



Formerly Rockaway Waterfront Alliance



JANAICA BAY STORY



WATER RESEARCH & INNOVATION WORKSHOP MARCH 20th and 21st 2023 NYU TANDON + NYC DEP

ZEHRA KUZ R.A. **ADJUNCT PROFESSOR CCE** PRATT INSTITUTE, SCHOOL OF ARCHITECTURE UNDERGRADUATE PROGRAM





Formerly Rockaway Waterfront Alliance



WATER IN & WATER OUT **Innovative Water Research** February 15 - 16 2024



JAMAICA BAY STORY: The Wicked Problem of Climate Change

ZEHRA KUZ R.A. ADJUNCT PROFESSOR CCE **PRATT INSTITUTE**, SCHOOL OF ARCHITECTURE **UNDERGRADUATE PROGRAM**





https://scaan.net/waterfrontmap/

NEW YORK CITY HURRICANE EVACUATION ZONES

NYC EVACUATION CENTERS

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EVANDER CHILDS HS	LEHMAN COLLEGE	PS 211
800 E. GUN HILL RD.	250 BEDFORD PARK BLVD. W	1919 PROSPECT AVE.
HS OF LAW, GOV'T AND JUSTICE 244 EAST 163RD ST.	MS-HS 141 660 W. 237TH ST.	PS 306 40 W. TREMONT AVE.
15 98	PS 5	WILLIAM H. TAFT HS
1619 BOSTON RD.	564 JACKSON AVE.	240 E. 172ND ST.
MANHATTAN		and the second second
BARUCH COLLEGE	HS OF GRAPHIC COMM	JOHN JAY COLLEGE
155 E. 24TH ST.	439 W. 49TH ST.	445 W. 59TH ST.
LOUIS D. BRANDEIS HS 145 W. B4TH ST.	HUNTER COLLEGE 695 PARK AVE.	JULIA RICHMOND ED. COMPLEX 317 EAST 67TH ST.
BREAD AND ROSES HS	15 88	SEWARD PARK HS
6 EDGECOMBE AVE.	215 W. 114TH ST.	350 GRAND ST.

VISIT NYC.GOV/HURRICANEZONES OR CALL 311 TO FIND OUT IF YOU LIVE IN A HURRICANE EVACUATION ZONE.

Determine whether you live in an evacuation zone by using the Hurricane Evacuation Zone Finder at www. NYC.gov/hurricanezones, calling 311 (TTY: 212-504-415), or consulting this map. If your address is in one of the City's hurricane evacuation zones, you may be ordered to evacuate if a hurricane threatens New York City.

When a coastal storm is approaching, the City may order the evacuation of neighborhoods in danger of flooding from storm surge, starting with Zone I and adding more zones as needed depending on the severity of the forecast. Zones will be evacuated depending on life safety-related threats from a hurricane's forecasted strength, track, and storm surge.



KNOW YOUR ZONE*









https://upload.wikimedia.org/wikipedia/commons/e/ed/1861_U.S._Coast_Survey_Map_of_New_York_City_Bay_and_Harbor_-Geographicus_-_NewYorkBayHarbor4-uscs-1861.jpg



JAMAICA BAY STORY: Wicked Problem of the Climate Change | February 15 -16 2024 | Zehra Kuz

RISE (Rokaway Initiative for Sustainability and Equity) was established in 2005 and has led initiatives created "by the community, for the community." We see potential in places and people that are often overlooked or marginalized. From our first community-directed planning effort, which led to the creation of the 28-acre Waterfront Park on a lot that had been an illegal dumping ground, to our recent work to transform a dilapidated firehouse in the heart of Far Rockaway into a hub for community programming, to Project Underway, our current effort to repurpose an abandoned stretch of roadway into a safe place to walk, ride bikes, and recreate public space, RISE brings residents together to improve the built and natural environment.

PURPOSE:

'We inspire all generations of Rockaway residents to care for their environment and community. We provide civic engagement and youth development programs that advance social equity and the physical well-being of our vibrant coastal neighborhood in Queens, New York.'



Formerly Rockaway Waterfront Alliance







RISE - Rockaway Initiative for Sustainability and Equity



FARMERS' MARKET UNDER THE ELEVATED MTA'S A-TRAIN

https://www.riserockaway.org/rise/

0 30

JEANNE DUPONT EXECUTIVE DIRECTOR. RIS



DUNE PLANTING

10 years after Superstorm Sandy, what do we know about the future of the Rockaways? How will the Rockaways community look in 2050?

Which neighborhoods will be most affected? Can all neighborhoods survive the anticipated sea level rise?

And what can the design community do to support these waterfront communities in the short and long term?

Our panelists, possessing a wide range of experience and knowledge from city planning to waterfront resilience to new development, will seek to answer these questions and explore the peninsula's transformation.

Mapping Change: Rockaways 2050

Saturday, October 22, 2022 3:30-5:30pm

RISE Center 58-03 Rockaway Beach Blvd Queens, NY 11692

(A Train to Beach 60 Street - Straiton Avenue) Hosted by RISE (Rockaway Initiative for Sustainability and Equity), the event is organized by the School of Architecture's RAMP Initiative (Recover Adapt Mitigate Plan) in collaboration with the Housing Consortium, GCPE and UA at Pratt Institute.

The discussion will be preceded by a series of events organized by RISE, to remember ten years of storm recovery, climate adaptation, and community resilience.

KEYNOTE Ron Shiffman, Emeritus Professor, Pratt Institute, GCPE Deborah Gans, Professor, Pratt Institute, Undergraduate

PANEL

Architecture

RSVP at Eventbrite See all RISE Events

ramp-pratt.org riserockaway.org/rise/





Walter Meyer, Principal, Local Office of Landscape and Urban Design

Deborah Helaine Morris, Urban Planner, Climate

David Burney (Moderator), Academic Director, Pratt

Institute MS in Urban Placemaking and Management

Planning, NYC Department of City Planning

Adaptation and Housing

Michael Marella, Director of Climate and Sustainability

Lida Aljabar, Urban Strategy, Resilience & Transformation



JAMAICA BAY STORY: Wicked Problem of the Climate Change | February 15 -16 2024 | Zehra Kuz 10. 22. 2022 SUPERSTORM SANDY 10 YEAR ANNIVERSARY





JAMAICA BAY Google Earth



https://ny.curbed.com/2016/3/17/11248864/ jamaica-bay-documentary-film

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https://nyc-eja.org/waterfront-map/

'SHIFTING SANDS' SEDIMENTARY CYCLES FOR JAMAICA BAY

CITY COLLEGE OF NEW YORK FIRST INTERIM REPORT: 01. 08. 2014

PRINCIPAL INVESTIGATOR: CATHERINE SEAVITT, ASSOC. PROFESSOR

RESEARCH ASSOCIATES: KJIRSTEN ALEXANDER, DANAE ALESSI, ELI SANDS





JAMAICA BAY STORY: Wicked Problem of the Climate Change | February 15 -16 2024 | Zehra Kuz

Notes from HEAD OF BAY, COASTAL RESILIENCE JAMAICA BAY, NEW YORK (2018)

By the end of the 18th century the littoral drifts and offshore winds deposited enough sand to extend the barrier dune and shelter the bay

During the 20th century, more than half of the marshland around the perimeter of the bay was converted to other land uses: wetlands gave way to transportation infrastructure (1920s-1940s).

1931: NYC's first municipal airport (Floyd Bennett Field) was built over former marshes with Marine Parkway Bridge crossing over the Rockaway inlet.

During late 1930s Robert Moses led the contruction of several hundred acres of contiguous land in the middle of the bay and built the new Cross Bay Bridge and Parkway... This island was expanded again in the 1950s, when the train trestle crossed the bay.

JFK Airport, originally named Idlewild Airport, opened during 1948 on the bay's east end covering 5,000 acres of marshland. Dreging of the mudflats transformed the shallow depths from under 2' to depths reaching over 50'. The airport was expanded in 1963 again. Dredging led to the creation of three landills on: Pennsylvania Ave, Fountain Ave and Edgemere Landfill. although under NYC, NYS and National Park Service jurisdictions, there is no access to these land forms as brownfields.

Developing residential and commercial uses in these vulnerable reclaimed land increased the impermeable surfaces throughout the watershed and decreased the capacity to absorb rainwater during extreme weather events.

Sea Level Rise and tidal water levels are 1'-6" higher than they were 100 years ago at the Head of Bay.



NYC DCP Flood Hazard Mapper

'The 2015 PFIRM (Preliminary Flood Insurance Map) & 2007 FIRMs are produced by FEMA... The Base Flood Elevation layer was generated by DCP using FEMA's 2015 PFIRM BFE Base Flood Elevation) to determine the elevation of the BFE above grade based on 2010 Digital Elevation Model of New York City.'

Layers showing the future high tide in the 2020s, 2050s, 2080s, and 2100 are based on NPCC's (New York City Panel on Climate Change) projections for SLR (sea level rise) in New York City. Mapping of the flood inundation extents anticipated for each projection was completed by DCP (Department of City Planning) based on a 2010 Digital Elevation Model for NYC using a modified bathtub approach provided by NOAA.

Layers showing the future floodplains in the 2020s, 2050s, 2080s, and 2100 are based on a layering of high estimates for SLR by NPCC on top of the 2013 PFIRM BFE for 1% annual chance floodplain and on top of the stillwater flood elevations for 0.2% annual chance floodplain.



https://dcp.maps.arcgis.com/apps/webappviewer/index.html?id=1c37d271fba14163bbb520517153d6d5

NEW YORK CITY **DEPARTMENT OF CITY** PLANNING

NYC FLOOD HAZARD MAPPER

The New York City Panel on Climate Change (NPCC) is a group of scientists and private sector experts that provides climate change projections for the city. NPCC's most recent report, released in early 2015, provides the latest projections for SLR in the city based on global climate models.

The projections take into account different climate change scenarios and inputs to arrive at high, middle, and low estimates for SLR in the 2020s, 2050s, 2080s, and 2100. NPCC's projections are likely to evolve over time because the science and underlying data are not static and will continue to advance.





DCCR: DEFINING RESILIENCE IN THE CITY-OF-YES

During the fall of 2022, USACE disclosed a New York and New Jersey Harbor and Tributaries Study (NYNJ HATS), a \$52 Billion proposal for the region investing in gates, breakwaters, jetties and approximately 41 miles of seawalls for storm protection.

The Alternative 3B, which is the one recommended for implementation, relies on gray infrastructure measures and hardened edges without integrating nature-based solutions and local waterways. The planned project is to start in 2030 and continue over the next two decades when the projected sea-level rise will reach 2'-6".

HATS proposal has been met with criticism.

NYC and NJ Urban Tributaries Workzations from across the USACE's Bay ture planning and the proposed (Alt. Newtown Creek; Newtown Creek Alliance #3B). They are: Bronx River; Bronx River Alliance

Beautification Project



The Alternative 3B

ing Group is a collection of organi- Flushing Bay and Flushing Creek; Guardians of Flushing

study area who will be directly im-pacted by the project but were left Hackensack River; Hackensack Riverkeeper out in the planning of the infrastruc- Hutchinson River; Hutchinson River Restoration Project

Kill Van Kull and Arthur Kill, Coalition for Wetlands and Woodlands

Coney Island Creek, Coney Island Passaic River, Newark Bay, Hudson-Raritan Estuary, Raritan Bay, & Sandy Hook Bay; NY/NJ Beekeeper



https://hats-cenan.hub.arcgis.com/apps/0cdd194759f145268c39fcedaf1e5890/explore

ATS_AII_Alts







THE WICKED PROBLEM OF JAMAICA BAY ALSO KNOWN AS THE GRASSY BAY) AND THE SURROUNDING COAST-AL COMMUNITIES IN NYC'S QUUEENS AND BROOKLYN IS MULTI-FACETED.

SOME FACTS FROM THE NYC DCP, **COMMUNITY DISTRICT PROFILES** CB14 ARE:

82% OF ALL DWELLING UNITS (37,889) ARE IN FLOODPLAIN (with 1% annual chance floodplain)

27.2% OF THE POPULATION IS UNDER 18 YEARS OF AGE.

14.1% OF THE POPULATION IS OVER 65 YEARS OF AGE

26.7% OF THE POPULATION IS FOREIGN-BORN

34.2% WHITE (Non-Hispanic)

35.8% BLACK (Non-Hispanic)

3.8% ASIAN (Non-Hispanic)

2.3% OTHER RACE (Non-Hispanic)

23.9% HISPANIC (of any race)

POPUL	ATION &	DENSITY			F 412 C	
10003	20103	2000-20	10	Sh	1.1	
106,686	114,978	+8%		2	- Join	÷
2013-3017 (summer* 123,012		and the second second				
Source M	iles	7	-			
Population Density 16,425/sq mi		H (1				
COMMUNITY ASSETS		RENT BURDEN".		ACCESS TO PANKS'		
Public Schools		35	Queens CD 14	Queens	Queens CD 14	
Public Maranies		6	45% of lowerholds grant 1980 or ment of their income content	47% NVC 45%	85%	Citywide Target 85%
Holgi tels and Di	nie)	13				
Parks		13				
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THE OWNER ADDRESS

OESIGN 401// PROF, JEINA KUZ// ZICONG LIU UTE ANALYSISI/ INTRODUCTION



https://communityprofiles.planning.nyc.gov/queens/14

DELTA CITIES

COASTAL RESILIENCE

2019 FALL **BEACH TO BAY**: A VISION FOR EDGEMERE, ROCKAWAY, NY



BASE FLOOD ELEVATIONS DETERMINED COASTAL FLOOD ZONE WITH VELOCITY HAZARD (WAVE ACTION); BASE FLOOD ELEVATIONS DETERMINED AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% AREAS DETERMINED TO BE OUTSIDE THE O.2% ANNUAL CHANCE FLOODPLAIN ANNUAL CHANCE FLOOD Open space / Vacuum Lots ----1---Edgemere Boundary Building Lots R4 R4 districts allow all types of housing at a slightly higher density than permitted in R3-2 districts. The floor area ratio (FAR) of 0.75, plus an attic allowance of up to 20% for inclusion of space under the pitched roof common to these Inclusion of space under the public dot common to make districts, usually produces buildings with three stories instead of the two-story homes characteristic of R3 districts. Much of the residential development in North Corona in Queens and Arden Heights in Staten Island is typical of R4 districts. R5 RS districts allow a variety of housing at a higher density than permitted in R3-2 and R4 districts. The floor area ratio (FAR) of 1.25 typically produces three-and four-story attached houses and small apartment houses. With a height limit of 40 houses and small apartment noises. With a height limit of e-feet, 85 distributions provide a transition between lower- and higher-density neighborhoods and are widely mapped in Brooklyn, Queens and the Bronx. Portions of Windsor Terrace and Ocean Parkway in Brooklyn are R5 districts.

R6

R6 zoning districts are widely mapped in built-up, medium-density areas in Brooklyn, Queens and the Bronx The character of Ró districts can range from neighborhood with a diverse mix of building types and heights to large-scale "tower in the park" developments such as Ravenswood in Queens and Homecrest in Brooklyn. Developers can choose between two sets of bulk regula Standard height factor regulations, introduced in 1961, produce small multi-family buildings on small zoning lots an on larger lots, tall buildings that are set back from the street. Optional Quality Housing regulations produce high lot coverage buildings within height limits that often reflect the scale of older, pre-1961 apartment buildings in the neighborhood.

C4-

C4 districts with an A, D or X suffix are contextual districts in which the commercial and residential bulk and density regulations can differ from corresponding non-contex districts. Some districts have the same commercial and residential floor area ratios (FAR) as shown in the table, but may differ in parking requirements. Floor area may be increased with a public plaza or Inclusionary Housing Program bonus. C8

C8 districts are mapped mainly along major traffic arteries, such as Boston Road and Jerome Avenue in the Bronx and Coney Island Avenue in Brooklyn, where concentrations a automotive uses have developed.

The floor area ratio (FAR) ranges from 1.0 in C8-1 districts to 50 in CR.4 districts

Off-street parking requirements vary with district and use. Automotive uses in C8-1 to C8-3 districts require substantial parking. C8-4 districts are usually exempt from parking



JAMAICA BAY STORY: BEACH TO BAY | FALL 2019 | UA | GCPE DCCR I

25 St Wavecrest

Beach 36 Street - Edgemere

Seagirt Bl



DCCR | JAMAICA BAY STORY: BEACH TO BAY | FALL 2019 | UA | GCPE



Photo: EDGEMERE, BEACH 43rd STREET | ZK

Community Visioning for Vacant Land following **Managed Retreat in** Edgemere, Queens, N.Y.

Exploring possibilities for vacant land



Collective for Community, Culture and Environment







ROCKAWAYS: VACANT LAND BY OWNER

Edgemere is a low-lying waterfront community located in the Rockaways, a barrier peninsula, in Southeastern Queens, New York City. Edgemere is a low income minority community, with non-Hispanic Black residents comprising 62% of the population. Forty percent of the population is under the age of 18.

The neighborhood experienced significant damage from storm surge during Hurricane Sandy, but also experiences regular nuisance flooding from lack of stormwater infrastructure. A combination of a high water table and a flat topography at the edge of Jamaica Bay puts Edgemere at constant risk of flooding.

Managed retreat to date and status of buyout sites: The area is in the midst of a city-led effort by NYC HPD to create a community land trust, focused on large swaths of vacant land and decades of disinvestment, which presents a unique opportunity to explore a model in the context of managed retreat.



SAVI (Spatial Analysis and Visualization Initiative, PRATT INSTITUTE





New York City may give 119 City-owned vacant lots to non-profit organizations to housing, stores and open space uses.

In this development area there are 119 vacant lots. The City has designated 62 Lots for residential use, 55 Lots for open spaces 2 Lots for commercial

The CLT (non-proft) will own the land and create 99-year leases for a homeowners association and agreements with openspace stewardship groups.

create a Community Land Trust to develop



Edgemere, Queens, 12. 16. 2021, Community Advisory Meeting #3 at RISE

houses near vacnat lots should have an option to purchase them - but not build

on them



Open Space, Future Owner: DCAS Open Space, Future Owner: NYCParks

Other

NYC HPD Owned Vacant Land - Potential Resilient Landscape Area

*Demolition Status of City Buyouts Designated for Open Space

Resilient Edgemere, Plan



Community Visioning for Vacant Land following Managed Retreat in Edgemere, Queens

POSSIBILITIES:

Waterfront Access **Tools of Economic Development Food + Community Gardens + Fruit Or**chards + Flowers and Green Houses **Fishing + Fish Farming Connectivity + Biking + Repairshops** and Bike Parking **Recreation + Kayaking + Canoeing Pod Park and Happy Streets**



Edgemere, Queens, 12. 16. 2021, Community Advisory Meeting #3



Spring 2023 | JAMAICA BAY STORY: Transformative Nature of Resilience | UA | Ziyang Xiong





The Plans above are from the "Final Report- Integrated Hurrican Sandy, Reevalua-tion Report and Environmental Impact Statement- Atlantic Coast of New York- East Rockaway Inlet to Rockaway Inlet and Jamaica Bay" issued by USACE on July 2019.

Revised Final General Reevaluation Report and EIS

The project is an urban scale proposal to counter existing and accelerating challenges that New York City is facing: One is the City's existing and growing affordable housing crisis. The other is the City's low-lying vulnerable neighborhoods which are threatened by the rising sea levels. The flood risk will cause many residents to relocate unless new strategies are deployed to either prolong on-or-along-thewater living or moving to different locations with their mobile homes...

The project site is in Edgemere, accessible from Beach 58th Street and Almeda Avenue and along the Sommerville Basin shoreline. The site design builds upon the USACE 2019 report/proposal; an elevated boardwalk is placed above the earth berm which gives way to the public amenities including a swimming pool. This elevated publicly accessible boardwalk has many access points from the park directly behind it with landscape stairs or ramps and on the other side it gives way to the floating docks that connect the floating housing units just like in the adjacent Marina 59 for boats. The boardwalk, which is a public amenity is also an integral part of the flood protection system (IFPS).

Floating housing units have three different types to accommodate small, medium, and large families. The Units have sloping roofs for stormwater collection and/or for solar panel application. Shared outdoor spaces between them are for mussel pots or floating gardens where everyone can come together and contribute.









Spring 2023 | JAMAICA BAY STORY: Transformative Nature of Resilience | UA | Ziyang Xiong



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FUTURE COASTAL FLOOD RISK MAPS FROM 2014 TO 2100



COMMUNITY RECONSTRUCTION PLAN





Natural and Cultural Resources

Infrastructure System

- CrossBay Blvd Rasied

- Wetland Restoration
- Farm to Table (Green House)
- Gardens
- Photovoltaics
- Salt Tolerent Trees Planted

Project by Keumbi Noh + Sairom Lee



Community Planning and Capacity Building

- Main Refuge
- Classes
- Pool
- Port Terminal
- Pet Community Center



Health and Social

Services

- Hydrotherapy Center

- First Aid Room

Economic Development

- Restaurant
- Cafe
- Hydrotherapy Center
- Farm to Table (Market)





- Boat Houses - Bed and Breakfast Units



A TRAIN STATION AT BROAD CHANNEL at W Road and Noel Road

A-TRAIN tracks between Rockaway Peninsula and Broad Channel were washed away during Superstorm Sandy (October 29th, 2012). MTA had to replace 1500 feet of subway tracks and built a seawall to protect the elevated A line from future storm surge. After 7 month, the service is resumed on May 30th, 2013.



Photo: MTA -A train station, Broad Channel , 2023, ZK

https://secondavenuesagas.com/2012/11/08/scenes-from-sandy-the-a-line-destruction-in-photos/

SITE SELECTION: CONNECTIVITY MAP



	PENDING
()	WATERWAY TAXI
0	SUBWAY SYSTEM ROUTE
	BUS ROUTE
	PROPOSED BUS ROUTE
·	PROPOSED BUS RAPID TRANSIT ROUTE
	BIKE LANE
	PROPOSED BIKE LANE
	GREEN LINE
	COMMERCIAL
	SCHOOLS, CHURCHES
	LIBRARIES, POST OFFICE, GOVERNMENTAL



MASTER PLAN for BROAD CHANNEL EAST FACING SHORELINE with MAN-MADE AND NATURAL INFRASTRUCTURES TO SUPPORT AMPHIBIOUS HOUSING

Project by Javier Mercano + Alberto Silva



Project by Javier Mercano + Alberto Silva

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ZEHRA KUZ UArch | 400 DESIGN STUDIO



1938, Floating Homes on Portage Bay, in Seattle Washington



Floating Homes on Portage Bay, in Seattle Washington



1910, Floating Homes near Madison Park Lake, Washington



Floating Homes on Portage Bay, in Seattle Washington



WATERWONINGEN by Marlies Rohmer, IJburg, Amsterdam, NL 2011



SCHOONSHIP Amsterdam NL: 144 Residents, 516 Solar Panels, 30 Heat Pumps, 60 Thermal Panels





https://www.archdaily.com/120238/floating-houses-in-ijburg-architectenbureau-marlies-rohmer



JAMAICA BAY STORY: Wicked Problem of the Climate Change | February 15 -16 2024 | Zehra Kuz

https://schoonschipamsterdam.org/en/#site header





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JAMAICA BAY STORY: The Wicked Problem of Climate Change

WATER IN and WATER OUT Innovative Water Research February 15th and 16th 2024

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zkuz@pratt.edu https://ramp-pratt.org/

