



NEW YORK RISING COMMUNITY RECONSTRUCTION (NYRCR)

**NYRCR PLANNING AREA:
BAY PARK AND THE VILLAGE OF EAST ROCKAWAY**

CONCEPTUAL PLAN OCTOBER 2013



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 NYRCR 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 NYRCR 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.

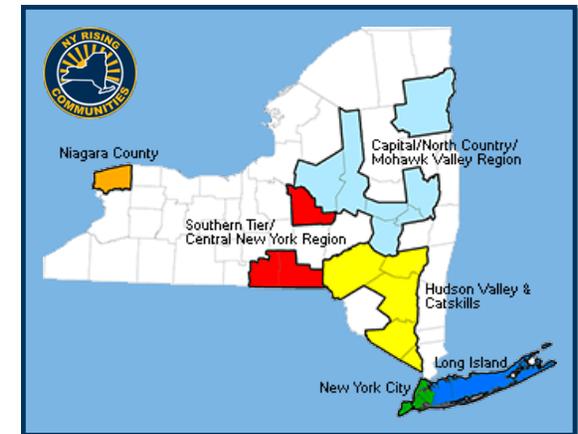
In the months ahead, communities will develop ways to implement additional strategies for economic revitalization, human services, housing, infrastructure, natural and cultural resources, and the community's capacity to implement changes.

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

New York Rising Communities



Find out more at:
StormRecovery.ny.gov/Community-Reconstruction-Program

ACKNOWLEDGEMENTS

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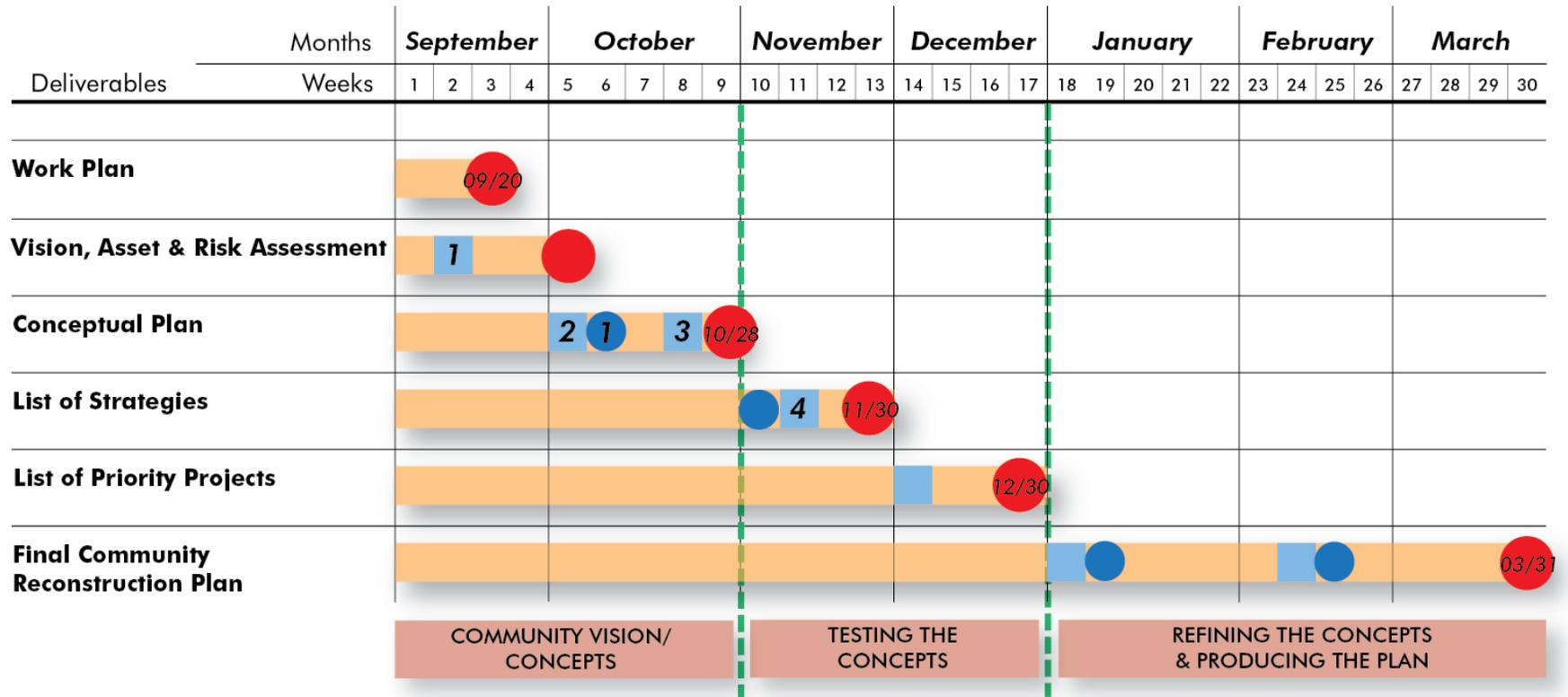
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BAY PARK AND VILLAGE OF EAST ROCKAWAY

1.0 OVERVIEW



Figure 1: NY Rising Community Reconstruction Program Schedule (30 weeks)



- Planning Committee Meeting
- Public Meeting
- Deliverable Due Date

1.1 INTRODUCTION

Hurricane Irene and Tropical Storm Lee (2011) and Hurricane Sandy (2012) have demonstrated the severe effects of changing weather patterns - loss of life, displacement, damage to property and infrastructure, loss of essential services, and disruption of daily routines.

Through the New York Rising Community Reconstruction (NYRCR) Program, New York State is assisting communities to rebuild better and safer based on community-driven plans that consider current damage, future threats to community assets, and the community's economic future.

As part of the program, New York State convened a NYRCR Committee for Bay Park and the Village of East Rockaway composed of 13 residents, civic leaders, and community activists. The goal of the NYRCR Committee is to create a Community Reconstruction Plan (NYRCR Plan), to be completed in March 2014, which will result in a list of projects and actions needed for Bay Park and the Village of East Rockaway to recover from the damage caused by Superstorm Sandy and to reduce the risk of future hazard damages caused by extreme weather events. The 30-week schedule for the New York Rising Community Reconstruction Program is shown to the left.

By completing a successful Plan, Bay Park and the Village of East Rockaway will position itself to obtain funding for implementation to improve the community's future. Each NYRCR Community is eligible for funding based in part on Federal Emergency Management Agency (FEMA) assessed damage levels. Bay Park is eligible for up to \$3.4 million and the Village of East Rockaway is eligible for up to \$3.3 million. Following the acceptance of the NYRCR Plan by New York State the communities are eligible for funding in certain categories.

This NYRCR Conceptual Plan is the first step in outlining the process undertaken by the NYRCR Committee to date and provides a roadmap for the next steps that the Committee will take in drafting the NYRCR Plan. Ultimately, the NYRCR Plan will include strategies for rebuilding and replacing critical facilities, improving resilience against future threats, capitalizing on its social and economic assets, and fostering economic growth.

The NYRCR Conceptual Plan summarizes the initial work completed by the NYRCR Committee, which includes the:

- Creation of a Vision Statement to guide ideas about long-term changes to the community
- Identification of key assets that were damaged by Superstorm Sandy or are at risk in the event of future storms

- Determination of need and opportunities for improving the area's resilience to extreme weather and climate change
- Creation of a framework of strategies to guide the next stages of the NYRCR Plan

Building upon this process, the broad strategies that the NYRCR Committee has developed will help to inform more specific set of actions and ultimately, priority projects which will be subject to cost-benefit analysis and community approval.

Next Steps

As outlined on the NYRCR Program Schedule (Figure 1), the NYRCR Conceptual Plan summarizes the first phase of work completed in the NYRCR planning process by the NYRCR Committee. The next steps in the process are the completion of phase 2: testing the concepts, and phase 3: refining the concepts and producing the NYRCR Plan. The list of preliminary strategies included in the NYRCR Conceptual Plan will continue to be assessed and refined and the NYRCR Committee will work, in association with the NYRCR Consultant Team and the public, to develop a list of implementable priority projects over the next several months. The NYRCR Committee will prioritize projects based on a detailed assessment of their ability to mitigate future risk, project costs, cost-benefit analysis, funding eligibility, and implementation strategies. The final reconstruction strategies, priority projects, and implementation measures will be included in the final NYRCR Plan.

1.2 COMMUNITY VISION

DESCRIPTION OF PROCESS FOR CREATING VISION

The NYRCR Committee created a Vision Statement to address regional and community recovery and resilience for Bay Park and the Village of East Rockaway. The objective of the vision statement is to address damage caused by Superstorm Sandy and Hurricane Irene, capitalize on social and economic assets to improve the local economy; and rebuild a more resilient community to expand the economy and reduce future risk.

VISION STATEMENT

Bay Park and the Village of East Rockaway are two waterfront communities that are home to hard-working and family-oriented residents. They are bound together by their shared history, identity, civic, institutional and commercial networks, and their connection to the bay. Both communities were severely impacted by Superstorm Sandy and recognize their shared stake in rebuilding a more resilient future where people want to live, work and play.

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

Bay Park and the Village of East Rockaway have a symbiotic relationship. Decisions in how to rebuild will have a profound impact on the future of both communities. The fundamental principle is to recognize the assets that have always made people want to live in Bay Park and East Rockaway, and enhance these assets so they serve as a foundation for a new and better future. The communities' vision is based on seven points:

- Re-establish a robust infrastructure system characterized by well-maintained and drained streets, a clean and reliable water supply, clean and reliable wastewater treatment, and a reliable utility distribution system.
- Improve facilities for essential public services and harden municipal infrastructure so that they are better able to secure the safety of the communities during future storm events.
- Secure neighborhoods from flooding and assist residents in their efforts to rebuild and protect their homes from future storm events.
- Strengthen the commercial and civic spine along Main Street and Atlantic Avenue and build on landmarks and gathering places such as the Talfor Boat Basin and rail stations to help the community remain vibrant and economically sustainable.
- Build upon the strong network of existing civic and religious organizations to make the communities more resilient to future weather events.
- Encourage improvements that will protect and enhance the quality and natural beauty of West Hempstead Bay and the surrounding estuarine ecosystem. Recommendations will allow the communities to continue to enjoy and draw sustenance from the Bay, while respecting and addressing the potential of the Bay as a source of risk.
- Recognize and elevate the social and environmental burden imposed by the Bay Park Sewage Treatment Plant and leverage improvements to make it and the surrounding area a source of community pride.

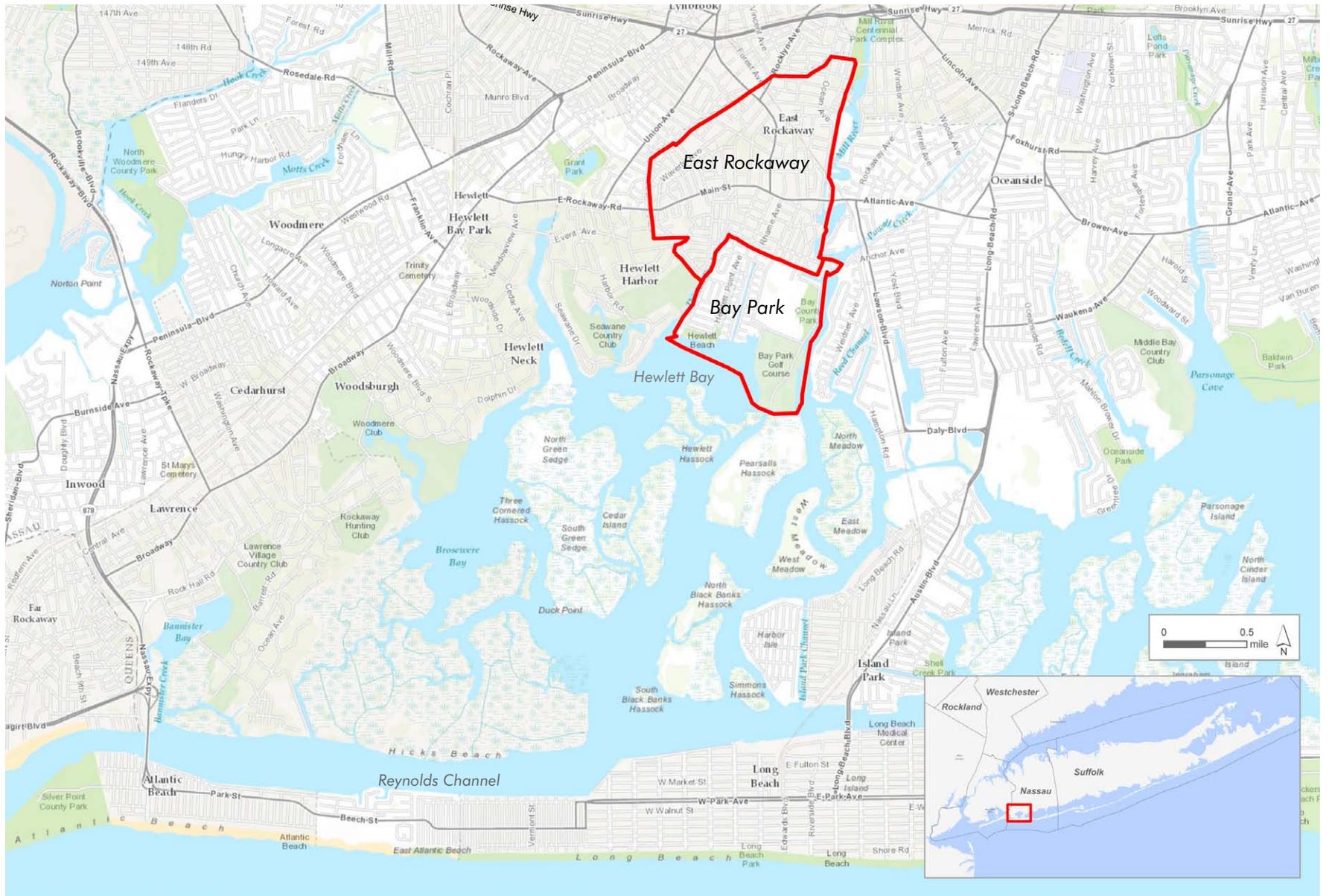


Figure 2: Regional Context

Source: ESRI, US Census

1.3 PLANNING AREA

GEOGRAPHIC SCOPE

Bay Park and the Village of East Rockaway are neighboring communities located the southwest portion of the Town of Hempstead in Nassau County. They are bordered by Hewlett to the west, Lynbrook to the north, Oceanside to the east and the Hewlett Bay to the south. There are four bodies of water that flow into the Hewlett Bay, which feeds into the West Hempstead Bay: Mill River, Thixton Creek, Grand Canal and Higbie Canal. Mill River is the largest of the channels and extends approximately 2.5 miles inland to Smith Pond, just north of the Sunrise Highway (Route 27). The NYRCR Area’s regional context and geographic scope is shown in Figure 2 and 3 respectively.

The Bay Park and Village of East Rockaway Community Reconstruction Planning Area (NYRCR Area) follows the Census-Designated Place (CDP) boundary for Bay Park and the Village of East Rockaway. This boundary has been reviewed and accepted by the Bay Park-East Rockaway NYRCR Committee.

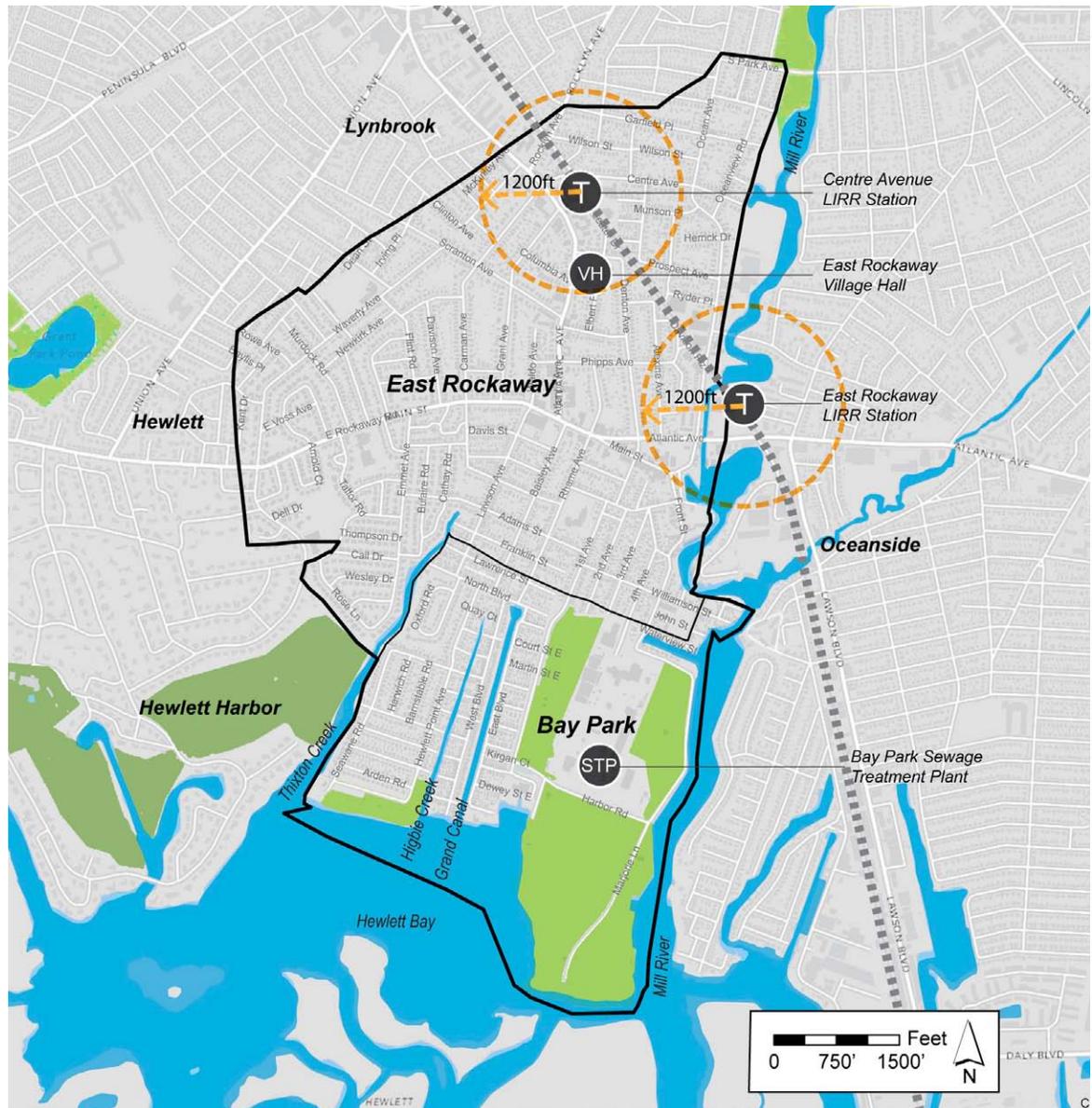


Figure 3: Geographic Scope

Source: ESRI, Nassau County Nassau County Department of Public Works

HISTORY

The two communities have a history tied with the water. East Rockaway was first settled in 1688 and is one of the oldest settlements on Long Island. Before the railroad came to be, the Village was an important commercial port for traders that sailed to New York City and surrounding areas. Its location was desirable for ships because of the Mill River's deep channel inland. The port also facilitated the farming, fishing and lumber industries which sprung up in the area to supply commodities to cities developing along the mainland coast. Some homes in the Village date back more than 200 years. Eventually, the growing settlement, originally called Rockaway, then Near Rockaway, came to be known as East Rockaway. The Village of East Rockaway was incorporated in 1900.

The land known as Bay Park was developed after World War I, primarily with Cape Cod and bungalow style homes. As part of the development, bulkheads were built along the Grand Canal and portions of Higbie Creek providing access for bathing and boating. A portion of the bulkhead was removed, to provide a bathing beach that is now leased by the Bay Park Property Owners' Association. As shown in Figure 4, prior to the bulkheads built in Bay Park, the bayfront land was marshland, covered in part by tidewater, marsh grass and white birch. A diversity of fish, and birds congregated in large numbers. For many years, the shoreline had some of the best fishing to

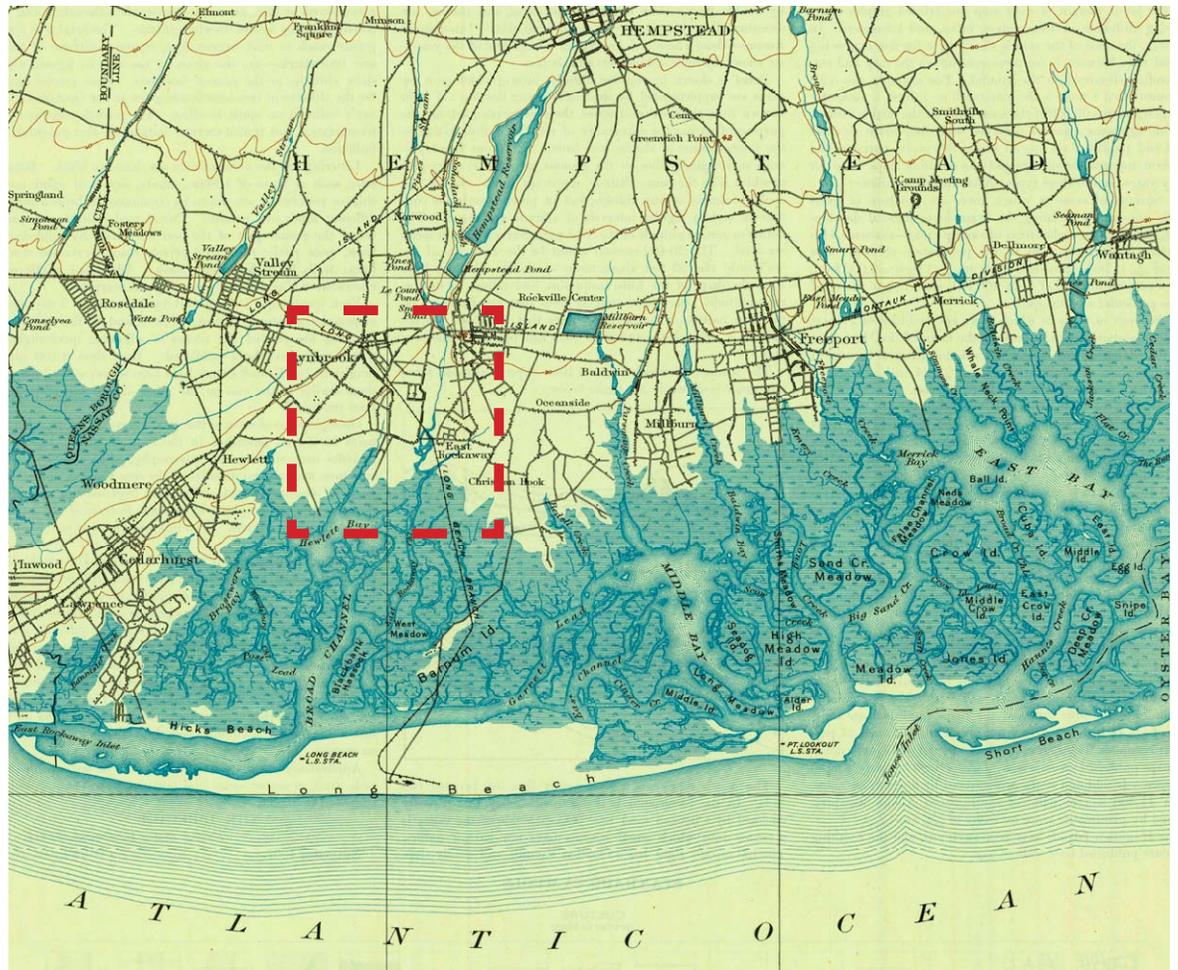


Figure 4: East Rockaway, 1903

Source: 1903, US Department of Interior

be found in the area. In the 1950's and 60's, these bungalow and vacation homes, which were built in wetland areas became converted to permanent residences which is how they remain today.

LAND USE

The Village of East Rockaway is approximately 660 acres and has a variety of institutional, commercial and recreational uses. Main Street and Atlantic Avenue are the two major east-west and north-south roadways. The intersection of the two roads serves as the commercial and civic “hub” for both communities. Commercial uses along Main Street are mostly service and retail oriented, and the district is small compared to nearby commercial districts along the Sunrise Highway to the north. The area is well served by public transit with two Long Island Railroad (LIRR) train stations: Centre Avenue and East Rockaway (see Figure 3). Almost the entire area of East Rockaway is located with a walkable distance (0.5 miles) of one of these stations. Other significant landmarks include the Talfor Boat Basin, East Rockaway High School and Memorial Park. A number of marinas, homes with docks and other boat related activities are located along Mill River. Many of these properties suffered significant damage from Superstorm Sandy, especially to the docks and boats located along the River.

Bay Park, a hamlet in the Town of Hempstead is primarily single-family residential in nature. There are two major county-owned and maintained properties on the peninsula that extends into Hewlett Bay: Bay County Park and the Nassau County Bay Park Sewage Treatment Plant. Together, they occupy 41% of the 385 acres in Bay Park. Bay County Park is



East Rockaway Village Hall



White Cannon Park, Talfor Boat Basin



The Fishery Restaurant, Talfor Boat Basin



Grist Mill Museum



Single-family Homes, East Rockaway



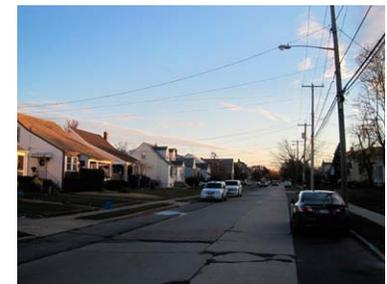
Retail along Atlantic Avenue



Davison's Boat Yard, East Rockaway



Lindenmere Apts, East Rockaway



Single-family homes, Bay Park

regional amenity and features a golf course, a boat launch, recreation fields, a playground and parking lots for visitors. In general, Bay Park’s close proximity in relation to several water bodies provides a source of active

recreation including docking for private boats, natural habitat, and aesthetic surroundings for the community; however, it also a source of flood risk during both tidal storm surge and significant rain events.

DEMOGRAPHIC PROFILE

As of 2010, there were 9,818 people, 3,825 households and 2,566 families in East Rockaway. The median income for a household in the Village is \$94,514, and the median income for a family is \$113,125. About 5.1% of families and 6.1% of the population are below the poverty line, including 8.9% of those under age 18 and 5.4% of those age 65 or older. Bay Park is significantly smaller than the Village with 2,212 people, 867 households and 617 families. The median household income was \$94,211, and the median income for a family is \$100,913. None of the Bay Park residents are below the poverty line.

Bay Park and East Rockaway are primarily bedroom communities of New York City. The trip from the East Rockaway Train Station to Penn Station in Manhattan takes approximately 45 minutes. As of 2011, there were 1,852 jobs in the NYRCR Planning Area, and of these, roughly one in every five was held by a local resident (14.6% from East Rockaway and 4.6% from Bay Park). Of the 5,358 employed residents, only 6.6% work in the NYRCR Planning Area. The largest share (39.8 %) work in New York City, followed by East Rockaway (6.4%), Lynbrook (4.2%) and Oceanside and Mineola (4.1%, each). The high percentage of commuters underscores the economic lifeline that the LIRR provides to the community. There is greater industry diversity among employed residents. Leading industries include Health Care and Social Services (16.6%), Education (15.4%), Retail (8.4%) and Professional, Scientific and Technical Services (8.0%). Wages of employed residents reflect the diversity with the majority (56.4%) making \$3,333 per month or more, however one in five (20.4%) earn minimum wage.

1.4 SUMMARY OF STORM IMPACTS

DESCRIPTION OF SUPERSTORM SANDY

Superstorm Sandy approached the region on Sunday, October 28, 2012, making landfall in Brigantine, NJ in the early morning hours of October 29. Although it was no longer categorized as a hurricane when it made landfall in the New York Metropolitan Area, it was still a large and dangerous storm. The severity of Superstorm Sandy's impact was made more extreme by an uncommon combination of factors. First, the timing of the storm's landfall in the New York Metropolitan Area coincided with a "spring" tide, which is a high tide that occurs during a full moon. Second, the storm was quite large, extending approximately 1,000 miles in diameter. The large size of Superstorm Sandy also contributed to an elevated storm surge. Finally, Sandy followed an unusual path that led to a direct hit on the region, instead of veering eastward into the Atlantic Ocean.

The powerful northeastern quadrant of the storm pushed water from the Atlantic Ocean directly onto Long Island, creating significant tidal surges in West Hempstead Bay and subsequently Hewlett Bay. Direct storm effects steadily increased overnight on October 28 and into Monday, October 29. The LIRR, including the Long Beach Branch (which the Centre Avenue and East Rockaway Stations are a part

TIDAL FLOODING

Flooding occurred via the storm surge through Hewlett Bay pushing water into Mill River, Thixton Creek, Grand Canal and Higbie Creek, resulting in overflowing of banks, canals and bulkheads to the low points within the community. According to the National Weather Service, the maximum storm surge in East Rockaway was approximately 8.1 feet occurring at approximately 9:00 p.m., coinciding with the high tide, on October 29. The total water level reached approximately 11 feet above mean sea level.

As can be seen in Figure 6, the NYRCR Planning Area is located in the Reynolds Channel - East Rockaway Inlet Watershed and the Mill River Watershed. The Figure also shows the 100 and 500 year floodplains designated on the 2009 FEMA Flood Insurance Rate Map (FIRM). The insurance zone designations shown on FIRMs are used in the determination of flood insurance rates and premiums. As seen on the map, flooding was generally aligned with the 500-year floodplain. Water flowed up to Front Street to Main Street during the storm; the most significant damage was to the residential communities south of North Boulevard and west of Lawson Avenue closest to Higbie Creek and Grand Canal. The area between Thixton Avenue and Arden Road is approximately 14 feet above sea level and was not flooded, however south of Thixton Avenue was flooded. Surge water generally receded off of roadways by Tuesday morning,

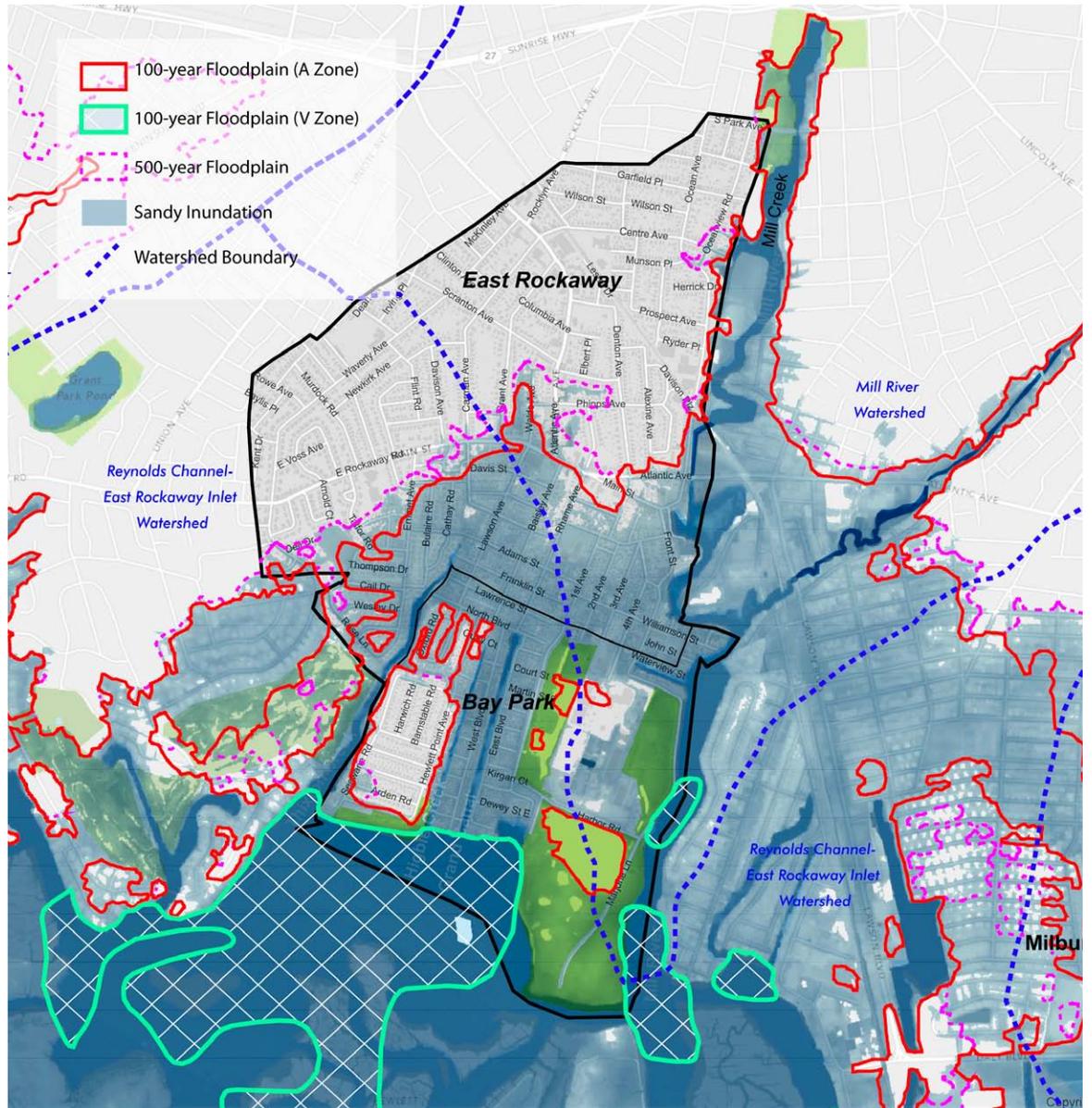


Figure 6: FEMA FIRM Map and Inundation Map

Source: FEMA, 2009

October 30. Flooding did not return with subsequent high tide events.

Bay Park and East Rockaway are at the southern portion of the watershed and receive waters from the areas north in the Town of Hempstead. Since Sandy, areas that did not flood pre-Sandy have flooded during each full moon and during other storms that occur at high tide. Such areas include Lawson Avenue, Adams Street and Williamson Street.

STORMWATER FLOWS

The stormwater system backed up with runoff as stormwater drainage outfalls are below the high tide surge elevation. Tidal waters also entered the drainage system through unprotected outfalls and outfalls not equipped with backflow valves/gates. The mixture of storm drainage flooding and surge flooding makes it difficult to assess whether flooding resulted from storm drains or overtopping of lower elevations. Rainfall was not significant with Superstorm Sandy, which would have compounded flooding effects. Storm drainage flooding was noted as severe on Lawson Avenue from North Boulevard to Main Street.

Officials from the Village and the Town of Hempstead have indicated that storm drain outfalls are equipped with tide gates/valves, but this is difficult to assess if they are all operating effectively. Storm drains are often blocked open with debris and require

very frequent maintenance. The capacity of the current drainage system may not meet current regional development demands which warrants further study.

SEWAGE BACKUP

Areas of Bay Park and East Rockaway that didn't flood, and several that did flood, experienced sewage backup. The electrical system at Bay Park Sewage Treatment Plant ("Bay Park STP") was flooded and became inoperable. Loss of power to the influent pumps also caused a mixture of floodwater and sanitary sewage to back-flow and flood many homes in the Bay Park and East Rockaway area, particularly those at lower elevations. Temporary power to the Bay Park STP was restored using portable generators and switchgear approximately 55 hours after it had failed. Reportedly, approximately 100 million gallons (MG) of untreated sewage overflowed into Hewlett Bay during plant shutdown. Portions of Bay County Park including the ball fields were also polluted from the sewage overflow.

Approximately 2.2 billion gallons of partially treated sewage flowed through the plant into Rockaway Channel between November 1 and December 21. Primary treatment was immediately resumed, which consisted of screening and disinfection. Full primary and secondary treatment was reestablished by December 21, 2012. There is an outstanding public health issue resulting from oil tanks that floated away and the sewage backups.

The Sewage Treatment Plant is currently running on backup generators which is responsible for increased levels of noise. The temporary digester tanks have also contributed to worse-than-usual odors in the area. According to the NYRCR Committee, homeowners are subjected to this noise and odor pollution on a daily basis.

UTILITY SYSTEMS

The community lost electricity as the storm moved into the area on October 29, and power remained out for many customers for one to two weeks.

COASTAL PROTECTIONS

Bulkheads along the coast vary in their height and their structural maintenance. For example, the eastside of the Grand Canal bulkhead was repaired and heightened by the Town of Hempstead. The west side of the canal is privately owned and bulkheads have not been raised. Bulkheads along Highbie Creek are intermittent and many that were built are in disrepair. Bulkheads are failing along various parts of Mill River. These locations are identified in section 2.3.4. Marshlands and wetlands within Hewlett Bay and West Hempstead Bay provide coastal protections, but have deteriorated over the years due to water pollution, high nitrogen levels, increased sediment, and invasive plant species, resulting in a community that is highly vulnerable to coastal flooding.

1.5 EXISTING PLANS AND STUDIES

There are a significant number of plans, policies, procedures and resources that address the existing conditions, regulatory frameworks, community goals and issues and resiliency opportunities in Bay Park and the Village of East Rockaway. These resources have been produced by public agencies at all levels (federal, state, county, town and village), regional planning groups, non-profit organizations, academic institutions, community stakeholders and private groups.

Reconstruction and resiliency programs and projects included in the Final NYRCR Plan cannot be formulated in a vacuum and must recognize the planning work completed to date and be complementary to these other efforts. A list of relevant regulatory and advisory documents is included to the right. A summary of each of these documents can be found in Appendix A:

REGULATORY

- Federally approved Significant Coastal Fish and Wildlife Habitats (NYSDOS, NYSDEC)
- Nassau County Department of Public Works Drainage Requirements (Nassau County DPW)
- Nassau County Stormwater Management Program (Nassau County, 2009)
- Town of Hempstead Adopted 2013 Budget (Town of Hempstead, 2013)

ADVISORY

- Hurricane Sandy Rebuilding Strategy (U.S., Hurricane Sandy Rebuilding Task Force, 2012)
- Long Island South Shore Estuary Reserve - Comprehensive Management Plan (NYSDOS, 2001)
- Nassau County Draft Master Plan (Nassau, 2010)
- Nassau County Multi-Jurisdictional Hazard Mitigation Plan (Nassau, 2007)
- Long Island Regional Economic Development Council Strategic Plan (LIREDC, 2011)
- Cleaner Greener Long Island (CGCLI, 2013)

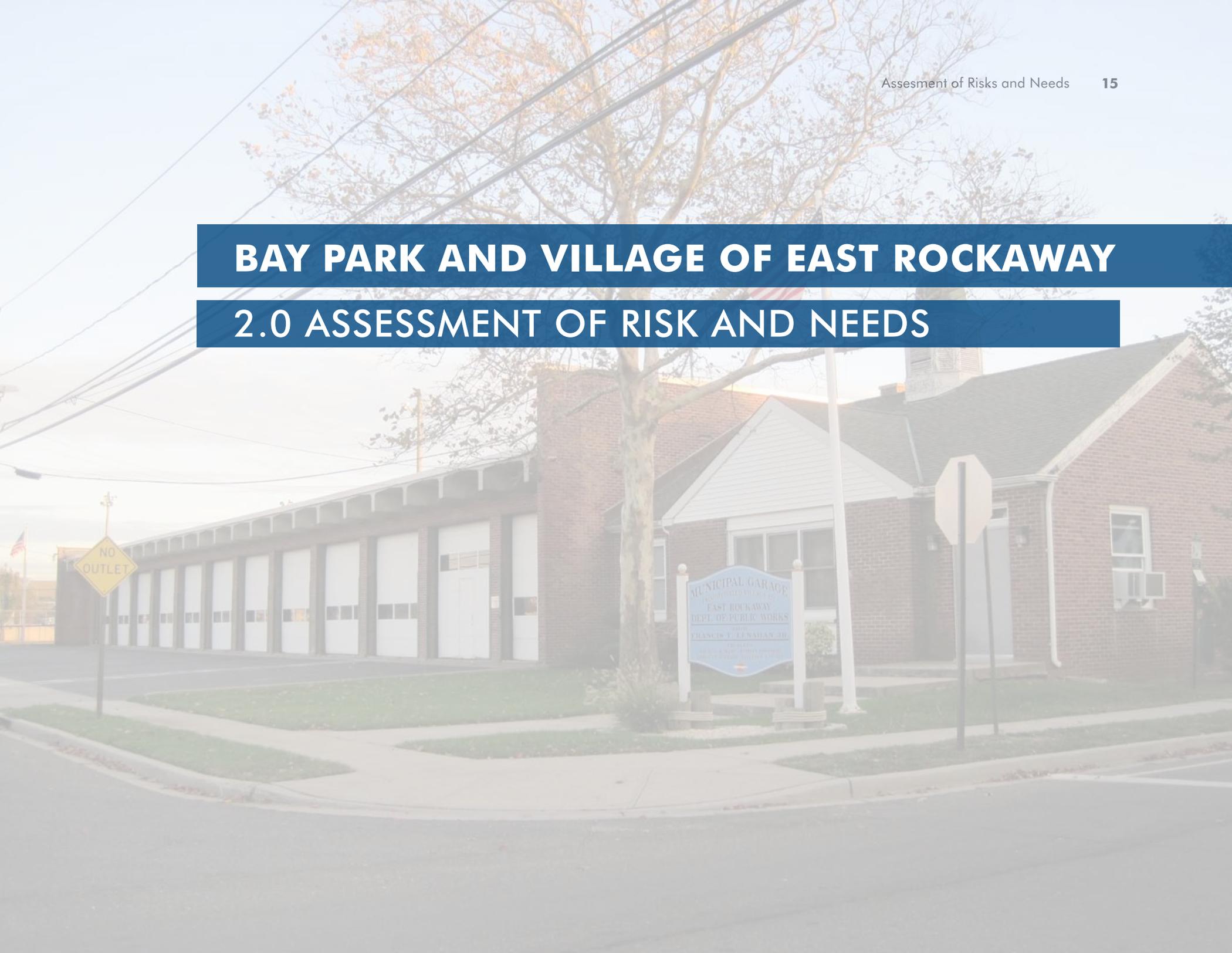
- The Long Island Index: "Places to Grow" (2010)
- Long Island Infrastructure Priorities to Recover from Hurricane Sandy (2012)
- Nassau County 2013 Annual MS4 Report (Nassau County Stormwater Coalition, 2013)
- Nassau Urban County Consortium 5 Year Consolidated Plan (Nassau, 2010)
- Nassau County Infill Redevelopment Feasibility Study: Cultivating Opportunities for Sustainable Development (Nassau County, Regional Plan Association, and NY-CT Sustainable Communities Consortium, 2013)
- Long Island 2035 Sustainability Plan and Visioning Initiative (LIRPC/Nassau/Suffolk/NYMTC/RPA, 2009)
- Long Island 2035 Comprehensive Sustainability Plan (Nassau/Suffolk/LIREDC/LI2035, 2010)

RESEARCH DOCUMENTS

- Sewage Overflows from Hurricane Sandy (Climate Central, 2013)
- East Rockaway Fire Department Report of Alarms During Sandy (East Rockaway Fire Department, 2012)
- East Rockaway Auxiliary Police Report of Actions during Sandy (East Rockaway Auxiliary Police, 2012)

BAY PARK AND VILLAGE OF EAST ROCKAWAY

2.0 ASSESSMENT OF RISK AND NEEDS



2.1 UNDERSTANDING ASSETS

To become a more resilient community, Bay Park and East Rockaway must first understand what is important to protect. Assets are features which the community values, ranging from commercial areas, neighborhoods, schools, and healthcare facilities to infrastructure and natural habitats and cultural resources.

The NYRCR Committee has identified several of such assets that were either impacted by Superstorm Sandy, are at risk of being impacted by future storms, or provided critical recovery functions for residents and businesses in the inundation zone. These assets are classified within six categories: economic, health & social services, housing, natural & cultural resources, infrastructure systems, and socially vulnerable populations.

2.2 UNDERSTANDING RISKS

It is critical to understand the risk that these assets in the study area could face in the event of future storms. To do this, New York State has developed a risk assessment area mapping tool which defines areas at risk from coastal hazards in relation to their topography, FEMA flood zones, previous storm surge inundation, sea level rise, National Weather Service (NWS) shallow coastal flooding advisory thresholds, and natural shoreline features. The New York State Department of State (NYS DOS) Risk Assessment Map is shown in Figure 7.

Extreme Risk Areas: Areas currently at risk of frequent inundation, vulnerable to erosion in the next 40 years, or likely to be inundated in the future due to sea level rise. Extreme Risk Areas include:

- FEMA V zone.
- Shallow Coastal Flooding per NOAA NWS's advisory threshold.
- Natural protective feature areas susceptible to erosion.
- Sea level rise - Added 3 feet to the MHHW shoreline and extended this elevation inland to point of intersection with ground surface.

High Risk Areas: Areas outside the Extreme Risk Area that are currently at infrequent risk of inundation or at future risk from sea level rise. High Risk Areas include:

- Area bounded by the 1% annual flood risk zone (FEMA V and A zones).
- Sea level rise - Added 3 feet to NOAA NWS coastal flooding advisory threshold and extended this elevation inland to point of intersection with ground surface.

Moderate Risk Areas: Areas outside the Extreme and High Risk Areas but currently at moderate risk of inundation from infrequent events or at risk in the future from sea level rise. Moderate Risk Areas include:

- Area bounded by the 0.2% annual risk (500 year) flood zone, where available.
- Sea level rise - Added 3 feet to the Base Flood Elevation for the current 1% annual risk flood event and extended this elevation inland to point of intersection with ground surface.
- Area bounded by SLOSH category 3 hurricane inundation zone.

The NYSDOS Risk Assessment Map has been utilized for the NYRCR Conceptual Plan to show the corresponding risk (extreme, high, and moderate) for each of the asset categories. For the final NYRCR Plan, the risk to each asset will be quantified using a tool developed by the NYSDOS to help prioritize projects and reconstruction strategies that

can protect assets at risk. This tool will help to understand hazard, the likelihood and magnitude of a future storm, exposure, or what mitigating impact the coastal protective features will have, and vulnerability, the ability of an asset to resist damage from a future storm event.

Hazard

In general, Bay Park-East Rockaway face three kinds of hazards:

1. Frequent, low intensity events that are typical storms for the region, such as flooding within the 100-year floodplain. Even average rainfall events result in ponding on roadways and localized flooding in Bay Park-East Rockaway.
2. Infrequent, high intensity events such as hurricanes and flooding from tidal storm surge.
3. Long-term flooding risks from coastal erosion, land subsidence and sea level rise.

Exposure

Bay Park-East Rockaway is highly exposed to coastal flooding due to its location along Hewlett Bay, and riverine flooding due to its eastern border of Mill River. As demonstrated by Sandy’s inundation of low-lying areas, much of the community south of Sunrise Highway is exposed due to lower elevations. Exceptions to this are areas between Hewlett Point Avenue and Seawane Road, as well as the high point in Bay County Park and the northern portion of the property where Bay Park Sewage Treatment Plant is located.

Bay County Park serves as a shore defense for the Sewage Treatment Plant during minor storm events; however, most of the community has minimal landscape features and shore defenses to buffer it from coastal storms. Dunes or bluffs and protective vegetation are not present, and the waterline is in frequent or daily contact with the shore defenses or upland vegetation. Structural defenses are limited to bulkheads, which are often lower than the adjacent land that they are intended to protect, such as along the Higbie Creek, and in many areas are deteriorating or not present. Adequate bulkhead exists only along the Grand Canal on the eastern side which was rebuilt by the Town following Superstorm Sandy. The western side is privately owned and has not been raised.

Vulnerability

The community is extremely vulnerable, as most assets are not elevated above Base Flood Elevation (BFE), which is the elevation associated with the “100-year flood,” or a flood with a 1% chance of occurrence in any given year. These land may be subject to direct wave action and storm surge. Most assets south of Sunrise Highway are vulnerable to storm drainage flooding that occurs when drainage is prevented from exiting the system when high tides are present. Further, the community is largely vulnerable to sewer backups in the event of failure at Bay Park Sewage Treatment Plant. The aging housing stock is vulnerable as ground floors were built too low (below the BFE), inadequate anchoring to the foundation, and unsecured home heating fuel tanks. Vulnerability in Bay Park - East Rockaway is compounded by flooded roadways, which impede emergency access and evacuation routes along key north-south corridors.

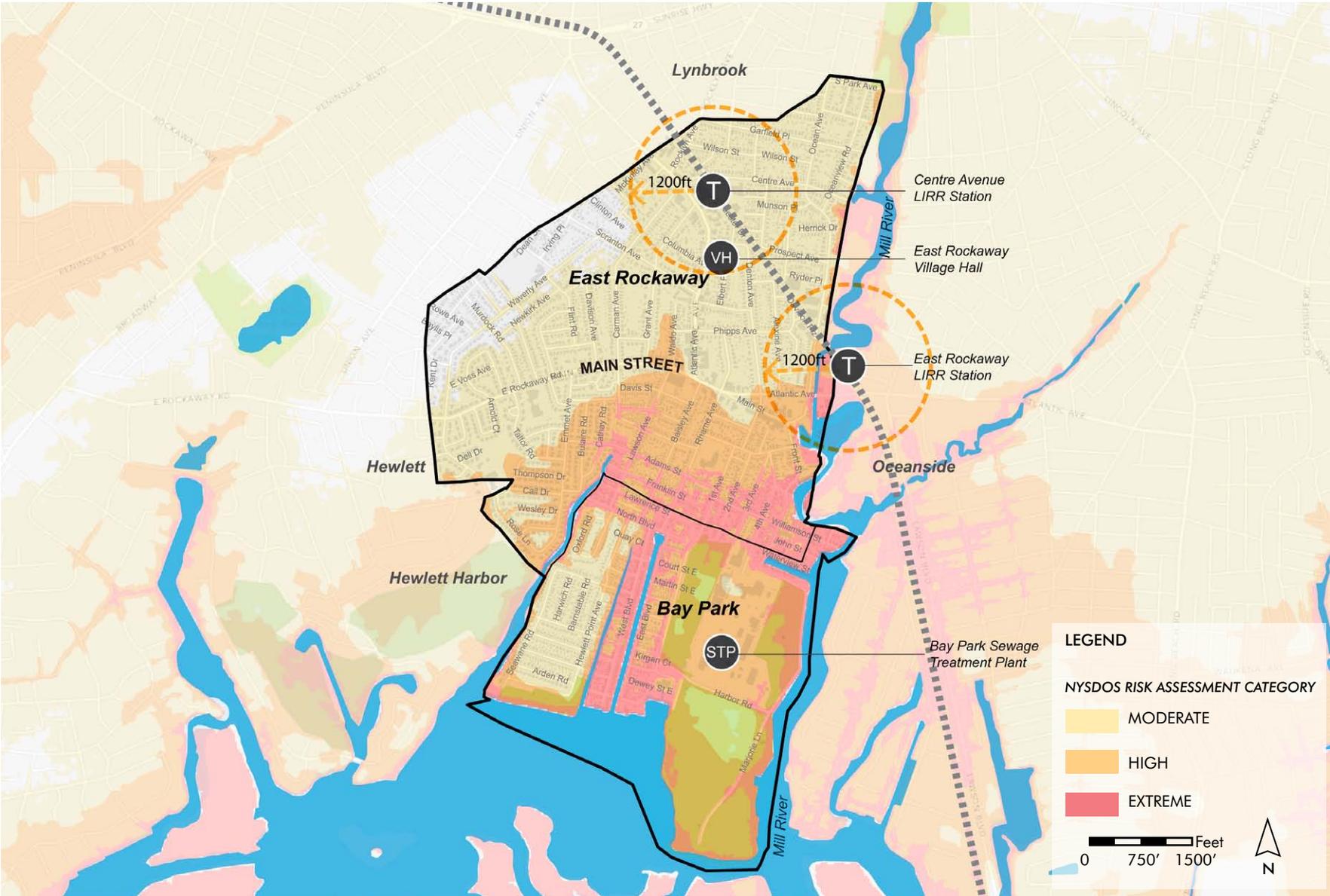


Figure 7: NYSDOS Risk Assessment Map

Source: NYS Department of State

2.3 ASSETS AND RISKS

Critical assets in Bay Park-East Rockaway are grouped into six categories, Economic Resilience, Health & Social Services, Housing, Infrastructure Systems, Natural & Cultural Resources, and Socially Vulnerable Populations. Assets were identified through a series of exercises that involved community input, research, and analysis, including:

- Discussions at NYRCR Committee Meetings
- Feedback at Public Engagement Meetings
- Meetings in the local communities with committee members, local officials, and community members
- Site tours
- Data Analysis

The following presents a summary of the assets at risk within the NYRCR Planning Area identified through the above assessment process.

2.3.1 ECONOMIC

Economic assets include employment hubs and downtown centers, ranging from large retail stores to industrial complexes, small businesses, service establishments and tourism destinations. Economic assets identified and confirmed by the community are shown in Figure 8. The economic core of Bay Park-East Rockaway is Downtown East Rockaway, centering on Main Street

and Atlantic Avenue. The strength of East Rockaway’s commercial sector is the service industry, and several small businesses are in residential homes. The community has great tourism potential, centered on the Talfor Boat Basin that includes the Fishery Restaurant and the East Rockaway Yacht Club, where several businesses were damaged and have not returned, as well as the BPCA Beach House. Other significant economic assets include ROK Fitness and other small businesses along Davison Plaza, which was not damaged during the storm.

Many businesses, service establishments and banks located on Main Street were flooded during Superstorm Sandy, and most were able to reopen after several months. Marinas and Yacht clubs along Mill River and the Talfor Boat Basin also suffered significant damage from Sandy. Docks and boats were damaged and destroyed, and it was many months before the marinas, restaurants, boat dealerships and workshops were able to reopen.

The entire length of Main Street is considered at risk for future storm events, with businesses along the south side of the roadway classified at high risk, while those on the northern side of the roadway are at moderate risk. The Atlantic Avenue business corridor extending north from Main Street features a similar variety of businesses and sits in the Moderate Risk Area, while Atlantic Avenue extending west of Main Street toward Mill River is at high risk for future inundation. Large retailers and



Retail along Main Street



Retail along Main Street



Retail along Atlantic Avenue

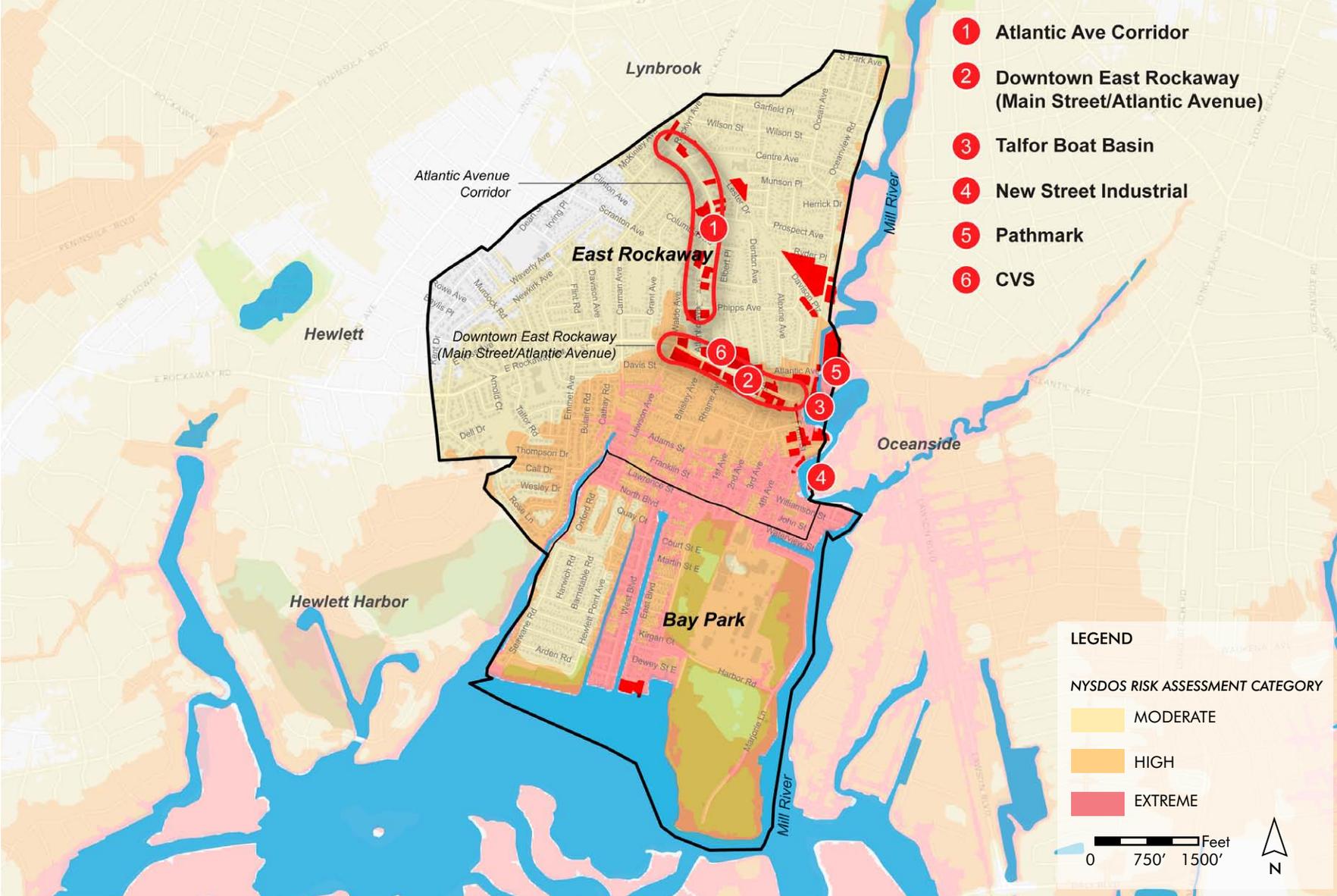


Figure 8: Economic Assets

Source: NYS Department of State

the New Street industrial area are located along Mill River are therefore at extreme risk for future inundation. The majority of the Talfor Boat Basin and the east side of Front Street are located in an extreme and High Risk Area, while the west side of the street is in a Moderate Risk Area. The LIRR train stations are considered an infrastructure asset as well as being critical to the local economy, as seen by the high percentage (39%) of residents that commute to NYC.

Using ArcGIS, the land use and assessment data were spatially joined to the FEMA Extreme, High and Moderate Risk Area overlays to determine the vulnerability of existing commercial parcels in East Rockaway. The vast majority of commercial parcels (98%) and value (99.2%) are in either Moderate, High or Extreme Risk Areas. More than 20% of all commercial parcels and 12.9% of total commercial assessed value are located in Extreme Risk Areas. 23.4% of parcels and 26.0% of total assessed value are in High Risk Areas; while more than half (54.5% of parcels and 60.3% of all value) are in Moderate Risk Areas. As was so recently witnessed, this means that in an event with the impact of Sandy, the vast majority of commercial properties are likely to sustain some damage and could be destroyed, as evidenced by fact that 40% of the vacant parcels in the NYRCR area are in the Extreme Risk Zone (Nassau County Land Use and assessment data, 2012-13 and FEMA Risk Maps).

2.3.2 HEALTH AND SOCIAL SERVICES

Health & Social Services assets include schools, health care facilities, day care and elder care, government buildings, media and communications, and first responders such as police, fire and rescue. Identified assets are shown in Figure 9.

East Rockaway Junior-Senior High School was heavily damaged and remained closed for 6 months after the storm. Repair costs to the school were approximately \$10 million. The school and the adjacent Rolling River Day School are located in an Extreme Risk Area, while other schools are at high risk, such as the Centre Avenue and Rhame Avenue elementary schools. The Rhame Avenue Elementary School was damaged during Superstorm Sandy, and partially re-opened in Mid-December. The gym opened in March, 2013. The Waverly Park School is at moderate risk, and the Marion Street School is the only school in the community that is not located in a risk area. There are no large dedicated medical facilities in the community, however some small medical offices operate in converted houses.

Several of these assets are clustered in an extreme to high-risk areas, including the Post Office, East Rockaway Fire Department Engine 1 and Truck 1, and Jack & Jill Playground. The East Rockaway Department of Public Works Facility and the adjacent John Street Complex are also at extreme risk. The



East Rockaway Fire Department, Atlantic Avenue



East Rockaway DPW Municipal Garage



Rhame Avenue School, Bay Park

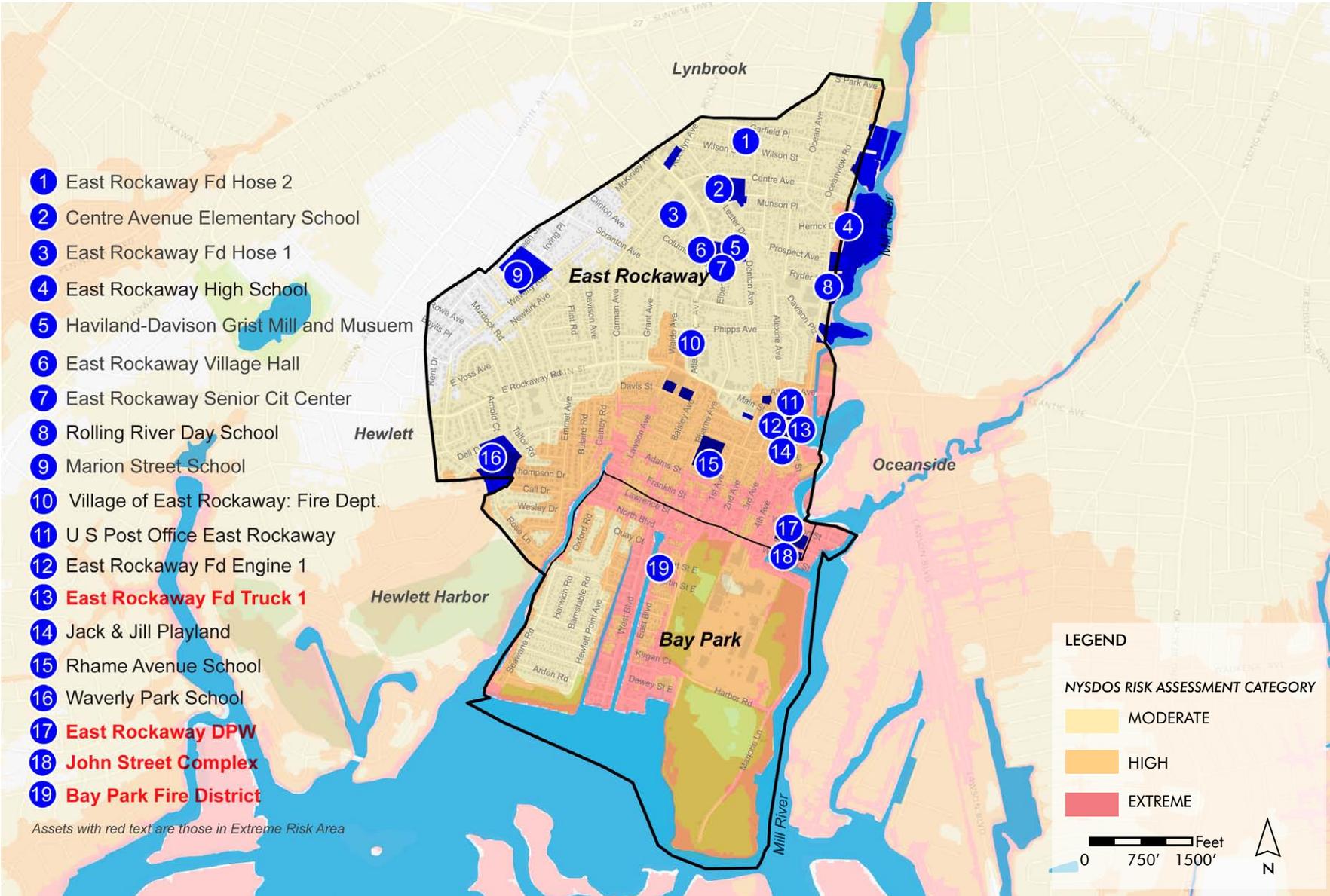


Figure 9: Health and Social Services Assets

Source: NYS Department of State



DPW Municipal Garage and John Street Complex, East Rockaway. Source: Bing Maps

DPW is subject to recurring flooding. Most of the mobile equipment was relocated to higher ground during Superstorm Sandy and was saved from serious damage. Although the Bay Park Fire District is in an Extreme Risk Area, the building is only utilized for administrative purposes. Bay Park contracts East Rockaway for fire control services.

There are many public facilities at a lower risk level, located in the northern portion of the Village. These assets, including East Rockaway Fire Department Houses 1 and 2, East Rockaway Village Hall, and East Rockaway Senior Center, are classified at moderate risk for future storm events.

2.3.3 HOUSING

Many of the single-family homes in Bay Park are small Cape Cod style bungalows with a few two-story homes that were built following World War I. East Rockaway has a number of historic homes north of Main Street, some that date back over 200 years. According to census data, the largest share of housing in East Rockaway, 45.5%, was built in 1939 or earlier. 16.0% was built between 1940 and 1949, while 23.6% was constructed between 1950 and 1959. Only 15% of area housing has been built since 1960 and 0.6% of the units have been built since 2005.

The aging single-family housing stock, especially the bungalow style homes are vulnerable as they have ground floors below BFE and have substandard structural reinforcement. Many of the home heating fuel tanks are also unsecured. The neighborhood of single-family residences closest to Grand Canal and Higbie Creek are in the Extreme Risk Area as shown in Figure 10. This Extreme Risk Area extends northward to Adams Street and beyond in some locations. These areas were inundated during Superstorm Sandy and according to conversations with the Village, Bay Park is still approximately 46% unoccupied. Areas of higher ground between Hewlett Point Avenue and Seawane Road were not inundated, despite their location between two canals.

Sixty-one percent of housing units in Bay Park-East Rockaway are traditional single-family detached. 21.7% are two-unit structures. The next largest share of units, 8.4%, are in buildings with 20 units or more. There are very few multi-family residences in Bay Park. Most of the multi-family residences are located along Atlantic Avenue in the moderate risk zone. Some of these buildings were protected from the surge by the High School, others were flooded by Mill River and remain unoccupied. There is also a concentration of multi-family buildings (i.e the Lindemere East and St. Regis Apartments) in the extreme and high-risk zone south of Main Street.

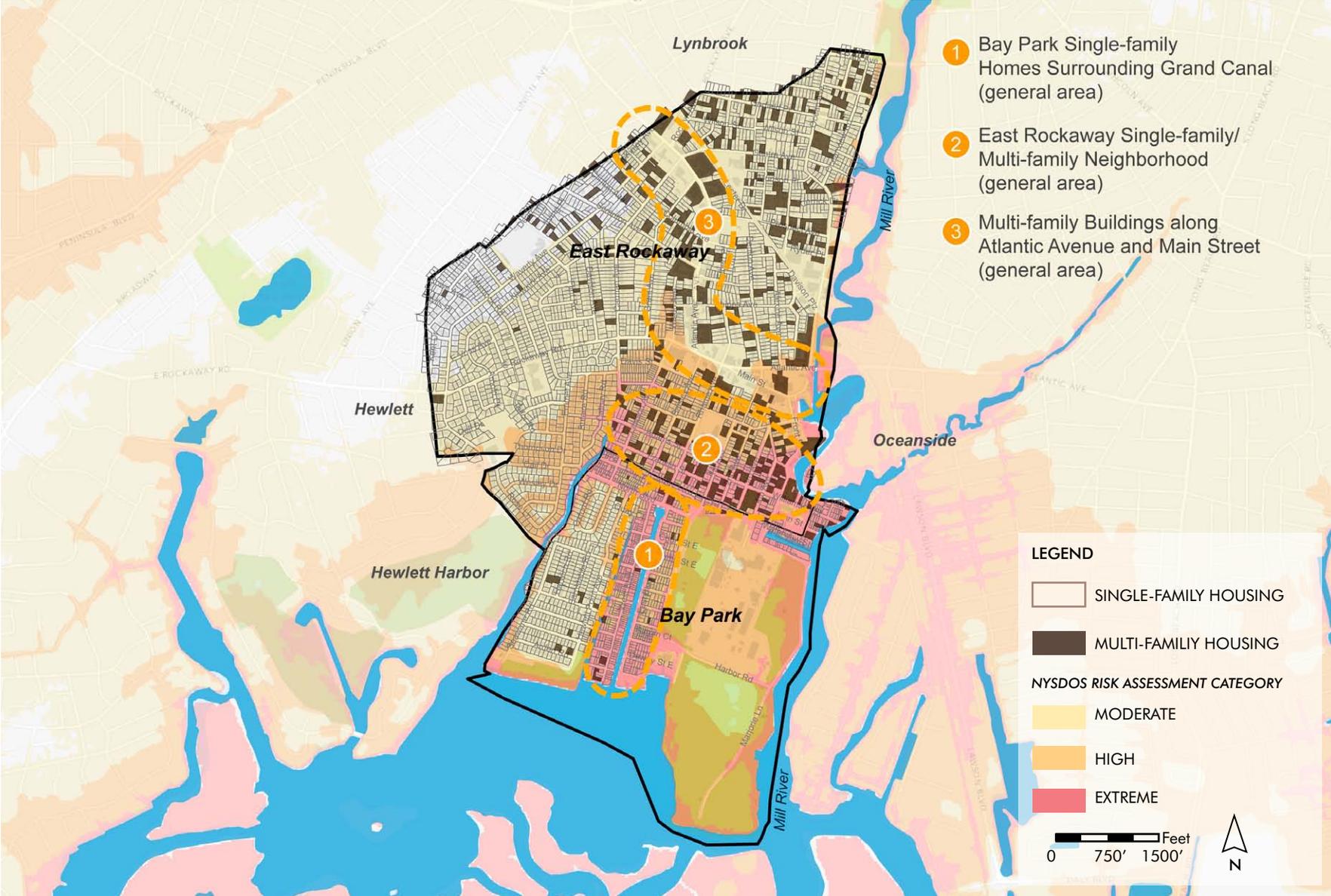


Figure 10: Housing Assets

Source: NYS Department of State



Single-family homes north of Main Street, East Rockaway



Multi-family building on Atlantic avenue



Lindenmere Apartments, East Rockaway



Raising of single story home in Bay Park

Parcel data received from Nassau County demonstrates that the three categories of residential properties that exceed the risk area average for all residential land use types are high residential, medium residential, and vacant residential land. A disproportionate concentration of high residential parcels (72% of all parcels) lies in the Moderate Risk Area. Medium residential property is concentrated in the extreme (15,2% of all parcels) and High Risk Areas (30.1% of all parcels). The number of vacant residential parcels is concentrated, as would be expected, in the Extreme Risk Areas.

There were 4,452 occupied housing units in Bay Park-East Rockaway in 2011. Of these, 12.2% were located in Extreme Risk Areas, while 26.0% were in High Risk Areas and 61.8% were in Moderate Risk Areas. When looked at in terms of risk area distribution by Tenure, it is easy to see that there is a disproportionate share of renters in the Extreme Risk Area (16.7 % of all renters, compared to 12.2 % of all units

Looking at the same information in a slightly different manner, 74.3% of all units were owner-occupied in the NYRCR Planning Area as a whole. The Extreme Risk Area had the lowest rate of ownership at 64.9%, compared to 73.9% in the High Risk Area and 76.4% in the Moderate Risk Area.

Roughly two thirds of owners (66.3%) had mortgages throughout the NYRCR Planning Area. The higher the risk category, the more likely owners were to have mortgages. Mortgage rates were 70.0% in the Extreme risk zone, 69.4% in the High risk zone and 64.4% in the Moderate risk zone.

Median Housing Value was obtained for the Census tracts that make up Bay Park and East Rockaway for the most recent year available, i.e., 2011. These values were then distributed by majority area to each risk zone. Housing values in the Moderate risk zone¹ were 493,300 in 2011, or 7.9% higher than the median value in the High risk zone. A recent (October 9, 2013) extract from the Realtor.com multiple listing service identified 86 homes for sale in Bay Park - East Rockaway. Of these, the median price was \$383,000—a 20% lower than the Census reported median price (2011).

¹ The Census tracts for East Rockaway distributed only in to High and Moderate risk zones.

2.3.4 INFRASTRUCTURE SYSTEMS

Infrastructure systems include transportation such as roadways and transit, stormwater, wastewater and water supply infrastructure, gas stations, solid waste or recycling. Identified infrastructure assets are shown in Figure 12.

The storm sewer system is also a critical infrastructure asset, the condition of which is largely unknown. Outfalls into waterways and canals can be blocked by tidal flow or become clogged with debris, which in combination with intermittent maintenance and the limited capacity of the system as a whole, causes storm sewer system backup. Identified issues with the stormwater drainage system are shown in Figure 11. Risk levels in Bay Park-East Rockaway are compounded by flooded roadways, which impede emergency access and evacuation routes along key north-south corridors. Lawson Avenue is subject to recurring flooding and lies in both the extreme and High Risk Areas. Improvements to this street were noted by the Village Engineer as the Village’s highest priority. Since the storm, the sidewalk and bulkhead near 8th Avenue at Williamson Street have been caving in.

Bay Park Sewage Treatment Plant is a key regional asset located in the extreme to High Risk Areas, noted as Nassau County’s number one priority. Owned by Nassau County and built in the 1940s, last upgraded in the 1980s, Bay Park Sewage Treatment Plant treats sewage for 540,000 residents,

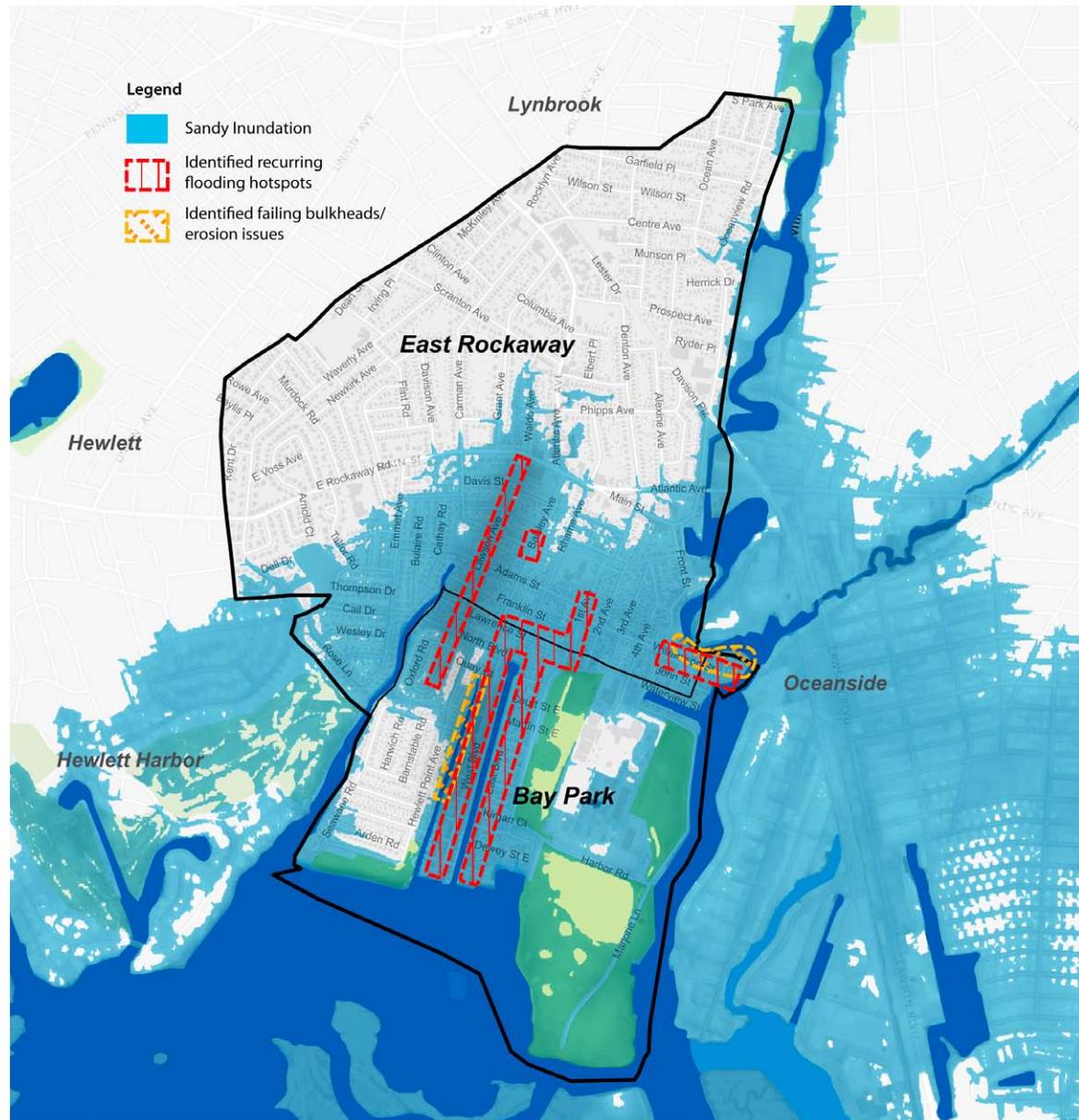


Figure 11: Recurring Flooding and Failing Bulkheads/Eroded Shorelines

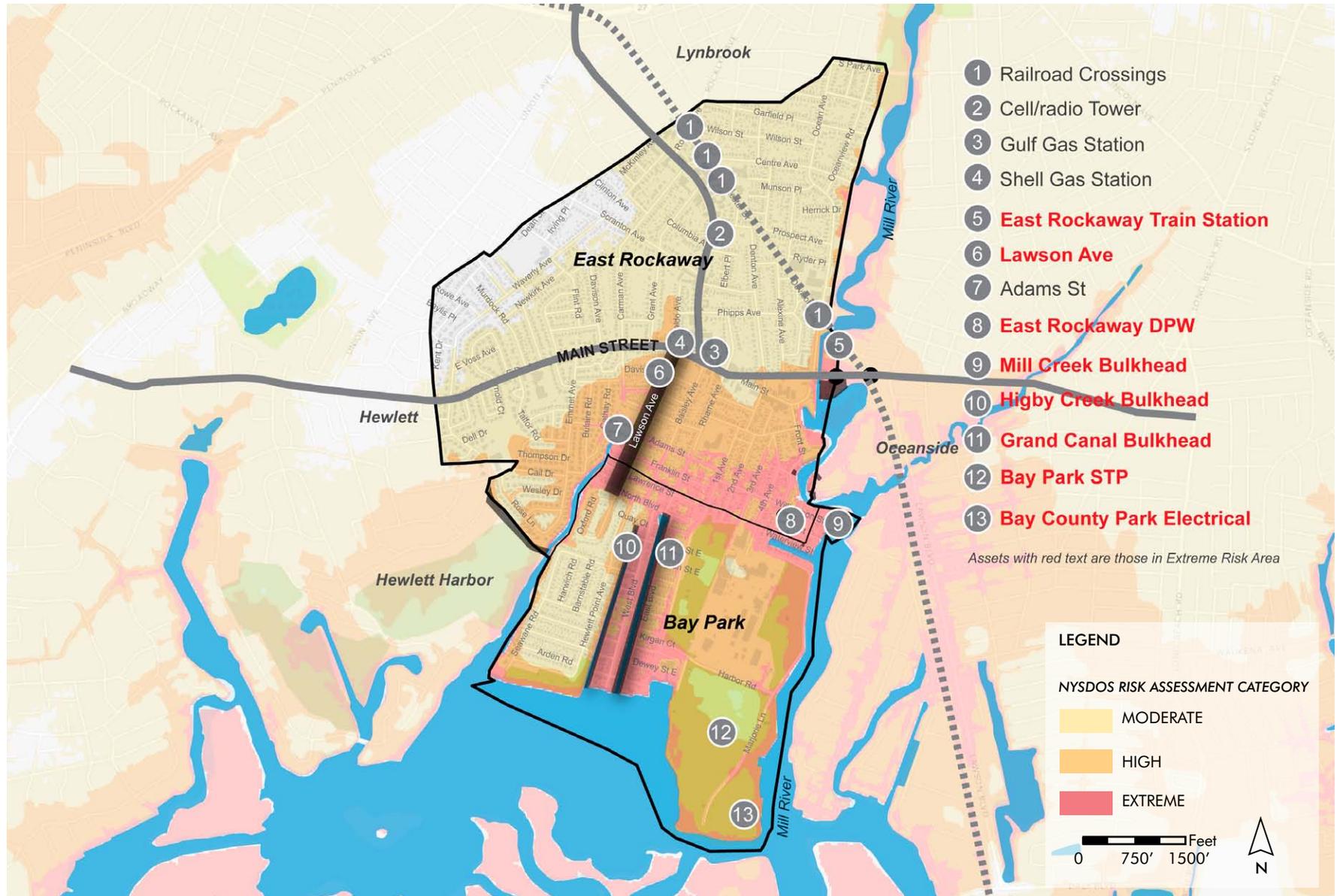


Figure 12: Infrastructure Assets



Walkway along reconstructed Grand Canal Bulkhead, Bay Park

approximately 40% of Nassau County, and sustained \$1.3 billion in Sandy damage. Its outfall at Reynolds Channel releases 55 million gallons per day of treated sewage into West Hempstead Bay, which has impacted marshlands, fishing and tourism. Bay County Park serves as a shore defense for the Sewage Treatment Plant during minor storm events; however, most of the community has minimal topography, landscape features and shore defenses to buffer the community from coastal storms.

Two LIRR stations are located within the Community: Centre Avenue and East Rockaway. They provide excellent access to the New York City job market and are conveniently located, within walking distance of both communities. Both of the stations are located within the Moderate Risk Area, but did not suffer significant structural damage during Superstorm Sandy. Some local streets in Bay Park are in disrepair due to reoccurring flooding and the increased heavy vehicle traffic (e.g. construction and refuse removal vehicles).

2.3.5 NATURAL AND CULTURAL RESOURCES

Natural and Cultural Resources vary from natural and ecological habitats, wetlands and marshes, parks, recreation and open space, to museums, libraries, historic landmarks and religious establishments. Water bodies in the community are fundamental natural assets, including Mill River and Hewlett Bay, as well as the Higbie Canal and Grand Canal which stem from the Bay. Identified assets are shown in Figure 13.

There are five parks in East Rockaway and two in Bay Park. East Rockaway's parks include: Memorial, Oxbow, McNulty, White Cannon Point, and Minore — all of which close at dusk. White Cannon Point Park is located on the waterfront in an extreme risk zone at the Talfor Boat Basin. This area was reconstructed several years ago. NYSDOS provided partial funding for the revitalization project through the NYS Environmental Protection Fund Local Waterfront Revitalization Program.

The two parks in Bay Park are Bay County Park and Hewlett Point Park. They are owned and operated by Nassau County and the Town of Hempstead respectively. Bay Park offers ball fields, a 9-hole golf course, picnic facilities and boating and fishing facilities. Hewlett Point Park offers a pool, beach access and picnic facilities.



Bay County Park, Bay Park



Grand Canal, Bay Park



Talfor Boat Basin, East Rockaway

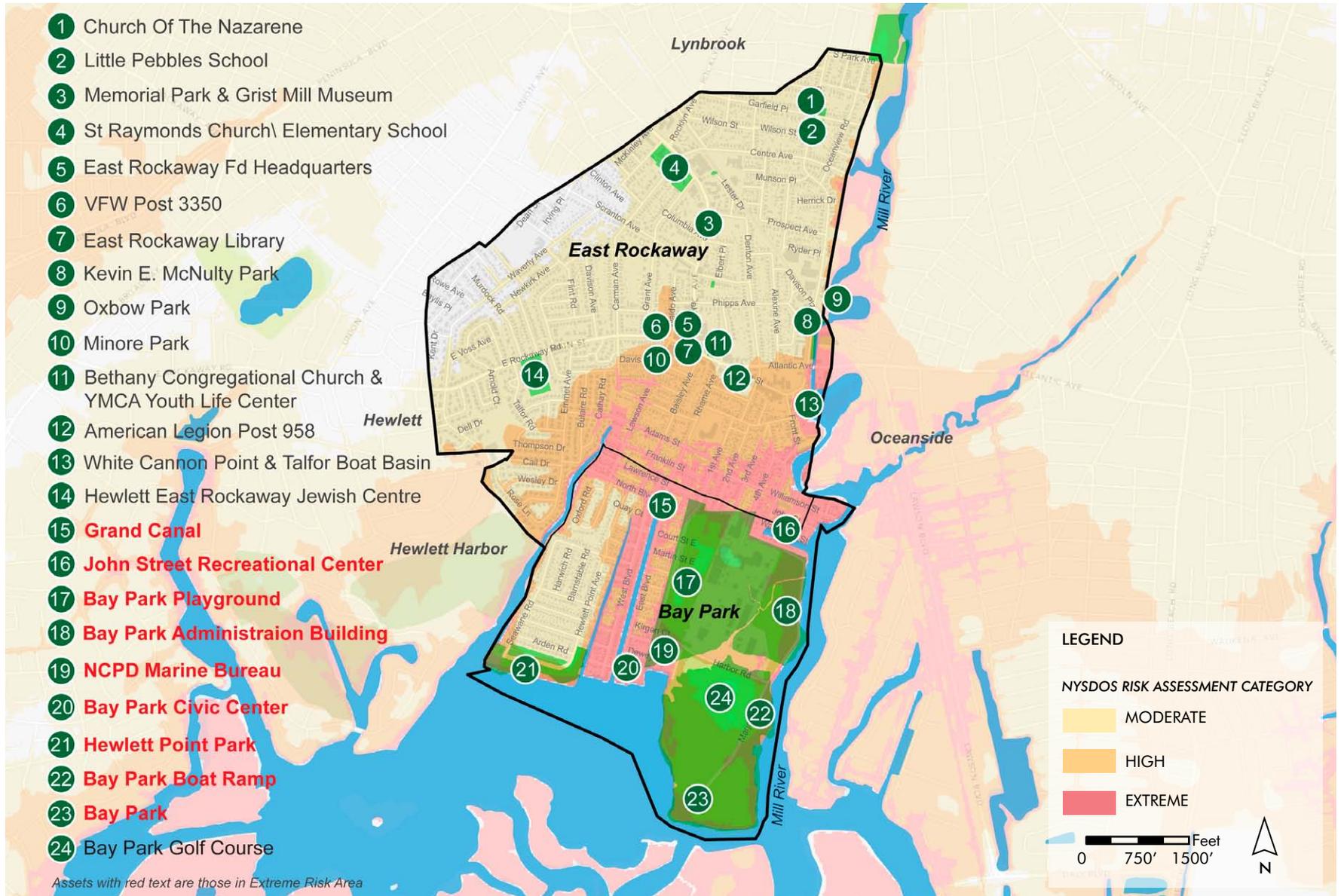


Figure 13: Natural and Cultural Resource Assets

Higbie Creek has intermittent bulkheads and is navigable up to Cook Street. The Creek suffers from failing bulkheads, erosion, debris in the waterway and widespread grasses or phragmites in the canal. The New York State Department of Environmental Conservation (DEC) has identified a threatened reed grass species in the creek and has not allowed modifications to the creek such as dredging. The Town of Hempstead proposed a creating 2:1 replacement/mitigation area elsewhere, but DEC was not open to that option. The eastern bulkhead of the Grand Canal was recently repaired and heightened by the Town of Hempstead. The western side of the canal is privately owned and has not been upgraded since the storm.

Since Superstorm Sandy, the Bay Park Recreational Facility lacks electricity and requires maintenance. The majority of Bay County Park is located in the Moderate Risk Area given its higher elevation, however most facilities within the park are located in trts, including the playground, administration building, and boat ramp. The Johnson Recreation Center is at extreme risk, and since the storm has become a breeding ground for mosquitoes and suffers from indoor mold issues. Other recreational facilities in High Risk Areas include Oxbow Park and Minore Park. Hewlett Point Park is located in a High Risk Area, however during Sandy, the Town of Hempstead Department of Parks and Recreation successfully floodproofed the pool house which later served as a refuge and staging area after the storm.

Natural and cultural resources also include religious establishments such as Hewlett East Rockaway Jewish Centre, Bethany Congregational Church St. Raymond of Penyafort Church and the Church of Nazarene. Each of these faith-based establishments is located in the Moderate Risk Area; however their impacts varied during Superstorm Sandy. Bethany Church was inundated, while St. Raymonds and the Church of Nazarene were not inundated and therefore were able to serve as shelters. The Havidland-Davidson Grist Mill in Memorial Park is a key historic asset.

2.3.6 SOCIALLY VULNERABLE POPULATIONS

Assets that serve Socially Vulnerable Populations include facilities that provide services for people with disabilities, low-income populations, the elderly, young children, and homeless populations. Both East Rockaway and Bay Park have a large elderly population

with 16% of residents above the age of 65 comprising 25.7% of all households headed by persons 65 years or older. When looked at in terms of tenure, 28.1% are owner-occupied household and 18.5% are renter-occupied households. Broken down by CDP, the accounts for 24.0% of Bay Park households and 26.1% of East Rockaway households.

The bungalow style single-family homes tend to be relatively affordable and conducive to elderly homeowners. Many elderly residents have lived in the same house for decades and some homes have been passed down within families for generations. As shown in Table 1 below, the elderly population is equally represented in the three hazard zones. Some concentrated elderly populations reside in senior housing complexes in High Risk Areas, including the Lindemere East and St. Regis Apartments. There is one nursing home in the community, East Rockaway Progressive Care. This building is located in a Moderate Risk Area.

Age	Under 18		Over 65		Total	
	#	%	#	%	#	%
Extreme	207	8%	160	16%	979	8%
High	490	18%	321	14%	2311	19%
Moderate	1665	63%	1066	15%	7165	60%
Total	2659	100%	1929	16%	12030	100%

Source: NYS Department of State, Census 2010

2.4 NEEDS & OPPORTUNITIES

Though Sandy was an unprecedented event, the sources and causes of flooding observed on the greater scale during Sandy are regularly reflected on a smaller scale during high tides, rain storms, and nor'easters. Sandy has effectively exposed the greater system-wide inadequacy of the flood mitigation and stormwater drainage systems.

The objective of the needs and opportunities assessment is to evaluate potential for increased resilience in the short, medium, and long-term. The following section presents an initial evaluation of the needs and opportunities within the NYRCR Planning Area. These needs and opportunities will be refined through additional detailed analysis of

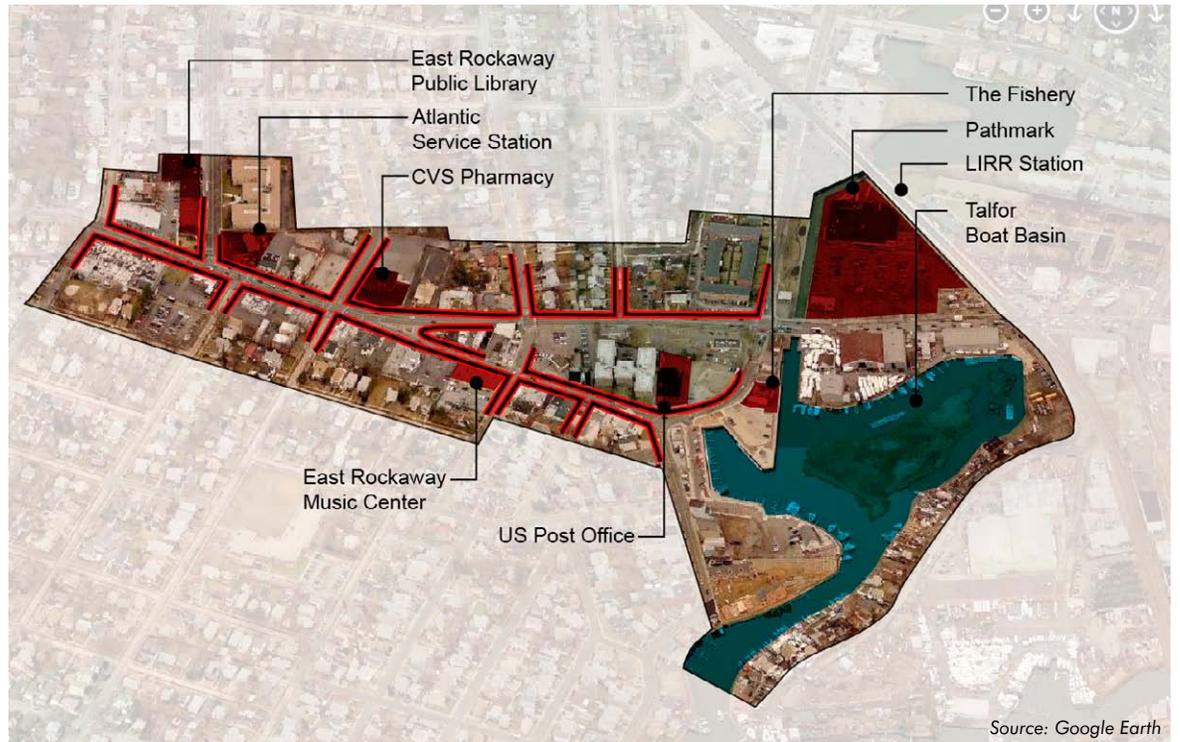
the assets and risks within the Planning Area, as well as through input from the NYRCR Committee and public.



Davison's Boat Yard, East Rockaway



Scrap Yard on New Street



Source: Google Earth

Figure 14: Economic Development at Main Street and Talfor Boat Basin



Case Study: Freeport's "Nautical Mile"

Woodcleft Avenue was transformed as Freeport's "Nautical Mile" following a major reconstruction and revitalization program initiated by the Village of Freeport in 2000-2001. This effort included:

- Raising the road level above the 100 year floodplain.
- Placing utilities underground
- Widening and rebuilding sidewalks.
- Providing new street furniture including lighting, benches and signage.
- Construction pedestrian plaza, a small fishing pier and gazebo.

Funding was provided by the Village of Freeport, the NYS Department of State, the NYS Department of Environmental Conservation, and from the Community Development Block Grant Program.

2.4.1 ECONOMIC DEVELOPMENT

Need: Strengthen the Main Street and Atlantic Avenue corridor to attain a more resilient community, where businesses can bounce back more quickly and continue to deliver goods and services after severe events.

Opportunity: Build on East Rockaway's commercial spine and unique waterside location (Figure 14). Vacant parcels surrounding the Talfor Boat Basin, Main Street and New Street provide potential opportunities to diversify the commercial base. The Talfor Basin area is a prime location for a destination mixed-use development. A water-dependent and water-enhanced business district could be created similar to Nautical Mile in Freeport, NY. Infrastructure improvements may be needed to harden the basin.

There is a large redevelopment opportunity on New Street, which currently contains junkyards. Extending commercial water dependent/water enhanced businesses would complement the Talfor Boat Basin area, assuming it could be developed in such a way as to minimize susceptibility to flood waters.

2.4.2 HEALTH AND SOCIAL SERVICES

Need: Coordination amongst municipal first responders, and social services organizations to identify at risk areas, populations, and individuals, and make sure that vulnerable populations are protected and able to recover from disasters.

Opportunity: Many existing non-profit and civic organizations (i.e. social services organizations, religious organizations, senior care providers) in the NYRCR Area played a key role in helping families and business recover from Sandy. Encourage communication and formal partnerships between these organizations as well as between Bay Park and the Village of East Rockaway to coordinate efforts in the future.

2.4.3 HOUSING

Need: Creative economic programs and zoning modifications to help extreme and high risk neighborhoods with high ownership rates, to either build back more safely or relocate.

Opportunity: Within the NYRCR area, there is a strong sense of community and many residents have emotional and financial investments in their assets and will benefit from modernization.

2.4.3 INFRASTRUCTURE

Need: Strengthened coastal protections.

Opportunity: The coast can be fortified with a combination of bulkhead, levee and floodgates and living shoreline improvements (Figure 15). Bulkheads should be raised to 9 feet above sea level. In some locations such as Highbie Creek, bulkhead rehabilitation is dependent on cooperation of the adjacent landowners. Floodgates combined with levees are an alternative solution to prevent flooding through the streams and rivers.

Need: Improved stormwater drainage system, expanded sewer networks & more reliable power grid and transportation networks.

Opportunity: Improvements to the drainage system include raising outfall pipes, fixing backflow valves, widening pipes, raising streets as well as the maintenance of the existing network. A system wide comprehensive stormwater management strategy may be necessary to identify where drainage improvements are most needed.

The Village has stated that raising Lawson Avenue is a top priority as it is as a main access road to Bay Park and frequently floods. Roadway improvements should include a new drainage system as the current system includes drywells / seeps where organic matter collects and does not infiltrate properly.

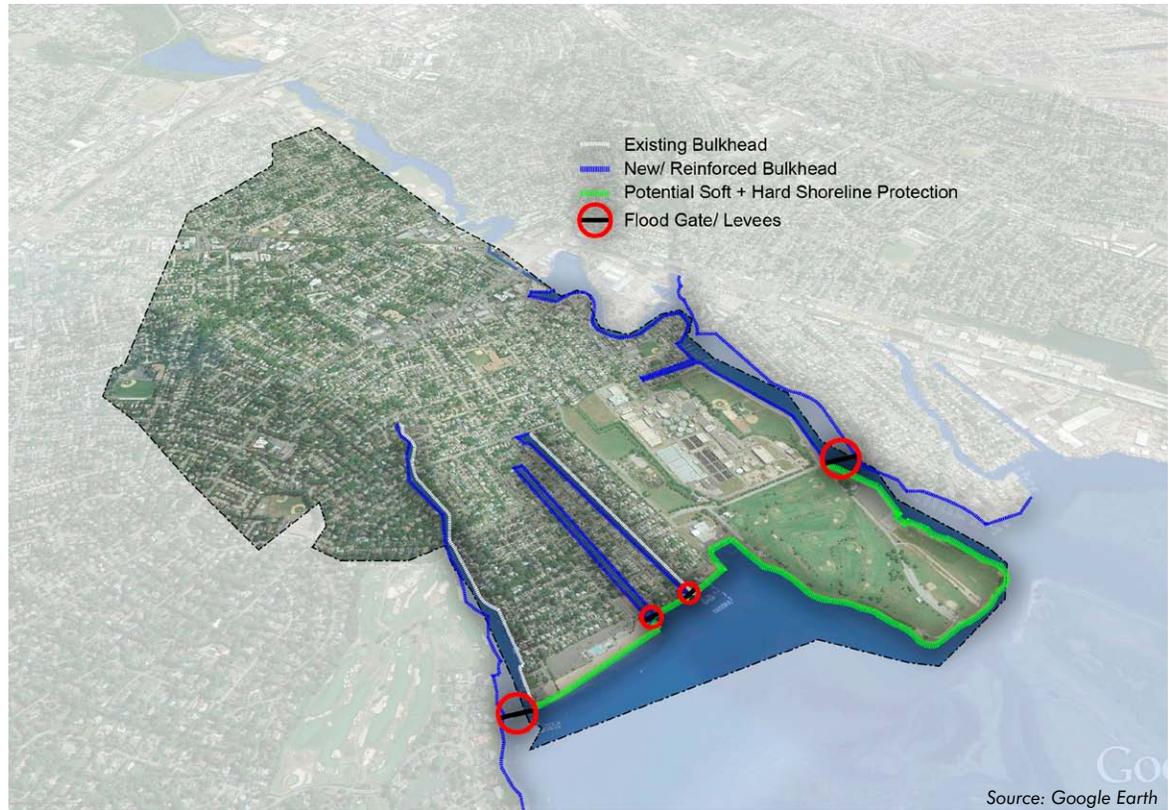


Figure 15: Potential Raised Bulkheads, Floodgates and Levees

Repairs are being made to damage at the Bay Park Sewage Treatment Plant caused by Sandy (Figure 16). Plans are being developed by Nassau County to floodproof the site and relocate the outfall into the Atlantic Ocean to improve water quality and relieve stress on the

natural ecosystems of Hempstead Bay. Improvements to the plant should be leveraged to upgrade local sewage infrastructure. Examples of waste facilities that have been transformed into community amenities are shown on the following page.



Source: NYC.gov

Case Study: Newtown Creek Wastewater Treatment Plant, Greenpoint, NY

Redesign of outdated and environmentally unsound facility included a state-of-the-art Waste Water Treatment Plant as well as thoughtful development of the quarter-mile Newtown Creek Waterfront Nature Walk. Nature walk features unique architectural features, plantings and environmental sculpture, as well as stunning views of New York City and the nearby industrial landscape.



Figure 16: Bay Park Sewage Treatment Plant

Source: Bing Maps, Google Earth

Case Study: Norman J. Levy Park and Preserve, Merrick, NY

Formerly Merrick Landfill until 2000, now a park and preserve site, with a wildlife sanctuary. Owned and operated by the Town of Hempstead. The park provides a jitney to transport physically challenged and elderly visitors upon request.



Source: Town of Hempstead (TOH.II)

2.4.4 NATURAL & CULTURAL RESOURCES

Need: Shoreline restoration, additional open space and recreation areas, and safe access to the waterfront for recreation.

Opportunity: There are living shoreline solutions and wetlands restoration opportunities in Bay Park. A community cleanup program could engage residents to help maintain Higbie Creek with debris and invasive species removal. The Town of Hempstead can partner with Nassau County

to provide recreation improvements at Bay County Park. Bay Park and East Rockaway has many assets that make it a pleasant place to live, such as its proximity to transit and the water. The community should build upon available opportunities to fill the need for greater recreational facilities, increased tourism and economic development. Planned improvements to the Bay Park Sewage Treatment Plant should be leveraged to achieve these goals. Two Town-owned parcels on West Boulevard in Bay Park are an opportunity for a pocket park with green infrastructure improvements to capture water and reduce runoff (Figure 17).

2.4.6 COMMUNITY PLANNING AND CAPACITY BUILDING

Need: Greater coordination and communication amongst community-based organizations that provide critical resources in educating residents in preparation of disasters and helping people recover. Many residents had to go to Island Park or Oceanside for services during Sandy.

Opportunity: Utilize strong network of community-based organizations, civic pride, and neighborhood identification to improve communication networks, education and outreach.



Figure 17: Pocket Park with Green Infrastructure Opportunity

Source: Bing Maps

BAY PARK AND VILLAGE OF EAST ROCKAWAY

3.0 STRATEGIES



3.1 KEY THEMES

Based on input from the NYRCR Committee, feedback from Public Engagement event, and initial research, six themes were developed to guide development and evaluation of potential projects.

1. **Protect the coastline from flooding.**
2. **Address recurring stormwater drainage issues.**
3. **Harden municipal infrastructure and improve capability to respond to storm events.**
4. **Improve the overall quality of life to maintain housing values and give people a reason to stay and invest in the community.**
5. **Strengthen the economy with mixed-use redevelopment around the commercial spine.**
6. **Leverage improvements to Bay Park STP to provide needed local amenities.**

Based on this framework, more detailed strategies and projects will evolve addressing the needs of and risks within the six asset categories. Potential projects will be assessed on their ability to mitigate future risk and will be vetted and prioritized by the NYRCR Committee and the public.

3.2 POTENTIAL KEY PROJECTS

Projects in the planning stage are shown on Figure 18. Improvements to the Bay Park Sewage Treatment Plant are underway, however plans to fortify the site and extend the outfall pipe from the Reynolds Channel into the Atlantic Ocean are still in development. Additionally, East Rockaway has a number of identified road drainage improvements planned for East Main Street. Coordination between these projects and their managing agencies will be critical in order to maximize the level of protection provided. The goal of the NYRCR Plan is to identify which needs have been addressed and to identify where opportunities exist to fill unmet, yet critical, reconstruction and resiliency needs.

The following list of potential project examples represents a preliminary compilation of ideas that have come out of the NYRCR Planning process thus far. These projects are also illustrated in Figure 19. While these ideas represent projects suggested to date, additional projects will emerge as the planning process continues. Further, these projects will be evaluated by the Risk Assessment Scenario tool for their cost-benefit attributes, evaluated by the NYRCR Committee and at Public Engagement meetings for support by the community, and tested for their ability to protect critical assets.

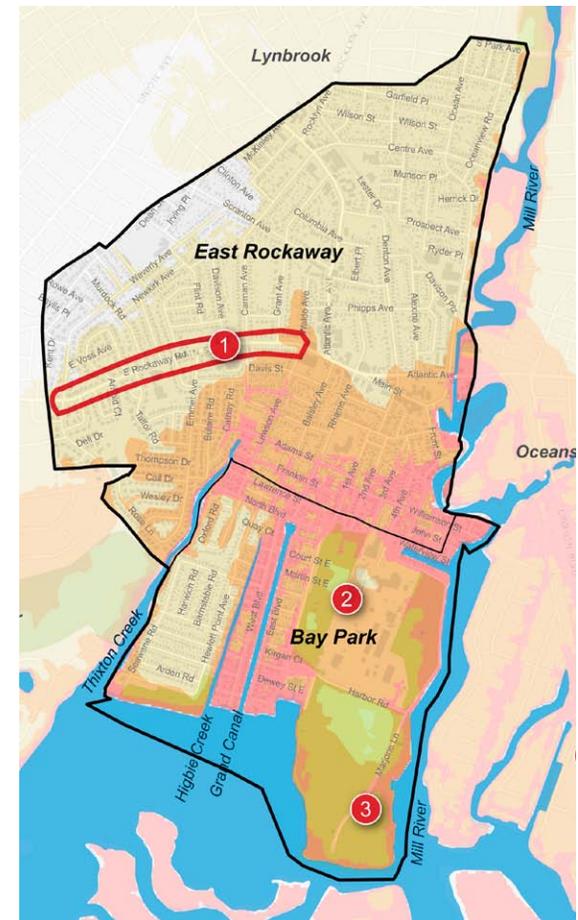


Figure 18: Planned Projects (2013-2016)

1. East Rockaway Road Drainage Improvements
2. Multiple Projects at Bay Park Sewage Treatment Plant
3. Stormwater Outfall Improvements
4. Drainage Facility Sidewalk Rehab, as Needed (general, not located on map)

Potential Key Projects

Protect the coastline from Flooding

- Raise bulkheads to 9 feet where feasible
- Evaluate floodgates and levees for Higbie Creek, Thixton Creek, Grand Canal and Mill River
- Fix failing bulkheads at: South 8th Avenue/Williamson Street and East Rockaway High School
- Raise bulkhead on east side of Grand Canal
- Install bulkheads along Higbie Creek
- Evaluate tidal surge barriers between Reynolds Channel and the Atlantic Ocean

Address recurring stormwater drainage issues

- Raise Lawson Avenue
- Use Bay County Park for stormwater retention through green infrastructure and subsurface storage
- Upgrade drainage infrastructure (raise and strengthen storm drains)
- Upgrade outfall pipes
- Develop system-wide comprehensive stormwater management strategy
- Encourage green infrastructure improvements

Harden municipal infrastructure and improve capability to respond to storm events

- Designated staging facility/municipal shelter
- Purchase low-profile boats and a high water vehicle for flood situations
- Increased storage space for vehicles and equipment
- Harden DPW garage and equipment against flooding
- Rebuild pedestrian bridge across Higbie Creek to provide alternative evacuation route and connection between Bay County Park and Hewlett Point Park
- Develop Comprehensive Evacuation Plan
- Flood-proof radio & cell phone towers
- Move utility lines underground
- Expand natural gas network

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

- Develop the municipal building as an indoor recreation area
- Hardening/floodproofing at the Village-owned John Street Recreation Center
- Create pocket parks at 2 Town-owned parcels on West Blvd

Strengthen the economy with additional mixed-use development around the commercial spine and waterfront area

- Redevelopment along Main Street
- Mixed water-dependent and water-enhanced uses along New Street and the Talfor Boat Basin

Leverage improvements to Bay Park STP to provide needed local amenities

- Repairs and improvements in Bay County Park including nature walk and new recreation facilities

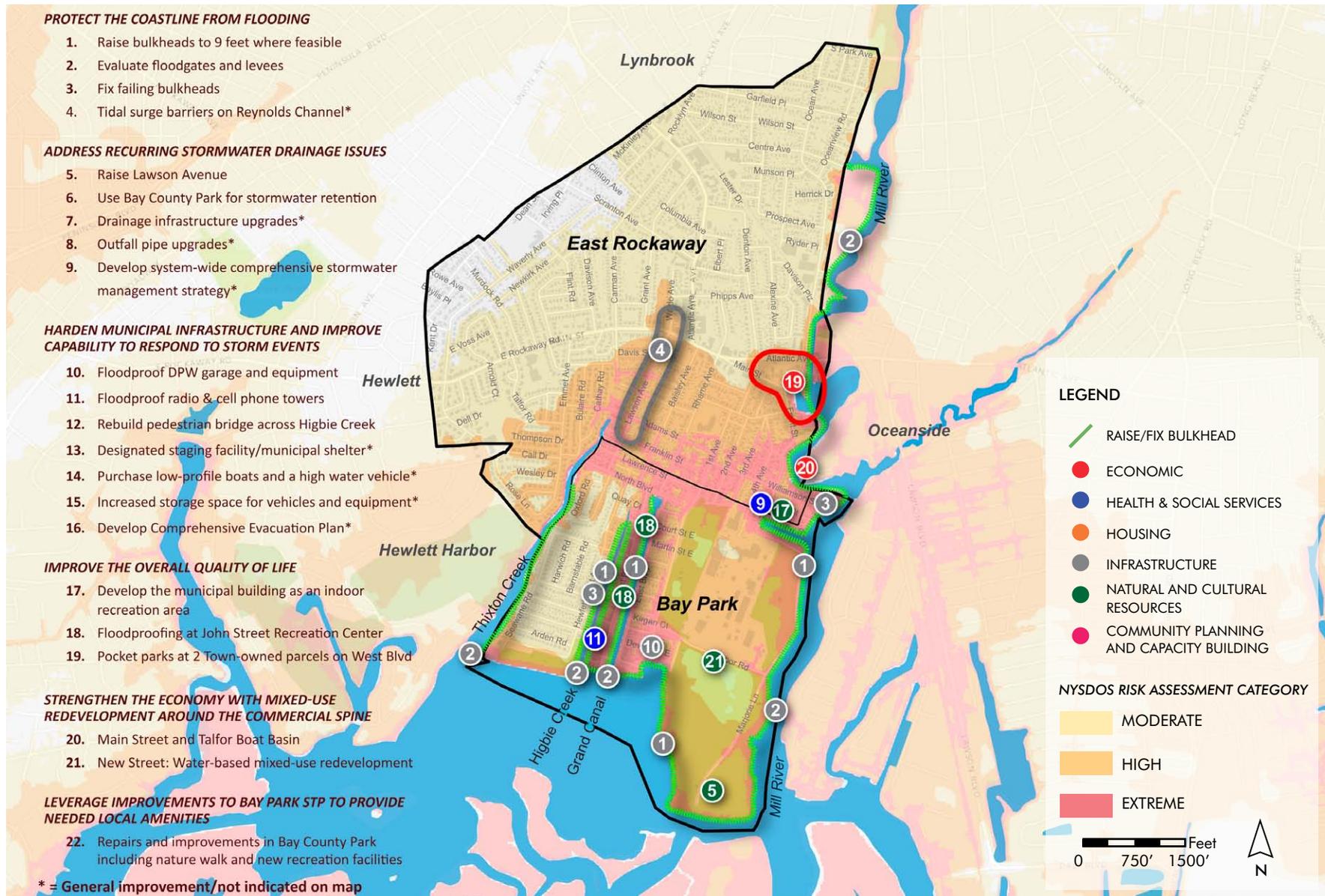


Figure 19: Potential Projects

Source: NYS Department of State

3.3 PRELIMINARY IMPLEMENTATION STRATEGIES

The NYRCR Plan requires careful consideration of what assets are at risk, what resources are available, and the capacity for mitigating risk through specific management measures. Selected management measures may include a variety of projects and actions, which would reduce the risk to a given asset, several assets or the community as a whole.

New York State has identified six classes of management measures that can reduce the exposure and vulnerability of assets to storm impacts. While some management measures have more immediate benefit to risk and resilience, others are more effective in combination with other strategies. These classes include:

- Class 1: Conserve, Restore, and Enhance Natural Protective Features
- Class 2: Resilient Construction
- Class 3: Structural Defenses
- Class 4: Land Use Planning and Regulation
- Class 5: Market-Based Methods
- Class 6: Increased Awareness and Information

As potential actions are developed, the NYRCR Committee will weigh the applicability of management measures according to the nature of the risk and immediacy of hazard, entities involved, and available resources. Projects will then be prioritized by their capacity to reduce immediate exposure to risk, serve multiple recovery functions, and support the larger recovery strategy.

Table 2 details potential management measures for the identified reconstruction strategies.

Table 2: Preliminary Implementation Strategies

Project name and location	Class	Responsible Agency	Recovery Functions	Timeframe
Regional				
Repair, upgrade and floodproof STP. Extend outfall pipe to Atlantic Ocean.	3	Nassau County	Infrastructure Systems	Short
Perform a hydrologic and hydraulic study of the Mill River and Reynolds Channel – East Rockaway Inlet Watersheds	1	Nassau County NYS DEC	Natural and Cultural Resources	Short
County-wide Stormwater Mitigation, Education and Awareness	2,6	Nassau County	Community Planning and Capacity Building Natural and Cultural Resources	Medium
Movable tidal surge barriers at 2 points on Reynolds Channel	3	US ACE NYS DEC	Infrastructure Systems	Long
Repairs/improvements to Bay County Park, Bay Park	1	Nassau County	Natural and Cultural Resources	Medium
Local				
Stormwater Infrastructure Upgrades, East Rockaway and Bay Park	3	Nassau County	Infrastructure Systems	Medium
Flood-proof radio & cell phone towers, move utility lines underground	2,3	Nassau County Town of Hempstead Village of East Rockaway LIPA	Infrastructure Systems	Medium
Raise Lawson Avenue, East Rockaway/Bay Park	2, 3	Village of East Rockaway	Infrastructure Systems	Short
Expand the natural gas network, especially to critical facilities	2	Village of East Rockaway Town of Hempstead	Infrastructure Systems	Medium
Replace degraded bulkheads	3	Town of Hempstead Private Property Owners	Infrastructure Systems	Medium
Incentivize bulkhead repairs and living shoreline restoration along private property	3,4	Town of Hempstead Private Property Owners	Infrastructure Systems	Medium
Coordinate with Nassau County Disaster Response Planning	6	Town of Hempstead Village of East Rockaway	Community Planning and Capacity Building	Medium
Expand disaster response capacity, East Rockaway Harden East Rockaway DPW Garage	3	Village of East Rockaway	Infrastructure	Medium
Pocket parks on West Boulevard, Bay Park	1	Residents Town of Hempstead	Natural and Cultural Resources	Medium
Encourage Green infrastructure improvements	1,2	Residents Town of Hempstead	Natural and Cultural Resources	Long
Study new redevelopment of vacant/ underutilized waterfront parcels	5	Village of East Rockaway	Economic	Long
Floodgates/levees, Bay Park	3	US ACE Town of Hempstead	Infrastructure	Long
Pedestrian bridge at 2 locations, Bay Park	1,2	Town of Hempstead	Infrastructure Natural and Cultural Resources	Long
Encourage floodproofing of commercial buildings	4,5	Village of East Rockaway	Economic	Long

3.4 REGIONAL PERSPECTIVE

Given its location between the NYRCR area to the west known as the “Five Towns” and the NYRCR Barnum Island/Oceanside/Village of Island Park/Harbor Isle area to the east, regional plans and projects in neighboring jurisdictions will have a strong impact on the Bay Park - East Rockaway NYRCR Plan. Nearby current and proposed projects such as the dune construction on the Long Beach barrier island will impact the proposed reconstruction strategies developed through the NYRCR planning process.

Noted regional initiatives and organizations reviewed during or engaged through this process include:

- Five Towns and Barnum Island/Oceanside/Village of Island Park/Harbor Isle NY Rising Community Reconstruction Committees
- Nassau County, Master Plan, Stormwater Management Plan, Capital Improvement Plan
- Town of Hempstead
- Nassau Urban County Consortium 5 Year Consolidated Plan
- US Army Corps of Engineers, study of South Bay network (in progress)
- US Army Corps of Engineers, North Atlantic Coast Comprehensive Study; Jamaica Bay Projects

- Long Island Regional Economic Development Council Strategic Plan
- Long Island Regional Planning Council Long Island 2035 Sustainability Plan and Visioning Initiative, Comprehensive Sustainability Plan
- Long Island Index
- Cleaner Greener Consortium of Long Island, Cleaner Greener Long Island
- Long Island Sound Coastal Management Program
- Long Island Regional Economic Development Council (LIREDC) Infrastructure Working Group, Long Island Infrastructure Priorities to Recover from Hurricane Sandy
- Long Island South Shore Estuary Reserve Comprehensive Plan

Further, many challenges and reconstruction strategies identified are beyond the jurisdictional control of Bay Park-East Rockaway. These include bulkhead repairs, which are often the responsibility of private property owners, proposed tidal flood gates, which are the responsibility of the US Army Corps of Engineers, and the Bay Park Sewer Treatment Plant, which is the responsibility of Nassau County. Therefore, it is critical that the NYRCR process is inclusive of community, town, county, state and federal agencies who share jurisdictional control and responsibility in the Bay Park-East Rockaway area. New York State has facilitated coordination with the Town of Hempstead and Nassau County.

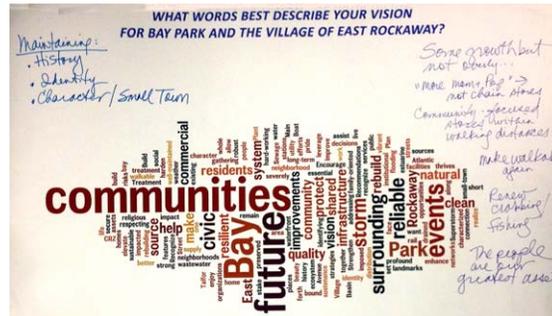
NYRCR Committee liaisons from the Bay Park-East Rockaway area will contribute to regional strategies, while bringing local perspectives to this regional dialogue.

Reconstruction strategies will be evaluated by the committee in the context of the region, rather than in a vacuum, considering current or proposed projects as well as parallel planning efforts such as the LIREDC Regional Plan and Long Term Community Recovery (LTCR) plans. As all NYRCR Committees work through the planning process, collaboration with committees in other parts of Nassau County as well as New York City will lead to coordinated reconstruction strategies that can serve multiple recovery functions. New York State will continue to facilitate communication among organizations, by sponsoring meetings and workshops to address regional challenges and craft comprehensive strategies for building both a more resilient Bay Park - East Rockaway community, and a stronger New York State.

BAY PARK AND VILLAGE OF EAST ROCKAWAY

4.0 PUBLIC ENGAGEMENT





4.1 PUBLIC ENGAGEMENT

The plan for engaging the Bay Park and East Rockaway communities has been structured to encourage broad participation from all sectors of the study area. The goal has been to actively engage the community in the process of creating a reconstruction program that envisions a resilient and sustainable future for both Bay Park and East Rockaway.

The Bay Park and Village of East Rockaway NYRCR Committee is composed of 13 members and includes a broad range of community leaders from both jurisdictions -- long term residents, business representatives, institutional leaders, and municipal representatives. The NYRCR Committee has been instrumental in providing input and information to shape this NYRCR Conceptual Plan and in assisting with the broader Community Engagement Strategy through their constituent and social networks.

The Community Engagement Strategy has included three NYRCR Committee meetings focused on the development of this NYRCR Conceptual Plan. At these meetings, which are open to the public, the Committee has provided input on:

- The issues currently facing Bay Park and East Rockaway as a result of Superstorm Sandy.
- Bay Park and East Rockaway's existing assets and the opportunities that these assets can contribute to the future of the area.
- Preliminary visions for the area that can be initiated through the current planning process.
- Input regarding the format and content for the first public engagement event.
- Major outreach in order to "get the word out" about the project, the planning process and the public engagement session.

The first Public Engagement Event was held on October 16, 2013. The meeting focused on gathering the public's knowledge, experience, and recommendations for the development of the NYRCR Conceptual Plan. The public was invited to provide input on the NYRCR Committee's work to date, including its work on the Community Vision, Identification of Community Assets, and Potential Projects. A summary of the input received at this session will be provided in a separate document.

The second Public Engagement event will be held in November, 2013. On-going public information has been provided via a project

website established for the Bay Park - East Rockaway NYRCR Area (<http://stormrecovery.ny.gov/nyrcr/community/bay-park-east-rockaway>), and has been posted on the NYRCR Facebook page.

Finally, the project team and the NYRCR Committee have actively pursued a variety of strategies to inform people about the project and the first public engagement event. These techniques have included:

1. Electronic notices sent to a broad range of individuals and organizations in the NYRCR area.
2. Flyers distributed locally by Committee members.
3. Media ads and postings on community calendars through local news sources.
4. Press releases to local newspapers.

The second Public Outreach Event on November 12, 2013 will be structured to achieve meaningful input regarding the NYRCR Conceptual Plan, and how this can best be achieved within the Bay Park - East Rockaway NYRCR Area.

BAY PARK AND VILLAGE OF EAST ROCKAWAY

5.0 PRELIMINARY IMPLEMENTATION STRUCTURE

5.1 PRELIMINARY IMPLEMENTATION STRUCTURE

The community will identify several key projects and reconstruction strategies in the categories of community planning and capacity building, economic, health and social services, housing, infrastructure, and natural and cultural resources. These projects will then be evaluated further based on several factors including time range (immediate/intermediate, long-range), geographic scope (regional or local), financial cost, and benefits (public versus private interests).

Assessing the benefits and costs of the project is imperative to determine if the project is feasible and proceeding with an implementation structure. Once the costs and benefits have been determined and the project is deemed feasible, timeline, funding source and responsible agency will be identified.

Determining Benefits

The benefits of a reconstruction project should focus on hazard risk reduction and increasing public safety. The risk reduction estimate (or hazard loss avoidance) may be determined through use of the New York State Risk Assessment Tool.

Additional benefits (co-benefits) to a project may include sustainability, economic benefits,

environmental benefits and health and social benefits. Examples include the number of potential lives saved and expected economic gains, such as community revitalization.

Determining Costs

Project costs should be based off the scope of work and include management, construction cost (including administration and management), life cycle costs (annual maintenance), useful life (number of years before the project will need to be replaced). Costs should also consider the socio-economic impacts such as displacement of population.

Note: Projects using FEMA grant programs will need to utilize FEMA's Cost Benefit Analysis software. There are several FEMA standards that can be used when estimating costs as benefits with this program.

Timeframe

Immediate/Intermediate/Long-Range Implementation – an action that could reasonably be implemented in two (2) years or less would be an Immediate action; h two to five (2-5) years would be Intermediate; and an action that would take longer than five (5) years to enact would be Long-Range.

Funding Sources

Several funding sources exist are dependent on the nature of the project. Grants are widely used though they are typically competitive. Examples of funding sources are listed below:

- CDBG-DR Funding
- FEMA Funding (pre-disaster, post-disaster)
- Hazard Mitigation Assistance (HMA) Program (Table 3):
 - Post-disaster: Hazard Mitigation Grant Program (HMGP)
 - Pre-disaster: Pre-disaster Mitigation, (PDM), Flood Mitigation Assistance (FMA)
- Other Federal Agencies (US Army Corps of Engineers (USACE), Environmental Protection Agency (EPA))
- Public-private partnerships
- Local Funding including taxation and Bonds

Responsible Agency

Lastly, a responsible agency will be identified for each project. The responsible agency will be determined based on the nature of the project. Examples include Public Work Department or the Planning Department.

Table 3: Hazard Mitigation Assistance Funding Sources

Eligible Activities	HMGP	PDM	FMA
1. Mitigation Projects	X	X	X
Property Acquisition and Structure Demolition	X	X	X
Property Acquisition and Structure Relocation	X	X	X
Structure Elevation	X	X	X
Mitigation Reconstruction			X
Dry Floodproofing of Historic Residential Structures	X	X	X
Dry Floodproofing of Non-residential Structures	X	X	X
Minor Localized Flood Reduction Projects	X	X	X
Structural Retrofitting of Existing Buildings	X	X	
Non-structural Retrofitting of Existing Buildings and Facilities	X	X	X
Safe Room Construction	X	X	
Wind Retrofit for One- and Two-Family Residences	X	X	
Infrastructure Retrofit	X	X	X
Soil Stabilization	X	X	X
Wildfire Mitigation	X	X	
Post-Disaster Code Enforcement	X		
Generators	X	X	
5 Percent Initiative Projects	X		
Advance Assistance	X		
2. Hazard Mitigation Planning	X	X	X
3. Management Costs	X	X	X

Source: FEMA

APPENDIX

A: EXISTING PLANS AND STUDIES

There are a diversity of plans, policies, procedures and resources available that address the existing conditions, regulatory frameworks, community goals and issues and resiliency opportunities in Bay Park and the Village of East Rockaway. These resources have been produced by a variety of stakeholders including public agencies at all levels (federal, state, county, town and village), regional planning groups, non-profit organizations, academic institutions, community stakeholders and private groups. A brief summary of the relevant regulatory and advisory documents is included below:

REGULATORY

Federally approved Significant Coastal Fish and Wildlife Habitats (NYSDOS, NYSDEC)
East Hempstead Bay, the water body to the south of Bay Park, is designated as a Significant Coastal Fish & Wildlife Habitat. For each designated SCFWH site, a habitat map and narrative are created to provide site-specific information. The habitat narrative constitutes a record of the basis for the significant coastal fish and wildlife habitat's designation and provides specific information regarding the fish and wildlife resources that depend on this area. General information is also provided to assist in evaluating impacts of proposed activities on

characteristics of the habitat which are essential to the habitat's values.

Nassau County Department of Public Works Drainage Requirements (Nassau County DPW)

The Phase II Storm Water Regulations requires all municipalities in Nassau County to prepare and implement a Storm Water Management Program. A major component of the County's Storm Water Management Program is the drainage requirements set by the Department of Public Works for the development of Subdivisions. This comprehensive document includes the drainage requirements for street grading and drainage and the requirements for erosion and sediment control.

Nassau County Stormwater Management Program (Nassau County, 2009)

The NCSWMP includes a listing of Best Management Practices (BMP's) that have been implemented by the County and a coalition of local municipalities in order to achieve the regulatory standard of reducing pollutants in the County's storm water to the maximum extent practicable. Initial measurable goals and an implementation schedule were developed for each of the BMP's in the NCSWMP.

Town of Hempstead Adopted 2013 Budget (Town of Hempstead, 2013)

Town of Hempstead's 2013 spending plan for municipal programs and services. Hempstead

maintains 1,200 miles of roadway, operates over 200 parks, pools, beaches and marinas, collects garbage from 85,000 homes, provides water to 130,000 customers and furnishes life enhancing services to over 190,000 senior citizens. At \$419.4 million, this 2013 budget proposal presents a modest positive adjustment of 1.1 percent or \$4.6 million over the 2012 figure.

ADVISORY

Hurricane Sandy Rebuilding Strategy (U.S., Hurricane Sandy Rebuilding Task Force, 2012)

The Rebuilding strategy document developed by the task force establishes guidelines for the investment of the Federal funds made available for recovery. The document focuses on long-term rebuilding, and strategies to sponsor coordination amongst various agencies to remove obstacles to resilient rebuilding.

Nassau County Draft Master Plan (Nassau, 2010)

Master Plan recommends targeting development in growth areas, which account for approximately 10% of Nassau's land area. Specifically identified growth areas include "Transit-Oriented" downtowns, the Nassau Hub, and the Grumman Property. The Master Plan details changes in demographic and economic conditions for past decades and projects future changes through 2030. In addition, the Master

Plan identifies specific policy tools to encourage growth, diversify the housing stock, protect commercial and residential neighborhoods, improve transportation, and reduce costs to residents.

Nassau County Multi-Jurisdictional Hazard Mitigation Plan (Nassau, 2007)

Description of various hazards, identification of assets in hazard areas, estimated damages in assessment areas (includes assets exposed to storm surge), development trends in hazard areas and capabilities and resources. Asset information and community specific recommendations are developed for some communities; however, this information is sparse for Bay Park and the Village of East Rockaway. Implementation strategies and mitigation measures can be learnt from recommendations for neighboring communities. Document lists federal technical assistance and funding programs to assist in long-term recovery.

Long Island South Shore Estuary Reserve - Comprehensive Management Plan (NYS DOS, 2001)

The Long Island South Shore Estuary Reserve encompasses one of the New York State's unique estuaries and its 326 square mile watershed in Nassau and Suffolk counties. The plan provides a blueprint for the long-term health of the Reserve's bays and tributaries, its tidal wetlands and wildlife, and its tourism and economy.

Long Island Regional Economic Development Council Strategic Plan (LIREDC, 2011)

Long term economic development strategy discusses 13 priority projects. Infrastructure strategies include: Revitalize downtowns and commercial centers; Repair and upgrade aging

infrastructure (specifically addresses sewer system and Bay Park STP); Create new housing opportunities; Promote new government policies to foster economic growth. Natural Asset Strategies include: Improve sustainable agriculture enterprises; Improve the Economic Potential and Employment Opportunities of Fisheries & Aquaculture; Enhance Ecotourism Activities and Infrastructure.

Cleaner Greener Consortium of Long Island (CGCLI, 2013)

Cleaner Greener Consortium of Long Island is group of municipalities and non-governmental organizations organized to articulate a community based vision for a more sustainable future. Goals and strategies were developed for the following subject areas: Economic development and workforce housing; energy; transportation; land use and livable communities, waste management; water management; governance and implementation. The Plan is intended to serve as a common point of reference for local governments, non-governmental organizations, businesses and residents. It includes initiatives for implementation, objectives and performance targets, as well as a wealth of baseline information (in the appendices) that can be incorporated into comprehensive plans, management plans, zoning, and other planning and strategy initiatives.

The Long Island Index: "Places to Grow" (Long Island Index, 2010)

Report analyzed the future growth potential for Long Island, focusing on the Island's ability to accommodate forecasted residential and commercial growth in transit-rich downtowns through an analysis of infrastructure capacity, land use, and demographic data. The report found that nearly 8,300 acres of vacant land

and parking lots lie within a ½ mile radius of downtown centers (or LIRR stations). Report supports targeting future growth to downtowns given the host of environmental, social, and economic advantages. In addition, the report cites the downtown revitalization efforts of the Village of Mineola which adopted overlay zoning district to attract and incentivize transit-oriented development.

Long Island Infrastructure Priorities to Recover from Hurricane Sandy (Long Island Association, Long Island Regional Planning Council, Long Island Builders Institute, Long Island Contractors Association, Regional Plan Association, NY League of Conservation Voters, American Council of Engineering Companies – New York, Long Island Regional Economic Development Council, 2012)

This list represents the work of several leading organizations on Long Island. Priorities are listed in the following order: (1) Public Health: Wastewater Treatment Facilities, Water Supply and Solid Waste; (2) Utilities: Electric, Gas and Telecommunications; (3) Transportation, Transit and Shoreline; (4) Housing. Infrastructure needs were at the top of the list because of the significant public health and economic development impacts of wastewater treatment facilities, water supply and solid waste. These priorities are also responsive to the charge given to the Infrastructure Working Group of Governor Cuomo's Long Island Economic Development Council.

Nassau County 2013 Annual MS4 Report (Nassau County Stormwater Coalition, 2013)

The NCSWMP is a comprehensive program to reduce the levels of contaminants in Nassau County's storm water runoff and educate the public about their impacts on storm water. Nassau County has taken the lead in

coordinating the NCSWMP and acting as a clearinghouse of information for concerned parties. The Nassau County Department of Public Works Water Engineering Unit is in charge of implementing the plan, including water testing, education, and pollution prevention measures. The six elements of the NCSWMP are: Public Education, Public Involvement, Illicit Discharge Detection and Elimination, Construction Site Storm Water Runoff Control and Post-Construction Storm Water Management, Pollution Prevention and Good Housekeeping for Municipal Operations.

Nassau Urban County Consortium 5 Year Consolidated Plan (Nassau, 2010)

Presents a five-year strategy for addressing housing and community revitalization needs within the 34 member Urban County Consortium. It includes a One Year Action Plan for spending approximately \$21,524,865 in Community Development Block Grant, HOME, Emergency Shelter Grant and program income funds. Funds will be spent on a wide range of housing and community development activities including new construction and rehabilitation of housing; commercial and economic improvements; public services for senior, youths and other low income persons; architectural barrier removal in private homes and in public buildings; homeless shelter operations and renovation; acquisition, demolition and relocation activities of blighted properties in targeted redevelopment areas; and infrastructure improvements in low income areas; and other related activities. East Rockaway is listed as one of the revitalization areas where activities will be carried out.

Nassau County Infill Redevelopment Feasibility Study: Cultivating Opportunities for Sustainable Development (Nassau County, Regional Plan Association, and NY-CT Sustainable Communities Consortium, 2013)

Feasibility study of sustainable infill development and presents opportunities to promote transit-orientated development around up to three (3) Long Island Rail Road (LIRR) stations in the Preliminary Regional Nassau Hub Study Area. Closest LIRR stations in study are Rockville Centre and Baldwin.

Long Island 2035 Sustainability Plan and Visioning Initiative (LIRPC/Nassau/Suffolk/NYMTC/RPA, 2009)

Established to help achieve a regional public consensus on where the next generation of Long Islanders could live and work, the transportation systems needed to support these settlements and the public and private actions required to ensure a prosperous, equitable and environmentally sustainable Long Island.

Long Island 2035 Comprehensive Sustainability Plan (Nassau/Suffolk/LIREDC/LI2035, 2010)

Involved stakeholder input from Leadership Advisory Cabinet (LAC), made up of key government officials and private sector stakeholders. LAC tested and vetted strengths, weaknesses, issues and opportunities facing region and identified a vision, goals and objectives for the Long Island 2035 Regional Comprehensive Sustainability Plan. The plan is focused into four general areas: Economy, Infrastructure, Human Systems, and the Built and Natural Environments.