



**PLACE-BASED COMMUNITY BROWNFIELD PLANNING
FOUNDATION REPORT ON EXISTING CONDITIONS**

EDGEMERE/ARVERNE, QUEENS

FINAL

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PURPOSE

This existing conditions foundation report was produced by the New York City Mayor's Office of Environmental Remediation (OER) to help community members and community-based organizations (CBO's) conduct place-based planning for revitalization of vacant and underutilized brownfield properties. Place-based planning by community groups is supported by OER under the NYC Place-Based Community Brownfield Planning Program and by the New York State Department of State in the Brownfield Opportunity Area Program. To advance implementation of plans, OER provides financial and technical assistance to CBO's for cleanup and redevelopment of brownfield properties and seeks to help people foster greater health and well-being in their neighborhoods.

Brownfields are vacant or underutilized properties where environmental pollution has deterred investment and redevelopment. Pollution introduces many risks to land development and often causes community and private developers to pass over these properties, especially in low-income neighborhoods where land values may be depressed and insufficient to cover added cleanup costs. Over time, brownfield sites accumulate and cluster in these neighborhoods, presenting heightened health risks while also reducing opportunities for small businesses, permanent new jobs, and affordable housing. OER has established a wide variety of programs to support place-based community brownfield planning and establish a local vision for use of these properties and to help bring community plans to life. Using these tools, we seek to help people turn brownfield liabilities in their neighborhoods into community assets.

This report provides an overview of the study area's geologic and natural features, historical development patterns, zoning, land use, and infrastructure, as well as demographic and economic profiles, a summary of environmental conditions, and a preliminary evaluation of potential strategic properties. It is intended to initiate an ongoing process of data collection and analysis to better inform community planning activities and visioning and to enable people to make more informed decisions about their neighborhoods. This report was prepared by the New York City Department of City Planning under contract with the Mayor's Office of Environmental Remediation.

1. INTRODUCTION

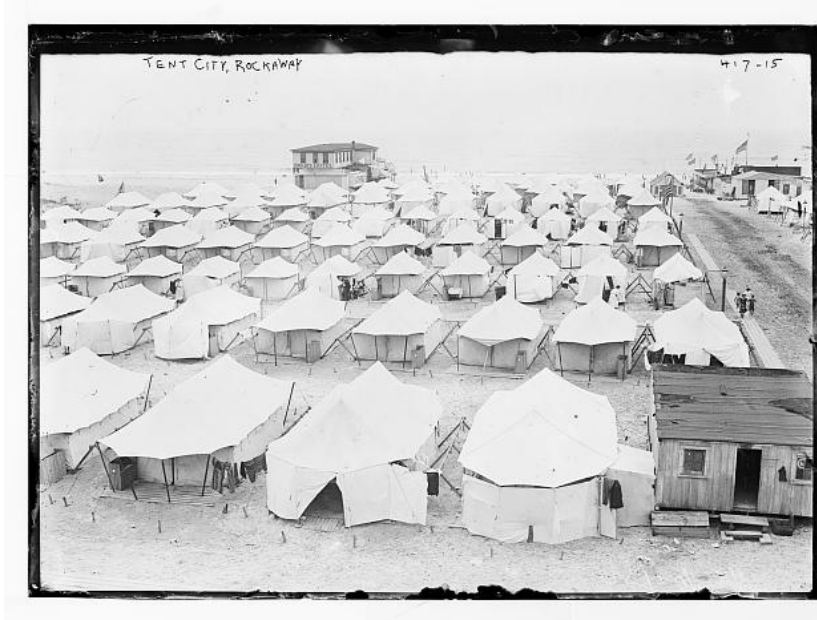
EXECUTIVE SUMMARY

The Rockaway Study Area for the purposes of this report encompasses the communities of Edgemere, Arverne, and Hammels in Queens, NY. The analysis in this report was conducted in summer 2014. Located on the bay side of the eastern portion of the Rockaway Peninsula in southern Queens, the area was a wealthy seasonal resort town during the early 20th century and has a rich history as a recreational destination for New Yorkers. As the popularity of the peninsula as a summer destination waned after World War II, more permanent structures were built to house a year-round population. Today, the neighborhoods are largely characterized by one- and two-family detached homes, semi-detached residences, and attached row houses, as well as some medium-density apartment towers including several New York City Housing Authority (NYCHA) complexes.

Residents of the Study Area are primarily young and Black and/or Hispanic. They have disproportionately lower income and levels of educational attainment than the rest of the city. Both poverty and unemployment in the area are high. The healthcare and social assistance sector has a significant presence on the peninsula; it is both the largest industry and the largest employer in the area. Limited commercial and manufacturing zoning, primarily situated along the coastal areas, support marinas as well as a few industrial uses. There is limited retail in the Study Area.

There is a significant amount of publicly-owned land in the Rockaway Study Area. Though much of this consists of parks, open areas and wildlife refuges located along the waterfront, a large Urban Renewal Area under the jurisdiction of the Department of Housing and Preservation Development is located in Edgemere. There is also a significant amount of vacant land in the Study Area, much of which is also publicly owned and primarily located along the waterfront, within the Edgemere Urban Renewal Area and/or along Rockaway Freeway.

Finally, the Study Area is highly vulnerable to coastal flooding and other risks associated with sea level rise and climate change. Though the Rockaway Study Area contains the highest point on the peninsula (the former Edgemere landfill), it also contains some of the most low-lying land in New York City. The area was devastated by Hurricane Sandy and as of the writing of this report, is still in the process of recovery. Multiple agencies and community-based organizations are involved in initiatives to increase the resiliency of these neighborhoods.



HISTORICAL DEVELOPMENT

The Rockaway Peninsula was the original beach destination and urban escape for New Yorkers. Meaning “sandy place” or “the place of laughing waters,” the name Rockaway (Racke- away, Rahawacke) is derived from the Lenape tribe who lived on western Long Island, portions of southeastern Queens and southwestern Nassau Counties. By 1687, much of the peninsula had come into the ownership of a wealthy English businessman named Richard Cornell who established an estate in what is now Far Rockaway. Passed through generations, the Cornell house stood until 1833 when it was demolished to make way for Far Rockaway’s first grand hotel: the Marine Pavilion. Hosting such famous guests as Henry Wadsworth Longfellow and Washington Irving, the Marine Pavilion established the Rockaways as a seaside resort town and led to the construction of many other hotels, recreational amenities and residential developments.¹

Frederick J. Lancaster and William R. Vernam were primarily responsible for the early development of the Study Area and surrounding community during the late 19th century. Both men envisioned the area as a resort town, and oversaw the construction of opulent hotels, casinos, and bathhouses along the beach that catered to Manhattan’s elite. Utilizing a canal system established to connect Far Rockaway to Jamaica Bay, Edgemere was originally planned as an “old world Venice” complete with gondolas to ferry residents through the area. Budgetary constraints stalled the project, and eventually marshland was filled in to construct homes along the bay side of the peninsula. Edgemere was slightly more modest than the neighboring Arverne, where the housing stock was characterized by large, multi-story Queen Anne style homes.²

The establishment of multiple transportation networks during the mid to late 19th century spurred the development and popularity of the area. A steam railroad first made the towns on the eastern end of the peninsula generally accessible in 1869, and a trestle constructed over Jamaica Bay and ferry service from Canarsie to Seaside Park later connected the area to what is now Brooklyn and Queens. By the time that the five boroughs were consolidated to form the City of Greater New York in 1898, a boulevard and electric railway traversed much of the peninsula. The early 20th century saw the development of the Long Island Railroad’s Rockaway Beach Line, which ran from Woodside to Far Rockaway and Beach 116th Street.³

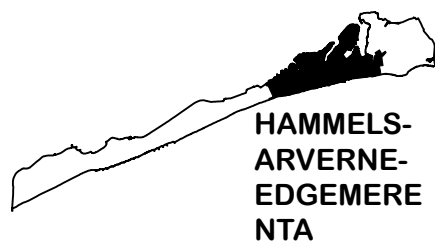
By the turn of the century, middle and working class New Yorkers were making the peninsula a summer destination. Tent cities and bungalows sprang up to accommodate this new population; By the 1920’s, the larger homes and hotels in the area were being turned into rooming houses or were demolished to make way for the construction of smaller rental units. In addition to the further development of recreational amenities like the beach and boardwalk, increased access to the peninsula (the completion of the Cross Bay Bridge in 1925, opening of the Marine Parkway Bridge in 1937 and expansion of railroad services in 1941) made the area more available to the masses.

After World War II, however, the peninsula’s popularity as a vacation destination waned. Summer bungalows were converted into year-round homes and permanent residences were constructed. The addition of multi-story residential buildings increased the density of the population and built environment, drastically shifting the built form of these neighborhoods. During the 1960’s, approximately 300 acres of the Rockaways were razed as part of large-scale development projects and urban renewal programs.⁴ Though the Study Area gained three NYCHA projects, parts of the Edgemere and neighboring Arverne Urban Renewal Areas sat vacant for decades. In recent years there has been significant investment and development in portions of both Urban Renewal Areas, but large swaths of vacant, city-owned land remain.

STUDY AREA BOUNDARIES

The Study Area consists of a mix of multiple residential, commercial and industrial zoning districts on the eastern portion of the Rockaway peninsula spanning the neighborhoods of Hammels, Edgemere, and Arverne. Following the geographies of these zoning districts, the area is bounded by Jamaica Bay to the north, Rockaway Freeway and the elevated A train to the south, Beach 35th Street to the east and 84th Street to the west. The Study Area encompasses approximately 820 acres, or 1.28 sq miles. It is located in Queens Community District 14, and is represented by the Council Member from District 37.

GEOGRAPHIES & DATA



The following analyses situate the Study Area within the broader context of the Rockaway Peninsula and New York City as a whole. As census data availability is limited for the exact, unique geography of the Study Area, it was necessary to draw from a larger area to provide a demographic and economic profile of the Study Area. American Community Survey* data from the Queens 12 (Hammels-Arverne-Edgemere) Neighborhood Tabulation Area was utilized for this purpose.

The Department of City Planning created Neighborhood Tabulation Areas (NTAs) by aggregating census tracts into 195 neighborhood-like areas in order to project populations at a small area level. The Hammels-Arverne-Edgemere NTA consists of census tracts 942.02, 942.03, 954, 964, 972.03, 972.03, 972.04, 992, and 1008.02, and thus includes neighborhoods which share some similar characteristics of those within the Study Area but are outside of its boundary. It is important to note that, unless otherwise noted, the following demographic and economic analyses are inclusive of this population residing adjacent to the Study Area and therefore portray broader trends in the area that are not limited solely to the geography of the Study Area. This broader area is referred to as the Hammels-Arverne-Edgemere NTA.

Data for the exact geography of the Study Area are available from the Decennial Census** but include information pertaining only to population size, race and ethnicity, number of housing units, and occupancy. These data were collected in 2010 and thus do not account for the effects of Hurricane Sandy, which may have significantly reduced the population size and amount of occupied housing units.

*The **American Community Survey (ACS)** is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The American Community Survey includes questions that are not asked by the 2010 Census, and the two serve different purposes.

The **Decennial United States Census counts every resident in the United States, and takes place every 10 years. The data collected by the decennial census determine the number of seats each state has in the U.S. House of Representatives and is also used to distribute billions in federal funds to local communities.

The **Quarterly Census of Employment and Wages (QCEW)** program produces a comprehensive tabulation of employment and wage information for workers covered by State unemployment insurance (UI) laws and Federal workers covered by the Unemployment Compensation for Federal Employees (UCFE) program. The data are provided to the Department of City Planning (DCP) by the New York State Department of Labor (NYS DOL), and are geocoded and analyzed by DCP.

Primary Land Use Tax Lot Output (PLUTO) represents a compilation of data from the Department of Finance and the Department of City Planning. It includes primary tax lot and building characteristics such as land use, ownership, year built, number of units, lot and building size, allowable and built floor area ratio (FAR), and the presence of historic districts or landmarks.

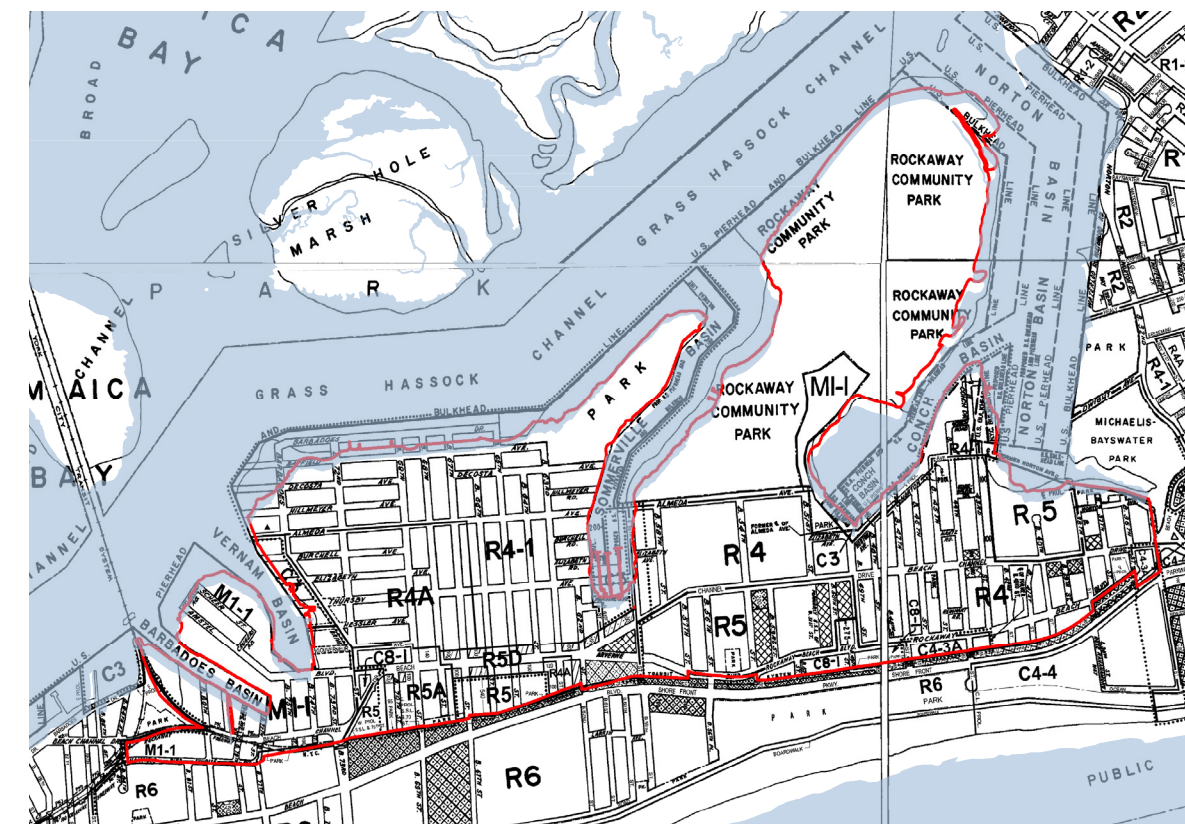
Map 1:
STUDY AREA BOUNDARIES

- Rockaway Study Area
- Hammels-Arverne-Edgemere Neighborhood Tabulation Area (NTA)



Map 2:
ZONING

- Study Area



2. SOCIAL, ECONOMIC AND LAND USE CHARACTERISTICS

SOCIAL CHARACTERISTICS

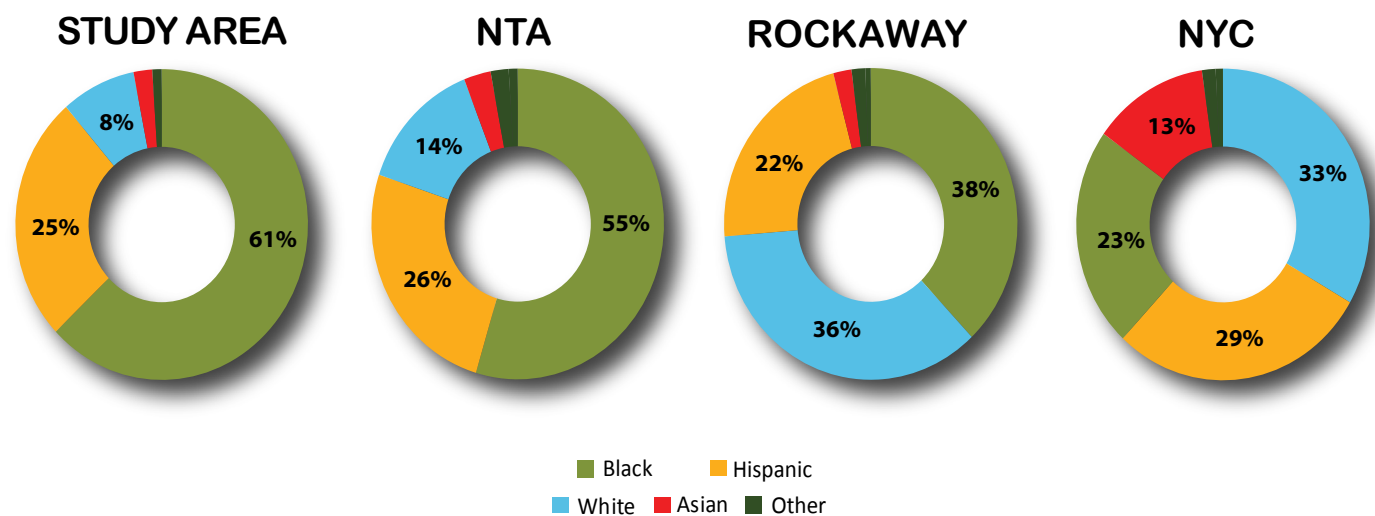
RACE

According to the 2010 decennial census, the Study Area contains 22,874 residents. The majority of these residents self-identify as Black (61 percent), while a quarter considers themselves Hispanic. Eight percent are white, and one percent identify as other. This is very similar to the racial pattern of the Hammels-Arverne-Edgemere NTA, where 55 percent of residents identify as Black, 26 percent as Hispanic, 14 percent as white and three percent Asian.

However, the demographic characteristics of these geographies are unlike those of New York City as a whole. There are nearly three times as many black residents in the Study Area (60 percent) compared with the rest New York City (23 percent), and only one third as many white residents (eight and 33 percent, respectively). While the portion of residents who identify as Hispanic is similar, there are virtually no Asian residents in the Study Area and surrounding community while this demographic makes up 12 percent of New York City's population.

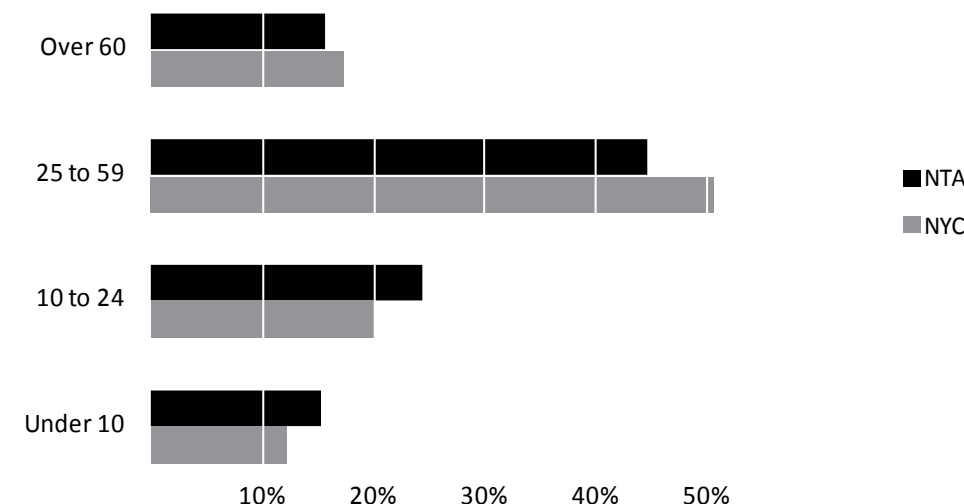
Of the 35,500 residents of the Hammels-Arverne-Edgemere NTA, approximately a quarter are foreign born. Though no one ancestry group dominates, there are sizable shares (5-8 percent) of residents of who are of West Indian, Sub-Saharan African and Irish descent.

Since 2000, the population of the Hammels-Arverne-Edgemere NTA has increased by 5,240 residents (16.6 percent).



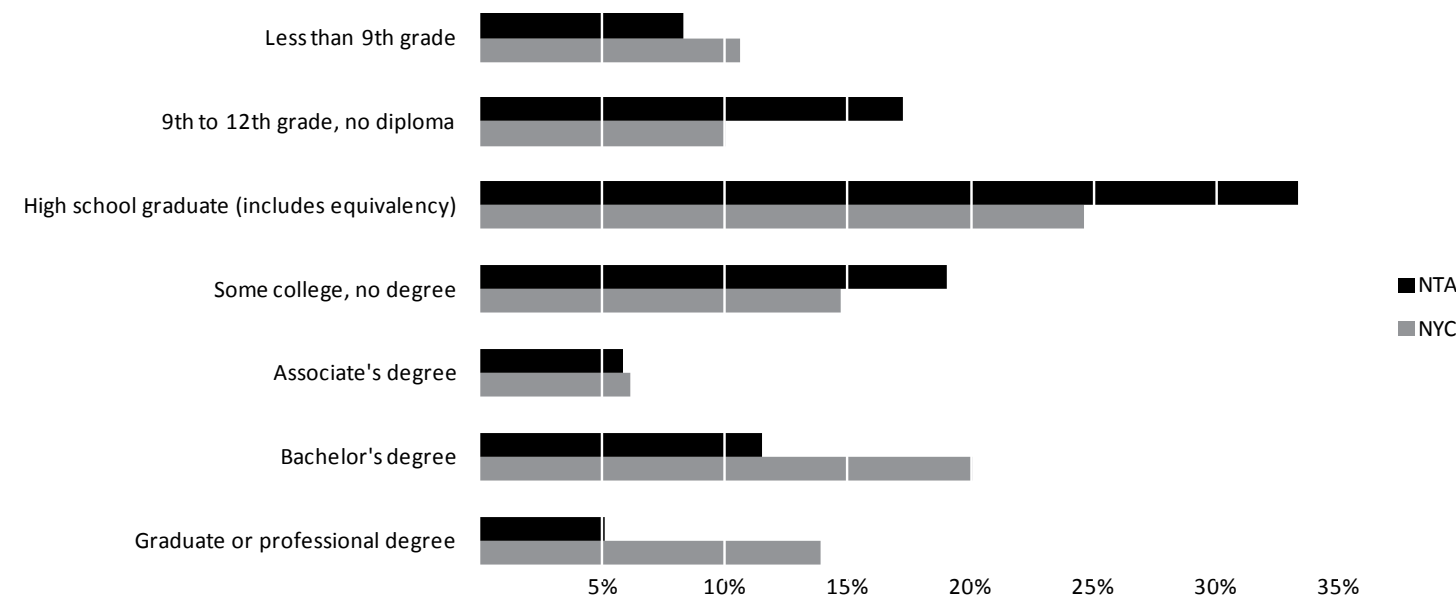
AGE

The population of the Hammels-Arverne-Edgemere NTA has similar age characteristics to the rest of New York City, though it skews slightly younger. Approximately 40 percent of Study Area residents are under the age of 25. This is almost ten percent more than the rest of Queens (30 percent) and New York City (32 percent). Both the Study Area and Rockaway Peninsula have approximately five percent fewer residents aged 25 to 59 than Queens and New York City. The Study Area also contains slightly fewer residents over the age of 60 (16 percent) than the rest of the peninsula (20 percent), Queens (18 percent) and New York City (17 percent).



EDUCATIONAL ATTAINMENT

The population of the Hammels-Arverne-Edgemere NTA has attained significantly lower levels of educational attainment when compared with the rest of Queens and New York City. The greatest share of residents, approximately one third, have completed a high school degree or equivalency while just fewer than 20 percent have attended high school but did not graduate. Twenty percent of residents have attended college, but only 11.5 percent have attained a bachelor's degree. This is nearly half of the graduation rate of the rest of Queens and New York City as a whole. Five percent of residents within the Hammels-Arverne-Edgemere NTA have attained graduate level degrees while 10.5 percent of Queens residents and 14 percent of New York City residents have attained a graduate level degree.



ECONOMIC CHARACTERISTICS

JOBS AND FIRMS

As of 2012, there are roughly one hundred firms and just fewer than 2,000 employees in the study area. Nearly one third of these firms (28) and two thirds of all employees (1,300) are associated with the health care and social assistance sector, which is by far the largest employer in the area. Automotive-related businesses and social advocacy and religious organizations are also prevalent in the area. With 16 stores and 87 employees, the bulk of retail in the study area is made up of food and beverage purveyors as well as some other auto-related uses. Finally, though the transportation and warehousing sector has only six firms within the area, it is a significant employer with 273 workers (14 percent of total employees).

The employment patterns in the study area have fluctuated since the year 2000. Though the health care and social assistance sector has seen an increase of three firms, it suffered a loss of almost 2,400 (almost 50 percent) of employees. Wholesale trade and accommodation and other services experienced losses in both firms and employees. Though the construction industry also saw a large decline in businesses in the area, employment in this sector increased. Finally, the past ten years have seen the emergence of an educational services sector in the area as well as the addition of approximately one hundred employees to the retail sector.

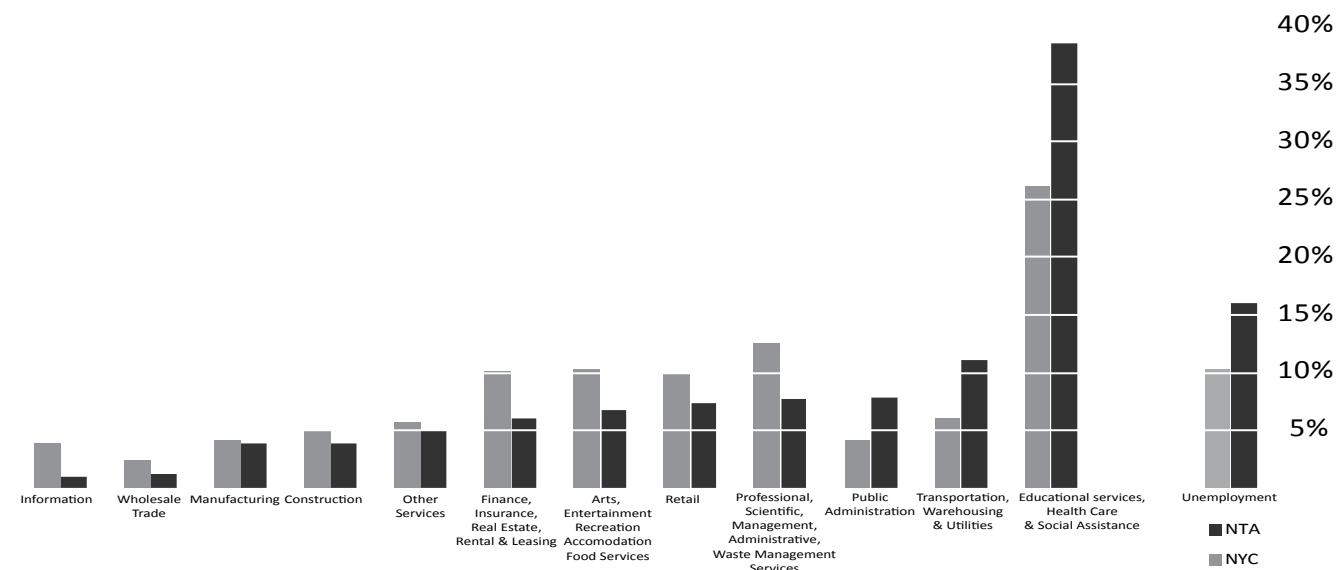
EMPLOYMENT

The employment patterns of the Hammels-Arverne-Edgemere NTA are similar to the rest of the Rockaway Peninsula. Like the rest of Queens and New York City, the educational services, health care and social assistance sector is the top employer within the NTA. The proportion of the population of the Rockaway Peninsula employed within this sector, however, is significantly higher than the rest of the city. Of 12,620 civilian employees, almost 40 percent have jobs within this field compared with 26 percent citywide.

Transportation, warehousing, and utilities is the second largest sector the Hammels-Arverne-Edgemere NTA with approximately 11 percent of residents employed within this field. Though this is similar to the rest of the Rockaway Peninsula (9 percent), it is almost twice the percentage of residents employed within this field citywide (6 percent).

The professional, scientific, management, administrative and waste management services sector, arts, entertainment, recreation, accommodation and food services sector, public administration sector and finance, insurance, real estate and rental and leasing sector all employ between 6 and 8 percent of NTA residents. These employment statistics are similar to the rest of the peninsula, but are slightly lower than the rest of Queens (10 percent) and New York City (12.5 percent).

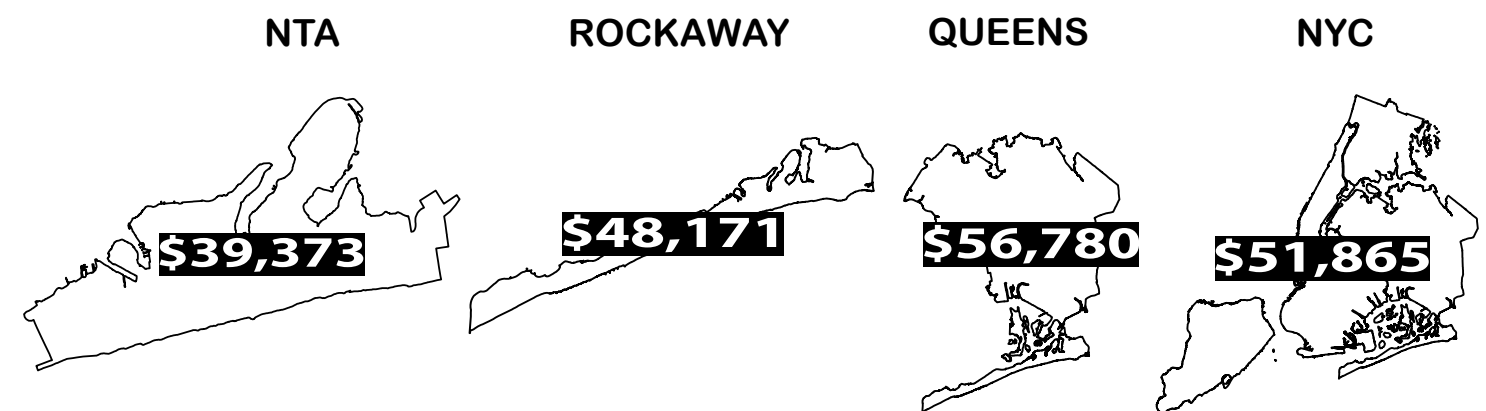
At 16 percent, the unemployment rate of the Hammels-Arverne-Edgemere NTA is more than five percent higher than the rest of the peninsula, Queens (9.6 percent) and New York City (10.2 percent).



INCOME AND POVERTY

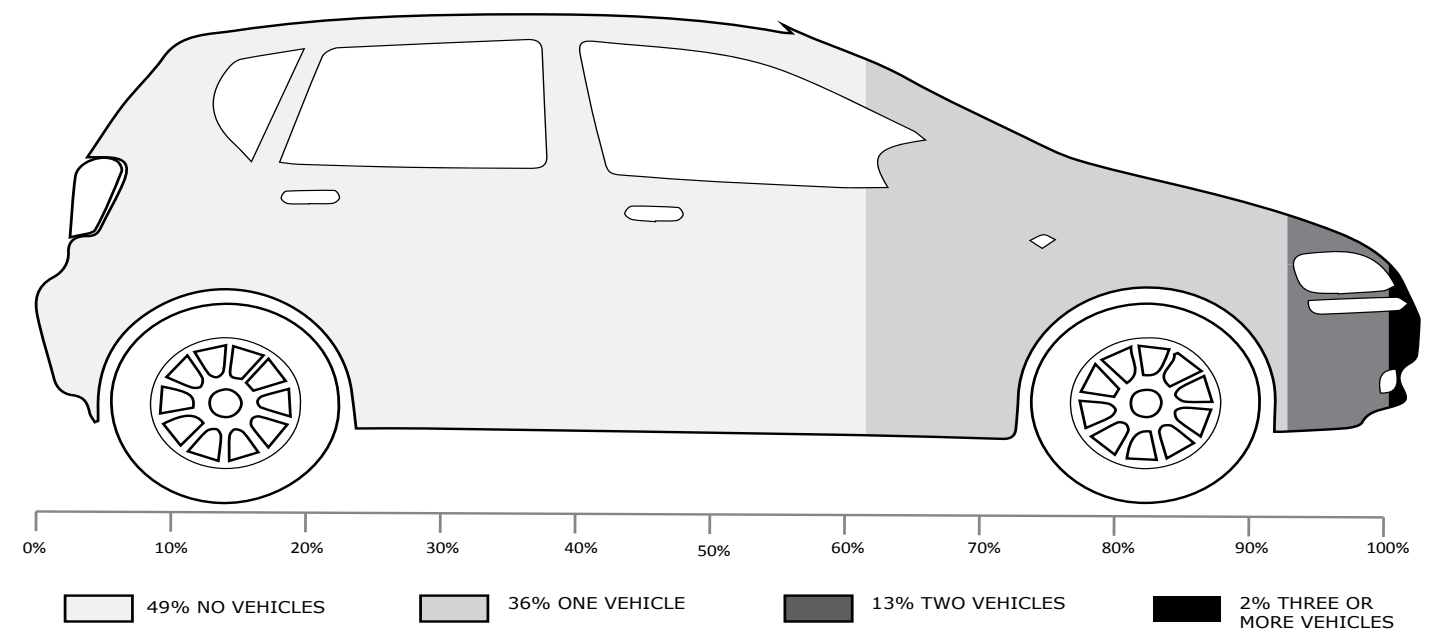
Approximately 30 percent of residents in the Hammels-Arverne-Edgemere NTA are living in poverty. This represents a much greater share of residents living in poverty than the rest of the peninsula and New York City (20 percent).

The median household income of residents of the Hammels-Arverne-Edgemere NTA is \$39,373. This is significantly less than the median incomes of residents of the Rockaway Peninsula (\$48,171), Queens (\$56,780) and New York City as a whole (\$51,865).



CAR OWNERSHIP

Half of the residents of the Hammels-Arverne-Edgemere NTA do not have access to a vehicle. This is ten percent lower than the rest of the peninsula and Queens. Of the residents that have access to a vehicle, thirty-six percent have access to one vehicle; thirteen percent have access to two vehicles, and two percent have access to three or more vehicles.



LAND USE CHARACTERISTICS

Much of the Study Area has retained its built form as a low-density residential neighborhood with considerable area dedicated to open space. However, the introduction of public and subsidized housing in the latter half of the 20th century resulted in the demolition of many of the original construction in the area (bungalows), making way for the development of several superblocks of large apartment complexes and adding significant density to the area. Not all of the demolished land was redeveloped, however, and a sizeable portion remains vacant. Finally, there is a notable lack of retail and commercial activity in the area.

Today, almost half (47 percent) of the total area in the Study Area consists of open space. This is largely made up of parks and marinas along the Jamaica Bay waterfront, as well as several smaller playgrounds associated with NYCHA complexes. Nearly 30 percent of the remaining area is made up of housing: 16 percent one and two family buildings, and 11 percent multifamily buildings, the majority of which are part of the three NYCHA complexes in the Study Area. Transportation and utilities as well as public facilities and institutions each make up only four percent of total lot area. The one percent of lot area that consists of manufacturing and industrial uses is located primarily along the waterfront and/or Rockaway Freeway. Thirteen percent of the Study Area is vacant.

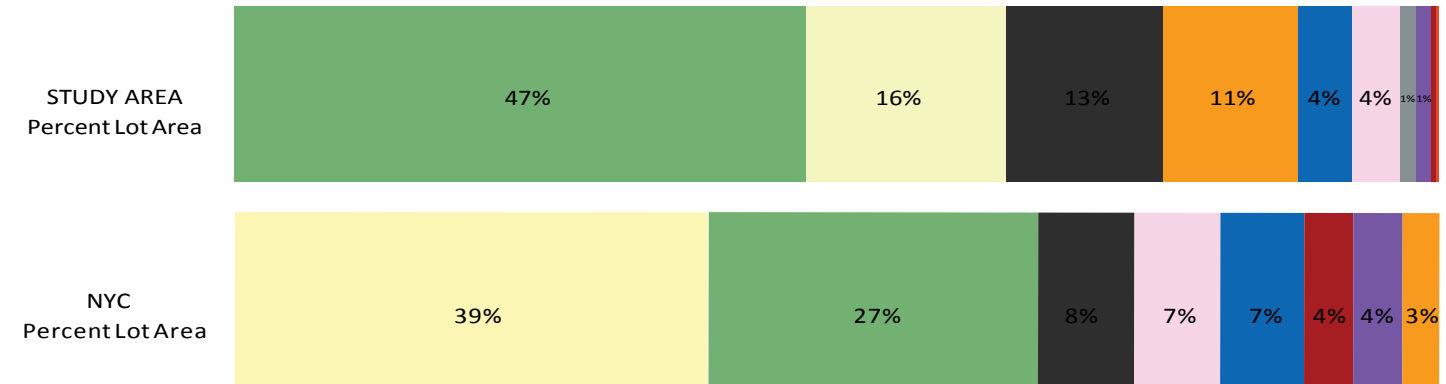
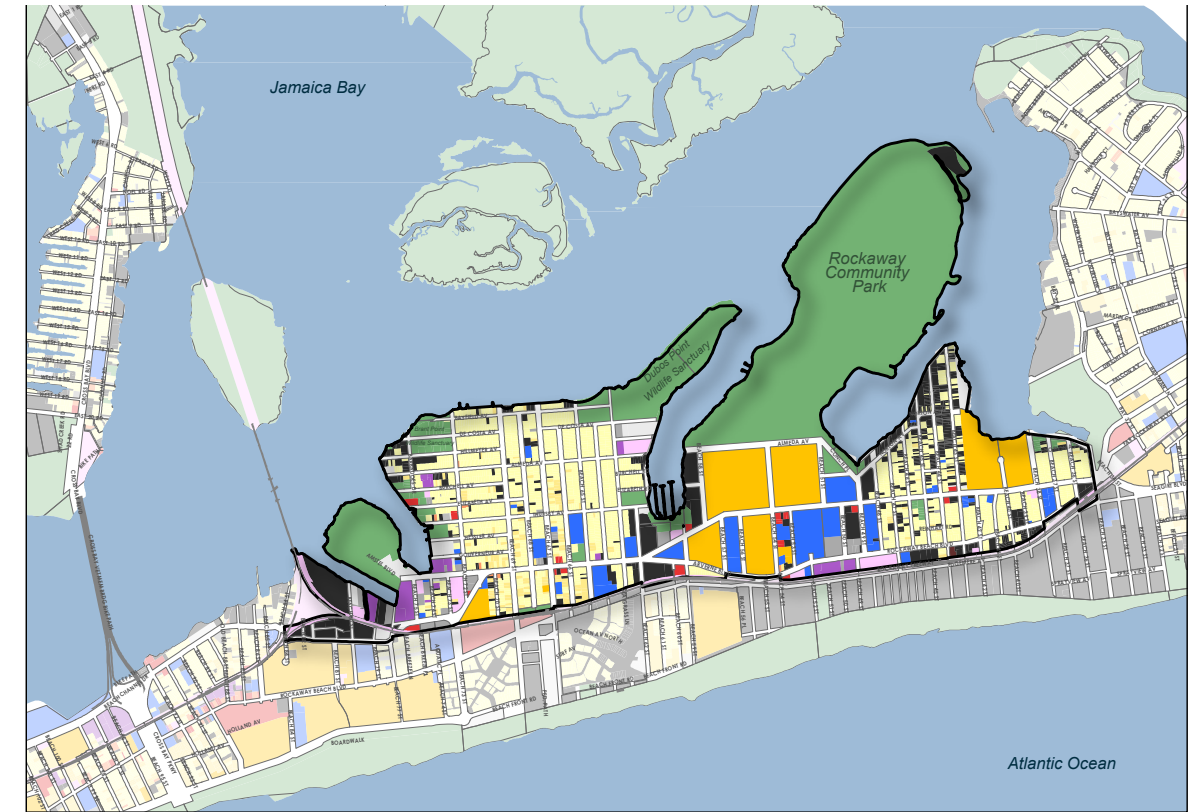
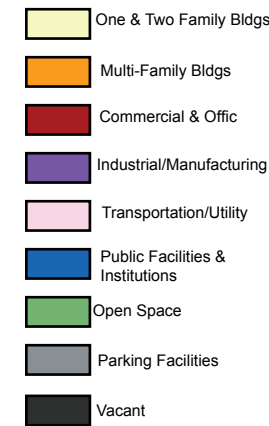
Nearly 80 percent of the built area consists of housing, which is split almost evenly between lower-density and higher-density typologies. Public facilities and institutions make up 14 percent of the built area; this is significantly more than the rest of Rockaway Peninsula and New York City as a whole. Two percent of the built area is associated with industrial and manufacturing uses, with one percent each for commercial and office use and transportation and utility uses.

ZONING

In 2008, the City Council adopted the Rockaway Neighborhoods Rezoning a Department of City Planning-initiated rezoning for all or portions of 280 blocks on the Rockaway Peninsula in an area generally extending from Beach 129th Street to the Queens-Nassau border. The rezoning established lower-density and contextual zoning districts (R3A, R3X, R4, R4A, R4B, R4-1, R5, R5A, and R5B) to protect and reinforce the existing scale of neighborhoods, introduced modest increases in density (R5D, R6A, R7A and C4-3A) in select locations close to public transit to spur investment and redevelopment, and updated commercial overlays throughout the peninsula to allow for more retail and commercial opportunities along primary streets.

As a result of the 2008 rezoning, one third of the Study Area is primarily zoned for low-density residential development. These R4, R4-1 and R4A districts are characterized by one- and two-family detached semi-detached and attached buildings, and make up 14, 12, and 5 percent of the Study Area, respectively. Approximately ten percent of the area is zoned for a slightly higher residential density, with eight percent zoned R5, one percent R5A and the remaining one percent R5D. These districts support multi-family homes, three-story attached residences and small apartment houses. Located in the western portion of the Study Area adjacent to the elevated A train, five percent of the Study Area is zoned M1-1 for light manufacturing uses. C3 districts, allowing for waterfront recreational activities like boating and fishing, are mapped along Barbadoes, Vernam, Somerville and Conch Basins and make up two percent of the Study area. Several lots along Rockaway Beach Boulevard are zoned C4-3A and C8-1, allowing for specialty department stores, theaters, commercial office uses and heavy commercial services such as automobile showrooms and repair shops, respectively. Roughly 45 percent of the Study Area area is mapped as parkland.

Map 3: LAND USE



BUILDING TYPE	ROCKAWAY STUDY AREA	NEW YORK CITY
One & Two Family Buildings	39%	27%
Multi-Family Buildings	41%	12%
Commercial & Office Building	0%	4%
Industrial/Manufacturing	1%	4%
Transportation & Utility	2%	7%
Public Facilities & Institutions	13%	7%
Open Space	1%	27%
Parking Facilities	2%	1%
Vacant Land	0%	6%

OWNERSHIP

A significant portion of the land in the Study Area is publicly owned. Though just 15 percent of the total number of lots are owned by a public entity, this represents nearly 70 percent of the total lot area within the Study Area. Much of this lot area is dedicated to open space under the jurisdiction of the NYC Department of Parks and Recreation (385 of the total 820 acres). A significant portion of this open space is mapped parkland located along the Jamaica Bay shoreline.

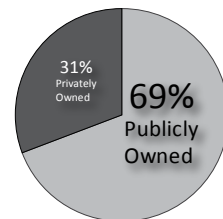
Housing agencies account for nearly one quarter of the public land ownership in the Study Area. Three percent of buildings, thirty-six percent of built area and forty percent of residential units are owned by a public entity. Three New York City Housing Authority (NYCHA) developments, the Ocean Bay Apartments, Beach 41st Street Houses and Carlton Manor, make up 12 percent of the publicly owned area in the Rockaway Study Area and account for the bulk of the built area and residential units. In addition, the Department of Housing Preservation and Development (HPD) owns 12 percent of the publicly owned land in the Study Area; this is concentrated in, but scattered throughout the Edgemere Urban Renewal Area.

VACANCY

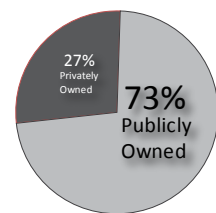
In addition to mapped parkland and open space under the Department of Parks and Recreation's jurisdiction, there is also a significant amount of vacant land in the Study Area. Much of this land is either located along the waterfront or Rockaway Freeway, and much of it is publicly owned. Approximately 80 percent of all of the vacant land within the Study Area is zoned for residential purposes (29 percent R6; 22 percent R4; 19 percent R4-1; 4 percent R5; 3 percent R5D; 3 percent R4A; 1 percent R5A). Of the remaining lot area, 13 percent is zoned for manufacturing (M1-1), and 6 percent is zoned commercially (3 percent C3; 3 percent C4-3A).

Nearly three quarters of the 106 acres of vacant land in the Study Area is publicly owned, and approximately 70 percent of this land is under the ownership of the Department of Housing Preservation and Development. The majority of this land is located within the Edgemere Urban Renewal Area, which contains 63 percent of the vacant, publicly-owned land and nearly half of the total vacant land in the Study Area. Of the vacant land in the Edgemere URA, 61 percent is zoned R4, 10 percent is zoned R4-1, and 8 percent is zoned R6. The remaining 6 percent is zoned commercially: five percent is zoned C4-3A and one percent is zoned C3. Another large, vacant urban renewal area sits directly to the south of the Study Area.

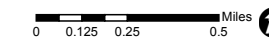
PUBLICLY OWNED LAND IN STUDY AREA



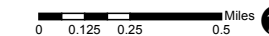
PUBLICLY OWNED VACANT LAND IN STUDY AREA



Map 4: PUBLICLY OWNED LAND



Map 5: VACANT LAND



HOUSING

According to data from the 2010 Census, there are a total of 7,849 housing units in the Study Area, of which 92 percent are occupied.

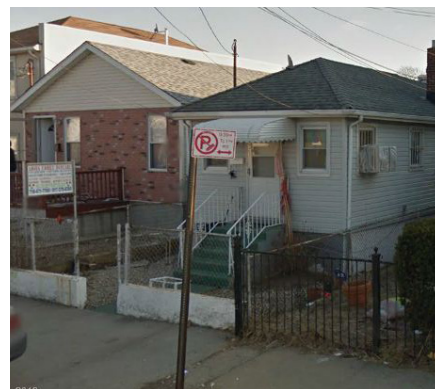
A wide range of housing types including detached, semi-detached and attached residences as well as large apartment buildings can be found here. Of the built environment that characterizes the Study Area today, approximately seven percent of homes and four percent of residential units were built in the late 19th and early 20th century (1890-1919). This construction is clustered in the middle of what is now the Edgemere Urban Renewal Area, as well as the southwestern section of the study area. Approximately 20 percent of structures and ten percent of housing units were built in the 1920s; these are a mixture of one-story bungalows and multi-story Queen Anne style homes.

Following the Housing Act of 1949, the Study Area experienced significant development and increased density. Approximately ten percent of structures, primarily two story semi-detached split level homes concentrated along the Somerville Basin coastline, were built during the 1950s. The 1960s saw the continuation of this pattern of development, filling in multiple blocks of eastern Somerville and the western portion of the Edgemere Urban Renewal Area. Two NYCHA developments, Hammel Houses and Ocean Bay Apartments, were opened, adding significant density to the area. Fourteen percent of buildings and 42 percent of residential units were constructed during this time period.

Development slowed in the following decades. The NYCHA Beach 41st Street Houses were opened in the 1970s, there was little to no development in the 1980s, and the 1990s saw the production of roughly 100 buildings and 182 (three percent) housing units.

While housing construction was relatively static for decades, the area experienced a major surge in new building since 2000. Approximately 576 buildings containing 1,071 units were constructed since 2000. This represents 27 percent of buildings and 16 percent of total housing units in the Study Area.

Like the eastern end of Rockaway Peninsula, the Study Area contains a significant amount of public and subsidized housing. Federal financing as a result of the Housing Act of 1949 initiated large-scale demolitions of “blighted” neighborhoods across the city to make way for new development. In the following decades, more than 300 acres of the Rockaways were demolished, four areas were designated for Urban Renewal, and 52 NYCHA and six Mitchell Lama buildings were erected. The Study Area contains one Urban Renewal Area (the Edgemere URA) and three NYCHA developments (the Ocean Bay Apartments, Beach 41st Street Houses and Carleton Manor/Hammel). Approximately 23 percent of residents and 22 percent of housing units in the Study Area are located within the Edgemere URA, while 25 percent of residents and nearly 40 percent of housing units are located within the NYCHA complexes.



URBAN RENEWAL

The Edgemere Urban Renewal Area (URA) is generally bounded by Conch Basin, Beach Channel Drive, and Norton Basin on the north, Beach 35th Street on the east, Beach Channel Drive, Rockaway Beach Boulevard and the northern boundary of the Rockaway Freeway on the south, and Beach 51st and Beach 49th Streets on the west. It is approximately 99 acres in size. According to 2010 Census Data, the Edgemere URA contains 1,762 housing units and a population of 5,235. Approximately 40 percent of the total lot area is city-owned while 60 percent is privately owned. One third of the lot area in the URA is vacant.

The Edgemere Urban Renewal Plan was originally adopted in 1997 to facilitate the construction of up to 800 dwelling units and up to 100,000 square feet of commercial floor area on the Rockaway Peninsula. Revised in 2008 and expiring in 2037, the Plan promotes the development of residential, commercial, community facility, and public space uses, with new infrastructure including street widening and realignment in some areas. Scattered-site infill housing was planned as primarily two-story, two-family houses as well as a mixture of detached and semi-detached houses with one parking space provided for each unit. Units would be reserved for moderate to middle income households, with annual income between \$32,000 and \$71,000. To date, 214 1-3 family homes containing 319 units have been constructed.

Phase A of the Edgemere URA Plan was completed in March 2004. Developer Randy Lee produced 79 primarily two-family homes containing 147 units in the area bounded by Beach 39th Street to the west, Norton Basin to the north, Beach 35th Street to the east and Rockaway Freeway to the south. Phase B was completed in January 2008 by Hudson Companies, which produced 112 two to three family homes containing 143 units in the area bounded by Beach 45th Street to the west, Beach Channel Drive to the north, Beach 40th Street to the east and Rockaway Beach Boulevard to the south. Complaints were received about the poor quality of construction, and several homes were severely flooded during Hurricane Sandy. Phase C, which includes a development program of 248 units is currently stalled.

The URA Plan permits the development of up to 100,000 gross square feet of retail uses on six different sites, including a 50,000 square foot supermarket, and a replacement for a Human Resources Administration (HRA) day care center. The plan includes almost 13 acres of park and open space mostly adjacent to Norton and Conch Basins, as well as infrastructure improvements including new sanitary sewers and a storm-water outfall at Beach 45th Street and Conch Basin. The Department of Design and Construction's infrastructure work is nearly complete.

Like the Edgemere URA, the neighboring Arverne URA to the south has recently seen significant development. Arverne by the Sea, an on-going mixed-use development in the long vacant Arverne Renewal Area, is slated to produce up to 2,300 subsidized condominium units as well as a community center, school and retail space. The development includes six phases of two family homes and a phase of mid-rise condos, as well as a community center, supermarket, school and retail area. Designed by Ehrenkrantz Eckstut & Kuhn Architects and developed by Benjamin Companies and Beechwood Organization, the development included a variety of measures designed to mitigate flooding including raised elevation, dune protections and drainage.

Arverne East, a 90 acre portion of the Arverne URA adjacent to Arverne by the Sea, has the goal of building 1,600 units of middle-income units. Though developers were designated in 2005, the approved plan was stalled due to the financial crisis and is now being reevaluated in light of the new FEMA flood maps.

NYCHA

There are three NYCHA campuses located within the Study Area: Carlton Manor, Beach 41st Street Houses and Ocean Bay Apartments. Constructed between 1961 and 1973, they house a cumulative population of 5,683 residents in 2,260 apartments. Together, these 29 buildings span 48.6 acres.

Ocean Bay Apartments

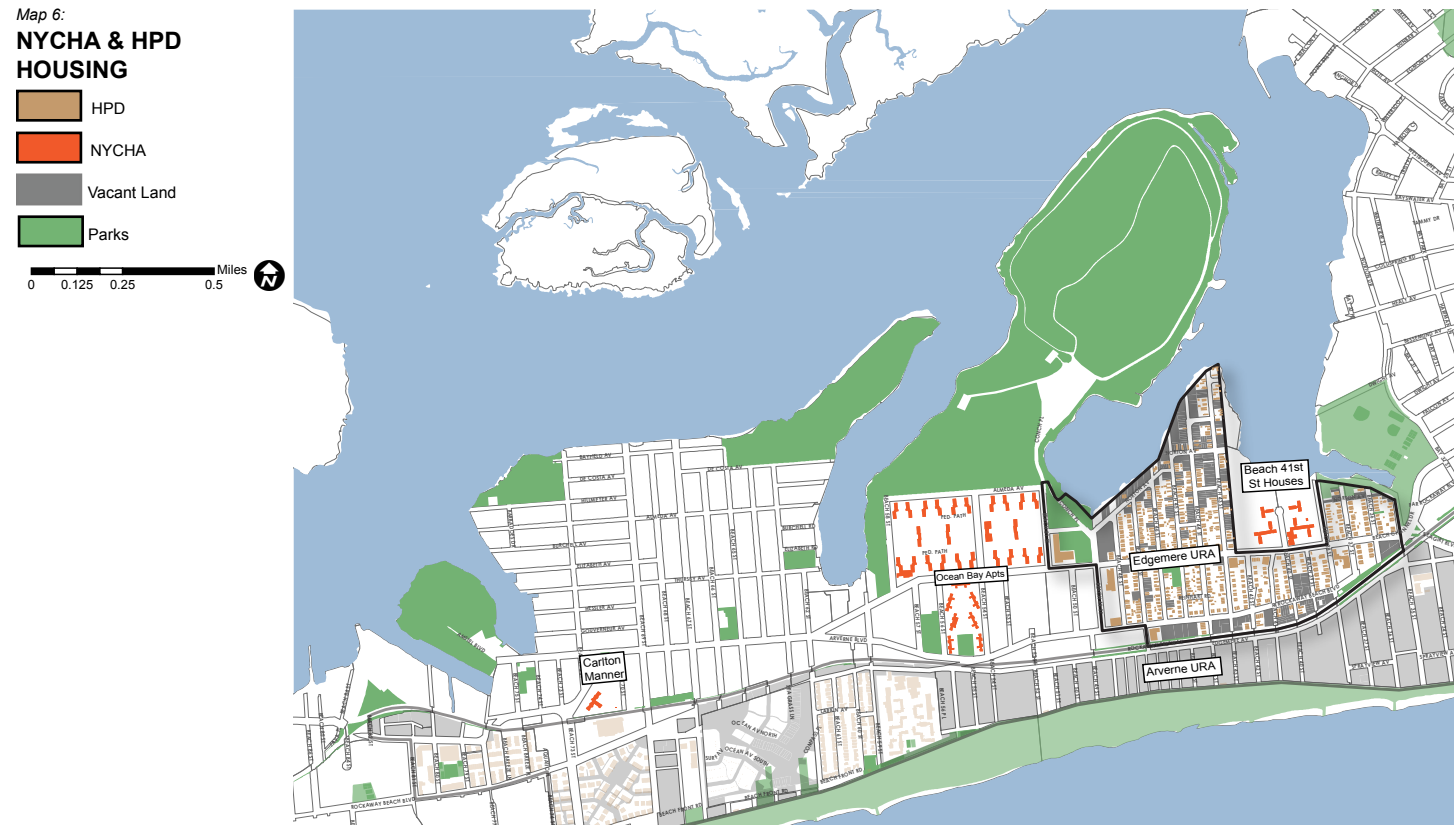
Location: Beach 51st & Beach 58th Streets, Alameda Avenue, & Beach Channel Drive
Constructed: 1961
Size (acres): 32.3
Buildings: 24
Stories: 7-9
Apartments: 1,378
Population: 3,623

Beach 41st Street Houses

Location: Beach 38th & Beach 41st Streets, Norton Avenue & Beach Channel Drive
Constructed: 1973
Size (acres): 13.3
Buildings: 4
Stories: 13
Apartments: 712
Population: 1,697

Carlton Manor

Location: Rockaway Freeway, Beach Channel Drive
Constructed: 1967
Size (acres): 3
Buildings: 1
Stories: 11
Apartments: 170
Population: 363



INFRASTRUCTURE

TRANSPORTATION

Roads: Beach Channel Drive is a main thoroughfare of the Rockaway Peninsula. It extends from the Marine Parkway Gil Hodges Memorial Bridge at Jacob Riis Park to the border of Nassau County at Inwood. Carrying one lane of traffic in both directions (east-west), the road follows the shoreline of Jamaica Bay on the western end of the peninsula and cuts south to run through the middle of the peninsula in the Hammels, Arverne and Edgemere neighborhoods. The entirety of Beach Channel Drive has been designated a through truck route by the New York City Department of Transportation.

Rockaway Freeway is a major east-west road extending from roughly Beach 108th Street to the border of Nassau County at Inwood. For much of its extent, Rockaway Freeway runs parallel and to the south of Beach Channel Drive. The roadway is situated below the elevated A train and opposing traffic flows are separated by a raised island and support columns for subway.

Subway, Bus and Train Service: The A train connects Rockaway Peninsula to the rest of New York City. It is the longest line in the Metropolitan Transit Authority (MTA) system, spanning 31 miles from Far Rockaway to Inwood in Manhattan. There are four stations within the study area: Beach 67th Street, Beach 60th Street, Beach 44th Street and Beach 36th Street. There is also a Far Rockaway Long Island Railroad Station several blocks away from the Study Area at Nameoke Street and Redfern Avenue. Several bus lines also service the Study Area. The Q22 is routed east to west along Beach Channel Drive and travels the length of the peninsula. The QM17 carries riders to midtown Manhattan via the Cross Bay Bridge.

Bike Lanes: There are two-way standard curbside bike lanes on Beach Channel Drive beginning at Beach 73rd Street and continuing through the length of the Study Area. There are north/south arterial two-way feeder lanes at Beach 69th and 73rd Streets.

Ferry Service: In partnership with EDC, the Seastreak began operating a temporary week- day ferry service after Hurricane Sandy from Beach 108th Street to the Brooklyn Army Terminal, Pier 11/Wall Street, and East 34th Street/FDR. This service is currently suspended.

SEWER AND POWER

Like much of the rest of the city, the Study Area has aging and vulnerable infrastructure. The separated storm and sanitary sewer systems that serve the Rockaway Peninsula are operated and maintained by the New York City Department of Environmental Protection (NYC DEP). Storm water and sewage is treated at the Rockaway Wastewater Treatment Plant, which has been in operation since 1952 and has a design capacity of 45 MGD. The plant services 90,474 people and has a drainage area of 6,259 acres. Jamaica Bay is the receiving water body.

The Rockaway Peninsula is currently served by the Public Service Electric And Gas Company Long Island (PSE&G Long Island). It was previously served by the Long Island Power Authority (LIPA), which continues to maintain ownership over the infrastructure and equipment while PSE&G serves as management and operation.

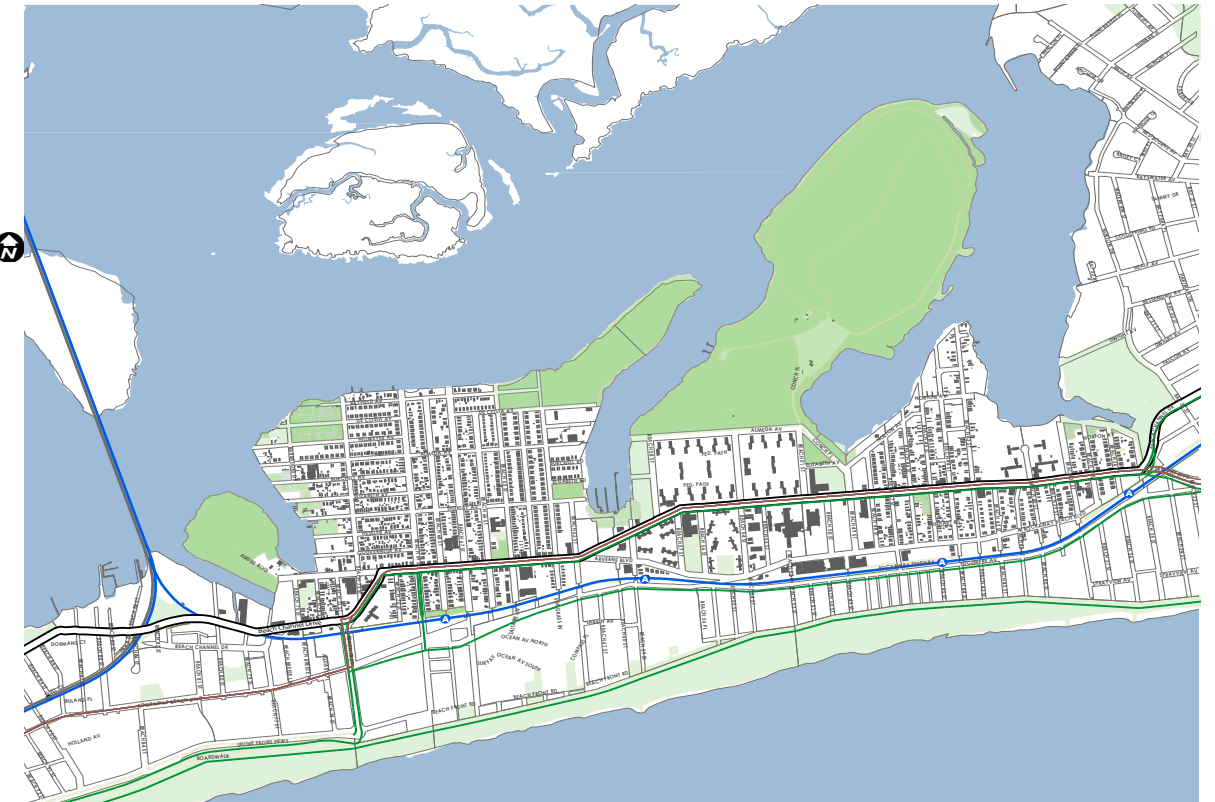
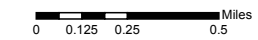
PARKS AND OPEN SPACES

The Study Area is adjacent to Jamaica Bay, an 18,000-acre wetland estuary to the north of the Rockaway Peninsula. Comprising an area almost equal to that of Manhattan, the bay consists of numerous islands, waterways, meadowlands and two freshwater ponds. As part of the Gateway National Recreation Area, it is administered by the National Parks Service and serves as an integral part of the regional ecosystem.

Several natural and restored areas along the bay are administered by the Parks Department. These include Brant Point Wildlife Sanctuary at Vernon Basin and Dubos Point Wildlife Sanctuary. Rockaway Community Park, which projects into Jamaica Bay and is bounded by Somerville Basin on the east and Grass Hassock Channel to the west, provides several active recreational facilities including baseball fields, basketball, tennis and handball courts, and a cricket pitch.

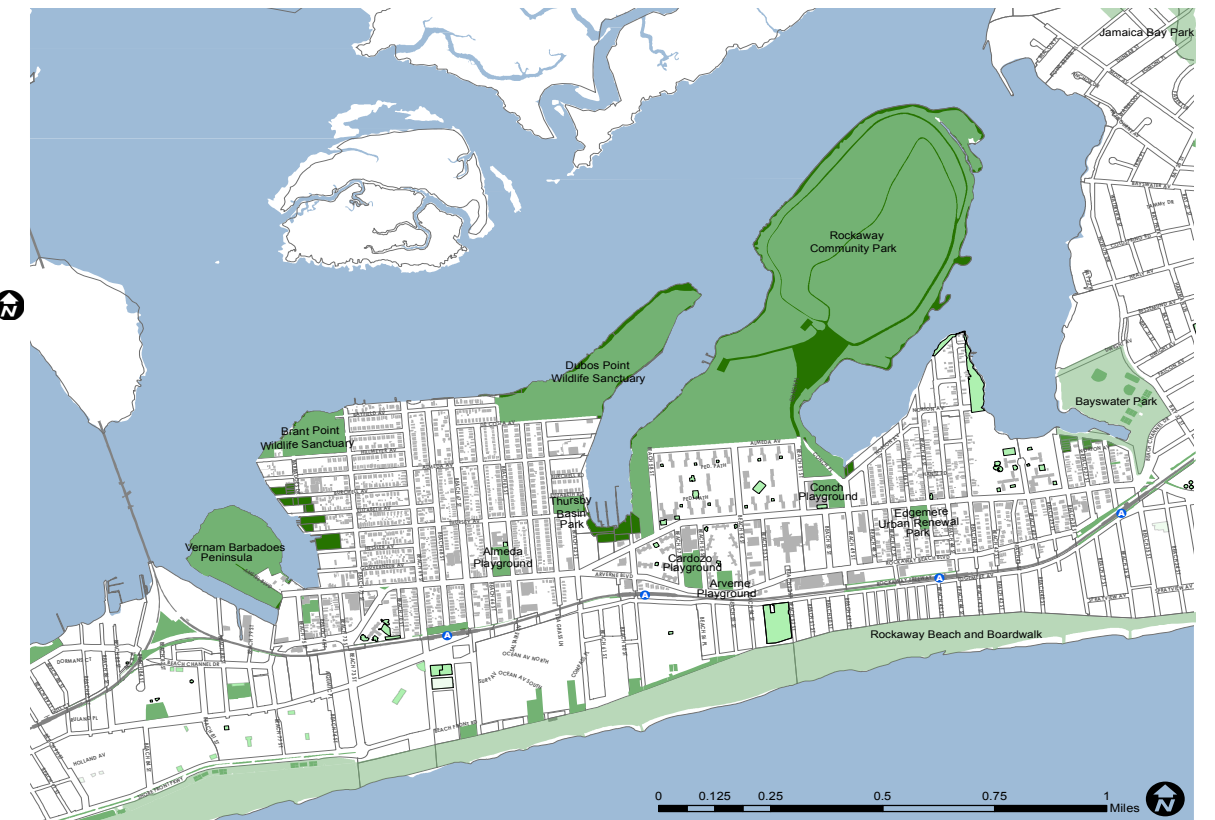
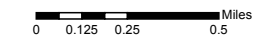
Map 7:
TRANSPORTATION

- Major Roads (Beach Channel Drive)
- Subway (A)
- Bus (Q22;QM17)
- Bike Lanes



Map 8:
PARKS & OPEN SPACES

- Parks
- Recreational Areas
- Open Spaces



DATA SOURCES

The following list is a compilation of governmental databases and regulatory programs that are associated with the management of hazardous materials. These records are publicly accessible, and indicate potential contamination in a given area and help communities maintain awareness of environmental issues in their neighborhood. In addition to Sanborn Fire Insurance maps and records kept by the New York City Department of Buildings, the following resources also contribute to the site histories found in the Strategic Site profiles.

The use and storage of petroleum and other hazardous materials is common in industrial areas. Improper handling and storage of petroleum and hazardous chemicals can result in leaks and spills, and thus poses a threat to environmental quality and health. These risks include fire or explosion, noxious odors and/or fumes, and potential soil and groundwater contamination.

New York State Bulk Storage Program

Tanks storing petroleum and hazardous chemicals must meet minimum standards established by the United States Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (DEC). New York's Hazardous Substances Bulk Storage Program (including Petroleum Bulk Storage and Chemical Bulk Storage programs) provides guidelines and controls for the storage of many different hazardous chemicals including petroleum products.

Petroleum Bulk Storage (PBS)

The NYS Petroleum Bulk storage Program regulates tanks at facilities with a cumulative storage capacity of more than 1,000 gallons.

Chemical Bulk Storage (CBS)

The NYS CBS program regulates aboveground storage tanks with a capacity of 185 gallons or more, all underground storage tanks regardless of capacity, and all non-stationary tanks.

New York State Spill Incidents Database

A "spill" is an accidental or intentional release of petroleum or other hazardous materials. The database records spill incidents, including such information as material spilled, resource affected, amount spilled in gallons or pounds, and the name of water body affected by spill.

New York City E-Designations

Changes in zoning are subject to an environmental review pursuant to state and local law. An (E) designation is a zoning map designation that provides notice of the presence of an environmental assessment requirement pertaining to potential hazardous materials contamination, noise or air quality impacts on a particular tax lot where new construction or land use change is planned. Planned development of E-designated properties requires coordination with the Mayor's Office of Environmental Remediation.

The following resources and records were the primary sources involved in the compilation and evaluation of strategic sites.

Sanborn Fire Insurance Maps

These maps, produced by the Sanborn Map Company since 1867, include information about built structures such as building footprint, construction materials, and use of structures. The maps identify materials known to be fire accelerants, and show all pipelines, railroads, wells, dumps, and heavy machinery in an area.

NYC Department of Buildings

The Department of Buildings maintains records of all construction activity, job filings, violations, complaints and certificates of occupancy for a particular address.

CEQR Hazardous Materials Appendix

The City Environmental Quality Review (CEQR) Technical Manual maintains a list of activities, facilities, and conditions that, if present on or adjacent to a site, trigger the requirement of an environmental assessment preceding new development. In CEQR, these "hazardous materials" are generally defined as any substances that pose a threat to human health or the environment.

3. ENVIRONMENTAL CONDITIONS

INTRODUCTION

This section explores the geologic and historic setting that informs the environmental conditions of the Hammels, Edgemere and Arverne neighborhoods. Community brownfield planning programs aim to enhance a community's understanding of its environment and empower residents to make more informed decisions about the future of their neighborhood. Part of that process includes the identification of historic and current contamination issues, as well as the selection of strategic sites that may ultimately be remediated and redeveloped. The following chapter will provide an overview of geologic conditions in the Study Area that may contribute to contamination, discuss historic resources and available data for the area, and provide a synopsis of local environmental trends. It will conclude with strategic site profiles that encompass current and historic land uses and addresses any evidence of noxious or hazardous materials on site.

As a primarily residential area, the Rockaway study area does not suffer from extensive environmental contamination from current or historic noxious land uses. There are, however, small concentrations of active industrial activity along the waterfront including boat storage and repair, cement manufacturing, and the storage of construction equipment. Petroleum and oil storage sites are also located throughout the area. The Office of Environmental Remediation's SPEED (Searchable Property Environmental Electronic Database; www.nyc.gov/speed) portal revealed:

- 9 Open Petroleum Spill Locations**, primarily clustered in the industrial pocket in the western part of the study area but also present in the NYCHA apartment complexes
- 22 Petroleum Bulk Storage sites** lining Arverne Boulevard and Beach Channel Drive, the industrial waterfront, and around several of the larger buildings in the study area including NYCHA campuses and public institutions such as hospitals and day care centers
- 18 E-designations** for hazardous materials and air quality also clustered along the major thoroughfares in the study area.

There is also a significant amount of vacant land in the Study Area that is susceptible to illegal dumping and the unregulated storage of hazardous materials.

Finally, the waterfront areas and Jamaica Bay represent a significant environmental asset to the Study Area. As an extremely low-lying coastal area, however, the area has a high flood risk. The following section will include a summary of the impact of Hurricane Sandy on the Study Area, a discussion of the evolving regulatory framework concerning construction in the floodplain as well as a summary of ongoing resiliency initiatives in the area.

GEOMORPHOLOGY

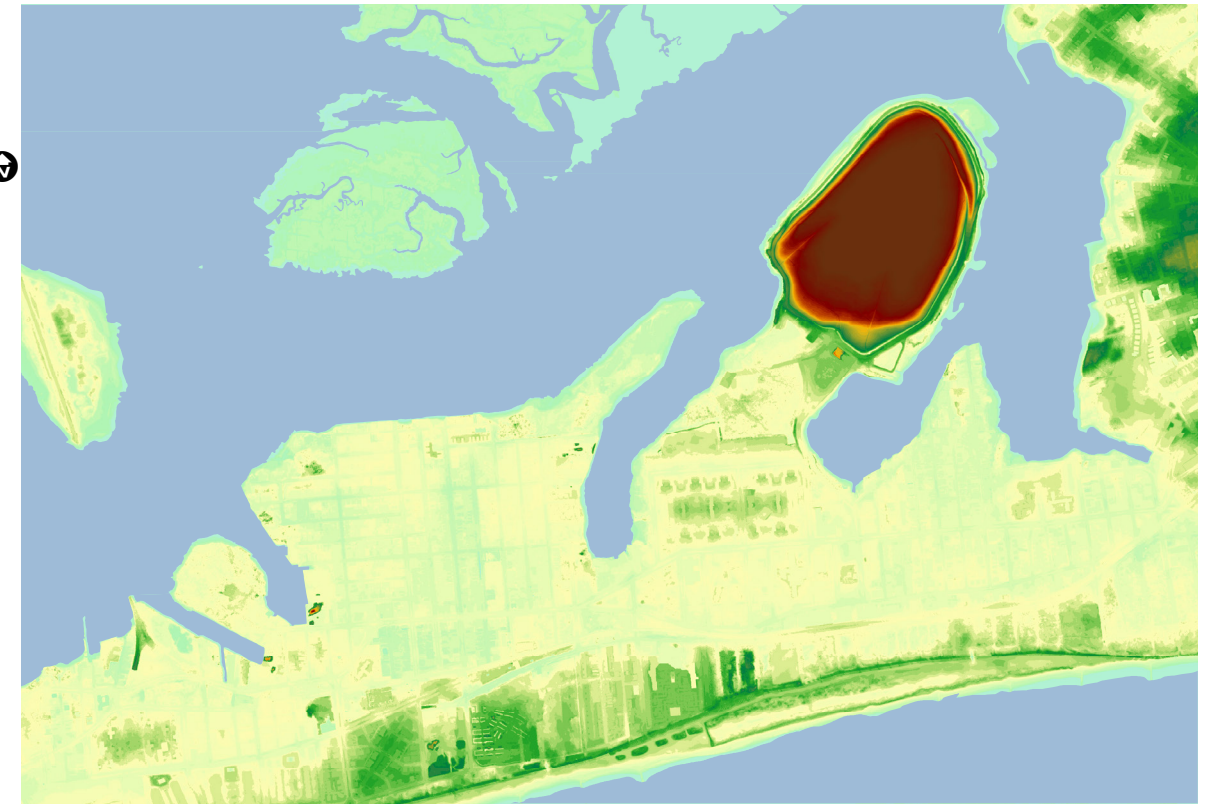
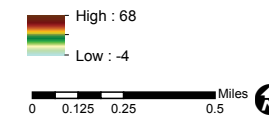
Formulated by geologic forces over the past 10,000 years, the Rockaway Peninsula is an approximately eleven-mile long post-glacial barrier beach protecting Jamaica Bay, a series of tidal estuaries off the southern shore of Long Island. Created over thousands of years of coastal depression and erosion along the eastern portion of Long Island, the beach was formulated by sand masses moving westward along the shoreline at a rate of approximately half a million cubic yards per year. The current topography and landscape of the peninsula is not static and continues to evolve today, both naturally and through anthropomorphic intervention. The United States Army Corps of Engineers constructed a beach 100 feet wide and ten feet above sea level on the ocean-facing side of the peninsula in the 1970s, and is currently undertaking the second phase of post-Sandy beach renourishment, which will add over three million cubic yards of sand to the area. The bay-facing side of the peninsula, however, contains some of the most low-lying land in New York City and is highly vulnerable to coastal flooding and other risks associated with sea level rise and climate change. Existing coastal infrastructure is sporadic and decaying.

JAMAICA BAY

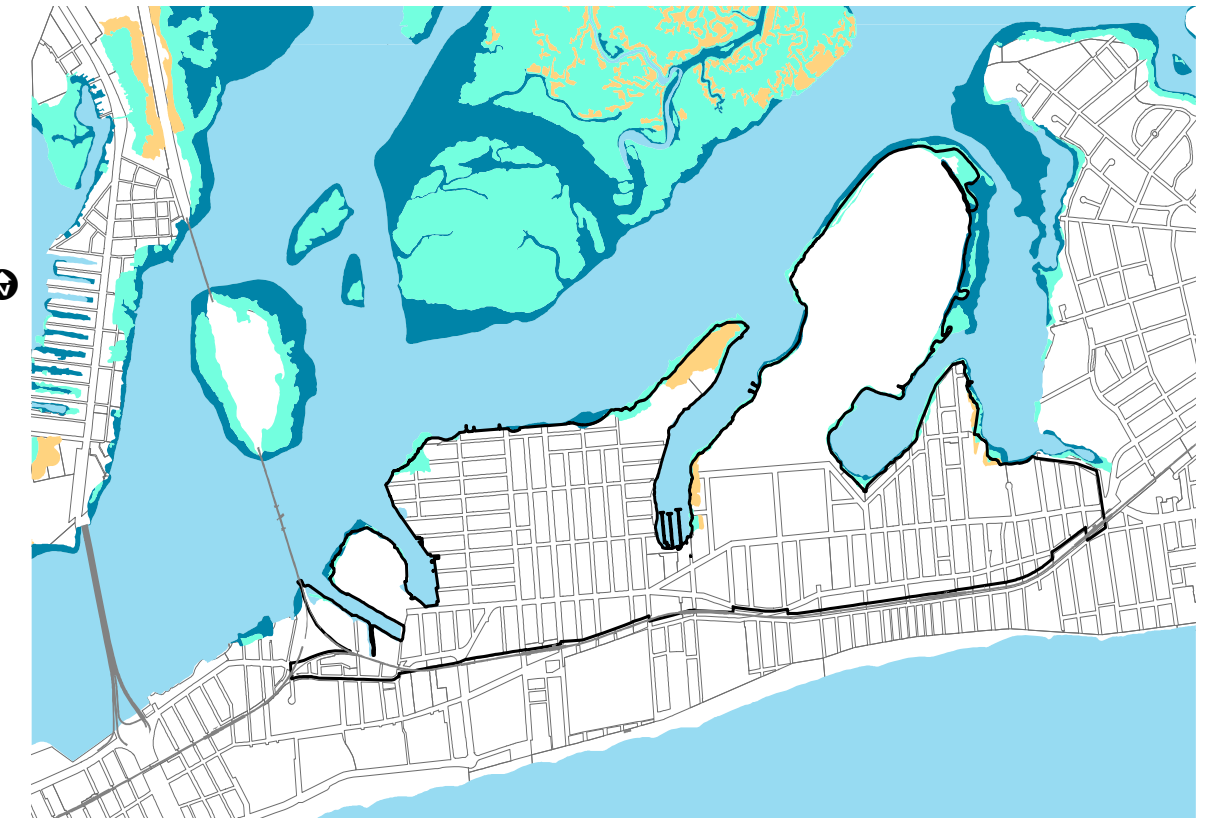
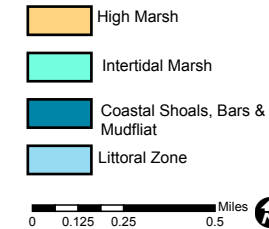
Jamaica Bay originally contained some 25,000 acres of marshland protected from the ocean by the Rockaway Peninsula. These salt- and fresh-water coastal marshes fostered a rich and extensive estuarine ecosystem that once supported large commercial oyster and clam fisheries as well as a diverse piscine and avian wildlife population. Urbanization, dredging and filling beginning in the late 1800s, however, has caused the destruction of almost half of this wetland area. Though plans to develop Jamaica Bay as a seaport were never realized, channels as wide as 1,500 feet and 40 feet deep were dredged. The New York State Department of Environmental Conservation gained regulatory authority over the wetland area in 1974 and multiple city, state and federal agencies have been involved in efforts to preserve and restore the critical ecosystem.

Administered by the New York City Department of Environmental Protection (NYCDEP), the Jamaica Bay Waterfront Protection Plan was put into action in 2007 and serves as a blueprint for the future management of the Bay and its watershed. The Plan addresses water quality, restoration ecology, stormwater management through sound land use and public use, and includes recommendations for the implementation of hard and soft infrastructure projects, innovative pilot studies, regulatory initiatives and public outreach efforts. The marshland of Jamaica Bay, however, continues to experience significant degradation and destruction due in large part to sea-level rise and pollution. According to projections from Columbia's Earth Institute, it is estimated that if current trends continue, the remaining salt marsh within the Bay will be lost over the next three decades.⁵

Map 9
ELEVATION



Map 10:
TIDAL WETLANDS



4. FLOOD RISK & RESILIENCY

HURRICANE SANDY

Hurricane Sandy was a stark reminder of the vulnerability of coastal neighborhoods in New York City. As a barrier island, the Rockaway Peninsula is particularly vulnerable to storm events as it faces coastal flood risk from both the Atlantic Ocean and Jamaica Bay. Hurricane Sandy demonstrated that the peninsula can experience significant wave forces from the Atlantic Ocean as well as inundation from the low lying bayside.

Arriving at high tide in South Queens, the storm induced flooding that caused significant damage in the area. The inundation followed three paths: First, areas flooded when waves rose directly up over beaches and broke against the neighborhoods behind them. Second, floodwaters were funneled through the Rockaway Inlet, throughout Jamaica Bay and into the channels around the circumference of the Bay causing massive flooding in bayside neighborhoods. Finally, in some areas, inundation was caused by low-lying drainage infrastructure that did not have the capacity to handle the significant storm surge.

The greatest flood depths were recorded on the bay side of the peninsula due to the low elevation of the bay edge. The entirety of the Study Area suffered significant flooding except for the former Edgemere Landfill. While most properties experienced inundations of 3-5 feet, inundations of over 6 feet were recorded along the shorelines and in the more topographically depressed areas near the Somerville Basin. Though the NYCHA properties experienced a storm surge of less than three feet, both the Ocean Bay Apartments and Beach 41st Street Houses were severely damaged, and residents went without electricity and heat for weeks.

Sandy significantly impaired the transit infrastructure serving the Rockaway Peninsula including public transportation, roadways and bridges. The A train rail connection that adjoins the Rockaway Peninsula to Howard Beach was washed away, leaving approximately 35,000 daily riders without a direct rail link to the rest of Queens, Brooklyn and Manhattan. Though the MTA provided shuttle services as a stop-gap, full service along the A train line was not restored for nearly seven months. Automotive routes were significantly impaired as almost all major roads were flooded or blocked by debris; the Nassau Expressway was flooded, as were Beach Channel Drive and Cross Bay Boulevard. The Cross Bay Bridge was closed in advance of Sandy and did not reopen for several days.

South Queens and the Rockaway Peninsula suffered some of the most severe power outages in New York City. All four of the Long Island Power Authority (LIPA) substations supplying power to the Peninsula were damaged by floodwater and rendered inoperable. Approximately 34,000 customers went without power for eleven days. After this time, LIPA was able to restore power for the approximately 10,000 residents of Far Rockaway. Due to the extensive damage caused to both electrical infrastructure and buildings, the remaining 24,000 residents of the peninsula remained without power for months.

Though pumping stations on the eastern side of the peninsula sustained only minor damage, the Rockaway Wastewater Treatment Plant to the west was severely impacted by the storm. Sewage overflow mixed with floodwaters and inundated homes, compounding flood damage and creating an immediate health challenge.

The Joseph P. Adobo Family Health Center was severely impacted and unable to provide indispensable health care after the storm. Many schools also suffered damage and were unable to reopen in a timely manner. Additionally, recreational amenities and public spaces including community parks, beaches, and the boardwalk were decimated.

Surge flooding caused damage to a significant number of homes and buildings. One and two family homes, many of which were built before modern zoning and building codes took effect in the 1960's, were highly vulnerable to structural damage. According to FEMA's post-Sandy building assessments, 40 percent of these buildings were "affected"; 24 percent sustained "major damage"; 34 percent sustained "minor damage" and one percent were "destroyed." Large apartment buildings also suffered from flooding, which severely damaged ground-level mechanicals. Additionally, mold caused by water ponding and seepage posed a significant environmental health risk.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) and establishes premiums and standards for NFIP policies, which are sold to homeowners, renters, and business owners through private insurance agents. Standard homeowners' insurance does not include protection against flood damages. Properties with a federally backed mortgage located in the 1% annual chance floodplain are required to purchase flood insurance. For homes within the 1% annual chance floodplain there is at least a 1 in 4 chance of flooding during the life of a 30-year mortgage. Properties outside the 1% annual chance floodplain can also purchase flood insurance, but it is not mandatory.

FEMA is in the process of updating the city's Flood Insurance Rate Maps (FIRMs), which are used to establish insurance requirements and premiums. Prior to this update, FEMA had not substantially revised the FIRMs for New York City since they were first established in 1983, though the maps were minimally updated in 2007. For most areas of the city, the Preliminary FIRMs show a dramatic increase in the size of the 1% annual chance floodplain as well as the height of flooding from the 1% annual chance flood. Homes previously outside of the 1% annual chance floodplain that are now mapped within the floodplain on the Preliminary FIRMs may be required to buy flood insurance once these maps are finalized by FEMA in 2016. Those homes already within the floodplain where the Base Flood Elevation has increased on the Preliminary FIRMs may experience higher premiums for flood insurance over time. While the Preliminary FIRMs have been adopted by New York City for the purposes of the building code, FEMA is not expected to issue new Effective FIRMs for the purposes of flood insurance until 2016.

As the 100-year floodplain has expanded in size, there has also been an increase in the number of buildings in the floodplain—an increase of over 70 percent (from just over 11,000 to more than 19,000 buildings). Base Flood Elevations have increased 1 to 4 feet throughout the area.

Buildings in the Floodplain in NYC				
Buildings & Units	100-Year Floodplain			
	1983 FIRMs	2013 PWMs	Projected 2020s	Projected 2050s
Residential Buildings	10,810	18,790	20,030	20,560
Residential Units	25,400	42,600	45,000	46,500
Commercial and Other Buildings	350	640	690	700

Source: DCP PLUTO, FEMA

The Preliminary FIRMs are the best available flood hazard data for New York City. To ensure that structures are rebuilt using the best available information, the New York City Building Code now requires new and substantially improved buildings to use the Preliminary FIRMs (unless the Effective FIRMs are more restrictive) until the maps become effective in 2016. The Preliminary FIRMs (pFIRMs), however, are not used to guide the requirements of the National Flood Insurance Program. Following a comment period and opportunity for appeals, FEMA is expected to issue final Effective FIRMs in 2016, which will trigger the expansion of flood insurance purchase requirements.

The expansion of the flood zones as part of the flood map update process along with legislative changes to the NFIP will mean that more property owners will be required to purchase flood insurance and that many will see increases in flood insurance rates over time. The Biggert-Waters Flood Insurance Reform Act of 2012 was passed by the U.S. Congress in July 2012 with the goal of making the national program more financially stable by reducing the amount of public subsidy it requires. While subsequent legislation—the Homeowners Flood Insurance Affordability Act of 2014—slowed increases to premium rates, policyholders will face increased premiums over time that reflect the full risk to their properties. Property owners can qualify for reduced insurance premiums by bringing their building into full compliance with current standards for flood resistant construction.

Most of the Study Area was already included in the original mapping of the 100-year floodplain. All lots that were not included in the A Zone at this time other than the former Edgemere Landfill were in the V Zone. Almost all of the Study Area is included in the updated pFIRM 100-year floodplain except for a small portion of the NYCHA Ocean Bay Apartments complex (which is now included in the 500-year floodplain), and the former Edgemere Landfill. The A Zone was thus expanded approximately 20 blocks, encompassing approximately 400 buildings and 3,400 residents.

FLOOD ZONES

FEMA identifies different flood zones to differentiate potential flood risks. A, Coastal A zones and V zones are all part of the 100-year floodplain, or the area where there is 1% chance of flooding in any given year. Within this area, FEMA requirements for the mandatory purchase of flood insurance and NYC Building Code requirements for flood-resistant construction apply. Moderate flood hazard areas, labeled Shaded X Zone, are also shown on the FIRM and represent the 0.2-percent (or 500-year) flood

A Zone: A portion of the area subject to flooding from the 1% annual chance flood. These areas are not subject to high velocity wave action but are still considered high risk flooding areas. In A Zones, NYC Building Code requires buildings to be elevated or flood proofed based on the Base Flood Elevation identified on the FEMA's FIRMs. A Zones can also be shown as AE or AO on FEMA's FIRMs for New York City.

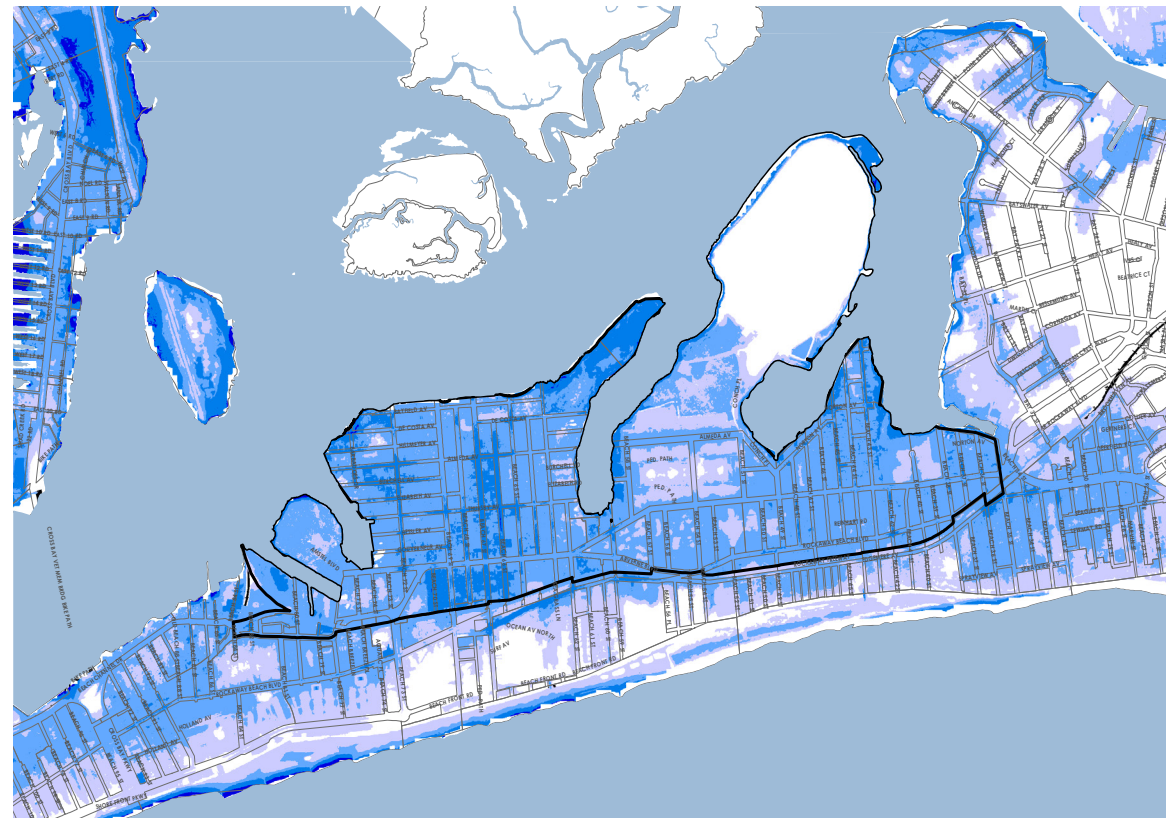
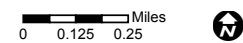
Coastal A Zone: A sub-zone of the A Zone where wave heights are expected to be between 1.5 and 3 feet high. This zone is indicated by the Limit of Moderate Wave Action (LiMWA) line on the latest FEMA FIRMs. This zone has been mapped by FEMA for the first time in New York City. Currently, the NYC Building Code requirements for Coastal A Zones are the same as for A Zones, however stricter standards for these zones will be enforced once the Preliminary FIRMs are finalized, anticipated in 2016.

V Zone: portion of the 1% annual chance floodplain subject to high velocity wave action (a breaking wave 3 feet high or larger). V Zones are subject to more stringent building requirements than other zones because of the damaging force of waves. V Zones can also be shown as VE on FEMA's FIRMs.

Shaded X Zone: The area of moderate flood risk outside the regulatory 1% annual chance flood but within the limits of the 0.2% annual chance flood level (the 500-year floodplain). There are no current NYC Building Code or FEMA flood insurance purchase requirements for buildings in this zone.

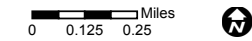
Map 11:
SANDY HEIGHT OF SURGE ABOVE GRADE

- < 3 Feet
- 3 - 6 Feet
- 6 - 10 Feet
- > 10 Feet



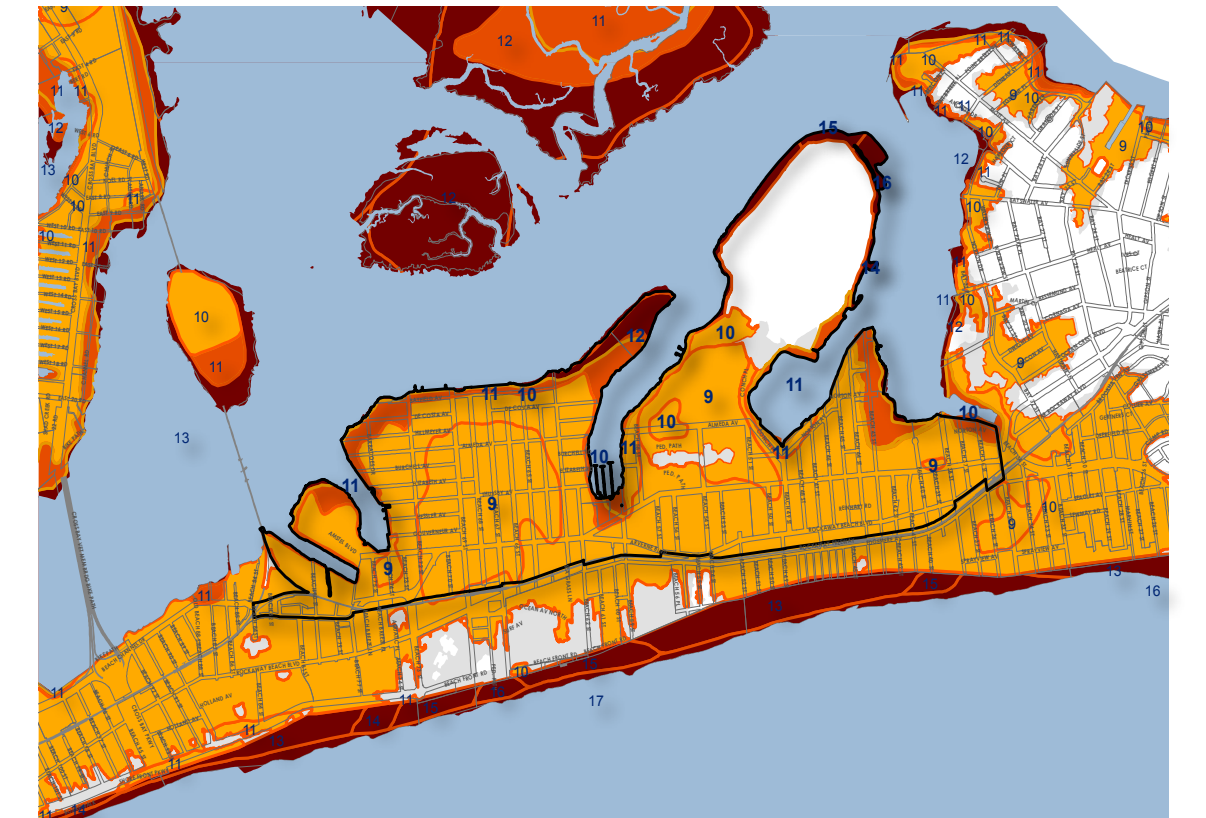
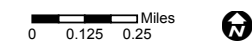
Map 12:
EFFECTIVE FLOOD INSURANCE RATE MAPS

- A; AE
- VE
- Shaded X



Map 13:
PRELIMINARY FLOOD INSURANCE RATE MAPS

- A; AE; AO
- Coastal A
- VE
- Shaded X



FLOOD RESILIENT CONSTRUCTION

FEMA's flood maps identify the expected height of flooding from the 1% annual chance flood for each zone, known as the Base Flood Elevation. The Base Flood Elevations are denoted in the datum NAVD 88, which represents the number of feet above mean sea level in that datum. This means that the BFE on FEMA's FIRMs is a measurement of height above a fixed point on the ground, not a measurement of flood height above the ground level or grade. In order to determine the height that a building must be raised above the ground, one must subtract the elevation of the ground from the BFE. The BFEs in the Study Area range from nine to thirteen feet; when ground elevation is subtracted, most of the study area falls within a range of three to seven feet.

NYC Building Code also requires an additional measure of safety, called freeboard. Freeboard is the practice of elevating a building's lowest floor above the Base Flood Elevation (BFE) by a small additional height, typically 1 to 2 feet above FEMA minimum height requirements, depending on building type (2 feet for single and two-family residences and 1 foot for most other buildings). The benefits of freeboard include an additional margin of safety to protect against more severe storms and increased future flood risks from rising sea levels. Additionally, FEMA recognizes that freeboard significantly reduces flood risk and provides substantial reductions in flood insurance premiums.

Flood-resistant construction standards are minimum requirements for construction of new buildings and substantial improvements in the 1% annual chance floodplain established by the FEMA and NYC Building Code. A building is considered substantially improved if the cost of the improvement exceeds 50% of the building's market value. These standards require that flood-resistant materials be used for parts of buildings that are susceptible to water damage, that certain buildings and equipment be elevated above anticipated flood levels and that buildings are designed to withstand the pressure of waves, when necessary. Federal standards allow only commercial or mixed-used buildings the option of "dry floodproofing," or sealing the building's exterior to flood waters and using removable barriers at all entrances below the expected level of flooding. Residential buildings are required to be elevated above expected flood levels. Flood-resistant construction standards are defined in Appendix G of the NYC Building Code and the American Society of Civil Engineers' Flood Resistant Design and Construction manual, referred to as ASCE 24.

In many instances, zoning regulations or conflicts between zoning and Building Code requirements can make it difficult, or in some cases impossible, for owners to build or retrofit to flood-resistant construction standards. Recognizing the need for additional flexibility, the Department of City Planning prepared the Flood Resilience Zoning Text Amendment, which was adopted by City Council in October 2013. The text amendment, removed several potential barriers to reconstructing storm-damaged properties and allowing new buildings to comply with new, higher flood elevations issued by FEMA and the Building Code. To help ensure that the streetscape remains vibrant and engaging as buildings are rebuilt to meet new flood protection standards, the amendment permits buildings to grade up gradually to flood elevations by raising their yards, and requires elevated buildings to provide simple but effective streetscape enhancements such as stair turns, plantings, and porches to ensure they maintain visual connectivity with the street.

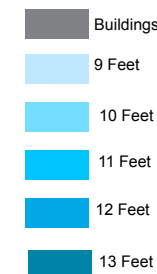
The unique built environment of Edgemere, Hamels, and Arverne poses a challenge to resilient retrofitting and reconstruction. Housing types in the area range from small bungalows to semi-detached multifamily homes, attached row houses and mid-rise towers. Many of the buildings within the Study Area were constructed prior to the introduction of flood resistant construction standards to the Building Code and the National Flood Insurance Program (NFIP). Buildings built at grade, with basements and/or sloped driveways are common in the area and are especially vulnerable to flooding.

Homeowners and landlords continue to struggle with recovery. The storm caused significant financial hardship, and many residents continue to struggle to rebuild. The cost to retrofit is steep, and many did not have the means to fix the damage, let alone take proactive steps to make their buildings more resilient to future flooding events.

BUILD IT BACK

The NYC Build It Back Program assists homeowners, landlords, and tenants affected by Hurricane Sandy within all five boroughs of New York City. The Program consists of multiple pathways, including: repair, repair with elevation, or rebuilding of damaged homes; reimbursement for repair work already carried out; and acquisition of damaged homes. The program has progressed slowly since registration closed October 31, 2013. To date, only around 20 percent of the 1,022 mostly single family homes registered within the Study Area have been determined eligible for the program, have been assessed and selected a pathway. Of the 194 properties that have reached this stage, the majority (32 percent) will be pursuing rehabilitation with elevation.

Map 14:
BASE FLOOD ELEVATION



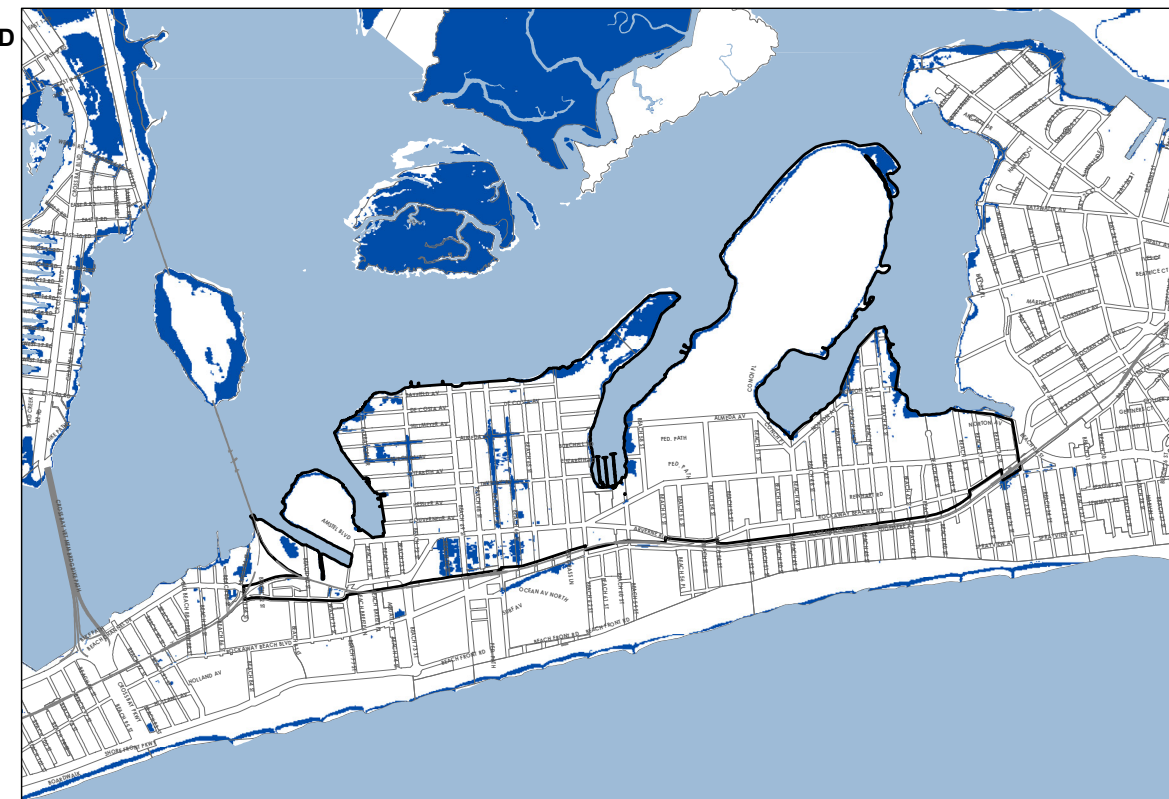
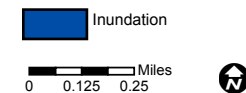
Base Flood Elevation	Lots	Lot Area	Buildings
9 Feet	28%	44%	36%
10 Feet	62%	38%	59%
11 Feet	7%	8%	4%
12 Feet	1%	8%	1%
13 Feet	1%	1%	0%

FUTURE RISK

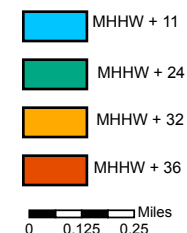
Portions of the study area, predominantly those directly adjacent to the coast but also extending as far inland as Arverne Boulevard, suffer from frequent flooding today. Sea level rise will only exacerbate such incidents, further threatening low-lying communities like Edgemere and Arverne with highly disruptive tidal flooding. The New York City Panel on Climate Change projects that by mid-century, sea levels could rise by more than 2.5 feet. This puts a significant portion of the study area at risk of daily inundation from high tide alone.

The coastline conditions in the Study Area are particularly challenging for the implementation of coastal protection due to both natural and structural features. The shoreline is long and complex, containing many deep inlets and channels that are not conducive to ecological infrastructure. Over half of the shoreline is unprotected and natural, consisting of sandy shoreline and marsh. Approximately a quarter is made up of piers, 17 percent consists of riprap and almost 10 percent is bulkhead. In some areas development extends directly to the water's edge, making the construction of protective on-land infrastructure extremely difficult. Land ownership along the bay is a mixture of public (approximately 90 percent) and private (10 percent), and properties contain a variety of uses including residential, industrial and natural, which complicates the formulation of a comprehensive approach to coastal protection.

Map 15:
FREQUENTLY FLOODED COASTAL AREAS



Map 16:
CLIMATE CHANGE PROJECTIONS: INUNDATION AT HIGH TIDE



A STRONGER, MORE RESILIENT NEW YORK



On June 11, 2013, the City released “A Stronger, More Resilient New York”, a comprehensive plan that contains actionable recommendations both for rebuilding the communities impacted by Sandy and increasing the resilience of infrastructure and buildings citywide. The following represents a sampling of recommendations that pertain to the study area:

- Call on and work with the USACE to complete emergency beach nourishment on the Rockaway Peninsula and to complete existing studies of the Rockaway Peninsula and implement coastal protection projects
- Complete living shorelines and floating breakwaters for wave attenuation in Brant Point, Queens
- Build a new multi-specialty ambulatory surgical center on the Rockaway Peninsula
- Expand ferry service to the Rockaway Peninsula
- Explore alternatives for the Rockaway Wastewater Treatment Plant
- Build out storm-water sewers in areas of South Queens with limited drainage systems
- Raise bulkheads in low-lying neighborhoods to minimize inland tidal flooding
- Harden or otherwise modify shoreline parks and adjacent roadways to protect adjacent communities
- Rebuild and repair housing units destroyed and substantially damaged by Sandy
- Improve regulations for flood resiliency of new and substantially improved buildings in the 100-year floodplain
- Study and implement zoning changes to encourage retrofits of existing buildings and construction of new resilient buildings in the 100-year floodplain
- Amend the Building Code and complete studies to strengthen wind resiliency for new and substantially improved buildings
- Encourage existing buildings in the 100-year floodplain to adopt flood resiliency measures through an incentive program and targeted mandate
- Retrofit public housing units damaged by Sandy and increase future resiliency of public housing
- Work with New York State to identify eligible communities for the New York Smart Home Buyout Program
- Require the retrofitting of existing hospitals in floodplain
- Launch a sales tax abatement program for flood resiliency in industrial buildings
- Work with utilities and the Public Service Commission (PSC) to harden key electric transmission and distribution infrastructure against flooding
- Work with public and private partners to scale up distributed generation (DG), including microgrids

NEW YORK RISING



The NY Rising Community Reconstruction (NYRCR) Program, announced by Governor Andrew M. Cuomo in April of 2013, is a more than \$650 million planning and implementation process established to provide rebuilding and resiliency assistance to communities severely damaged by Hurricane Irene, Tropical Storm Lee, Super-storm Sandy, and the summer floods of 2013.

NY Rising Community Reconstruction Plans were completed for the Rockaway Peninsula in two parts: Rockaway West (includes the neighborhoods of Belle Harbor, Neponsit, Rockaway Beach and Rockaway Park), and Rockaway East (Arverne, Edgemere, Bayswater, Far Rockaway). Designed and driven by local communities, the plans account for specific needs, opportunities and strategies of cities, towns and villages throughout the State. Each locality is eligible for between \$3 million and \$25 million of Community Development Block Grant (CDBG) funding, as it implements new and innovative strategies that aim to establish a stronger and better future.

The plan contains 3 strategies and 11 Proposed and Featured Projects to improve the resiliency of Rockaway East

Protect the community from flooding, surge, and sea level rise

1. Thursby Basin Park drainage
2. Bayside coastal protection

Bolster Community Resiliency

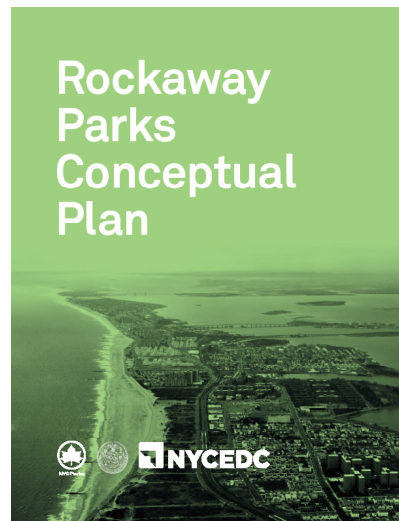
3. Relief center network
4. Local health center resiliency
5. Health care service expansion
6. Residential education and technical assistance

Strengthen Economic Resiliency

7. Workforce Development
8. Mott Avenue corridor improvements
9. Seasonal business and amenity expansion
10. Rockaway bike share
11. Bus circulator service



NYC DEPARTMENT OF PARKS AND RECREATION



The Rockaway Parks Conceptual Plan is an initiative to establish a planning and urban design framework for the Rockaway's parks and open space. The study establishes a vision for New York City Department of Parks & Recreation (NYC Parks) properties that will provide new recreational opportunities while restoring natural habitats, improving storm resiliency and creating safe and convenient access. Highlights include:

- Implementation of green infrastructure, where deemed to be effective, by creating rain gardens and bioswales upland from the water's edge;
- Softening of the water's edge, where applicable, by constructing freshwater wetlands, salt marshes and rip-rap edges in order to increase aquatic habitat and minimize wave and water impacts; and
- Constructing bulkheads and storm berms to decrease the destruction of future storm surges.

Parks has proposed the development of a continuous **Bay Side Nature Trail** that would include restoration of natural habitat and wetland, reconstruction of bulkheads and the potential development of trails on raised berms that could help create a resilient waterfront and reduce risk to the surrounding neighborhoods from storm surge. The trail would be designed to work in concert with any applicable Army Corps of Engineers (ACOE) coastal risk reduction projects. The concept of a Nature Trail on a raised berm could serve the dual function of providing public access along the water's edge, while also providing a level of protection.

The plan for **Rockaway Community Park** will include restoration of marshland, upland forest and meadow land creating new habitat and contributing to storm-water management efforts. The plan also includes mosquito magnets, which attract and capture mosquitoes over a wide radius, to help mitigate the concentration of mosquitoes in the park. In addition, the plan suggests that the upland forest restoration should be extended to the northern section of the park.

Thursby Basin Park was recently acquired by NYC Parks and is not yet open to the public. Parks envisions the area as a neighborhood amenity that serves as both a link and stopping point along the Bay Side Nature Trail. The proposed plan includes an adult fitness area, playground, lawn, picnic and grill areas, and waterfront seating.

Additionally, the removal of invasive species and planting of trees and native plants will contribute to habitat restoration and can decrease storm-water runoff and heat island effect. The waterfront will also be planted with riparian plantings to help soften the water's edge.



RESILIENT NEIGHBORHOODS



As part of the Resilient Neighborhoods initiative, the Department of City Planning is working with the coastal communities of Rockaway Park and Rockaway Beach to collaboratively identify zoning and land use changes to address specific local conditions not addressed by the citywide Flood Resilience Zoning Text Amendment (sidebar)

The expected outcomes for the Rockaway Park/Rockaway Beach study are:

- An analysis of resiliency options for the variety of building types within the area;
- Identifying zoning recommendations to support redevelopment of key sites to strengthen commercial corridors;
- Coordination with capital agencies to identify potential infrastructure upgrades; and
- Identifying opportunities to promote coastal resiliency and public access on the bay and oceanfront.



5. STRATEGIC SITES

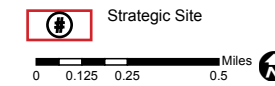
The following includes an inventory of sites that may be suitable for selection as strategic sites by a community-based organization (CBO) during the community brownfield planning process. Sites selected as strategic sites by community planners often meet the following criteria:

- The parcel is vacant or underutilized and is a feasible site for redevelopment
- The parcel may have a history of usage that could have resulted in environmental contamination
- The parcel has characteristics that lend themselves to the progress of community visions and development goals

The following site profiles are intended to provide a basis for strategic site selection by CBO's during the community planning process in the Study Area. The selected sites are a diverse set of properties that are the product of a preliminary site selection process. Each profile provides a description of current and historic land uses and highlights any evidence of industrial activity or use of hazardous materials on site. This helps community members, investors and developers to understand the extent of a potential contamination issue— the first step in remediation, revitalization, and redevelopment efforts.

Seventeen strategic sites have been identified for the purposes of this existing conditions study. The following table and map summarize their characteristics and locations within the study area.

Map 17:
STRATEGIC SITES



No.	Name	Size (sq ft)
1	Arverne Urban Renewal Area	223,458
2	SBS Site	285,000
3	Recine Properties	85,630
4	350 Beach 79th Street	100,125
5	Barbadoes Basin Site	167,774
6	Barbadoes Drive Site	85,535
7	Beach 62nd Street Site	36,000
8	Somerville Basin Site	205,359
9	Former Edgemere Landfil	12,305,000
10	Edgemere Urban Renewal Area	4,320,853
11	YMGY Site	77,450
12	Rockaway Freeway Site	17,774
13	Peninsula General Hospital	309,500
14	NYCHA Commercial Site	37,129
15	Rockaway Beach Boulevard Site	95,332
16	Beach Channel Drive Parcel	32,465
17	Ocean Gardens Nursing	27,535
Total		18,411,919

SITE 1 ARVERNE URBAN RENEWAL AREA

TAX MAP INFORMATION: Block 16100; Lots 31, 38
Block 16103, Lots 1, 60
Block 16104, Lots 1, 25, 28
Block 16105, Lot 1
Block 16106, Lot 1

ADDRESS: 26 Beach Channel Drive
83-02 Beach Channel Drive
310 Beach Channel Drive

PUBLICLY OWNED: Yes

OWNER: HPD; Generation of Next Fathers

SIZE (ACRES): 5.13

ZONING: M1-1

EXISTING BUILDINGS: 0

YEAR BUILT: -

BUILT AREA (SQ FT): -

BUILT FAR: -

FEMA FLOOD ZONE (PFIRM): AE

BASE FLOOD ELEVATION: 10

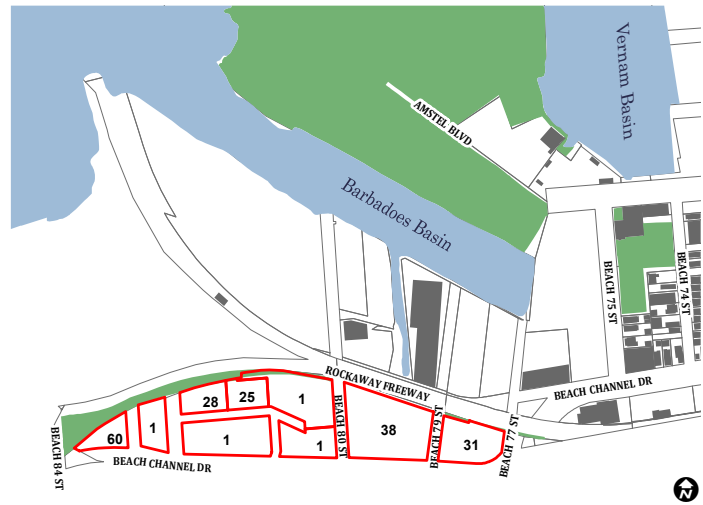
ESTIMATED MEAN ELEVATION: 4-6

SITE STATUS: Vacant and unbuilt.

PROPERTY DESCRIPTION: These nine lots are included in the Arverne Urban Renewal Area, and are currently vacant. Eight lots comprising almost 95% of the total area are owned by the New York City Housing Department of Housing Preservation and Development. The remaining lot (16104/25), which is privately owned by the Generation of Next Fathers, is in the middle of the site directly adjacent to Beach Channel Drive and the elevated A train. All lots are currently covered in vegetation.

DESCRIPTION OF ADJACENT LAND USES: This site is immediately south of Proposed Strategic Sites 2, 3, 4 and 5, separated by the elevated A train and Beach Channel Drive. It is north of the Arverne Renewal Area and NYCHA Hammel Houses.

ENVIRONMENTAL HISTORY: Historic maps indicate that the site was either used as or was directly adjacent to a freight house until at least 1919.



SITE 2 SBS SITE

TAX MAP INFORMATION: Block 16103; Lot 140

ADDRESS: Barbadoes Drive

PUBLICLY OWNED: Yes

OWNER: Department of Small Business Services

SIZE (ACRES): 0.65

ZONING: M1-1

EXISTING BUILDINGS: 0

YEAR BUILT: -

BUILT AREA (SQ FT): -

BUILT FAR: -

FEMA FLOOD ZONE (PFIRM): AE

BASE FLOOD ELEVATION: 10

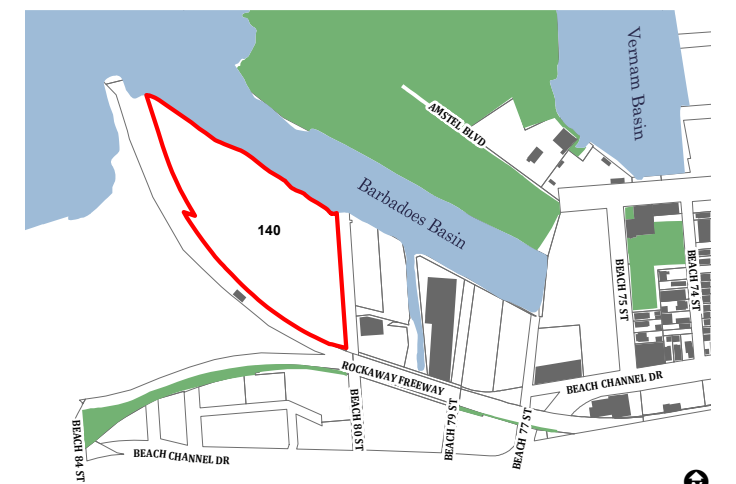
ESTIMATED MEAN ELEVATION: 5

SITE STATUS: Vacant, unbuilt

PROPERTY DESCRIPTION: This is a large, vacant lot that currently serves as a storage site for construction materials and vehicles.

DESCRIPTION OF ADJACENT LAND USES: This site is north of Proposed Strategic Sites #1 and to the west of Proposed Strategic Site #3. It is bounded by the elevated A train to the south and west, Barbadoes Basin to the north, and Beach 80th street to the east. Adjacent properties are largely vacant and/or used for the storage of construction materials.

ENVIRONMENTAL HISTORY: Historic maps indicate that the site was used as a lumberyard until at least 1919, and that around this time it was adjacent to a freight house.



SITE 3

RECINE PROPERTIES

TAX MAP INFORMATION: Block 16100 Lots 1; Block 16100 Lot 7; Block 16100, Lot 85

ADDRESS: 366 Beach 80 Street

PUBLICLY OWNED: No

OWNER: Recine Properties LLC

SIZE (ACRES): 2.0

ZONING: M1-1

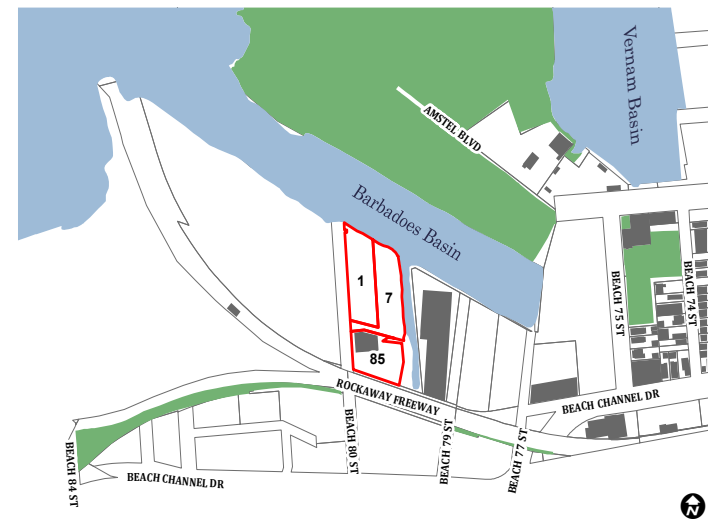
EXISTING BUILDINGS: 1

YEAR BUILT: 1930

BUILT AREA (SQ FT): 5,432

BUILT FAR: 0.22

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 5-6



SITE STATUS: Built, occupied

PROPERTY DESCRIPTION: These three lots make up an industrial site with a small warehouse building and several temporary structures. It is currently used as contractor's yard.

DESCRIPTION OF ADJACENT LAND USES: This site is north of Proposed Strategic Site #1, east of Proposed Strategic Site #2, and west of Proposed Strategic Site #4. It is bounded by the elevated A train to the south, Barbadoes Basin to the north and west, and Beach 80th street to the east. Adjacent properties are largely vacant and or used for the storage of construction materials or as contractor's yards.

ENVIRONMENTAL HISTORY: Historic maps indicate that the site was used as a lumberyard until at least 1919, and that around this time it was adjacent to a freight house.

SITE 4

350 BEACH 79TH STREET

TAX MAP INFORMATION: Block 16100; Lots 14, 18, 20

ADDRESS: 350 Beach 79 Street
Rockaway Freeway

PUBLICLY OWNED: No

OWNER: 350 Beach 79th Street Association

SIZE (ACRES): 2.3

ZONING: M1-1

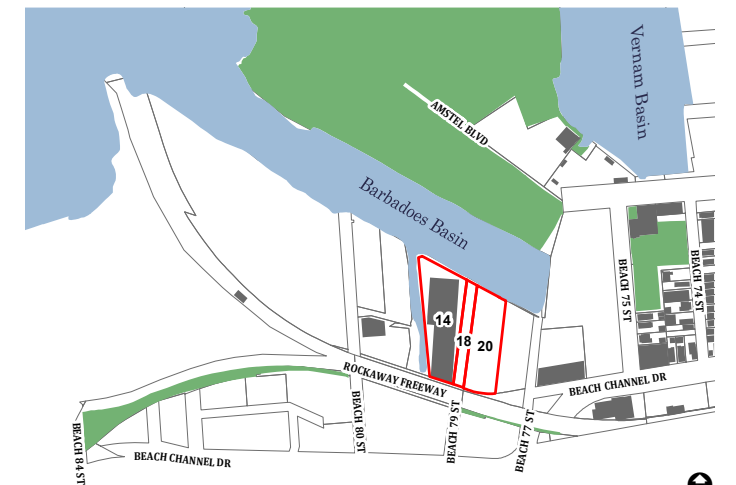
EXISTING BUILDINGS: 1

YEAR BUILT: 1956

BUILT AREA (SQ FT): 34,740

BUILT FAR: 0.71

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 4-8



SITE STATUS: Partially built, occupied

PROPERTY DESCRIPTION: These three lots make up an industrial site with a large warehouse building and an open storage area serving as a contractor's yard.

DESCRIPTION OF ADJACENT LAND USES: The surrounding area is exclusively industrial; it is either vacant and/or used for the storage of construction materials. The site is adjacent to Proposed Strategic Site #1 to the south, Proposed Strategic Site #3 to the west, and Proposed Strategic Site #5 to the east. It is bounded by Barbadoes Basin to the north and Beach Channel Drive and the elevated A train to the south.

ENVIRONMENTAL HISTORY: Historic maps indicate that a lumberyard and ice company operated on site until at least 1919.

SITE 5 BARBADOES BASIN SITE

TAX MAP INFORMATION: Block 16080, Lots 1, 37
Blocks 16100, Lot 24

ADDRESS: 76-02 Beach 75th Street
350 Beach Channel Drive
302 Beach 77 Street

PUBLICLY OWNED: No

OWNER: Beach Channel Drive Land;
350 Beach 79th Street
Association

SIZE (ACRES): 3.9

ZONING: M1-1

EXISTING BUILDINGS: 6

YEAR BUILT: 1927; 1960; 1963

BUILT AREA (SQ FT): 27,356

BUILT FAR: 0.05; 0.72; 0.3

FEMA FLOOD ZONE (PFIRM): AE

BASE FLOOD ELEVATION: 10

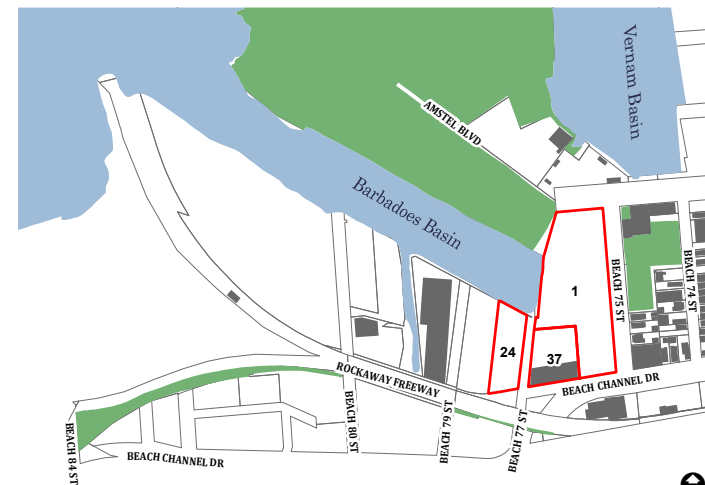
ESTIMATED MEAN ELEVATION: 6-7

SITE STATUS: Partially built, occupied

PROPERTY DESCRIPTION: Lot 24 is paved and vacant; Lot 1 is an open storage space serving as a contractor's yard; Lot 37 contains a large, vacant warehouse building fronting Beach Channel Drive and an open storage area serving as a contractor's yard.

DESCRIPTION OF ADJACENT LAND USES: This site is adjacent to Proposed Strategic Site #4 to the east and Barbadoes Basin to the north. The site is bounded by Beach Channel Drive to the south, and several housing units, community facilities and other industrial structures on the block to the east.

ENVIRONMENTAL HISTORY: Historic maps indicate that a lumberyard, ice company and marina operated on adjacent sites until at least 1919.



SITE 6 BARBADOES DRIVE SITE

TAX MAP INFORMATION: Block 16063; Lots 1, 10,
12, 15, 18, 20, 21, 22,
24, 27

ADDRESS: Alameda Avenue; 3-63
Barbadoes Drive; Barba-
does Drive

PUBLICLY OWNED: No

OWNER: Bayfield aterview, LLC.,
Michael E. Buetross;
Dennis Loncke; Rivara's
Shipyard Inc.; Fleet Hold-
ings, LLC

SIZE (ACRES): 1.8

ZONING: C3

EXISTING BUILDINGS: 1

YEAR BUILT: 1925

BUILT AREA (SQ FT): 1,185

BUILT FAR: 0.04

FEMA FLOOD ZONE (PFIRM): AE

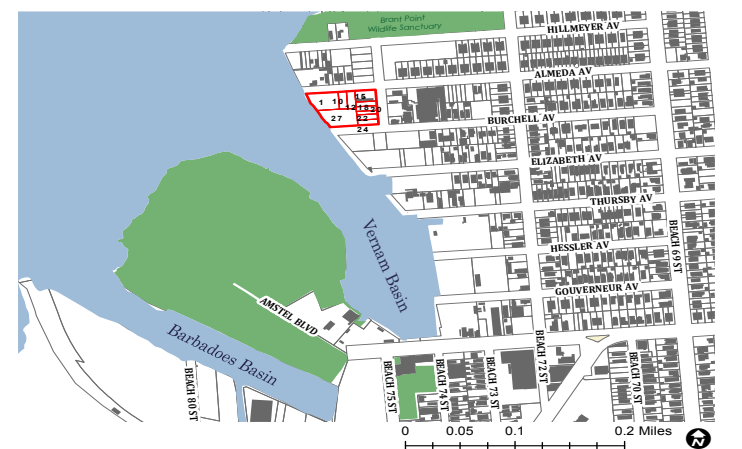
BASE FLOOD ELEVATION: 10-11

ESTIMATED MEAN ELEVATION: 4-8

SITE STATUS: Mostly vacant and unbuilt

PROPERTY DESCRIPTION: Approximately 90 percent of Block 16063 is vegetated vacant land. Lot 15 contains one building; it was constructed in 1925 and contains 3 housing units. The lots directly adjacent to the structure are used for the storage of vehicles and parts.

DESCRIPTION OF ADJACENT LAND USES: Site is adjacent to Barba-
does Basin to the west, a
marina to the south and
a mixed use block to the
north. One and two family
homes are immediately
adjacent to the east across
Barbadoes Drive.



SITE 7 BEACH 62ND STREET SITE

TAX MAP INFORMATION: Block 16015, Lot 50
ADDRESS: Beach 63 Street
PUBLICLY OWNED: No
OWNER: Beach 62nd Street DE
SIZE (ACRES): 0.8
ZONING: R4-1

EXISTING BUILDINGS: 0
YEAR BUILT: -
BUILT AREA (SQ FT): -
BUILT FAR: -

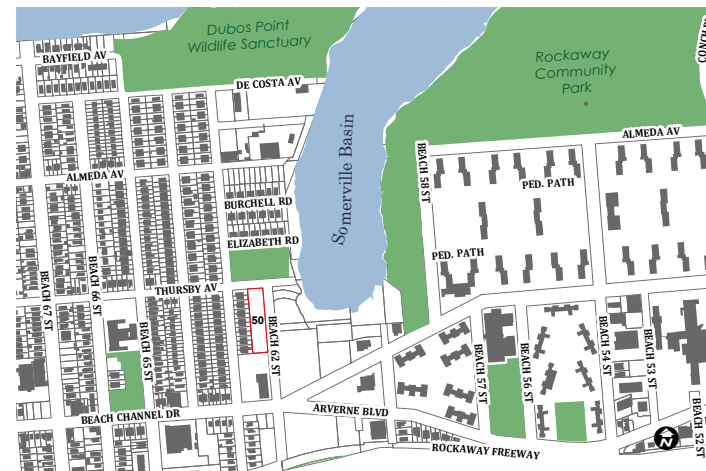
FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 7

SITE STATUS: Vacant, unbuilt

PROPERTY DESCRIPTION: Site is vacant and vegetated. It is currently used for the storage of miscellaneous construction materials.

DESCRIPTION OF ADJACENT LAND USES: Block 16015 contains several residential buildings, a parking lot and the Joseph P. Addabbo Family Health Center. It is adjacent to Thursby Basin Park to the north, Proposed Strategic Site #8 to the east, and residential development to the south and west.

ENVIRONMENTAL HISTORY: A Petroleum Bulk Storage Site was located adjacent to the Joseph P. Addabbo Family Health Center. One underground tank was closed and removed. It had a capacity of 4,000 gallons.



SITE 8 SOMERVILLE BASIN SITE

TAX MAP INFORMATION: Block 16011, Lots 1 32, 35, 50; Block 16013 Lot 50; Block 16014, Lots 1, 22

ADDRESS: Beach 62 Street; Beach Channel Drive; Thursby Ave

PUBLICLY OWNED: Partially
OWNER: Beach 62, LLC.; DCAS
SIZE (ACRES): 4.7
ZONING: R4-1; C3

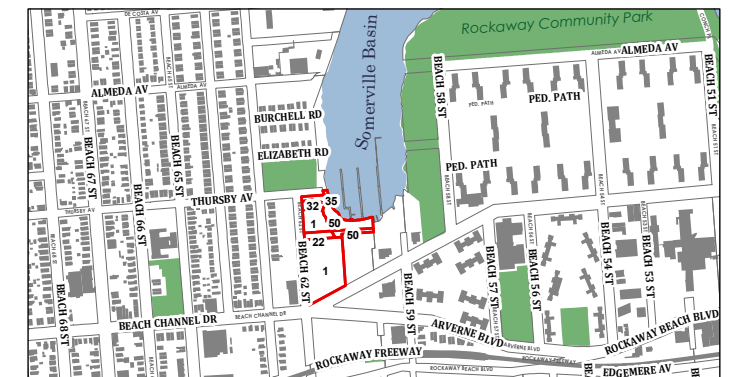
EXISTING BUILDINGS: -
YEAR BUILT: -
BUILT AREA (SQ FT): -
BUILT FAR: -

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10-11
ESTIMATED MEAN ELEVATION: 2-7

SITE STATUS: Vacant

PROPERTY DESCRIPTION: Lot(s) 50 on Block 16011 and 16013 are owned by DCAS and zoned C3. The remaining lots are privately owned by Beach 62, LLC and are zoned R4-1.

DESCRIPTION OF ADJACENT LAND USES: Situated at Somerville Basin's most inland point, these 7 contiguous lots front Beach Channel Drive to the south and Beach 62nd Street to the west. An active marina and auto service station are located to the east, a United States Postal service building to the south, and Proposed Strategic Site #7 to the west.



SITE 9 ROCKAWAY COMMUNITY PARK

TAX MAP INFORMATION: Block 15980, Lot 2
ADDRESS: 54-02 Alameda Avenue
PUBLICLY OWNED: Yes
OWNER: Parks and Recreation
SIZE (ACRES): 280 acres
ZONING: C8-1

EXISTING BUILDINGS: 1
YEAR BUILT: 2009
BUILT AREA (SQ FT): 13,000
BUILT FAR: 0.01

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 9
ESTIMATED MEAN ELEVATION: -17

SITE STATUS: Vacant, unbuilt; parkland

PROPERTY DESCRIPTION: The majority of the park's acreage is currently inaccessible following years of use by the Sanitation Department. Opened in 1938 and closed in 1991, the former Edgemere landfill is alleged to be the longest continuously operated dump in the United States. It is the highest point on the peninsula, with an elevation of approximately 70 feet. The accessible portion of the park contains basketball, tennis and handball courts.

DESCRIPTION OF ADJACENT LAND USES: Projecting into Jamaica Bay at a northeasterly angle, the area is generally bounded by Conch Basin, Norton Basin, the bay itself, Sommerville Basin, and 54th Avenue. The Ocean Bay Apartments are directly to the south.

ENVIRONMENTAL HISTORY: The discovery of thousands of drums of illegally disposed of noxious chemicals including paint-manufacturing products, solvents and petroleum distillates in 1983 led to the designation of the landfill as a Superfund Site. Remediation actions spanned over a decade and were concluded in 2003 when the site was declared "cleaned of all toxins" by the Department of Environmental Conservation.



SITE 10 EDGEMERE URBAN RENEWAL AREA

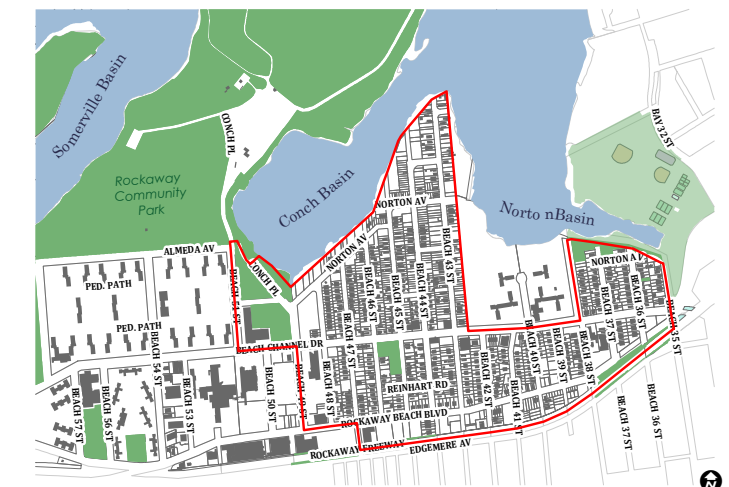
ADDRESS: Bounded by Conch Basin, Beach Channel Drive, and Norton Basin on the north, Beach 35th Street on the east, Beach Channel Drive, Rockaway Beach Boulevard and the northern boundary of the Rockaway Freeway on the south, and Beach 51st and Beach 49th Streets on the west.

PUBLICLY OWNED: Partially
OWNER: 40 percent city-owned; 60 percent privately owned
SIZE (ACRES): 99

ZONING: R4 (72 percent); R4-1 (10 percent); R6 (7 percent); Park (5 percent); C4-3A (4 percent); C3 (1 percent)
782

EXISTING BUILDINGS: The majority of existing buildings (40 percent) were constructed after the URA's designation in 1997. Many homes predating the designation are extremely old: Approximately ten percent were constructed before 1915, and 30 percent constructed during the 1920's.

BUILT AREA (SQ FT): 1,466,885
BUILT FAR: Average 0.35
FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 9-11
ESTIMATED MEAN ELEVATION: 2-9



SITE STATUS: Partially built
PROPERTY DESCRIPTION: The URA area is characterized by construction ranging from bungalows and detached houses to semi-detached multi-family buildings as well as a significant amount of vacant land. One third of the URA is vacant; this land is primarily situated along the coastal edge, adjacent to Rockaway Freeway and the elevated A train, and scattered among homes between Beach 43rd and Beach 49th Street.

DESCRIPTION OF ADJACENT LAND USES: The Edgemere Urban Renewal Area surrounds the NYCHA Beach 41st Street Houses. Conch and Norton Basin are to the north; Rockaway Freeway, the elevated A train and the Arverne Urban Renewal Area to the south; Bayswater Park is to the east and the Ocean Bay Apartments and Rockaway Community Park to the west.

ENVIRONMENTAL HISTORY: Historic maps indicate that an airport existed adjacent to the Study Area to the west, where Rockaway Park and the NYCHA Ocean Bay Apartments are currently located. There are several air and hazmat E-designations located adjacent to Rockaway Freeway between Beach 43rd and 44th street. Five petroleum bulk storage tanks with a capacity of 15,010 gallons exist within the URA. One underground tank with a capacity of 10,000 gallons is located at 353 Beach 48th Street (Rockaway Care Center); one tank with a capacity of 3,000 gallons is located aboveground in subterranean vault at 210 Beach 47th Street (Seaview Manor); three tanks each with a capacity of 4,000 gallons are located underground at 38-01 Beach Channel Drive. Finally, a spill at 38-01 Beach Channel Drive (gasoline station) in 1991 released an unknown amount of oil. Groundwater is known to be affected.

SITE 11 YMGY SITE

TAX MAP INFORMATION: Block 15841, Lot 19
ADDRESS: 49 Beach 50 Street
PUBLICLY OWNED: No
OWNER: Y-M-G-Y Development
SIZE (ACRES): 1.8
ZONING: R5

EXISTING BUILDINGS: 0
YEAR BUILT: -
BUILT AREA (SQ FT): -
BUILT FAR: -

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 7
ESTIMATED MEAN ELEVATION: 3.5

SITE STATUS: Unbuilt; vacant

PROPERTY DESCRIPTION: This lot in the middle of Block 15841 is vacant and vegetated.

DESCRIPTION OF ADJACENT LAND USES: Site adjacent to the former Peninsula General Hospital (Proposed Strategic Site #13) to the west. It is located between two active open-air parking facilities (one, an MTA bus depot and the other, a lot for a fast food restaurant) on a block bounded by Beach Channel Drive to the north, Rockaway Beach Boulevard to the south, and Beach 49th and Beach 50th Streets to the east and west, respectively. The surrounding blocks primarily contain public facilities. A NYCHA complex is nearby.

ENVIRONMENTAL HISTORY: Site adjacent to an oil spill that occurred in 1992. An unknown amount of petroleum was released; local groundwater is known to be affected.



SITE 12 ROCKAWAY FREEWAY SITE

TAX MAP INFORMATION: Block 15857, Lot 1
ADDRESS: 51-17 Rockaway Beach Boulevard
PUBLICLY OWNED: No
OWNER: Rockaway Beach Holdings
SIZE (ACRES): 0.4
ZONING: C8-1

EXISTING BUILDINGS: 1
YEAR BUILT: 1931
BUILT AREA (SQ FT): 13,000
BUILT FAR: 0.73

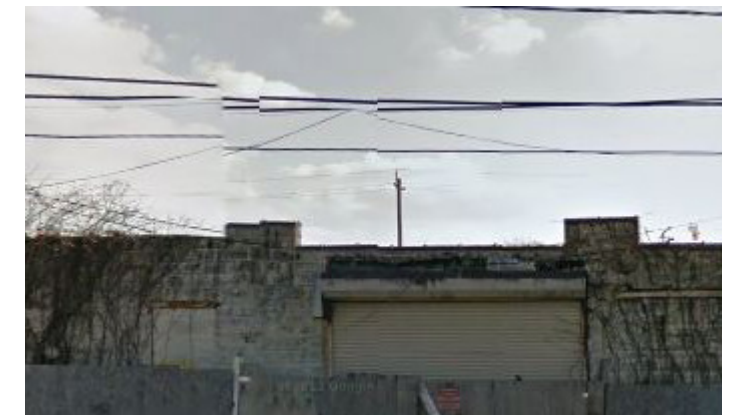
FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 5

SITE STATUS: Built, vacant

PROPERTY DESCRIPTION: This lot on the western end of Block 15857 contains an empty structure.

DESCRIPTION OF ADJACENT LAND USES: Site is bounded by Rockaway Beach Boulevard to the north and Rockaway Freeway to the south. Both the Peninsula General Hospital (Proposed Strategic Site #13) and the YMGY Site (#11) are adjacent to the north. The rest of Block 15857 to the east contains active industrial uses.

ENVIRONMENTAL HISTORY: Site adjacent to an oil spill that occurred in 1992. An unknown amount of petroleum was released; local groundwater is known to be affected.



SITE 13 PENINSULA GENERAL HOSPITAL

TAX MAP INFORMATION: Block 15843, Lot 1
ADDRESS: 51-15 Beach Channel Drive
PUBLICLY OWNED: No
OWNER: New York City Industr
SIZE (ACRES): 7.2
ZONING: R5

EXISTING BUILDINGS: 1
YEAR BUILT: 1962
BUILT AREA (SQ FT): 124,800
BUILT FAR: 0.4

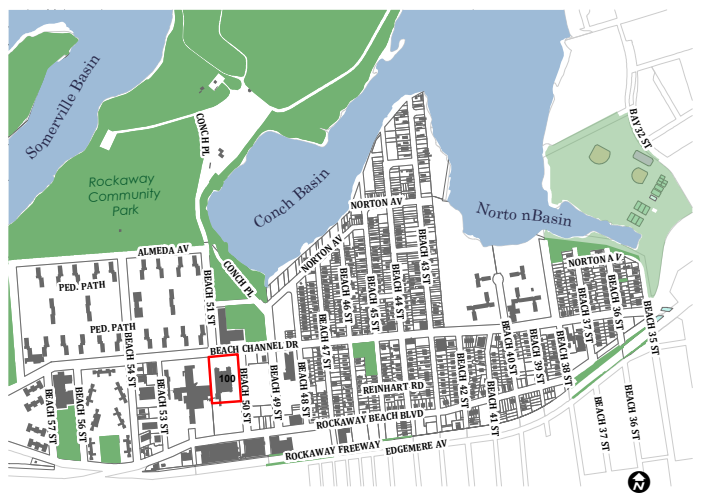
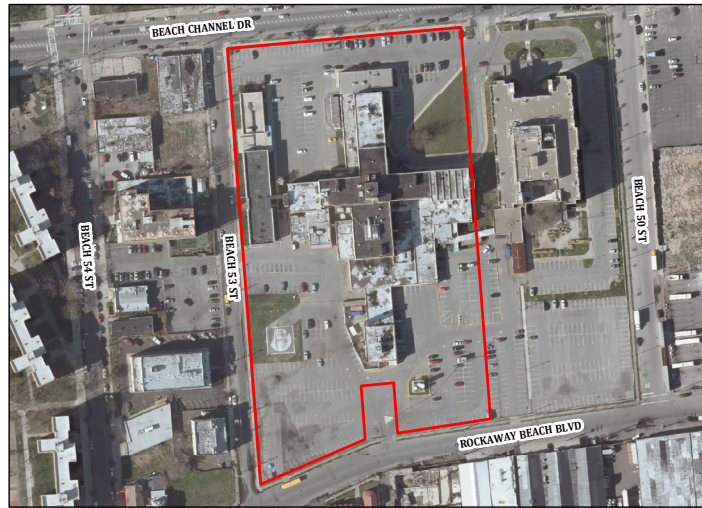
FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 4

SITE STATUS: Built, vacant

PROPERTY DESCRIPTION: Site of former Peninsula General Hospital which was closed in 2012.

DESCRIPTION OF ADJACENT LAND USES: The site is located adjacent to the Peninsula Hospital Nursing Home, which is across the street from Proposed Strategic Site #12 to the east. The remainder of the block, which is bounded by Beach Channel Drive to the north, Rockaway Beach Boulevard to the south and Beach 50th Street and Beach 53rd Street to the east and west, respectively, contains several open air parking lots.

ENVIRONMENTAL HISTORY: A total of seven Petroleum Bulk Storage tanks are registered to this site. Three tanks with a cumulative capacity of 57,500 gallons are active and in service aboveground; three are closed in place underground (capacity: 20,550 gallons); one was closed and removed.



SITE 14 NYCHA COMMERCIAL SITE

TAX MAP INFORMATION: Block 15890, Lots 54, 55, 58, 62, 64, 66, 69
ADDRESS: 53-01, 53-05, 53-15 Beach Channel Drive; 360, 366 Beach 54th Street
PUBLICLY OWNED: Yes
OWNER: NYCHA

SIZE (ACRES): 0.85
ZONING: C2-4

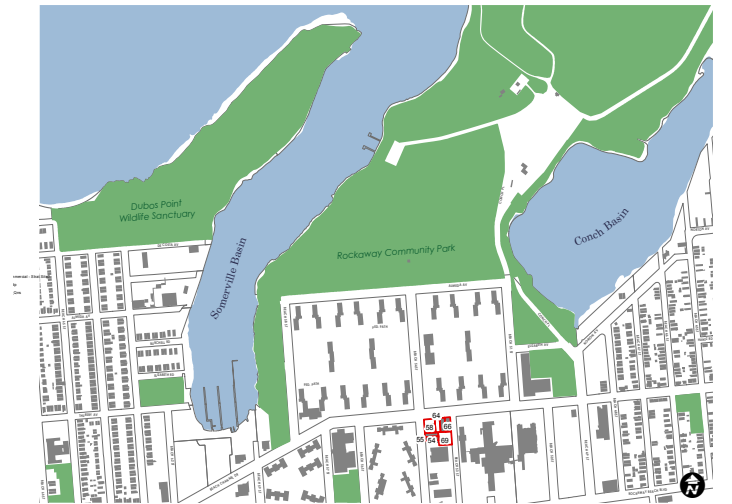
EXISTING BUILDINGS: 5
YEAR BUILT: 1968; 1990
BUILT AREA (SQ FT): 49,741
BUILT FAR: 1, 1, 0.25, 1, 0.99

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 6

SITE STATUS: Partially built

PROPERTY DESCRIPTION: Site was previously occupied by multiple commercial establishments, all of which are currently closed. Lots 54, 55, 58, 65, and 66 contain vacant built structures while lots 62 and 69 are vacant.

DESCRIPTION OF ADJACENT LAND USES: This site is adjacent to the former Peninsula General Hospital (Proposed Strategic Site #13) to the east, and the NYCHA Ocean Bay Apartments to the north and west. The remainder of Block 15890 to the south is characterized by housing and community facilities, including a public library.



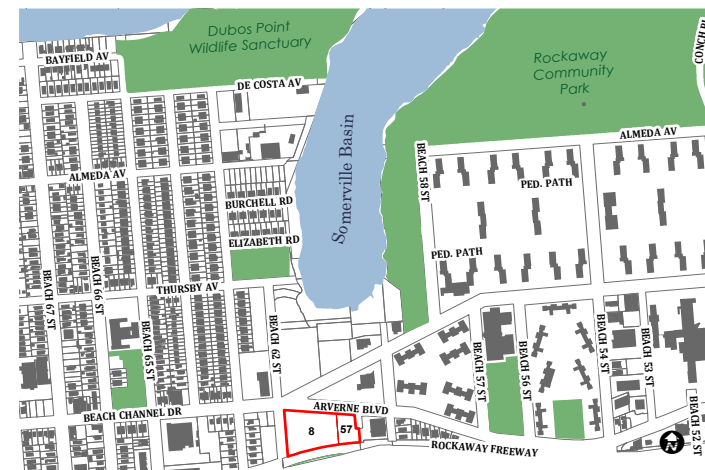
SITE 15 ROCKAWAY BEACH BOULEVARD SITE

TAX MAP INFORMATION: Block 15901, Lot 8; Block 15901, Lot 57
ADDRESS: Rockaway Beach Boulevard; Beach 60 Street
PUBLICLY OWNED: No
OWNER: Rosemary Willis; Baldon Associates, LLC
SIZE (ACRES): 2.2
ZONING: R5D
EXISTING BUILDINGS: 0
YEAR BUILT: -
BUILT AREA (SQ FT): -
BUILT FAR: -
FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 4-5

SITE STATUS: Vacant, unbuilt

PROPERTY DESCRIPTION: Two contiguous lots, both privately owned, are vegetated and vacant.

DESCRIPTION OF ADJACENT LAND USES: Site is adjacent to Proposed Strategic Site #16 to the west, and Proposed Strategic Site #8 to the north. It is bounded by Beach Channel Drive, Rockaway Freeway and Beach 59th and 62nd streets. A NYC Human Resources Administration building is located on the same block (15901) directly adjacent to the east.



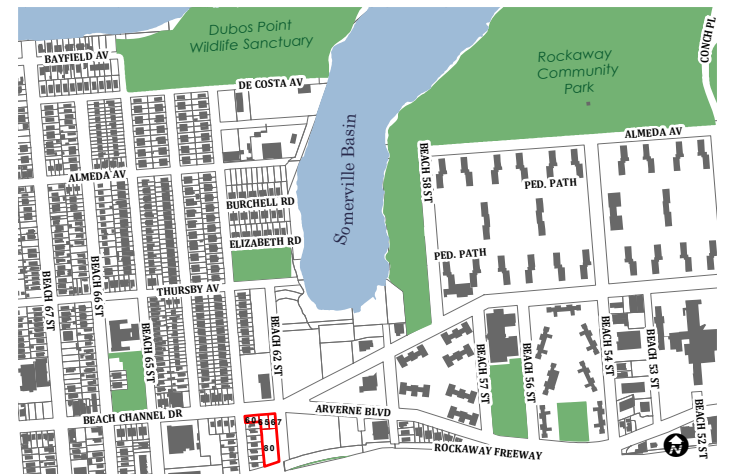
SITE 16 BEACH CHANNEL DRIVE PARCEL

TAX MAP INFORMATION: Block 15907, Lots 60, 65, 67, 80
ADDRESS: 62-11 Beach Channel Drive; 6207 Beach Channel Drive; 62-03 Beach Channel Drive
PUBLICLY OWNED: No
OWNER: Robert Szaraz; Beach Channel Realty; Allim Bridget
SIZE (ACRES): 0.75
ZONING: R4A, R5D
EXISTING BUILDINGS: 0
YEAR BUILT: -
BUILT AREA (SQ FT): -
BUILT FAR: -
FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 5-6

SITE STATUS: Vacant, unbuilt

PROPERTY DESCRIPTION: Three contiguous lots, all privately owned, are vegetated and vacant.

DESCRIPTION OF ADJACENT LAND USES: This site is adjacent to Proposed Strategic Site #8 to the west, and Proposed Strategic Site #11 to the north. It is bounded by Beach Channel Drive, Rockaway Freeway and Beach 59th and 62nd streets. A NYC Human Resources Administration building is located on the same block (15901) directly adjacent to the east.



SITE 17

OCEAN GARDENS NURSING

TAX MAP INFORMATION: Block 15908, Lot 11
ADDRESS: Beach 64 Street
PUBLICLY OWNED: No
OWNER: Ocean Gardens Nursing
SIZE (ACRES): 0.63
ZONING: R5

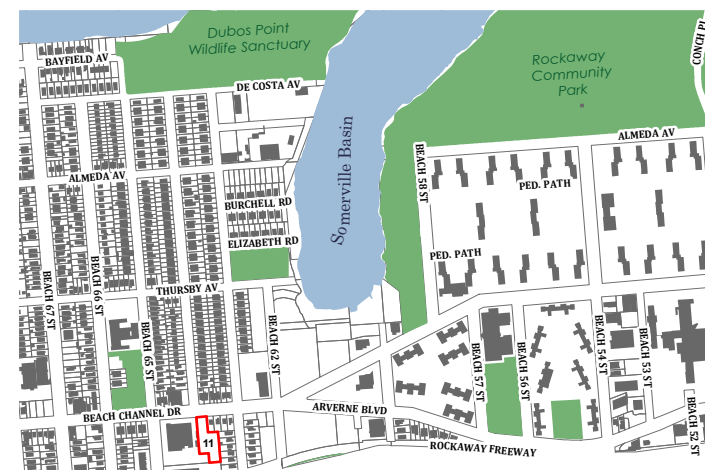
EXISTING BUILDINGS: 0
YEAR BUILT: -
BUILT AREA (SQ FT): -
BUILT FAR: -

FEMA FLOOD ZONE (PFIRM): AE
BASE FLOOD ELEVATION: 10
ESTIMATED MEAN ELEVATION: 6

SITE STATUS: Vacant, unbuilt

PROPERTY DESCRIPTION: Lot is vegetated and vacant

DESCRIPTION OF ADJACENT LAND USES: The remaining lots on Block 15908 contain public facilities and single-family bungalow style homes. Beach Channel Drive is located to the north, Rockaway Freeway to the south; the site is bounded by Beach 65th street and Beach 63rd street to the west and east, respectively.



6. CONCLUSION

KEY FINDINGS & NEXT STEPS

Once a wealthy resort area and thriving recreational destination, Edgemere, Arverne, and Hamels is now home to a fairly dense community with a high proportion of low-income residents. A quarter of the population reside in the three NYCHA projects in the Study Area, while the remaining 75 percent live in a mixture of bungalows and detached buildings, semi-detached multi-family homes and attached row-houses. Nearly a quarter of residents live within the Edgemere Urban Renewal Area, a 99-acre portion of the Study Area that is subject to a redevelopment master plan adopted in 1998 and administered by the Department of Housing Preservation and Development (HPD.) Approximately 30 percent of the land in the URA is vacant; much of this is included in the 40 percent that is owned by HPD.

As illustrated on Maps 15 and 16, the Rockaway Study Area is extremely vulnerable to flooding. Containing some of the lowest-lying land in the city, these bayside neighborhoods sustained severe damage from Hurricane Sandy and are regularly impacted by coastal flooding caused by heavy rain and high tides. Climate change and projected sea level rise will only exacerbate these already pressing problems. Additionally, the Rockaway Study Area is characterized by relatively low density and a built typology that is expensive to retrofit for flood resilience, and critical infrastructure on the Rockaway Peninsula serving the Study Area is vulnerable and aging. Several studies to address these issues are currently underway at the city, state and federal level.

There is a significant amount of both vacant and/or publicly owned land in the Study Area. The majority of the publicly owned land is owned by the Parks Department, consisting of wildlife refuge areas and open spaces adjacent to the bay. Much of the vacant land, some of which is publicly owned, also fronts the bay. This can be seen as a critical asset to the area as it presents an opportunity to implement extensive on-land infrastructure and a comprehensive coastal strategy. There are, however, areas where both privately owned residential and industrial development extends directly to the shoreline. Additionally, much of the shoreline is currently unprotected as existing bulkheads are in severe states of disrepair. This presents a great risk both to homes and businesses along the waterfront, and increases the possibility of environmental contamination from the spread of noxious materials and contaminants from active industrial businesses.

These issues highlight the need for an organized and comprehensive approach to future planning in the Hammels-Edgemere-Arverne area of the Rockaway Peninsula, making this an opportune time for continued revitalization work and engagement with the Mayor's Office of Environmental Remediation (OER) and other public agencies working in the area. This study is an opening for community input and aims to provide support for community dialogue, which will ultimately shape a vision for these neighborhoods as well as goals for future development. OER's place-based community brownfield planning programs aim to support this work, promoting resilience and growth in the area.

SOURCES

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