementation plan will consider Broad Channel's resources and identify if implementation can be achieved with existing resources or if additional staff will be required, and if so, the mechanisms for securing and managing the additional resources.

Steps Completed

