Pratt Institute PSPD + ARCHITECTURE

The Delta Cities Coastal Resilience Studio

COMMUNTIY FOCUS: RED HOOK

Studio Course | Spring 2016

Studio Professors:

Jaime Stein | PSPD Sustainable Environmental Systems, Head of Program
Gita Nandan | thread collective, LLC, principal/architect & PSPD Professor
Tom Jost | Parsons Brinckerhoff, Senior Urban Strategist & PSPD Professor
with studio critic
Zehra Kuz | Oasis Design Lab, LLC, founder & Pratt Architecture Professor

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WELCOME

The greatest challenge of the 21st century is the design, adaptation and preservation of coastal communities in the face of climate change. This challenge requires not just a multidisciplinary but a truly transdisciplinary approach which engages all disciplines and programs within the PSPD. Welcome to PSPD's first Resiliency Studio. Through this studio we aim to harness the skills of environmental systems analysts, planners, placemakers, architects and preservationists. Drawing on our success and experience with RAMP Recovery Adaptation Mitigation and Planning, this studio will explore resilient coastal communities within Delta Cities in partnership with undergraduate architecture. The studio will analyze elements of participatory disaster planning, architecture, infrastructure and urban design in Red Hook, Brooklyn. This workbook will provide you with the details on the course, the project, and the context in which we are working.

A WORD FROM THE PROFESSORS

PROFESSOR BIOS

Jaime Stein | Jaime Stein is an Academic, Sustainability Consultant and Urban Researcher with more than 15 years experience in advocating for sustainable communities through community engagement, sustainability planning and policy analysis. Currently, Ms. Stein directs the Sustainable Environmental Systems program at Pratt Institute. Her academic research focuses on systems thinking integrated with community self-determination, green infrastructure and community based resilience. She is Co-Director of Pratt Institute's Recovery, Adaptation Mitigation & Planning (RAMP) initiative, is a founding member of the Stormwater Infrastructure Matters (SWIM) Coalition as well as the Collective for Community, Culture & the Environment. Jaime also serves on the NYC DEP's Water Infrastructure Steering Committee and is the Mayoral Appointee for the Atlantic Yards Community Development Corporation.

Gita Nandan | Ms. Nandan is an architect, designer, educator, and community resiliency leader. She is a founder and principal of the award winning design firm, thread collective, LLC., chair of the Red Hook NY Rising Community Reconstruction Planning Committee, and instructor at Pratt Institute and the School for Visual Arts. Working in the field for over 15 years, Ms. Nandan has overseen design and construction on a wide range of project-types from single family homes to the first farms on NYCHA. As a community leader in Red Hook, she is exploring how innovative community-wide projects such as micro-grids, integrated flood protection systems and community investment funds can transform the physical landscape of a low-income waterfront neighborhood. Gita received her Master of Architecture from UC Berkeley and is a registered architect in New York and New Jersey, an accredited LEED professional and Enterprise Green Communities Technical Assistant.

Tom Jost | Thomas Jost directs the integrated urban strategies practice at WSP | Parsons Brinckerhoff. Tom has focused on exploring the drivers that influence sustainable urban development in order to create adaptive strategies to solve the challenges of climate change, carbon reduction and reducing fossil fuel dependence. Tom has worked with the City of New York through the Special Initiative for Rebuilding and Resiliency to integrate coastal protection with community-based urban design strategies. For the NY State Office of Storm Recovery, Tom helped to develop community resilience strategies for ten NYC communities. For the federal government, Tom was a member of the winning Living Breakwaters Rebuild by Design team. Tom's career includes several transformative planning and design projects, including The High Line and the Fresh Kills Landfill to Park Conversion. Tom has a Bachelors in Economics from Lehigh University and a Masters in Urban Design from Pratt Institute.

Zehra Kuz | Zehra Kuz is a registered Architect in New York and Connecticut and Adjunct Professor with CCE at Pratt Institute, School of Architecture. She is the principal of Oasis Design Lab, a collaborative office for architecture and engineered design. Prior she worked for Edward Larrabee Barnes - J.M.Y. Lee Architects and later for SOM in New York where she was an active member of Professional Development Committee with a focus on environmentally conscious design. Her approach to design is influenced by reciprocal relationships that exist between buildings, their inhabitants and the surrounding environment. Similar ideas inspired the exhibition "Autochthonous Architecture in Tyrol" and the symposium 'The Organic Approach to Architecture' which she co-authored. Presently she is one of the primary investigators for Fluid Frontiers, a research funded by the NY Community Trust Fund and focuses on Stormwater Management in Red Hook.

COURSE BACKGROUND

PROJECT DESCRIPTION

Currently, NYC is undergoing a sea-change in it's built environment; Super Storm Sandy was a wake up call to the region, reminding us of our vulnerability to extreme weather events, and the future impacts of climate change. In the three years since, there has been considerable effort on behalf of the design community and various government agencies to try to address the issue of how our waterfront communities will deal with rising sea levels and potential degradation of our coast that sits in direct harm. These areas are at the forefront of what is to come in the next century. A wide variety of design proposals are underway towards implementation from Hunt's Point in the Bronx, to Hoboken New Jersey, to Coney Island, each with a very different approach and community response.

This studio aims to look in depth at the issues facing such coastal communities, through the example of the South Brooklyn Red Hook Integrated Flood Protection System (IFPS). The studio has the advantage of occurring simultaneously to real world conditions; the Red Hook IFPS Feasibility Study has just kicked off this past December. The IFPS Feasibility Study is led by Dewberry Engineering and is managed through the Mayor's Office Of Resiliency Reconstruction (ORR), the NYC Economic Development Corporation (EDC), and in partnership with the Governor's Office of Storm Recovery.

The primary goal of the studio, with it's integrated team approach, is to produce multi-disciplinary design proposals that create effective and innovative flood protection measures, while simultaneously being sensitive to community, and context, and provide a better social and economic fabric. The complexity of the project allows students to understand the methodologies for decision-making, how to turn limitations into beneficial parameters, and how community goals have design implications. Topics such as the future of NYC's maritime industry, waterfront development, job opportunities, alternative energy production, ecological restoration, NYC agency regulations, transportation, FEMA and National Flood Insurance Protection requirements, economic development, tourism, social cohesion, and emergency preparedness are just a few of the larger issues that will be considered in the process of conceptualizing an IFPS.

An IFPS can simply be a line on a map. But a successful and fruitful vision must be much greater than a utilitarian structure that holds back the encroaching seawater. Each team (consisting of approx. 3 students) will determine a conceptual framework to work within taking the design from an overall vision to an outline of implementation. Based on the student's background, interest and skills, each team will determine their approach, and the project's focus. While students have the opportunity to explore a wide variety of issues, from planning to urban design to architectural interventions, we will look to understand how each of these has a spatial relationship and weaves together in a multidisciplinary fashion. Through an iterative exploration process, students will determine best practice recommendations.

The final deliverables will be a useful tool for the Red Hook Community, through the Red Hook New York Rising Community Reconstruction Planning Committee, to be able to further envision the opportunities, challenges, and potential for such infrastructure. These proposals can help

the community build an understanding to further their vision and dialogue with the Dewberry Engineering team as the Feasibility Study moves ahead.

Finally, this PSPD Delta Cities Coastal Resilience Studio will be a continuation of our post-Superstorm Sandy community resilience efforts and will be the inaugural class of the Delta Cities Curriculum. Beginning in the Summer of 2013, the Programs For Sustainable Planning & Development initiated the creation of a suite of studios/urban labs, workshops and conferences called the Recovery, Adaptation, Mitigation and Planning [RAMP] www.ramp.prattpspd.org.

RAMP was predicated on the imperative that community residents must be the foundation of any resiliency strategy. They are part of the team of "first responders", experts in their communities, and the ones for whom resiliency is most directly relevant. As such, they are central to the development of any plan related to their communities to mitigate and recover from future disasters. This is particularly important in low- and moderate-income areas and in communities of color where issues of race and economic status have too often led to exclusion and isolation in planning and decision-making. This exclusion inherently gives many of our resiliency initiatives overlays of social and economic injustice. By including these communities we improve the innovation and quality of resiliency planning. We create more social capital (a critical element to resiliency), ensure rooted and on-going buy-in/stewardship and a greater possibility of government and private sector accountability in adaptation, mitigation and resiliency.

The Delta Cities Curriculum aims to build upon the success of RAMP and develop community capacity while also developing the professionals and aspiring professionals in: architecture, urban planning, environmental policy and design, sustainability, placemaking, and preservation to develop strategies and skills to support community-scale, innovative climate resilience. The Delta Cities Curriculum, a global partnership of Architecture, Planning and Environmental Design Schools, aims to develop global best practices for coastal resilience by way of collaborative research, studios/urban labs, workshops and conferences. Following the RAMP pedagogy, Delta Cities will foster the sharing of curricula and lessons learned that emerge in other participating delta cities governments, educational institutions, community-based, environmental and policy organizations. Currenlty the PSPD has engaged academic institutions in Rotterdam, Hong Kong, Bangladesh and Jakarta. The findings from our Red Hook Resilience Studio will be shared at the upcoming Adaptation Futures conference in Rotterdam.

COURSE DETAILS

CLASS DETAILS

credits: *5*

class meetings: thursdays, 5p - 10p

professors: Jaime Stein, Gita Nandan, Tom Jost

teaching assistant: Kate selden, 2nd-year city & regional planning student, kselden@pratt.edu

This class is taught as a collaboration between PSPD and the School of Architecture, with Ms. Zehra Kuz and the undergraduate architecture studio

COURSE REQUIREMENTS & ASSESSMENTS

30% participation: preparation for class discussions, including a careful understanding of the readings, engagement with the material, exhibits curiosity around topics and materials.

30% presentation of class assignments: individual research and presentation in a logical, and clear fashion with cohesive and well organized visual documentation

30% final studio presentation

10% attendance: you are expected to attend each class

NOTES ON ATTENDANCE & GRADING

Attendance: Two late attendances will be counted as an absence on your record. Extreme lateness will be considered as an absence for that day. Bear in mind that this is an intensive mini-course and each class is critical to understanding the material : two absences will result in a reduction one full letter grade for the course; 3 unexcused absences will result in a failing grade for the course, unless there are extenuating circumstances. The only legitimate excuses for absence are: an extended illness requiring hospitalization or visit to a physician, with documentation; a family emergency, e.g. serious illness, with written explanation; observance of a religious holiday.

PLEASE be on time to each and every class. We have a lot to accomplish this semester. In addition, the integration of the architecture studio will take place during the overlapping period of 5pm to 6.30pm and we will need all students present to participate in this exciting multidisciplinary process.

Evaluation: We assume you are all capable of excellent work; however, you will be graded on performance rather than potential. Grades will be assigned along a standard academic scale. The relatively rare grades of A and A- will be reserved for work of extremely high caliber, depth, focus and originality. Grades in the B range signify that the student has performed very

well in the course, submitting above average work and contributing to the course on a weekly basis.

A = Excellent: Student completes all the material in a timely fashion with rigor, insight, and interest, above and beyond the standard set by the student class.

B = Very Good: Student completes all the material in a timely fashion in a satisfactory manner, and clearly demonstrates capability with the material.

C = Fair: Student satisfies the general demands of the course.

D = Unsatisfactory: student is unable to meet the basic requirements of the course in terms of attendance, discussion, preparedness, or completion of work.

F = Unacceptable: Student is unable to meet the minimal requirements of the course and exhibits poor performance.

LATE WORK: Late work is penalized by the reduction of an assignment grade by one-half letter grade per day. Exceptions can only be made in dire emergencies [see above].

PLAGIARISM: Plagiarism is the unacknowledged use of someone else's work as one's own in all forms of academic endeavor [such as essays, theses, examinations, research data, creative projects, etc], intentional or unintentional. Plagiarized material may be derived from a variety of sources, such as books, journals, websites, student or faculty papers, etc. This includes the purchase or "outsourcing" of written or design assignments for a course. [A friendly reminder: all images in a presentation must be cited.] A detailed definition of plagiarism in research and writing can be found in the fourth edition of the MLA Handbook for Writers of Research Papers, pages 26-29. Just don't do it.

CELL PHONES AND LAPTOPS: Laptop use is allowed during class-time for class project work only during explicit work sessions. Otherwise laptops are not allowed during class discussions, presentations, student presentations etc.. The exception to the laptop rule is students who can provide documentation of a learning disability that requires the use of their laptops. Cell phone use is prohibited at all times in the classroom and on field trips [unless, of course, you are lost!]

CONTACT YOUR PROFESSORS: Please note that we will respond promptly to emails, typically within 24hours – (weekends excluded). Please email or text if you are going to be late to class, but simply being on time is best. Email all professors simultaneously on all correspondence

+ gita: gnandan@pratt.edu & gita@threadcollective.com | cell: 917.439.0728 office: 718.484.0065
+ jaime: jstein@pratt.edu | office: 718.399.4328
+ tom: jost@pbworld.com & tjost@pratt.edu
+ zehra: zkuz@pratt.edu
+ *teaching assistant* kate: kselden@pratt.edu | cell: 847.691.5113

OFFICE HOURS: We will be available to meet before class or at additional hours, please schedule ahead of time. We encourage you to do so in order to make the learning experience productive, and positive.

TYPICAL CLASS STRUCTURE

Allowing for the integration of architecture studio with PSPD studio

5p - 6.30p: *lecture, AND/Or arch+planning student work review session*

6.30p - 6:45p *break*

6.45p - 7:45p: *lecture AND/Or arch+planning student work review session*

8p-10p: *10p desk-crits AND/Or one-on-one question answer period*

MATERIAL STORAGE

All course materials will be stored on dropbox.com
+ log-in: gnandan@pratt.edu
+ password: pratt2016

REQUIRED READINGS

Required readings will be available on the dropbox folder (above). Core readings are included in this syllabus, however additional readings may be added or substituted as the course progresses, with sufficient advance warning. Each week will have primary readings, which are required, in addition to recommended readings/websites for additional detail, theoretical background, and precedents.

WEEKLY SCHEDULE

Project descriptions and associated deliverables: see page 12 for details on assignments and due dates. All assignments are due via Dropbox the day of class. Be prepared to present Project Assignments every week, although presentations may not be required (class time dependent).

weekly reading assignments (5) will be due prior to class, and additional information will be provided on deliverable requirements on a weekly basis.

the outline of the weekly schedule is subject to change, at the professors discretion. Students will be notified ahead of time. Selected guest lecturers are suggested and may change based on availability.

pre-studio meeting: january 11
NY Rising Community Reconstruction Plan (RH.NYR.CRP) Committee meeting
optional for students to attend

WEEKLY SCHEDULE [CONTINUED]

week 1: january 21 [6.30p - 8.30p in Red Hook]

meet at 6p in the lobby of the Miccio Center
Red Hook Integrated Flood Protection System (IFPS) Public Meeting
Miccio Community Center, 110 West 9th Street, Red Hook
required for all students.

SATURDAY Red Hook Bus Tour: january 23 [9.45a - 2p]

meet at Higgins Hall 9.45a. please do not be late, bring brown bag lunch. transportation provided
LECTURE: Sandy's impact and NYC's need for Integrated Flood Protection
TOUR:

+ meet wtih various local active Red Hook Community members (Carolina Selguera of Portside, Allison Reeves of SHARED, John Quadrozzi of GBX Terminal)
+ lunch at SHARED conference space
+ introduction to Delta Cities Curriculum
+ project description and deliverables

PROJECT DELIVERABLE: readings

week 2: january 28

case studies presentations and discussions. use case study template for layout, available in the dropbox.
PROJECT DELIVERABLE A1: case study presentation

week 3: february 4

LECTURE: government structure and regulatory framework for IFPS study; design and implmentation; community as a driver for resiliency.

+ role of DEC, DOB, DCP
+ guest Curtis Cravens at ORR

PROJECT DELIVERABLE A2: SWOT analysis

week 4: february 11

LECTURE: inland flooding impacts and drainage study

+ guest E-Design Dynamics, Brooklyn Greenway Initiative

PROJECT DELIVERABLE A3: DESIGN 1

week 5: february 18

design proposal pin-up session with guest critics
PROJECT DELIVERABLE A3: DESIGN 2 initial design proposal pin-up - physical and tangible [not presentation mode]

WEEKLY SCHEDULE [CONTINUED]

week 6: february 25
LECTURE: social resiliency
PROJECT DELIVERABLE A3: resiliency indicators
LECTURE: community outreach, importance of community engagement
PROJECT DELIVERABLE A3: DESIGN 2 desk crits, prepare for salon

week 7: march 3
DESIGN SALON: KNOWLEGE EXCHANGE
PROJECT DELIVERABLE A3: student design pitch

week 8: march 10
LECTURE: transportation and waterfront activities
+ guest Carter Craft
PROJECT DELIVERABLE A4: DESIGN 1 desk crits

week 9: march 17 [SPRING BREAK]

week 10: march 24
LECTURE: funding opportunities, and potential private public partnerships, cost benefit analysis.
+ guest IMG Rebel, Sam Carter of Rockefeller Foundation
PROJECT DELIVERABLE A4: DESIGN 2 desk crits

week 11: march 31
LECTURE: workforce development opportunities
+ RETI Center economic consultant
PROJECT DELIVERABLE A4: DESIGN 3 pin-up

week 12: april 7
LECTURE: FEMA, USACE, HUD - the evolving regulatory landscape
+ guest TBD

week 13: april 14
DESIGN SALON: KNOWLEGE EXCHANGE
PROJECT DELIVERABLE A4: team design proposal
[midterm for arch students]

week 14: april 21
desk crits, prepare for final review
PROJECT DELIVERABLE A5: design integration + report rough draft

WEEKLY SCHEDULE [CONTINUED]

week 15: april 28
desk crits, prepare for final review
PROJECT DELIVERABLE A6: prezzi presentation boards rough draft

week 16: may 5
STUDIO WEEK, NO STUDIO CLASS
optional meeting with professors to review presentations, graphics, etc.

FINAL PRESENTATION [saturday may 7 OR sunday may 8 - TBD]
higgins hall, time and room TBD

COMMUNITY PRESENTATION [week of may 16 or may 23]
science fair presentation style, date and exact location TBD

PROJECT DELIVERABLES

NOTES

+ detailed direction on weekly assignments will be provided on an on-going basis. Should you have questions, please do not hesitate to email one of the professors.

+ this class will include independent, small team, and some minor full class work. The following icons will indicate when you will be working independently, with small teams (2-3), and with the whole class.



PHASE 1: EXISTING CONDITIONS
WEEKS 1 - 3

week 1-3 REVIEW OF READINGS

week 2 A1: CASE STUDY PRESENTATIONS
1 case study per student printed ready for review during class (see case study presentation format on dropbox)

week 3 A2: SWOT ANALYSIS PRESENTATIONS
exhibit SWOT on a single map of the area and a one to two page synopsis of critical issues to accompany the map - 5 min presentations

PHASE 2: INDIVIDUAL DESIGN DEVELOPMENT
WEEKS 4 - 7

week 4-6 IFPS DESIGN OPTIONS
create a red hook wide master plan design option, based on conceptual design direction from week 3

week 4 A3: DESIGN 1
prepare for desk crits, including identification of the problem, and initial metaphor/ concept direction, system diagram

week 5 A3 DESIGN 2 PIN UP
desk crits - prepare for desk crits, including identification of the problem, and initial metaphor/concept direction, system diagram, definition of terms, initial resiliency indicators - general (to be refined during weeks 9-12 for team projects)

week 6 A3 RESILIENCY INDICATORS

week 7 SALON & A3: STUDENT PITCH & ROUND TABLE DISCUSSION
+ A3: STUDENT PITCH FOR CONCEPT AND DESIGN DIRECTION
pecha-kucha style presentations, each student has 6.6-minutes to present [20slides x 20sec each slide], include metrics and indicators
+ ROUND TABLE DISCUSSION
identify the obstacles, benefits, challenges, differences, etc, create 6 teams (approx. and TBD) of 3-students for Phase 3 design development. Team grouping based on characteristics of projects and interests. Architecture students may be part of the teams above, and will act as "architect" consultants to the proposals

PHASE 3: TEAM DESIGN DEVELOPMENT
WEEKS 8 - 14

+ architecture students may participate in some teams

week 8-12 TEAM DESIGN DEVELOPMENT
students work in groups, and further develop a design direction incorporating a multi-faceted lens. Designs will integrate planning, environmental systems, urban design, placemaking, and architecture. Each student within the team will select a strategy to detail and drill down deeper into the topic at hand and how it has a physical, economic, and social impact on the overall project proposal.

strategies can include but are not limited to: transportation, workforce development, art integration, education programming, waterfront access, financing, community impact, waste, energy, drainage, future growth of RH, insurance.

week 8 A4 DESIGN 1 DESK CRITS
prepare for desk crits, including

week 9 SPRING BREAK

week 10 A4 DESIGN 2 DESK CRITS
prepare for desk crits

week 11 A4 DESIGN 3 PINUP

week 12 A4 DESIGN 4 DESK CRITS
prepare for Salon

[week 9-16] [ARCHITECTURE STUDIO WORKING ON IN DEPTH DETAIL DESIGN OF IFPS CONSTRUCTION DESIGN]

week 13 SALON
each team will present their design developments; round table discussion regarding integration of disciplines and cross fertilization; determine contents of Final Report

week 14 STUDIO WEEK [NO STUDIO]

PHASE 4: PRESENTATION
WEEKS 15-16

week 15 A5: PRESENTATION
design integration, presentation preparation, best practices (pedagogy, design, process)
create a REPORT, final culmination of studio deliverables

week 16 A6:PRESENTATION FOR PSPD FINAL PRESENTATION DAY (SAT OR SUN)
"prezzi" presentations from boards created for Community Review
- *+ conceptual design and vision statement*
- *+ "master plan" with section drawings*
- *+ set of resiliency indicators and metrics*
- *+ system diagrams for transportation, storm water system,*
- *+ social benefit planning opportunities*
- *+ economic analysis*
- *+ operations and maintenance plan*

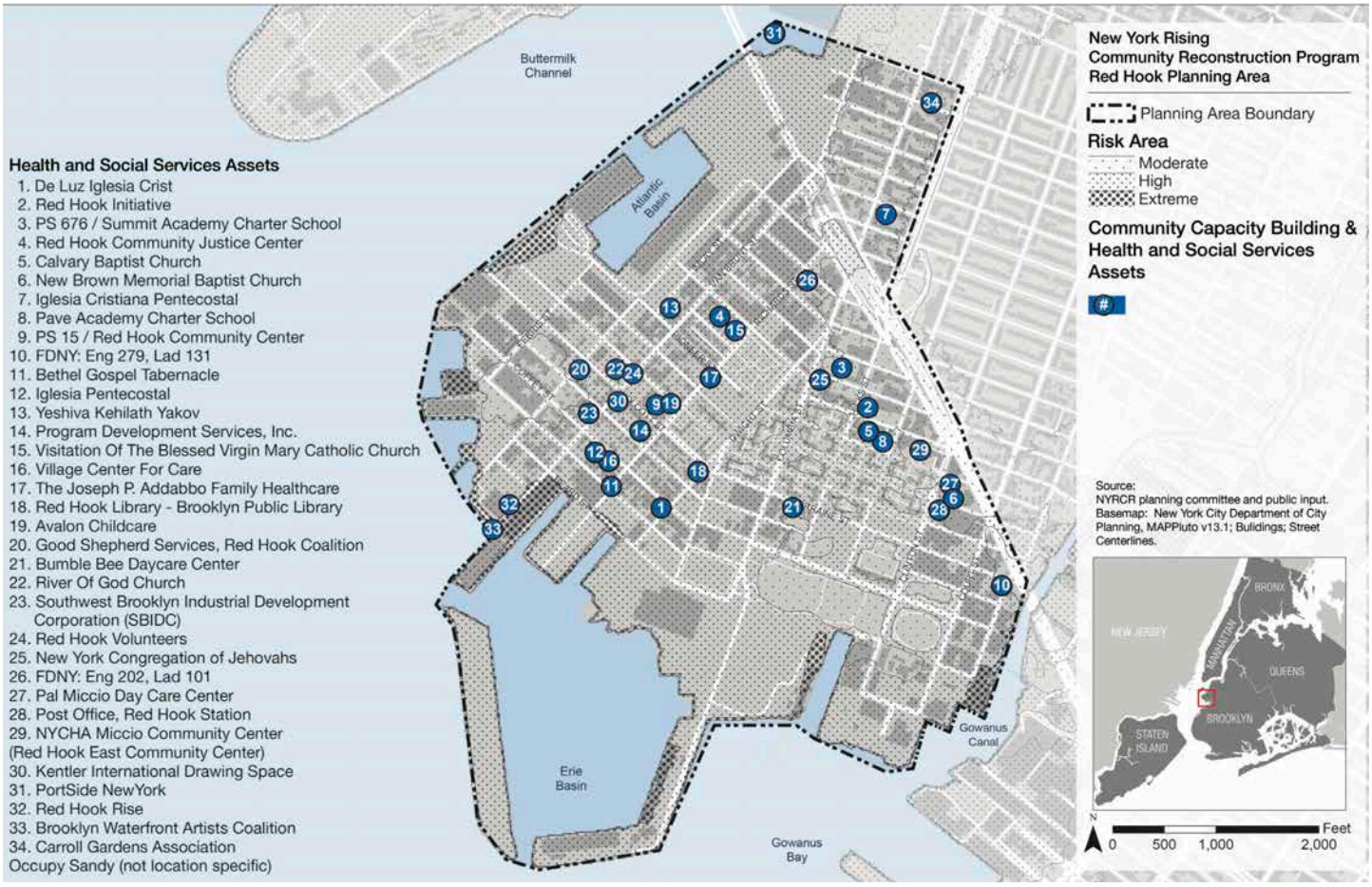
week TBD PRESENTATION TO RH.NYR.CRP COMMITTEE WEEK OF MAY 16TH OR 23RD
science fair presentation style, exact location TBD. week of May 16th or 23rd

COMMUNITY ORGANIZATIONS

COMMUNITY ORGANIZATIONS IN RED HOOK

Red Hook is rich in community organizations, social services, arts and cultural groups, and they are an integral part of the community. This was especially made clear during Superstorm Sandy when many of these groups stepped up to provide help, refuge, food, resources and support to the residents of the community. In addition to the groups listed on the map below, there are other organizations that have formed since the creation of the map, or may not have been included. For example, the Red Hook New York Rising Community Reconstruction Planning Committee ("RH.NYR.CRP. Committee") was formed after the map was released.

HEALTH AND SOCIAL SERVICE ASSETS MAP



source: Red Hook New York Rising Community Reconstruction Plan

EDC'S PARALLEL PROCESS

As we conduct our studio, EDC is also undertaking a project to plan an Integrated Flood Protection System (IFPS) for Red Hook. Though we will not be working directly on the EDC process, the ideas developed in our studio can ultimately be used by community groups, such as NY Rising, to advocate to EDC for innovative, comprehensive and innovative solutions to flooding.

BACKGROUND ON FUNDING

FEMA is granting funds to municipalities as part of the Sandy Recovery and Improvement Act (SRIA) of 2013 through a grant program called the Hazard Mitigation Grant Program (HMGP). New York City applied under this grant for $4,356,000 in "Advance Assistance" to implement an Integrated Flood Protection System (IFPS) in Red Hook, which was a recommendation from the City's post-Sandy SIRR (Special Initiative for Rebuildng and Resiliency) report.

According to the HMGP, the funds used for "Advance Assistance" must be used in three phases:

+ preparation and review, existing conditions report and survey
+ preliminary technical feasibility and preliminary design
+ project analysis
+ completion of HMGP Application (implementation plan and timeline and budget completed)

Additionally, Governor Cuomo also announced a commitment to help the City develop a "comprehensive flood management system" for Red Hook to protect the neighborhood from flooding and sea level rise.

EDC FEASIBILITY STUDY

Using this funding from FEMA and the State, NYCEDC (Economic Development Corporation) is undergoing a process to conduct a feasibility study for an IFPS. It is "envisioned as a comprehensive and detailed assessment that considers all of the aspects needed to establish the feasibility of developing the IFPS" (EDC, IFPS Feasibility Study RFP Scope).

The EDC will be developing an IFPS that is a long-term and permanent solution to the issue of severe flooding in Red Hook. The solution will likely consist of several components, which might include multi-purpose berms, floodwalls, street elevations, and landscape improvements. The project will follow these stated guiding principles:

+ Resiliency to severe coastal flood events with consideration of projected sea level rise
+ A "multiple lines of defense" approach that recognizes the need for a range of strategies that protect key infrastructure and public and private assets effectively, while considering the unique challenges and opportunities of different areas of the neighborhood;
+ an integrated approach to address coastal flooding and storm water management that is also cognizant of, and fosters, feasible economic development opportunities;
+ principles developed by the Red Hook NYRCR Planning Committee to guide the creation of

an IFPS, as published in the NYRCR Program Red Hook Plan2
+ flood insurance benefits through modification of the flood insurance rate maps ("FIRM") managed by FEMA;
+ urban fabric connectivity and enhancement;
+ waterfront access and navigability for both commercial and recreational vessels during
+ environmental sustainability;
+ estimated capital cost; and
+ estimated O&M cost and potential sources of funding.

The EDC process will involve developing a number of conceptual options that could serve as components in an IFPS in the Red Hook neighborhood. Each option will then be evaluated for its feasibility and consideration of design and engineering; technical/physical aspects, environmental, urban design, infrastructure, performance, impact on adjacent areas, impact of other planned hazard mitigation interventions, financial, and implementation timelines. Next, they will select the preferred set of IFPS components and create a conceptual design, run a Benefit-Cost Analysis, and prepare a final report that that outlines a preliminary timeline and project budget, reports back on the process, and makes recommendations for next steps towards implementing the IFPS.

The project will be led by Dewberry consultants; they will be hosting the first public meeting on January 21, 2016 at 6:30pm. Our first studio class will be at this public meeting and will serve as an introduction to this process to provide context for our own project.

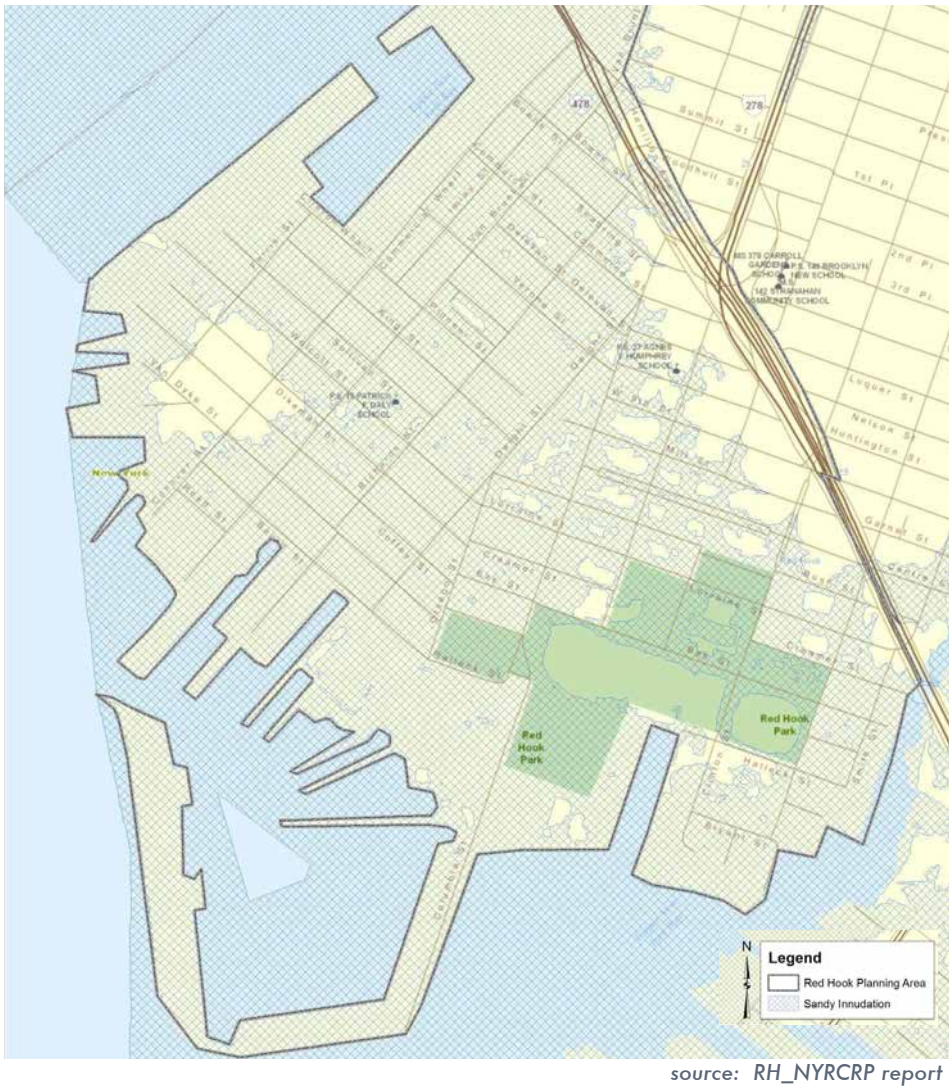
EXISTING CONDITIONS: INTRODUCTION

EXISTING CONDITIONS INTRODUCTION

The following information is meant to be a very brief introduction to the existing conditions of Red Hook, *it is by no means the full picture*. Given the vast amount of reports, studies, and proposals already written about Red Hook, we will not spend time during the studio compiling an existing conditions report (unlike many Pratt studios). However, you are expected to read through existing reports during the first few weeks of class in order to understand the characteristics; it is essential that your designs and proposals are based on the existing conditions of the community.

This existing conditions research was either quoted directly or paraphrased from the reports listed below. These reports can all be found in the class dropbox and should be referenced for more detail and information.

map of Red Hook study area



source: RH_NYRCRP report

Additionally, most of the the maps were provided by the Red Hook New York Rising Community Reconstruction Planning (RH_NYRCRP report), Parsons Brinckerhoff, or taken from other reports. All maps are available as individual files in the dropbox folder.

Sources:

+ *Red Hook New York Rising Community Reconstruction Plan,* 2014 ("RH.NYR.CRP")
+ Department of City Planning, *Existing Conditions and Brownfields Analysis: Red Hook, Brooklyn*, Pre-nomination Study for Red Hook BOA, September 2014. ("DCP BOA 2014")
+ EDC, *IFPS Feasibility Study, RFP Scope* ("EDC IFPS Scope")
+ Community Board 6, *A Plan for Community Regeneration - 197-a Plan*, 1996 ("CB6, 197-a")
+ DCP, *Red Hook Transportation Study*, 2014 ("DCP Transportation Study")
+ Rebuild by Design, *Commercial Coastal Resiliency* ("RBD, Commercial Coastal Resiliency")

EXISTING CONDITIONS: ENVIRONMENT

SANDY'S IMPACT ON RED HOOK

To set the context for the basis of this report and the need for an Integrated Flood Protection System, it is important to understand Superstorm Sandy's profound impact on Red Hook. Almost the entire Red Hook neighborhood was flooded by storm surges coming from both the harbor and Gowanus Canal during Sandy. The water damaged homes, businesses, and infrastructure, disrupting lives and businesses. Some areas had over 6 feet of flooding, and other basement or garden apartments were flooded up to the ceiling. Red Hook's waterfront businesses were substantially impacted by the flooding, as flood-waters filled ground floors and basements, damaging building systems and contents (RH.NYR.CRP).

In total, approximately 3,100 businesses along Red Hook's waterfront, employing approximately 34,600 people, were impacted by the storm. A number of retail businesses, both large and small, were also severely affected, including stores and restaurants along Van Brunt Street. Nearby, Fairway Market, an important area anchor, had to gut its Red Hook store (EDC IFPS Scope). The predominance of small businesses and startups made this damage particularly difficult as many businesses did not have many financial resources or insurance to deal with the damage and disruption. Damage was also particularly bad for food supply and food businesses because of the loss of inventory and perishable items. The disruption in food businesses also made it extremely difficult for residents to get food. Industrial businesses also flooded significantly affecting distribution chains and maritime industries (RH. NYR.CRP).

source: *RH_NYRCRP*

Flooding of infrastructure posed many problems. Both electricity and gas service were interrupted for weeks in many residences, with the hardest hit being the Red Hook Houses. This was particularly concerning because seniors and those with disabilities were stranded on upper floors with no access to elevators.

The important network of health and social service facilities was severely flooded, making it harder to bring important services to people in this time of distress. The sewers were inundated causing backups and allowing sewage to mix with floodwaters on the streets. Transportation to, from and around Red Hook was severely impaired, making it even more difficult to get to and from the neighborhood (RH.NYR.CRP).

Despite the extreme difficulties facing Red Hook, residents, other volunteers from outside Red Hook, old and newly formed local organizations jumped in immediately and showed an

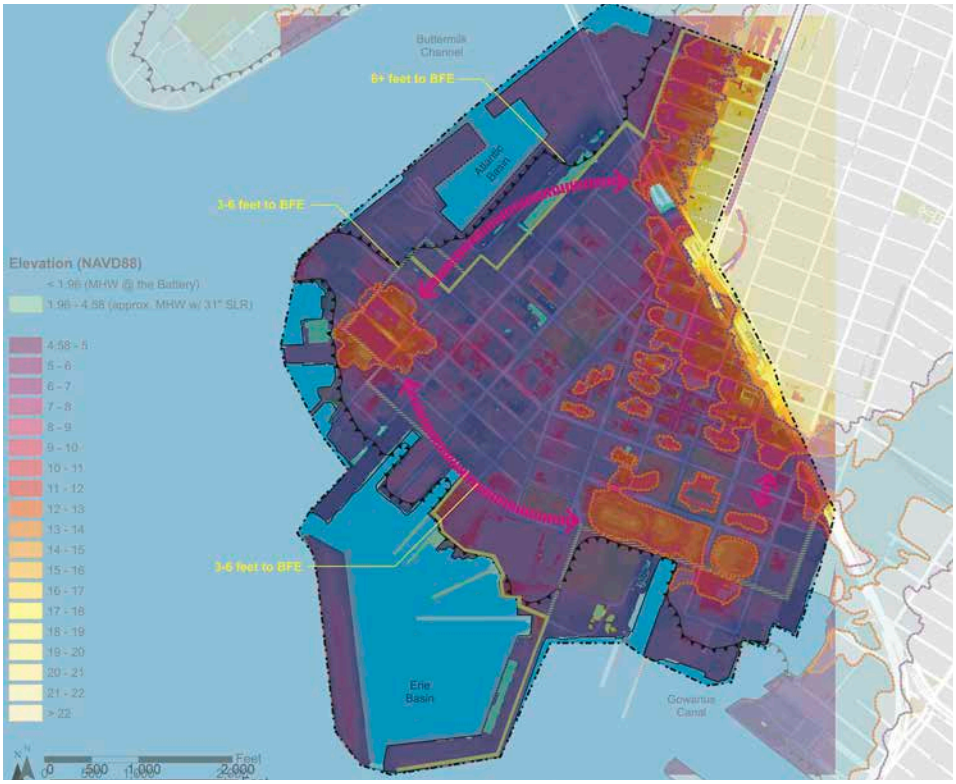
incredible effort to help people. Many cite a slow official response from the government, but others acknowledge that certain agencies, like NYCHA and the NYC Department of Sanitation helped restore the neighborhood (RH.NYR.CRP). Since the immediate aftermath of Sandy, there have been numerous citywide recovery initiatives, though many homeowners and business owners were not able to sufficiently access funding and are still struggling today.

source: RH_NYRCRP

source: RH_NYRCRP

GEOGRAPHY

Red Hook elevation

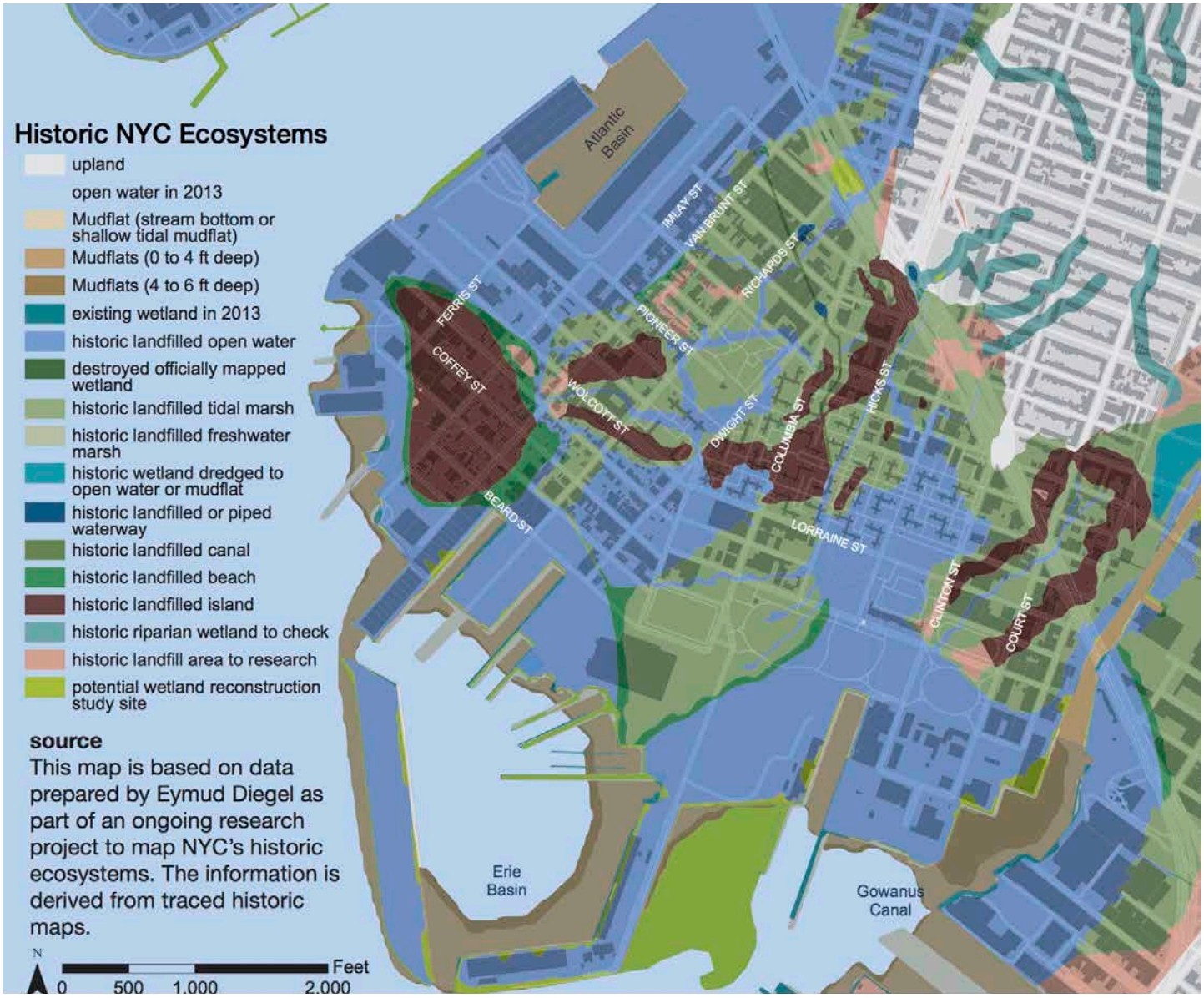


source: WSP | Parsons Brinkerhoff

Named for its red clay soil and the distinctive shape of the peninsula, marshy land in Red Hook remained largely undeveloped through the 18th century. Topographically, Red Hook is a 1.3 square mile, low-lying area that is bounded by several water bodies. Red Hook is a peninsula surrounded mainly by the Upper New York Bay. From west to east, Red Hook is surrounded by the Buttermilk Channel (a small tidal strait in Upper New York Bay, approximately one mile long and one-fourth of a mile wide which runs between Brooklyn and Governor's Island), the Gowanus Bay, and the Gowanus Canal.

There are two man-made water bodies in Red Hook along the waterfront: the Atlantic and Erie Basins, both constructed in the mid-19th century (quoted from DCP BOA 2014).

The map below overlays historic ecosystems on the current footprint of buildings and streets in Red Hook, illustrating the extent to which what is now Red Hook once consisted of tidal wetlands and open water.



source: RH_NYRCRP

POLLUTION AND CONTAMINATION

Due to its historic and continuing industrial nature, there is a lot of pollution and contamination in Red Hook. Of the 390 sites in Red Hook that are recorded as industrial, warehouse and automotive, about 10 percent are recorded as "open uses" (DCP BOA 2014) which means that the pollutants and toxins that are open to the air are particularly vulnerable to flooding or storms and could pose health and safety threats to surrounding residents and workers (find more from DCP's research on Open Industrial Uses).

Much of today's land in Red Hook consists of fill that hardened the marshy wetland that originally existed. Generally, these fill materials may be comprised of a variety of materials and contaminants including building demolition material, dredging spoils, and byproducts of industrial activities such as slag and foundry sand. Areas of historic fill are often contaminated with polycyclic aromatic hydrocarbons (PAHs), heavy metals such as lead, and petroleum products. Given the nature of filling activities, contamination is not contained within property lines and results in area-wide environmental impairment. This contamination has the potential to affect groundwater resources. However, groundwater in this coastal area is not used for potable water supply. Although historical fill is usually only lightly or moderately contaminated, it does require environmental management and tends to complicate new development (quoted from DCP BOA 2014).

In Red Hook, there are a total of 66 sites listed in the Vacant Property Database. There are also 6 (E)-Designations (a zoning map designation that provides notice of the presence of an environmental requirement pertaining to potential hazardous materials contamination or noise or air quality impacts on a particular tax lot) that were the outcome of the change in zoning (from M3-1 to MX-5) that took place in 2002. These (E)-Designations are all related to Hazardous Materials and are located along Van Brunt Street between Beard and Coffey Street. Several sites, both within the Study Area and proximate to Red Hook, have undergone or are presently undergoing remediation through the New York State Brownfields Cleanup and New York State and United States Superfund programs. There are two sites in Red Hook that report to the Toxic Release Inventory (TRI): Ameranda Hess Corporation Brooklyn Terminal (also known as the Hess Terminal) and Eastern Concrete Materials Red Hook Plant (quoted from DCP BOA 2014).

Another important development in the area includes the Superfund designation by the United States EPA of the Gowanus Canal and its ongoing planning for cleanup. The Gowanus Canal, a narrow body of water that runs between Red Hook and the Gowanus neighborhood of Brooklyn, has been heavily polluted by nearly a century of industrial activity along its shore.

bulk storage facility sites

source: WSP | Parsons Brinckerhoff

Several sites bordering the canal have also been targeted for environmental clean-up and study. The contamination of the canal may indicate potential contamination of upland parcels along the canal. In turn, any future development of these upland sites, including the portion of Red Hook that abuts the canal, may be complicated by contamination (quoted from DCP BOA 2014).

Due to the environmental contamination that exists in Red Hook, and to the high concentration of residents of color and low-income residents, the entire peninsula is considered a "potential environmental justice area" by the NYS Department of Environmental Conservation.

ENVIRONMENTAL VULNERABILITIES AND RISKS

Due to its low-lying topography, nearly the entirety of the Red Hook neighborhood is within the 100-year flood zone, with expected flood heights ranging from approximately 3-6 feet throughout much of the uplands, to up to 6-9 feet in some of the most low-lying areas. Since the neighborhood is largely protected from waves, there is not a substantial V or coastal A zone in this area (EDC IFPS Scope). (See the DCP BOA Pre-nomination Study in the dropbox for more detailed analysis of flood risk).

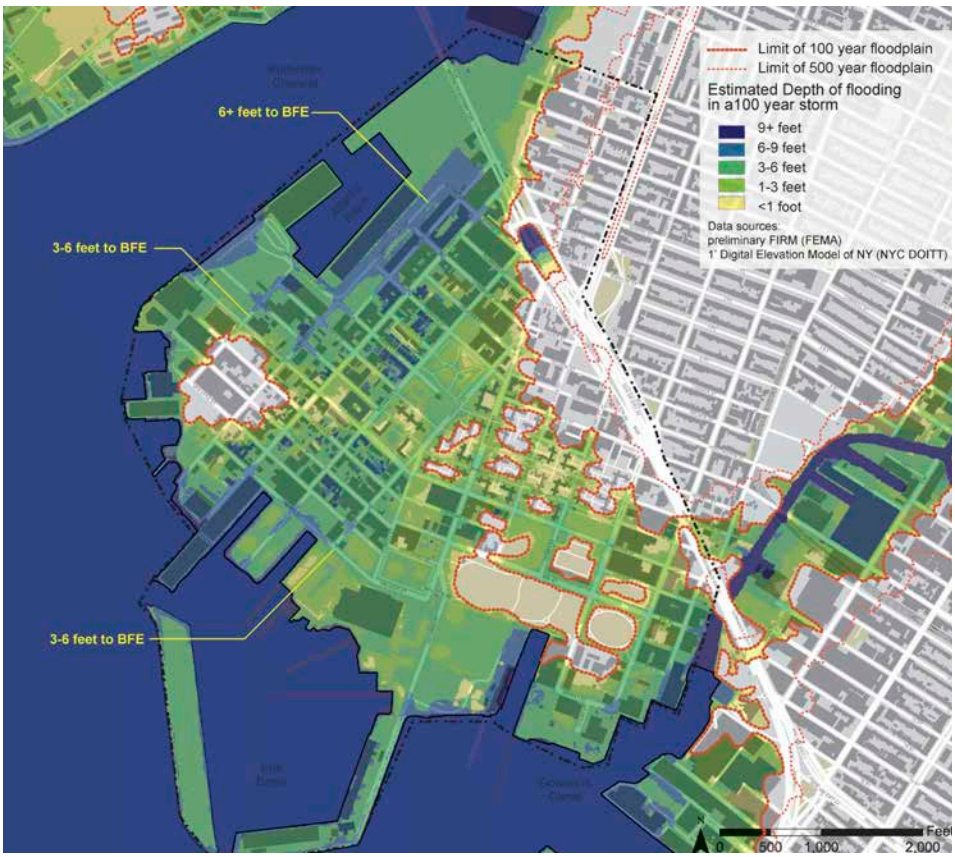
The SIRR Report identified a number of climate change-related challenges for the Red Hook neighborhood, including:

+ low-lying topography;
+ older, often attached buildings that are difficult to elevate;
+ a significant number of industrial businesses with valuable ground floor equipment and inventory that are difficult to elevate;
+ vulnerable commercial corridors; and
+ a significant residential population with limited financial resources to make resiliency investments.

The NYS Department of State (NYSDOS) created a risk assessment tool to understand what disaster-related risks different neighborhoods face. Almost all of Red Hook was found to be located in Moderate and High risk areas, with some parts considered in Extreme Risk areas. For more information on the risk assessment, look at the RH_NYRCRP report p. 5.

FEMA preliminary FIRMS

source: WSP | Parsons Brinckerhoff



flood depths in Red Hook

source: RH_NYRCRP

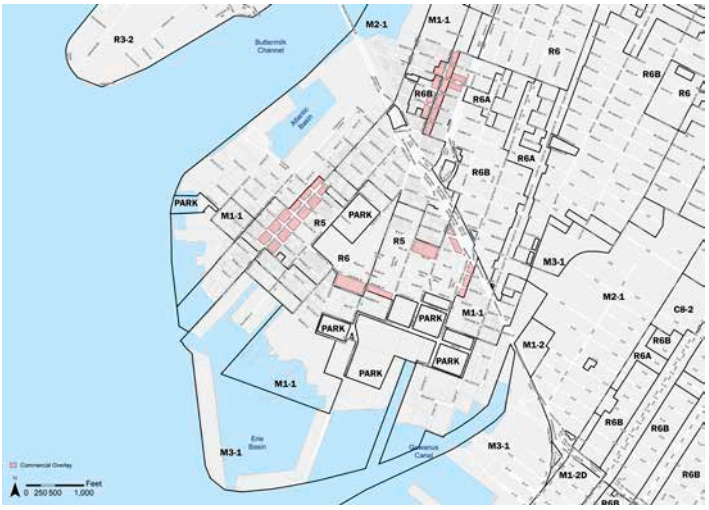
EXISTING CONDITIONS: LAND USE

LAND USE AND ZONING

Historically, zoning has allowed for a range of industrial activities and intensities of uses, and the built environment of the Study Area reflects Red Hook's historical working waterfront. Zoning in the area has remained largely the same since the 1961 Zoning Ordinance with a few exceptions. Some zoning changes since 1961 include the introduction of a Special Mixed Use District (MX-5), adopted in 2002, which permits both industrial and residential uses. Other changes that have taken place include the creation of an M1-1 District on the site of IKEA where the zoning had historically been M3-1. An M1-2 District was also mapped along Beard Street where zoning was historically M1-1. Adjacent to the Study Area and north of the Gowanus Expressway, the Carroll Gardens / Columbia Street Rezoning was adopted in October of 2009 and responded to community concerns about recent out-of-scale development permitted under the 1961 zoning (DCP BOA 2014).

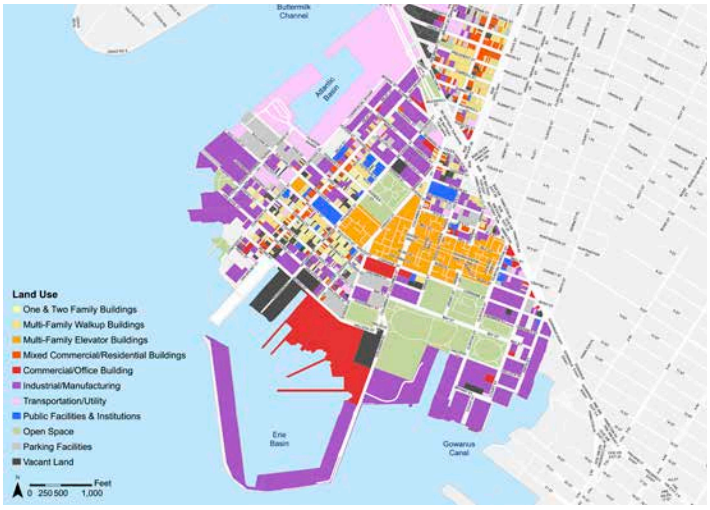
Land Use. Today, just about 10% of the land area in Red Hook is residential. Industrial and Manufacturing comprise over 30% of land area. Retail, office, open space and transportation/ parking/utility each make up 10% of the land area; and 20% of the land area is comprised of vacant land and other uses (RH.NYR.CRP). Clinton, Court and Smith Streets host most of the heavier manufacturing uses on the eastern edge of Red Hook (197-a).

Red Hook zoning



source: WSP | Parsons Brinckerhoff

Red Hook land use



source: WSP | Parsons Brinckerhoff

OWNERSHIP PATTERNS

Within the proposed BOA boundaries, 14 percent of all lots are city-owned. These lots account for 5 percent of the total lot area in Red Hook. A significant area, 6 percent, is publicly owned by a public authority, state, or federal entity. This is due largely to the presence of the Brooklyn Container Terminal, a very large site that is publicly owned and operated by the Port Authority of New York and New Jersey. Of all the tax lots in the Study Area, 3 percent are under mixed ownership. These properties are fully tax exempt and may be owned by the city, state, or federal government, a public authority, or a private institution. The majority of lots (84 percent) and lot area (86 percent) in the Study Area are under private ownership (quotes from DCP BOA 2014).

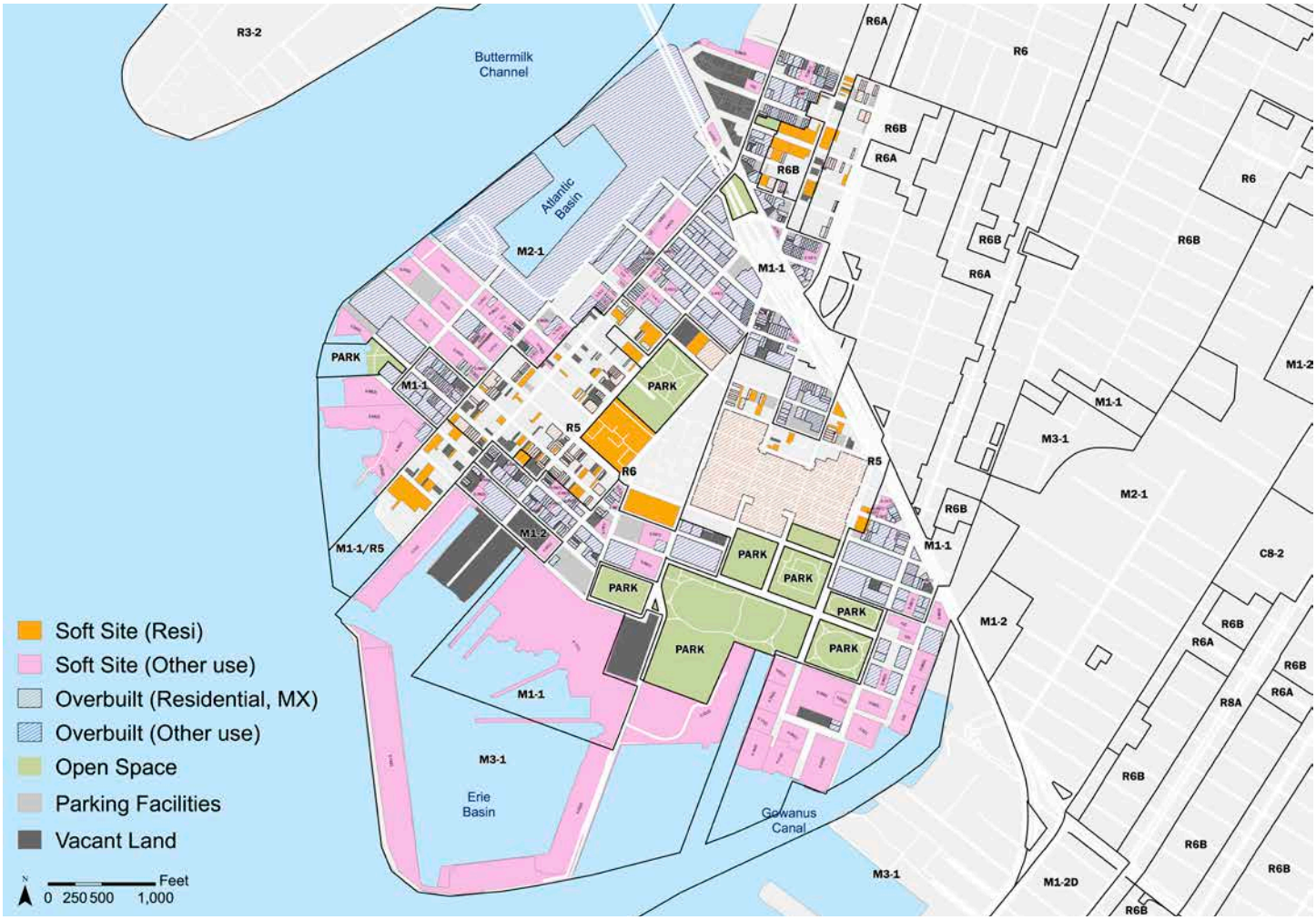
ownership in Red Hook

source: WSP | Parsons Brinckerhoff

PARKS AND OPEN SPACE

Valentino Pier Park and Erie Basin Park are two publicly accessible waterfront parks, though they are privately owned. Pier 44 at the end of Conover Street is the only public access to the waterfront and contains the Hudson River Waterfront Museum Coffey Park, Red Hook Recreation Area, Added Value Community Farm and the NYCHA Red Hook West Community Farm are important natural community spaces. The Red Hook Recreation Area has an outdoor pool, ball fields and lawns serving as a draw for residents inside and outside of the neighborhood. Part of the Brooklyn Waterfront Greenway runs through Red Hook. The ultimate goal of the Greenway is to connect the entire Brooklyn waterfront with a multi-use path and open space.

soft sites and overbuilt sites



source: WSP | Parsons Brinckerhoff

EXISTING CONDITIONS: INFRASTRUCTURE

MARITIME INFRASTUCTURE

working piers in Red Hook

The waterfront is notable for maritime uses such as the Red Hook Container terminal, the Erie Basin Barge Port, Gowanus Bay Terminal, boat depots, and two ferry landings. The Port Authority of New York and New Jersey (PANYNJ) owns facilities that maintain and operate the Red Hook Container Terminal and the Brooklyn Cruise Terminal at Atlantic Basin. The community identified the maritime infrastructure and numerous piers as important potential assets to provide transportation and bring in supplies in the event of an emergency.

ENERGY

net metered buildings

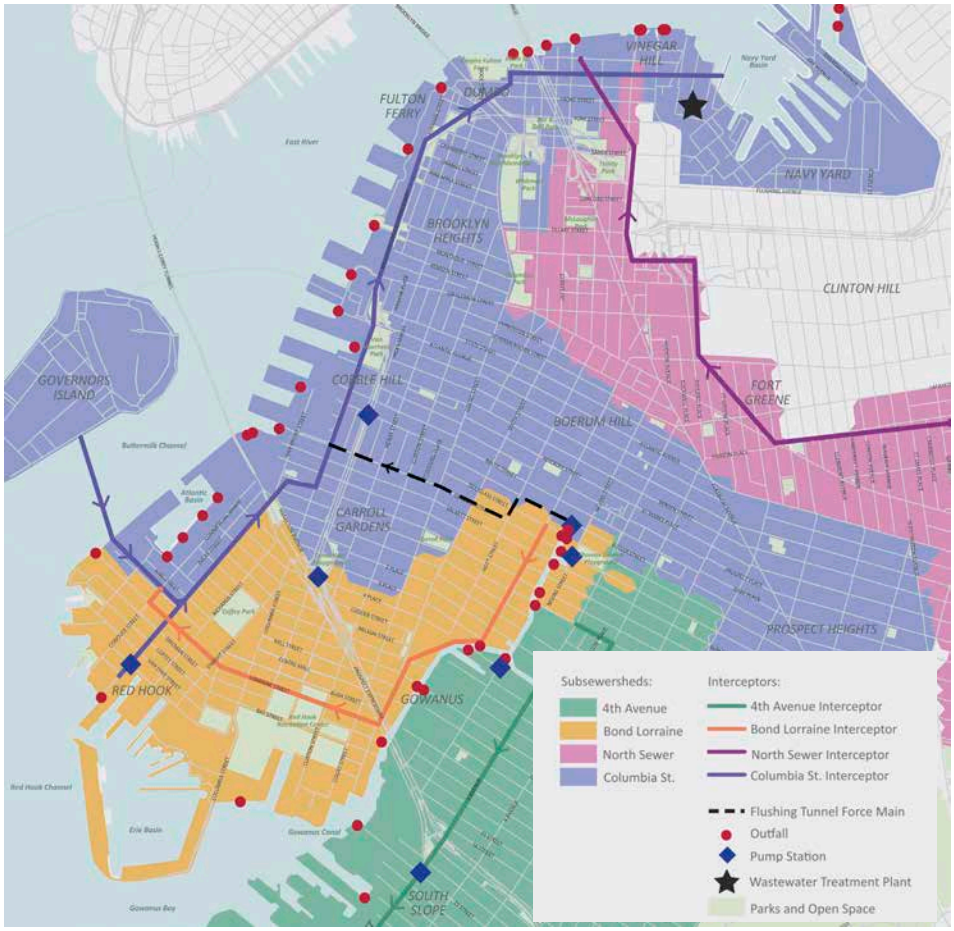
Electricity within the Study Area is delivered by Con Edison. Unlike the majority of Brooklyn which has an underground distribution system, the power supply for most of Red Hook's residential areas is distributed by way of an overhead power lines. Along the waterfront, however, the power is distributed through underground networks that are typically more reliable, as they support the power system from multiple power sources. However, they are vulnerable to flooding (quoted from DCP BOA 2014).

As part of the New York State Energy Research and Development

Agency (NYSERDA)'s NY Prize program, Red Hook is one of 83 communities across New York state that has been selected for a feasibility study and engineering assessment. As part of the study, a coalition of businesses, nonprofits and community groups and members will work together to craft a proposal for a community microgrid with decentralized power generation that can provide power for essential and emergency services when the power goes out. Green City Force, an AmeriCorps program that engages young people from low income backgrounds in national service related to the environment, will be a partner on this microgrid project.

STORMWATER AND SEWER INFRASTRUCTURE

sewer infrastructure



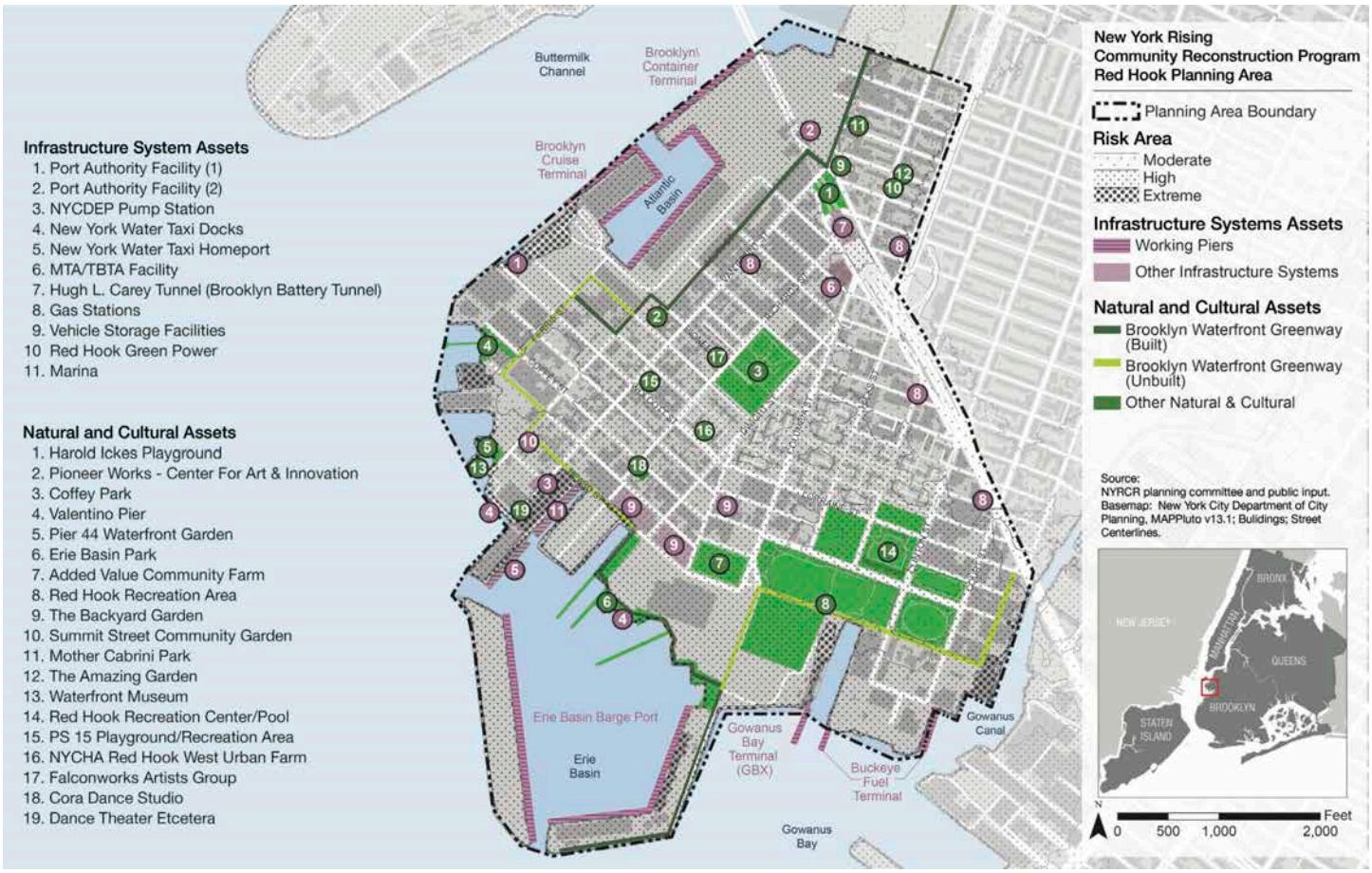
source: open sewer atlas

Most of the peninsula is served by a combined sewer system in which rainwater and sewage are collected in the same pipes and conveyed to the Red Hook Wastewater Treatment Plant (WWTP), which is located North of Red Hook near the Brooklyn Navy Yards. The combined sewage and stormwater is pumped to the WWTP via the Red Hook Interceptor sewer, which is located under Van Brunt Street from where it is collected at the Van Brunt Pump Station (at Van Brunt and Reed Street).

This pump station was damaged during Sandy and has yet to be upgraded for improved resiliency. Properties directly on the water have a Direct Drainage system in which stormwater flows off the land directly into the surrounding waterbodies instead of getting captured by storm drains or sewers.

There are several Combined Sewer Outfalls (CSOs) along the waterfront that empty into local waterways around Red Hook. These outfalls include four along the Atlantic Basin, and 12 along the Gowanus Canal, in addition to CSOs at the termini of Wolcott, Van Brunt, Columbia, Creamer, and Sackett Streets. (quoted from DCP BOA 2014). There are many concerns among community members about the sewer system in Red Hook due to the persistent problems with backups, CSOs, flooding and drainage issues (RH.NYR.CRP).

INFRASTRUCTURE SYSTEM, NATURAL & CULTURAL ASSETS



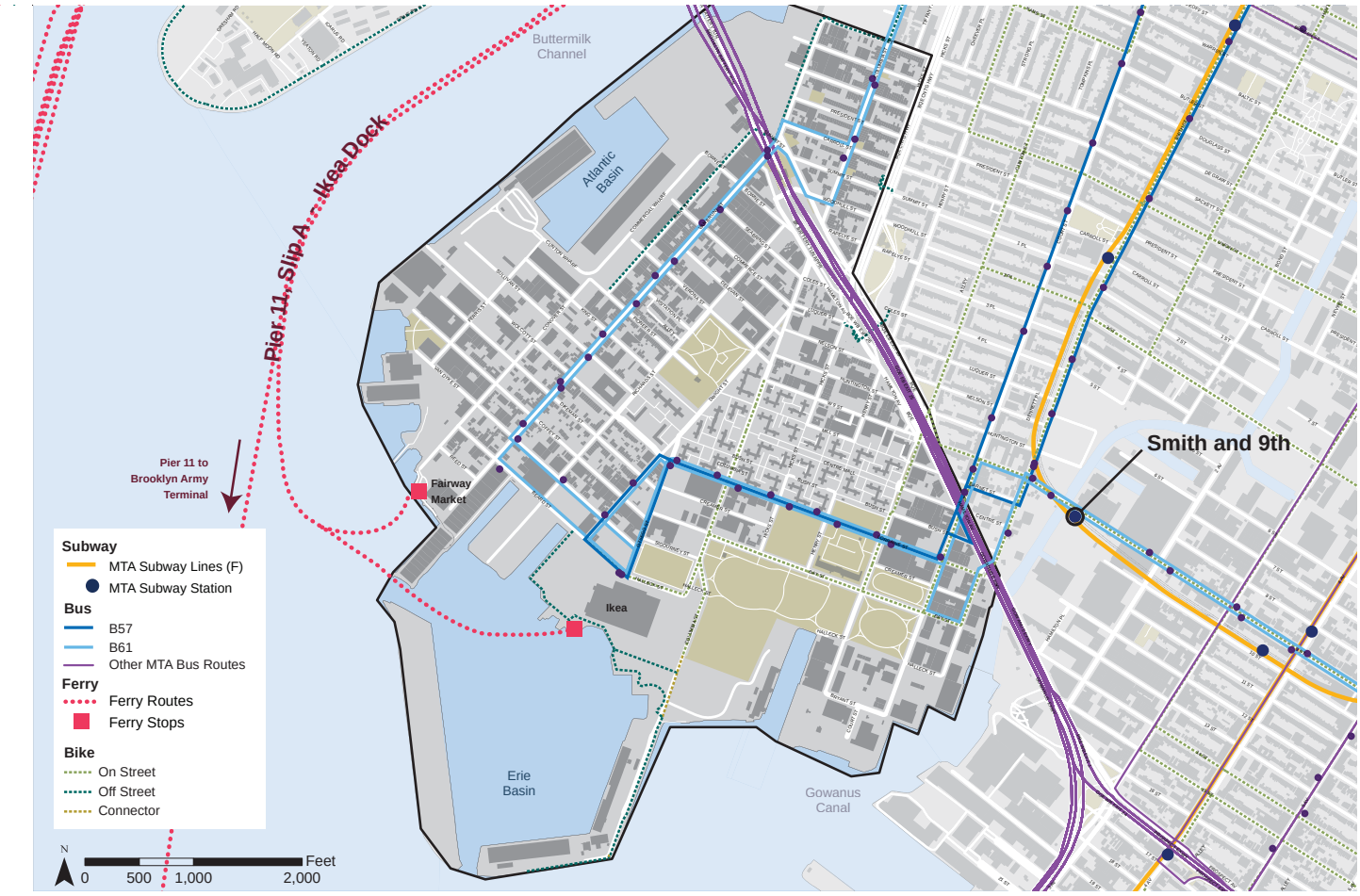
source: RH_NYRCRP

EXISTING CONDITIONS: TRANSPORTATION

TRANSPORTATION

In the NYR CRP process, residents identified improving transportation as critical to recovery and resiliency in the neighborhood. Though the Hugh Carey Tunel and the BQE are major connectors to Manhattan for the region, they are perceived more as barriers to the rest of Brooklyn by residents of Red Hook. The two bus routes serving Red Hook are B57 and B61, both connected to other neighborhoods in Brooklyn. There are no direct bus routes to Manhattan. The nearest subway stop is the F-G Smith and Ninth Street stop, but it is a 10-20 minute walk from the actual neighborhood. A ferry service exists between IKEA and Pier 11 in Lower Manhattan, but it only has afternoon service. (RH.NYR.CRP)

The entry points to the neighborhood by Hamilton Avenue are perceived as dangerous by pedestrians because of the eight-lane and heavy-traffic roadway. Residents also noted poor sidewalk conditions in many places and truck congestion on narrow streets as issues in the 197-a Plan (197-a). There are designated Truck routes along Van Brunt, Columbia, Clinton, Court and Smith Streets. Each street connects with Hamilton Ave and serve the commercial corridors and industrial companies throughout Red Hook (197-a). See the various transportation studies in the dropbox folder for more information on conditions and proposals for Red Hook transportation.



source: WSP | Parsons Brinckerhoff

EXISTING CONDITIONS: SOCIAL CONTEXT

HISTORY

Historically used for manufacturing and industrial uses along the waterfront, Red Hook is adjacent to the neighborhoods of Gowanus, Carroll Gardens and Cobble Hill. Established as the Dutch village of Roode Hoek in 1636, Red Hook was one of the first areas to be settled in Brooklyn. In the 1840s the peninsula began to grow into one of the busiest shipping centers in the United States. The success of the pier and dock infrastructure led Colonel Daniel Richards, a local developer responsible for the first steam grain elevator in the Port of New York, to petition the City of Brooklyn to lay a street grid around the Atlantic Basin. This action connected Red Hook's waterfront to the rest of South Brooklyn in 1847. Between the Civil War and the early half of the 20th century, Red Hook's piers received and unloaded cargo from all over the world. The neighborhood hosted thousands of workers, mainly Italian and Irish American immigrants. To serve these populations, The Red Hook Houses were constructed in 1938 for families of dockworkers and longshoreman. This was one of the first and largest Federal Housing projects in the United States under President Franklin Delano Roosevelt's Federal Works Program. Prior to the construction of the Red Hook Houses, thousands of workers lived in row houses in the area (quoted from DCP BOA 2014).

In the 1950s, Red Hook's prominence as a port declined when containerization was popularized, requiring larger port space for loading and unloading. This led to a population decline of 42% by 1990. In the 1960s and 1970s, the City attempted two different Urban Renewal Plans in attempts to revitalize the waterfront and ports. However, the physical conditions of the buildings and neighborhood continued to decline (DCP BOA 2014). For a more detailed history of Red Hook's built landscape, see Columbia's 2009 Studio Report A Preservation Plan for Red Hook on the dropbox.

Red Hook's relative isolation from the rest of the borough of Brooklyn is a result of the construction of the Gowanus Expressway in 1946, the 1950 opening of the Brooklyn Battery Tunnel, and the removal of trolley service in the 1950's. Lack of public transit access to the NYC subway system magnified the sense of isolation. The exodus of industry in the 1960's led the neighborhood towards economic decline. By 1990, high crime and drug violence, poverty and unemployment, illegal dumping, and the decay of the built environment were pervasive. Due in part to this decline, in 1994, Brooklyn Community Board 6 submitted a 197-a plan, "Red Hook: A Plan for Community Regeneration." The plan responded to growing community concerns over the lack of economic growth, housing, open spaces and waterfront access, quality of life, transportation access, and a need to minimize conflicts between the industrial areas and residential communities. It was modified and adopted by the City Planning Commission in September 1996 (quoted from DCP BOA 2014).

DEMOGRAPHICS

According to the 2010 Census, there are about 12,400 residents in Red Hook, with half of that population living in the NYCHA Red Hook Houses, which is the largest NYCHA development in Brooklyn.

The population demographics in Red Hook are notable for the racial and socioeconomic contrasts existing in the community, which have been growing as more affluent white residents come to Red Hook. These recent demographic changes have caused some critics to point out the process of gentrification, the threat of displacement, and the changing land and nature of the peninsula. Others point out the positive aspects of economic revitalization and increase in small businesses that have mirrored the demographic changes. Refer to blogs and news articles about the socioeconomic changes in Red Hook to gain a better understanding of the social context.

In 2000, the population of Red Hook was made up mostly of black and Hispanic people—43 percent and 47 percent respectively—most of whom lived in Red Hook Houses. The area around southern Van Brunt Street also contained a high concentration of Hispanics as well as some whites and people of other races. By 2010, the racial breakdown of Red Hook was characterized by a higher concentration of white people, especially around Van Brunt Street. Most of the population that has moved closer to the southern waterfront area is also white. From 2000 to 2010 the white population in Red Hook grew from 8 percent to 18 percent. At the same time the black population decreased from 43 percent to 34 percent and the Hispanic population decreased from 47 percent to 43 percent (quoted from the DCP Transportation Study).

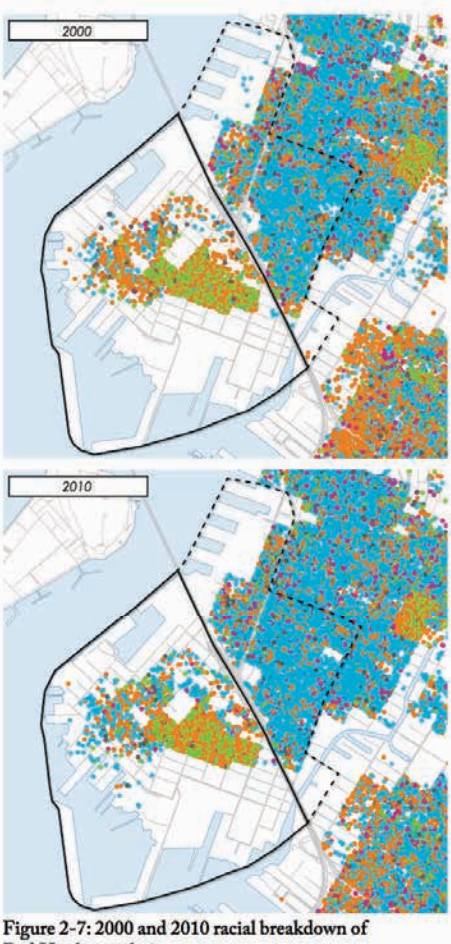
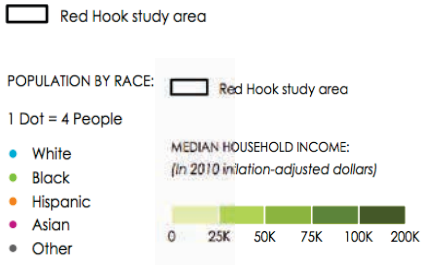


Figure 2-7: 2000 and 2010 racial breakdown of Red Hook population.

Figure 2-8: 2000 and 2010 household income in Red Hook by census tract.



source: DCP Transportation Study, 2014

INCOME

Median Household Income was measured by the Census Bureau using the 2000 Census and the subsequent ACS for 2006-2010. In 2000, the study area included two census tracts with median household income below $30,000: census tract 85, which consists of Red Hook Houses, and census tract 59 which includes some intensively clustered housing and many industrial properties. tThe other two tracts in the study area located along the waterfront and along Van Brunt Street, census tracts 55 and 57, had a median household income of between $30,000 and $60,000. By 2010, household income figures increased significantly. While household income in Red Hook Houses remained below $30,000 per year, median household income in census tract 59 increased to between $30,000 and $60,000. Furthermore, census tract 53, which includes southern Van Brunt Street and the waterfront, had a median household income of between $60,000 and $90,000. (quoted from DCP Transportation Study).

AGE

Based on ACS 2007-2011 5 Year estimate, the age distribution among residents of the Red Hook community skews slightly younger than that of New York City. There is a higher share of children in the community, especially teenagers in the 10-19 age range. Compared with the rest of New York City, Red Hook has a lower percentage of adults over 35; however, adults between 35 and 64 years old are the largest cohort group. There are generally more females than males. Combined, children and young adults between the ages of 5 and 24 account for over 37 percent of the total population in Red Hook (quoted from DCP BOA 2014).

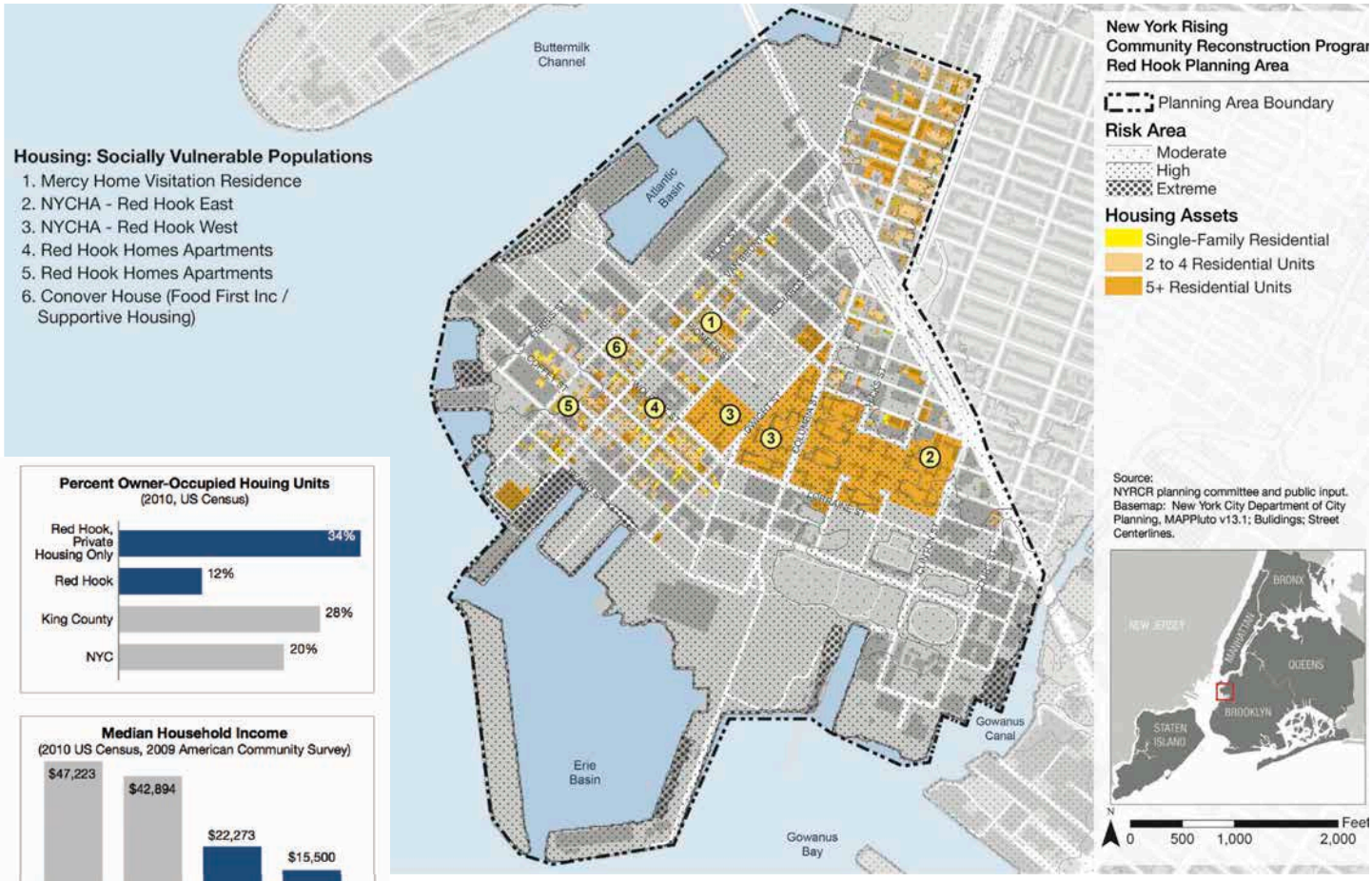
EDUCATIONAL ATTAINMENT

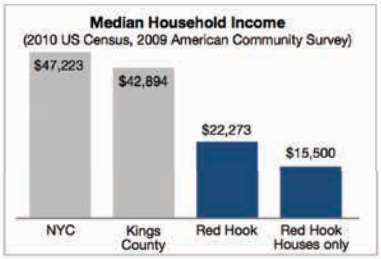
Based on ACS 2007-2011 5 Year estimate, Red Hook has a higher percentage of people who have not completed high school education compared with the rest of the borough and New York City: 18 percent of adults 25 and older have completed less than 9th grade, and 19 percent have completed some of high school without receiving a diploma. (DCP BOA 2014).

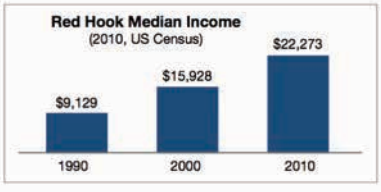
HOUSING

With the Red Hook Houses included, only monly 12% of residents own their homes. However, among strictly private housing, 34% of residents are owner-occupants of their homes which is relatively high compared to the rest of Brooklyn and citywide. About 60% of units are in medium-large apartment buildings, 36% are in row houses, and the rest are single-family homes. The building stock is old with 80% of the units built before 1960. The Red Hook Houses are located on 33 acres and have 30 buildings of housing (RH.NYR.CRP). An estimated 68 percent of residential buildings have below grade spaces, some of which are used as residential units (about 55 buildings) (DCP BOA 2014). This is significant because of the risk of flooding.

housing assets in Red Hook







source: RH_NYRCRP

EXISTING CONDITIONS: ECONOMY

COMMERCIAL LANDSCAPE

The major commercial corridors in Red Hook are Van Brunt Street and Lorraine Street. Clinton Street and the northern part of Columbia Street have retail clusters as well. Red Hook is notable for the prevalence of small local businesses; approximately 67% of businesses are considered "micro-businesses" with five or fewer employees. Red Hook also has some bigger chains such as Ikea and Fairway Market that are major employers and can act as a draw to the neighborhood (RH.NYR.CRP). The retail corridor along Van Brunt has many three- and four-story buildings with apartments occupying the upper stories above retail, small offices and industrial businesses on the ground floors (197-a).

The commercial vibrancy of Red Hook is vulnerable to climate impacts and flooding. In Rebuild By Design's research and report on Commercial Coastal Resiliency, they estimate that 400,00 square feet of retail, with 650 jobs and $171 million in annual sales are vulnerable due to the position in the 100 year floodplain (RBD Commercial Coastal Resiliency).

jobs in floodplain

source: Rebuild by Design

400,000 SF
RETAIL IN FLOOD PLAIN
(100%)

650
JOBS

$171 million
ANNUAL SALES

ECONOMIC DEVELOPMENT & EMPLOYMENT

To help revive the economy of Red Hook, in 1994, New York State designated Red Hook as an Economic Development Zone, which provided tax incentives, training programs ands other programs for new businesses (197-a). Since the 90's there has been a significant growth of small businesses.

There is significant unemployment in Red Hook; the unemployment rate is 24% overall, and 75% among 18-24 year olds living in the Red Hook Houses. According to the RH.NYR.CRP report, "the largest employment sectors in Red Hook are construction, wholesale trade, and transportation/warehousing," though much of these jobs are held by people from outside of Red Hook. Over 90% of residents hold jobs outside of Red Hook (RH.NYR.CRP). See the DCP Transportation Study for more details on Commuting to work and the BOA materials for more information on workforce and employment statistics.

INDUSTRIAL CONTEXT

A large part of Red Hook used to be open water and wetlands (see map). However things started changing rapidly during industrialization; Atlantic Basin opened during the 1850s, ushering in a busy industrial era in which Red Hook was one of the busiest ports in the region. In the 1950s, Red Hook's prominence as a port declined when containerization was popularized, requiring larger port space for loading and unloading. This led to a population decline of 42% by 1990. However, since the 90's the population rebounded. Although not as active as it once was, the manufacturing portion of Red Hook is still active with manufacturers, warehouses and active piers still taking up a large amount of land, primarily on the waterfront. Today's industrial businesses are very diverse with carpenters, design/build shops, glass blowers, alcohol and food production, and boutique manufaturers of things like skateboards and bicycles (RH.NYRCRP)

BIBLIOGRAPHY

IMPORTANT REPORTS AND PROPOSALS

RED HOOK NY RISING COMMUNITY RECONSTRUCTION PLAN

March 2014 - NYR CRP Committee

This report is the result of a community-based planning initiative with funding and technical assistance from State recovery funds. The report lays out existing conditions, a detailed risk assessment of the neighborhoods various assets, and community goals and proposals for increasing resiliency of the Red Hook Neighborhood in a broad and comprehensive way. The report covers the following topic areas, which were suggested as guiding topics by the New York State Department of State (NYSDOS): Community Planning and Capacity Building, Health and Social Services, Economic Development, Housing, Infrastructure, and Natural and Cultural resources. The Red Hook Community is eligible for up to $3 million in funding to implement some of the projects proposed in the report.

THE BROOKLYN WATERFRONT GREENWAY: AN AGENT FOR GREEN INFRASTRUCTURE, CLIMATE CHANGE ADAPTATION, AND RESILIENCE

NYSDOS, Brooklyn Greenway Initiative, WE Design, eDesign Dynamics

Develops stormwater infrastructure design guidelines for the 14-mile Brooklyn Greenway. The Greenway was flooded during Sandy and is within the 100 year floodplain. These design guidelines also address how the Greenway can provide resilience against flooding and climate change for the nearby communities to protect from the effects of storm surge and from heavy stormwater flooding. Additionally, the proposals hope to incorporate public space, non-motorized transportation opportunities and environmental infrastructure. This report lays out typologies, design guidelines and detailed case studies of two segments of the greenway, including Red Hook and Sunset Park. In Red Hook, the report offers two alternative proposals, including an elevated Greenway along the waterfront, right-of-way green infrastructure, and other projects.

RED HOOK 197A PLAN: RED HOOK: A PLAN FOR COMMUNITY REGENERATION

1996 - Community Board 6

Community Board 6 produced this 197A Plan due to population and employment declines (in 80s and 90s), concerns regarding waste-related businesses, and DCP planning proposals to rezone parts of the Red Hook waterfront. The 197-a plan lays out the community's proposals to promote improved housing, social services, youth services; preserve and expand industrial and maritime activity; promote employment and businesses for local residents; promote residential development; minimize future conflicts between industrial and residential communities; support emerging arts community; improve transportation and circulation in, to and from the community; create more public access to the waterfront.

THE REVISED NEW YORK CITY WATERFRONT REVITALIZATION PLAN -

Revised 2013, Department of City Planning

New York City's Waterfront Revitalization Program (WRP), originally adopted in 1982, is the city's principal Coastal Zone management tool. The guiding principle is to maximize the benefits derived from economic development, environmental conservation, and public use of the waterfront, while minimizing the conflicts among these objectives. Policy 6 (p. 40) in the revised plan addresses coastal flooding and resilience.

NYC DCP VISION 2020

Department of City Planning

Vision 2020 is the culmination of a year-long, participatory planning process involving multiple agencies and organizations and public input. Vision 2020 sets the stage for expanded use of our waterfront for parks, housing and economic development, and our waterways for transportation, recreation and natural habitats. The 10-year plan lays out a vision for the future with new citywide policies and site-specific recommendations. Page 146 outlines recommendations specific to Red Hook, including supporting the Greenway Master planning process, improving public access and amenities to waterfront, supporting and enhancing martime and industrial uses of the waterfront, and restoring piers, and planning for a Hamilton avenue marine waste transfer station.

COASTAL COMMERCIAL RESILIENCY

2013, Rebuild by Design

Addresses strategies for resiliency of commercial areas on barrier islands, mainland coastal areas, and dense urban edges (such as Red Hook). Design strategies include Protect, Elevate, Connect, and Shift. Implementation strategies cover management, incentives, financing and regulations. The presentation lays out specific ideas for Red Hook along the two main commercial corridors: Van Brunt Street and Columbia Street.

RED HOOK BROWNFIELD OPPORTUNITY AREA ("BOA") STUDY MATERIALS

DCP, WXY, SBIDC

The BOA materials (pre-nomination and step 1) provide an overview of existing conditions, strategic brownfield sites, flood risk and resiliency recommendations and next steps in the Brownfield Opportunity Area (BOA) process. The Southwest Brooklyn Industrial Development Corporation (SBIDC) is the lead community based organization for the BOA.

A STRONGER MORE RESILIENT NEW YORK

2013, Special Initiative for REbuilding and Resiliency (SIRR)

presents actionable recommendations for rebuilding and infrastructure and the physical environment,and or rebuilding the communities impacted by Sandy and increasing the resilience of infrastructure and buildings citywide. Chapter 3: Comprehensive Coastal Protection Plan contains initiatives that are designed to increase coastal edge elevations, minimize upland wave zones, protect against storm surge, and improve coastal design and governance.

RED HOOK INTEGRATED FLOOD PROTECTION SYSTEM FEASIBILITY STUDY SCOPE

2014, EDC

Outlines the scope of the IFPS project RFP. This document contains a summary of existing conditions, the area context, and the detailed requirements of completing the IFPS feasibility study.

OTHER IMPORTANT READINGS

In addition to the readings listed above, you should also read the following reports, many of which will be assigned during the first few weeks of class.

A PRESERVATION PLAN FOR RED HOOK,
2009, Columbia University Studio

NORTH ATLANTIC COAST COMPREHENSIVE STUDY REPORT
2015, US Army Corps of Engineers

DREDGED MATERIALS & CLIMATE CHANGE PILOT PROJECT
2014, Port Authority of NY/NJ

NYC 2014 HAZARD MITIGATION PLAN
2014, NYC Office of Emergency Management and DCP

LINKS & RESOURCES

As climate change impacts become an urgent reality for places around the world, Integrated Flood Protection Systems are emerging to protect vulnerable populations. There are numerous resources and innovated examples nationally and internationally that we can look to for best practices and ideas about how to help Red Hook live with water.

RED HOOK RESOURCES

red hook community information: http://redhookhub.org/

Pratt Architecture student project: https://redhookfuture.wordpress.com/tag/mappings/

Rebuild by Design Red Hook: http://www.rebuildbydesign.org/research/big-team/big-team-red-hook

RH.NYRCRP website: www.redhookcrp.wordpress.com

Red Hook microgrid project: redhookcommunitymicrogrid.wordpress.com

GENERAL RESILIENCE RESEARCH AND INFORMATION

rebuild by design: http://www.rebuildbydesign.org/research/

NOAA: https://coast.noaa.gov/digitalcoast/inundation/understand?utm_source=SocialScience&utm_medium=SocialScience&utm_campaign=Surge16

Storm surge protection: https://geozoneblog.wordpress.com/2015/01/26/storm-surge-in-the-winter/?utm_source=SocialScience&utm_medium=SocialScience&utm_campaign=Surge16

SCR flood protection: http://structuresofcoastalresilience.org/

MOMA exhibit: http://www.moma.org/explore/inside_out/category/rising-currents

FEMA: https://www.fema.gov/coastal-flood-risk-resources
and https://data.femadata.com/NationalDisasters/Hurricane%20Sandy/RiskMAP/Public/Public_Documents/Storm_Surge_Reports/R2_Surge_SummaryReport.pdf

Resilient Design Institute: http://www.resilientdesign.org/

Flood-Resilient Waterfront Development in New York City: http://www.nyas.org/Publications/Annals/Detail.aspx?cid=e32c3732-147e-4365-b48e-3d7f6f17865b

Building Resiliency Task Force proposal tracker: http://www.urbangreencouncil.org/BRTF/Tracker

Coastal Resilience and Urban Excellence (CRUX) lab: https://www.stevens.edu/sse/research/research-centers/crux

CASE STUDIES, PRECEDENTS AND PROPOSALS

All Delta cities: http://www.deltacities.com/cities

Copenhagen: http://www.deltacities.com/documents/_UK_Climate-adaptionplan-LOW.pdf

New Orleans: http://www.deltacities.com/documents/Neworleans_Session3_Meffert.pdf

Greenway examples: http://www.brooklyngreenway.org/wp-content/uploads/BG-GI-DESIGN-GUIDELINES_Final-small-2.pdf

Rebuild by Design: http://www.rebuildbydesign.org/research/ and http://www.citylab.com/special-report/rethink-rebuild/

Northwest Europe: http://www.floodresiliencity.eu/

Boston: http://www.bostonlivingwithwater.org/portfolio/high-street-city-gradually-living-with-water and http://www.bostonlivingwithwater.org/wp-content/uploads/2015/01/A-Framework-for-Resilient-Design-Summer-2014.pdf

general: http://www.citylab.com/politics/2013/10/why-residents-disaster-prone-areas-dont-move/7190/

MAPPING RESOURCES

https://geozoneblog.wordpress.com

https://coast.noaa.gov/slr/?ll=-10275582.586432813;3537872.3531765095&level=4&CurSLR=2&CurTab=0

http://maps.coastalresilience.org/newyork/

http://structuresofcoastalresilience.org/mapping/map-comparisons/

http://www.resilientdesign.org/

ACRONYM GLOSSARY

ABFE - ADVISORY BASE FLOOD ELEVATION: The preliminary published computed elevation resulting from floodwater that has a 1% chance of equaling or exceeding that level in a given year

BFE - BASE FLOOD ELEVATION: The computed elevation resulting from floodwater that has a 1% chance of equaling or exceeding that level in a given year.

BGI - BROOKLYN GREENWAY INITIATIVE: A nonprofit organization that organizes planning for the 14-mile Brooklyn Waterfront Greenway and its long-term stewardship.

BRIP - NYC BUSINESS RESILIENCY INVESTMENT PROGRAM: A $110 million CDBG-DR-funded program that will be implemented by the EDC and will provide funds to both business tenants and building owners to make improvements that enhance resilience to severe weather-related events.

CDBG-DR - COMMUNITY DEVELOPMENT BLOCK GRANT-DISASTER RECOVERY: Federal grants administered by the U.S. Department of Housing and Urban Development (HUD) and allocated to cities, counties and States to facilitate rebuilding and recovery of disaster areas as designated by the President of the United States.

CDFI - COMMUNITY DEVELOPMENT FINANCIAL INSTITUTION: A financial institution that provides credit and financial services within underserved markets and communities.

CSO - COMBINED SEWER OVERFLOW: Water pollution caused by large variations of flow in a sewer system that collects both sanitary sewage and stormwater runoff in a single pipe system.

FIRMS - FLOOD INSURANCE RATE MAPS: The official map of a community used by FEMA to delineate a community's base flood elevations, flood zones, and floodplain boundaries.

GOSR - GOVERNOR'S OFFICE OF STORM RECOVERY

HUD - U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT: The U.S. Federal government executive department responsible for executing Federal policies on housing and metropolises

IFPS - INTEGRATED FLOOD PROTECTION SYSTEM

NFIP - NATIONAL FLOOD INSURANCE PROGRAM - A FEMA-run program that provides government- sponsored flood insurance to homeowners, renters and business owners.

NYC DCP - DEPARTMENT OF CITY PLANNING: NYC governmental agency responsible for the strategic development of the City's physical and socioeconomic planning.

NYC DDC - DEPARTMENT OF DESIGN AND CONSTRUCTION: NYC governmental agency responsible for the construction of civic facilities.

NYC DEP - DEPARTMENT OF ENVIRONMENTAL PROTECTION: NYC governmental agency responsible for providing the City's water supply, managing the City's wastewater system, and regulating the City's environment, including air quality, hazardous waste, and quality of life issues.

NYC DOB - DEPARTMENT OF BUILDINGS: NYC governmental agency responsible for the enforcement of building codes and zoning regulations, the issuance of building permits, and the inspection of new and existing building.

NYC DOT - NEW YORK CITY DEPARTMENT OF TRANSPORTATION: NYC governmental agency responsible for the management of the City's transportation infrastructure.

NYC OEM - NEW YORK CITY OFFICE OF EMERGENCY PREPAREDNESS - NYC governmental agency responsible for preparation, coordination, and education of emergency response and recovery

NYC WRP - WATERFRONT REVITALIZATION PROGRAM: NYC's established protocol for waterfront management and development and uses.

NYRCR - NEW YORK RISING COMMUNITY RECONSTRUCTION: A program established by Governor Cuomo to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee.

NYS DEC - NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION - The State governmental agency responsible for the conservation, improvement, and protection of natural resources; the management of State-owned lands; and the regulation of environmental laws and regulations.

NYS DOS - New York State Department of State: The New York State governmental agency responsible for strategic investment in the revitalization and economic growth of regions.

NYSERDA - NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY: A public benefit corporation tasked with helping New Yorkers increase energy efficiency via the implementation of reduced consumption and the use of renewable energy sources.

PANYNJ - PORT AUTHORITY OF NEW YORK AND NEW JERSEY: A joint agency between the States of New York and New Jersey responsible for the development and maintenance of regional transportation and the World Trade Center site.

RBD - REBUILD BY DESIGN: A competition overseen by HUD that tasks a team of design professionals with analyzing potential organizational structures and incentive tools to implement resiliency upgrades in Superstorm Sandy-affected regions.

RETI CENTER- RESILIENCE, EDUCATION, TRAINING, AND INNOVATION CENTER

RHI - RED HOOK INITIATIVE: Local community based non-profit in Red Hook.

SBIDC - SOUTHWEST BROOKLYN INDUSTRIAL DEVELOPMENT CORPORATION: A not-for-profit organization that provides advocacy and services to businesses in Red Hook, Sunset Park, and Gowanus.

USACE - UNITED STATES ARMY CORPS OF ENGINEERS: The federal agency under the Department of Defense composed of civilian and military personnel and responsible for providing public and military engineering services.