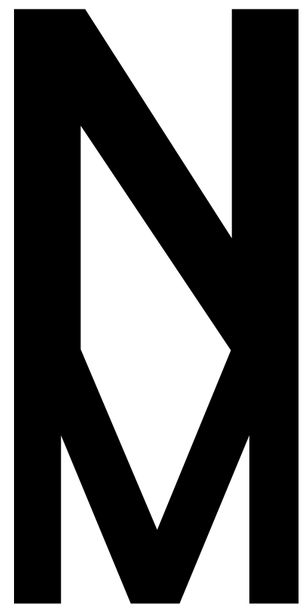


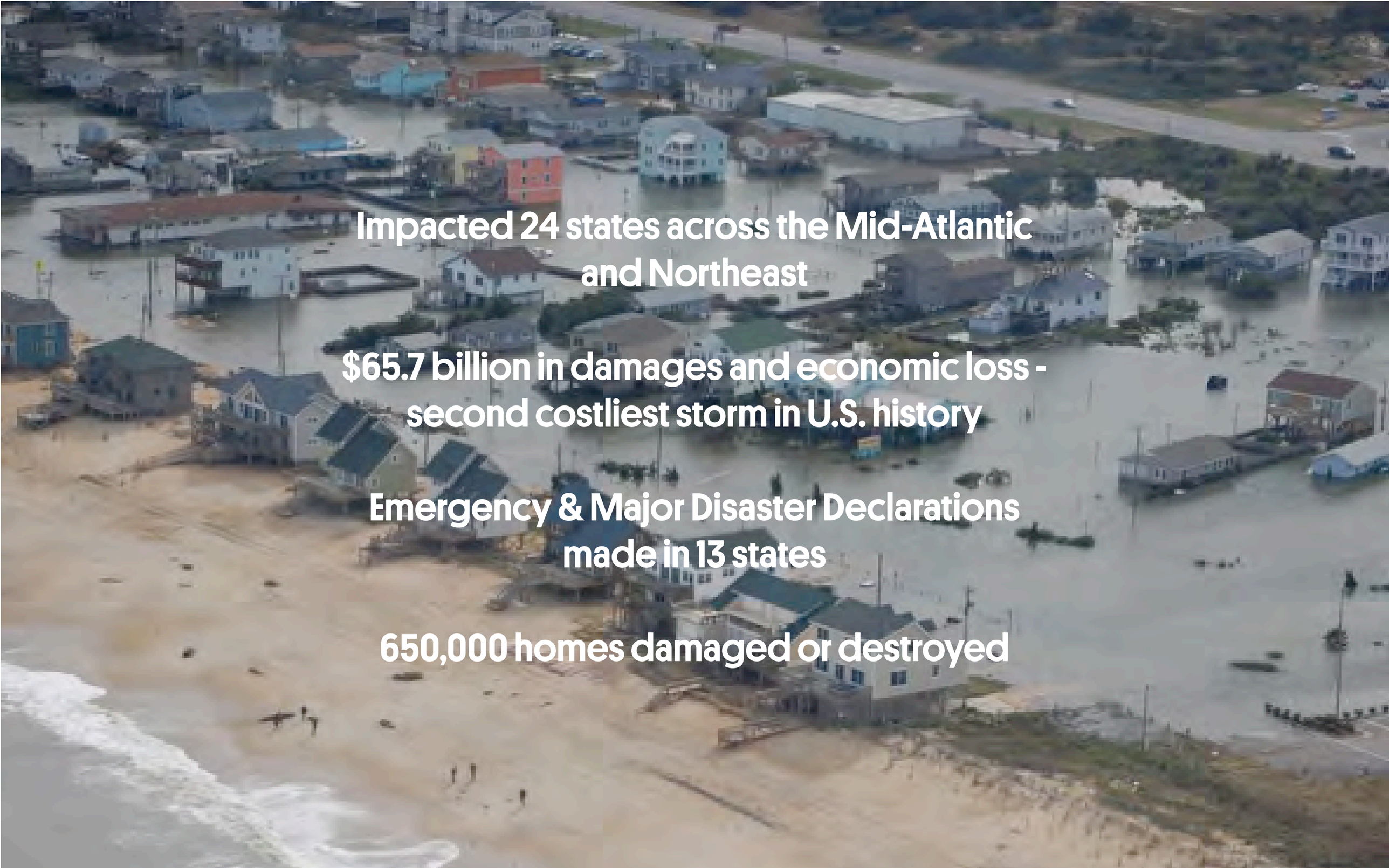
New Meadowlands

Kobi Ruthenberg, Associate Director, Urbanism, ORG
k.ruthenberg@orgpermod.com

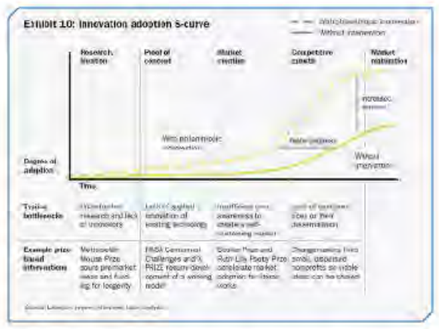
HURRICANE SANDY

Suomi NPP - VIIRS Day Night Band - Oct. 29 2012 (Night)

NASA


Impacted 24 states across the Mid-Atlantic and Northeast
$65.7 billion in damages and economic loss - second costliest storm in U.S. history
Emergency & Major Disaster Declarations made in 13 states
650,000 homes damaged or destroyed

HURRICANE SANDY REBUILDING TASK FORCE



The Task Force is building upon these past successes to harness the innovation of interdisciplinary teams, foster regionalism and resilience, build the capacity of local communities to plan for the next storm, and attract long-term sustainable economic development in the Sandy-affected region.

3. RECOMMENDATION: Create a design competition to develop innovative resilient design solutions that address the Sandy-affected region's most pressing vulnerabilities.

The Task Force launched Rebuild by Design to promote resilience for the Sandy-affected region. With a region-wide focus, this competition will help provide solutions to problems that are too large or too complex for individual towns to solve themselves. Design solutions are expected to range in scope and in scale, from large-scale urban and multi-functional green infrastructure to small-scale distributed flood protection measures and resilient residential structures, for example. The competition process will also lead to increased understanding of regional interdependencies, thus fostering coordination and resilience at both the local and national levels. Competition participants will develop projects in consultation with existing and potential future CDBG-DR grantees to address recovery needs in the region. Winning designs may be supported by CDBG-DR funds. To the extent practicable, additional supplemental funding from relevant Federal programs will also be leveraged to support winning designs. Philanthropic organizations, including The Rockefeller Foundation, are supporting the design competition process and contributing to the prize pool.

The Rebuild by Design competition process is structured in four stages:

1) Request for qualifications and selection of five to ten teams (June – July 2013).
2) Analysis of the region through a participatory collaborative process and identification of design opportunities (August – October 2013).
3) Development of site-specific design solutions in collaboration with State/local government partners and other stakeholders (November 2013 – February 2014).
4) Design development of winning solutions and implementation of winning design solutions (March 2014 – TBD).

The competition will bring world-class expertise to multiple levels of government across the Sandy-affected region by engaging a diverse set of experts: engineers, architects, urban designers, community builders, artists, and ecologists are just some of the many professionals that could comprise the interdisciplinary teams, which will create innovative proposals for resilient rebuilding.

A jury will judge the designs at a date to be determined in 2014.

HUD will, in collaboration with philanthropic organizations, evaluate the Rebuild by Design competition process using the process of this competition as an inspiration, and research the possibilities of applying 'regional resilience by design' in other regions across the nation.

Owner

***Lead:** HUD*

Status

Recommendation adopted: Competition currently underway to identify projects to be funded by the Sandy Supplemental. Similar competitions could be utilized for future disaster recovery efforts in the region and nationwide.

REBUILD BY DESIGN

148 International teams submit proposals; 10 are chosen

Research stage and development of design opportunities

HUD announces 10 proposals to move forward

Development of design solutions

HUD identifies winning design solutions and allocation of CDBG-DR to help implement

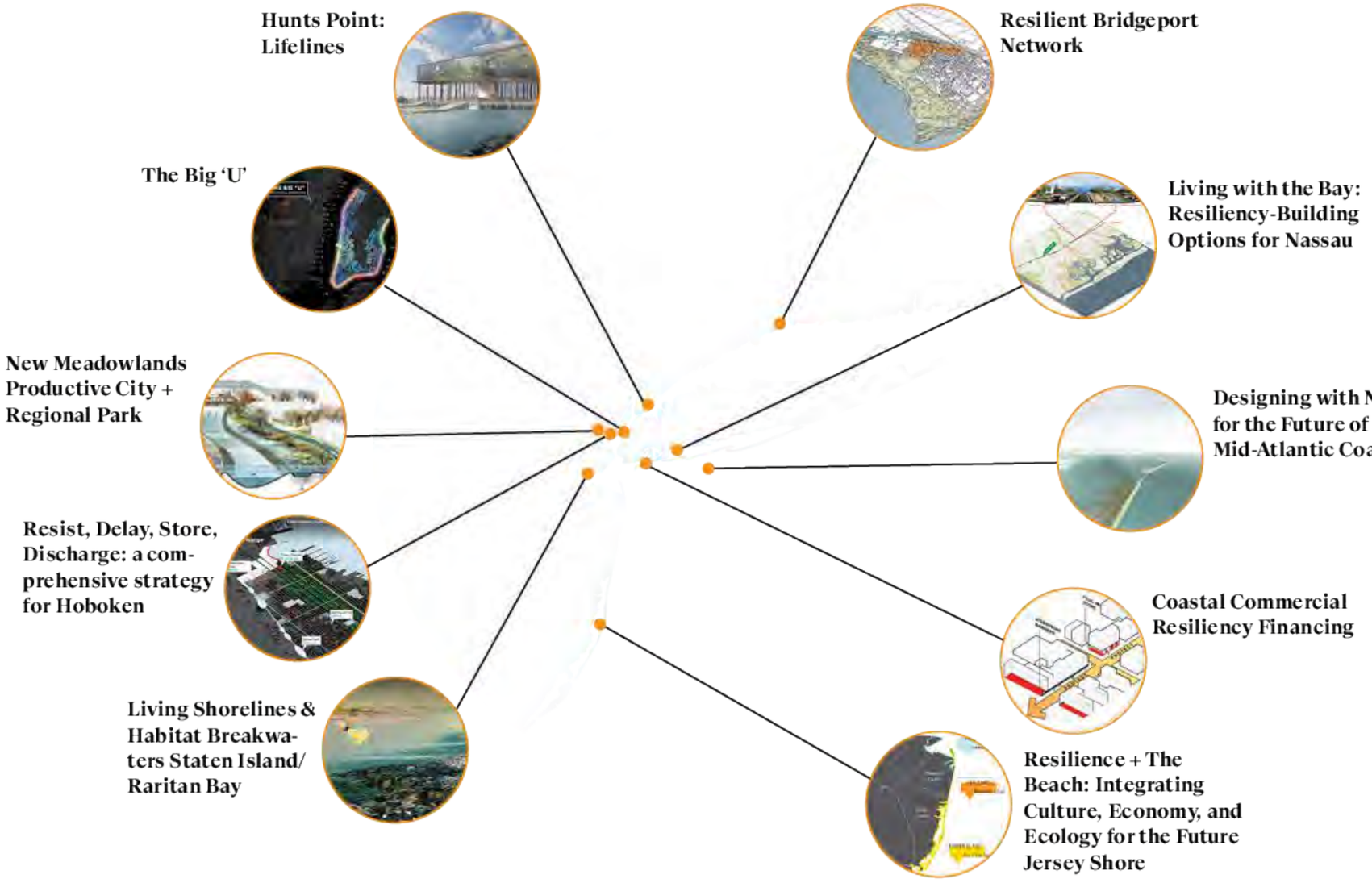
Stage I: Selection

Stage II: Research

Stage III: Design

Stage IV: Implementation

REBUILD BY DESIGN



CENTER for ADVANCED URBANISM

Alexander D'Hooghe
Kobi Ruthenberg
Sarah Williams
James Wescoat
Alan Berger
Christopher Zegras
Case Brown
Celina Balderas-Guzman
Jihak Hong
Michael Forster
Kate Goldstein
Alexis Howland
Ariel Noyman
Jonah Rogoff
Alicia Rouault
Andrew Turco
Wenfei Xu

ZUS
ZONES URBAINES SENSIBLES

Kristian Koreman
Elma van Boxel
Tim Peeters
Liviu Teodorescu
Maciek Wieczorkowski
Maialen Andiarena
Steven Hagen
Jouke Sieswerda
Thomas van den Berghe
Ignaz Hameetman

DE URBANISTEN

Florian Boer
Dirk van Peijpe
Eduardo Marin
Jinyeong Seo
Jesus Martin
Auke Wissing
Edu Lamtara

75B

Pieter Vos
Rens Muis
Merel Snel
Loes Verstappen
Anieka Bruyn van Rozenburg
Lea Sormani

Deltares
Enabling Delta Life

Frans Klijn
Mindert de Vries

VolkerInfra

Hans Galjaard

MERI CIMIC
MEADOWLANDS ENVIRONMENTAL RESEARCH INSTITUTE
RUTGERS CUES
Center for Urban Environmental Sustainability
AKRF

Advisory members

HURRICANE SANDY

October 29, 2012

EASY FIXES

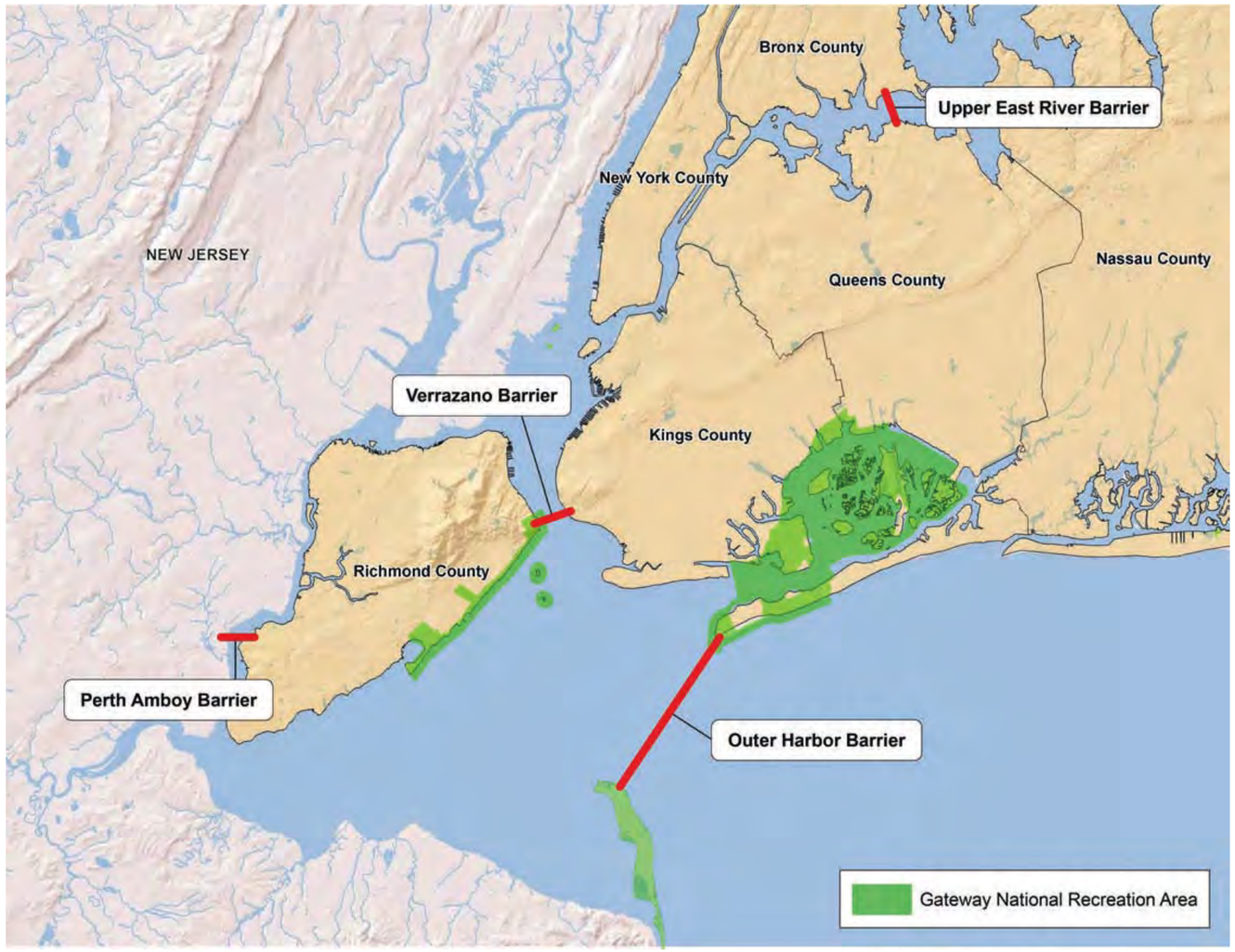


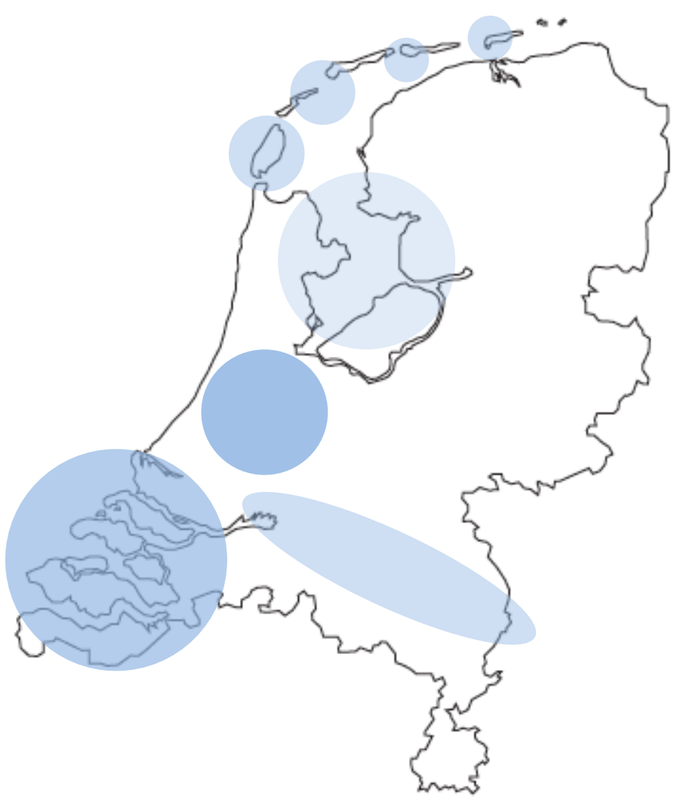
Figure L-17: Significant sections of New York could be protected from extreme storm surges and coastal flooding with three storm surge barriers (Perth Amboy, Verrazano, and Upper East River barriers). An alternative arrangement places a barrier between Sandy Hook, NJ and Far Rockaway, NY (Outer Harbor barrier). This would obviate the need for the Verrazano and Perth Amboy barriers, plus provide additional protection for northern New Jersey, Brooklyn, Queens, Jamaica Bay and the south shore of Long Island. (ASCE, 2013)

UNLEARNING FROM THE NETHERLANDS

DELTA 1.0

DELTA 2.0

DELTA 3.0



FLOOD

2.5

million inhabitants of the NY - NJ metropolitan area live in a flood zone

NOAA Flood Zone

- 1ft Sea Level Rise
- 3ft Sea Level Rise
- 6ft Sea Level Rise

FEMA Flood Zone

- Zone V - 100-year
- Zone A - 100-year
- Zone XX - 500-year

SOCIAL VULNERABILITY

66%

of the most vulnerable communities live within a 1/2 mile of the flood zone

SOCIAL VULNERABILITY INDEX
NEW YORK CITY/
NORTHERN NEW JERSEY REGION

Social Vulnerability

>1.5 | 0.5 | -0.5 | -1.5 | <-2.5

Standard Deviations

POLLUTION

80%

of the regional fuel storage is in the flood zone

SEDIMENT CONTAMINATION
SURFACE - TOP 10 cm
TOTAL PCB

Industrial Land Use
Brownfields Property
Contaminant Spill Control
Superfund Site
CSO

Percentile Concentration
>80% 80% 60% 40% 20% <20%
Percentage of Total Commuters

VITAL ELECTRICITY NETWORKS

75%
of the net annual power generation is in the 100 year flood zone

Bergen Generating Station

500MW CC Astoria

Ravenswood

Linden Cogen Plant

POWER AND LIQUID FUEL
NEW YORK CITY/
NORTHERN NEW JERSEY REGION

Power Plants
>3,000,000 | 3,000,000 | 1,500,000 | 500,000 | 150,000 | <150,000
Annual Net Output (MW-h)

Electrical Substation

Liquid Fuel Storage Terminal
<3 | 3-6 | 6-9 | 9-12 | >12
Storage Capacity (million barrels)

Natural Gas Pipelines
>30 in | 30 in | 20 in | 10 in | <10 in
Diameter (inches)

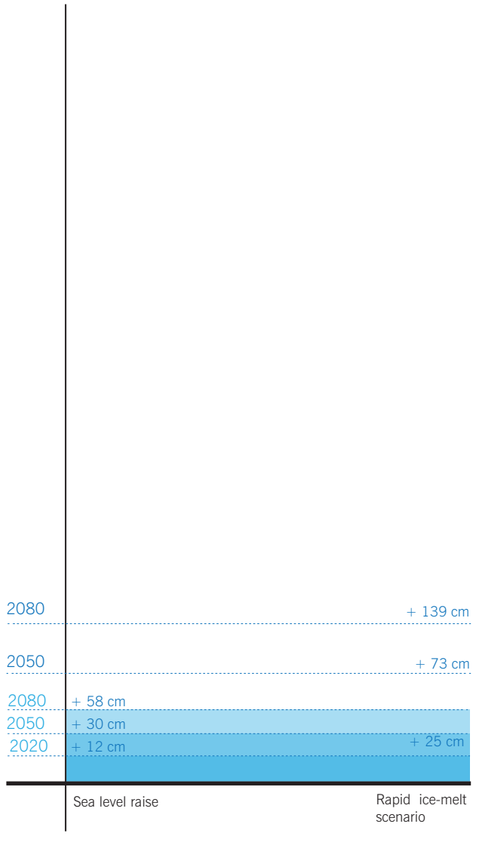
Transmission Lines
>734 kV | 734 kV | 500 kV | 344 kV | 230 kV | <230 kV
Capacity

FEMA Flood Zones*
Zone V - 100-year
Zone A - 100-year
Zone XX - 500-year

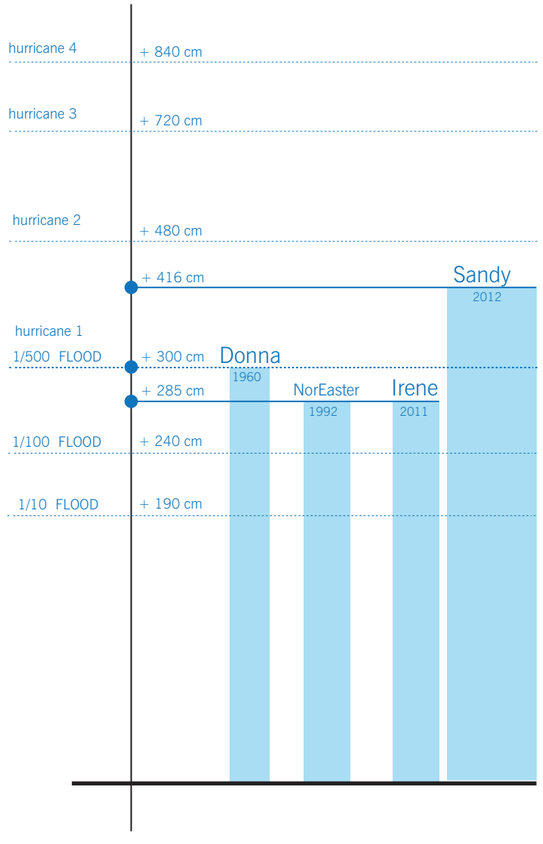
(FEMA, NREL, PLATTS, OPUS, EPA) *Digital Flood Data for Nassau County Unavailable ©2013

FLOOD SOURCES

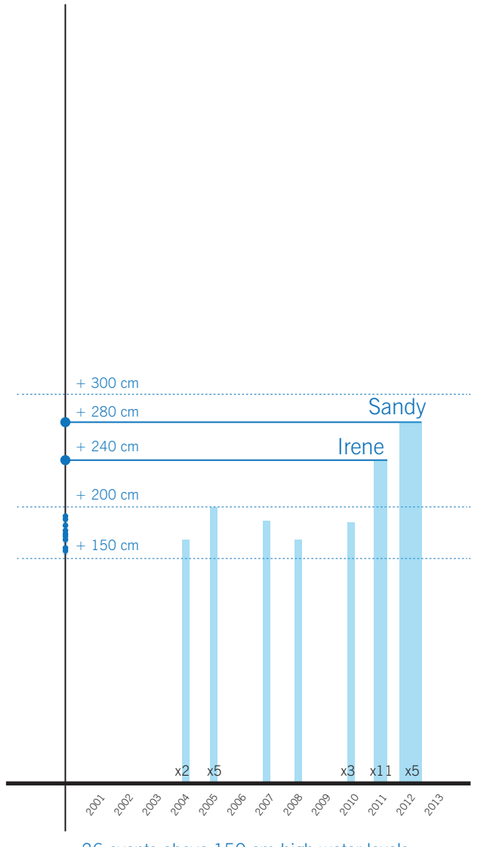
sea level rise



storm surge

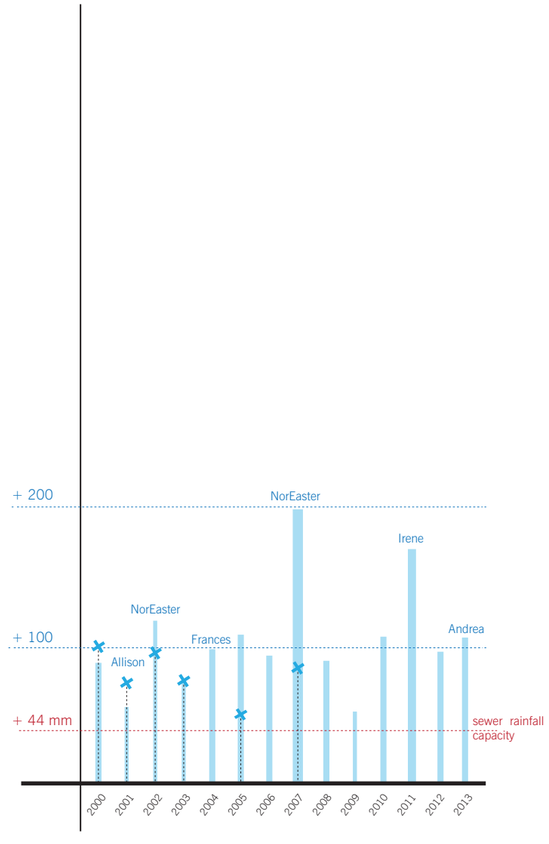


high rivers



26 events above 150 cm high water levels

rainfall

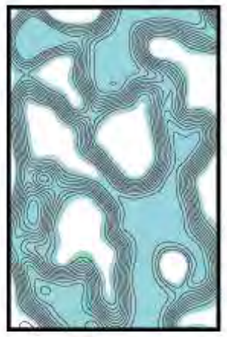


Max daily precipitacion

Max daily precipitacion / hour

REGIONAL FLOODSCAPES

Wetland

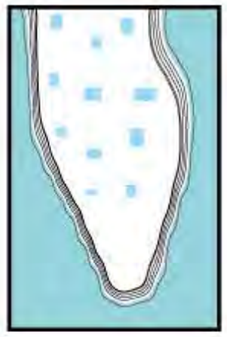


1

River Floodplain

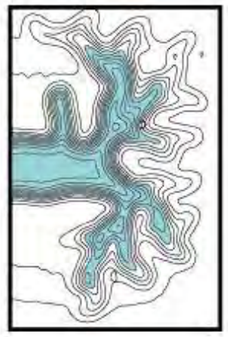
2

Island



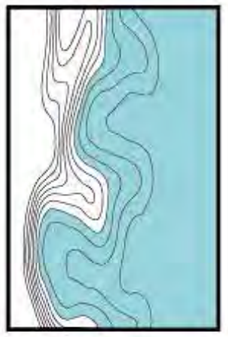
3

Creeks

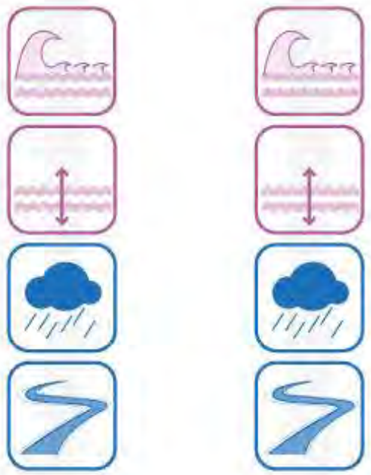


4

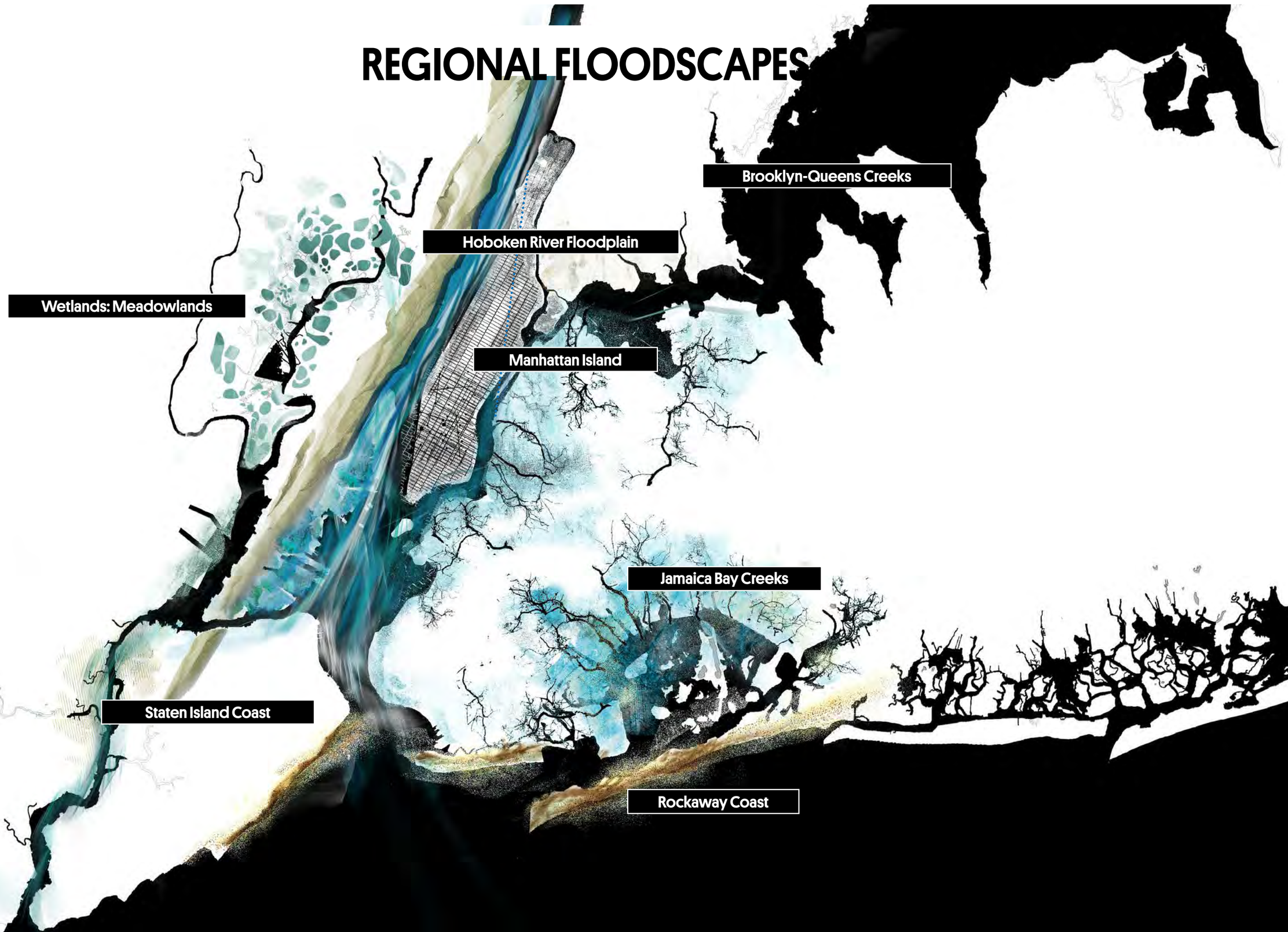
Coast



5



REGIONAL FLOODSCAPES



Multiple Vulnerabilities: The Hazard Sandwich

	MARSH	RIVER	ISLAND	CREEK	COAST
GEOGRAPHY					
DENSITY					

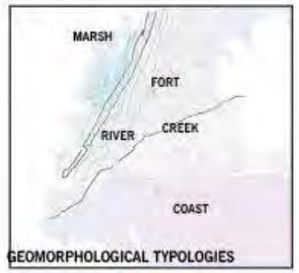
	MARSH	RIVER	ISLAND	CREEK	COAST
INUNDATION					
WAVES					

	MARSH	RIVER	ISLAND	CREEK	COAST
SOCIAL VULNERABILITY					
ECONOMIC LOSS	$	$ $	$	$ $	$

	MARSH	RIVER	ISLAND	CREEK	COAST
POLLUTION					
HEAT EFFECT					

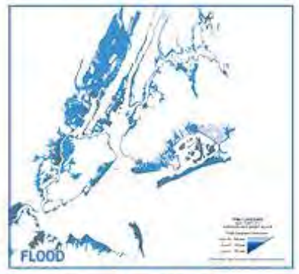
	MARSH	RIVER	ISLAND	CREEK	COAST
VITAL NETWORKS					
TRANSPORT NETWORKS					

+



85%
OF THE REGIONAL HISTORIC WETLANDS HAS BEEN DEVELOPED OR LOST

+



2.5
MILLION INHABITANTS IN THE NEW YORK & NEW JERSEY METROPOLITAN AREA LIVE IN THE FLOOD ZONE

+

66%
OF THE MOST VULNERABLE COMMUNITIES LIVE WITHIN A 1/2 MILE OF THE FLOOD ZONE

+

80%
OF THE REGIONAL FUEL STORAGE IS IN THE FLOOD ZONE

+

75%
OF THE NET ANNUAL POWER GENERATION IS IN THE 100 YEAR FLOOD ZONE

CRITICAL REGIONAL BACKBONE

Bergen Generating Station

500MW CC
Astoria

Ravenswood

Linden Cogen Plant

COMBINED FACTO
NEW YORK CITY
NORTHERN NEW JERSEY

Power Plants
>3,000,000
3,000,000
1,500,000
500,000
Annual Net Output (MW-h

Electrical Substation

Liquid Fuel Storage Terminal
<3 3-6 6-9 9-12 >12
Storage Capacity (million barrels)

Natural Gas Pipelines
>30 in 30 in 20 in 10 in <10 in
Diameter (inches)

Transmission Lines
>734 kV 734 kV 500 kV 344 kV
Capacity

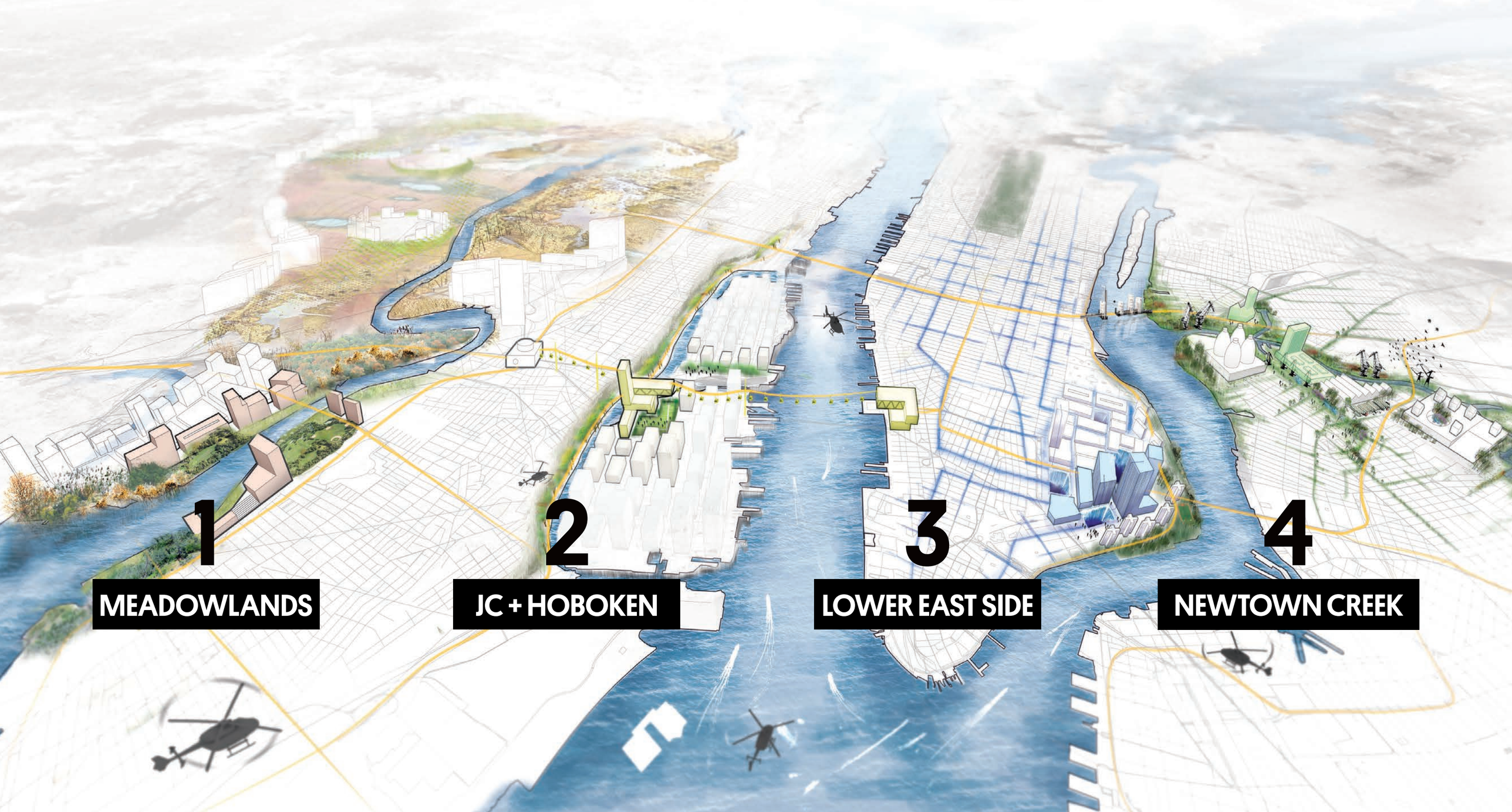
Social Vulnerability
>2.5 Std. Dev. from Avg.

Land Use Type*
Industrial

FEMA Flood Zones*
Zone V - 100-year
Zone A - 100-year
Zone XX - 500-year

(NOAA, NJDEP, NYCPLUTO, FEMA, NREL, PLATTS, OPUS, EPA) *Digital Flood Data and Land Use Data for Nassau County Unavailable ©2

CRITICAL REGIONAL BACKBONE




4 Miles Wide
10 Miles Long
MEADOWLANDS
2 Miles from
Manhattan
1 Mile from
Newark Ports


Legend
Wetlands
Water
Upland
Study Area Boundary

MARKET-DRIVEN DEVELOPMENT | GOVERNMENT INVOLVED IN PLANNING AND CONSERVATION

NEW YORK - NEW JERSEY GROWTH:
1.5 MILLION INHABITANTS

1650s
FIRST SETTLEMENTS

1816 - 1820
SWARTOUT DIKING ATTEMPT

1831
MORRIS CANAL

1830s
FIRST RAILROADS

1865 - 1873
DRIGGS & PIKE
RECLAMATION ATTEMPT

ANDREW MELROSE -
VALLEY OF THE HACKENSACK
(CA 1875)

HERMAN HARTWICH -
HACKENSACK MEADOWS
(CA 1900)

CHARLES WARREN EATON -
HACKENSACK RIVER
(CA 1885)

1907
JOSEPH WRIGHT: MEADOWLANDS TOO
VALUABLE TO REMAIN IDLE

1914
PORT NEWARK

1920
LINCOLN HIGHWAY

1922
ORADELL DAM

1925
BATHING PROHIBITED IN
HACKENSACK RIVER

1928
NEWARK AIPORT

1932
PULASKI SKYWAY

1956
CREATION DEFOREST LAKE

1952
NEW JERSEY TURNPIKE

1966
CREATION LAKE TAPPAN

1976
GIANTS STADIUM

1981
IZOD CENTER

1986
WOODCLIFF LAKE DAM

2000
10635 INHABITANTS

2010
METLIFE STADIUM

2014
START IMPLEMENTATION
REBUILD BY DESIGN PROPOSALS

2014
CONTINUATION CONSTRUCTION ADM

2025
GATEWAY PROJECT

WETLAND ACREAGE

SALINITY

1700 1800 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050

LAND RECLAMATION

LAND MAKING

AGRICULTURE: SALT HAY HARVESTING

NATURAL RESOURCES: HUNTING, FISHING, SPORT

GARBAGE LANDFILLS

1869
HACKENSACK
WATER COMPANY

1921
NEW JERSEY
PORT AUTHORITY

1929
A MAGIC CITY FROM A SWAMP: POPULAR
SCIENCE MONTHLY

A Magic City from a Swamp

1969
NEW JERSEY
MEADOWLANDS COMMISSION

1970
COMPREHENSIVE PLAN

1971
NJSEA

2002
HUDSON COUNTY
MASTER PLAN

2004
NJMC
MASTER PLAN

2004
MEADOWLANDS
MOBILITY 2030

2007
GLOBAL WARMING
RESPONSE ACT

2007
MEADOWLANDS DISTRICT
TRANSPORTATION PLAN

2009
NJMC
ZONING PLAN

2013
NJTPA PLAN 2040

2014
NJ MUNICIPAL LAND
USE LAW UPDATE

2014
BERGEN COUNTY
MASTER PLAN

2017
NJTPA PLAN 2040
UPDATE

1928

A Magic City from a Swamp

FROM a vast 41-acre waste of mosquito-infested New Jersey swamp land, just across the Hudson River from New York City, soon may rise a great city of industries and homes, larger in area than New York herself. A project recently announced by the Regional Plan of New York and pictured on this page calls for streets and skyscrapers, parks and waterways, flying fields and residential districts.

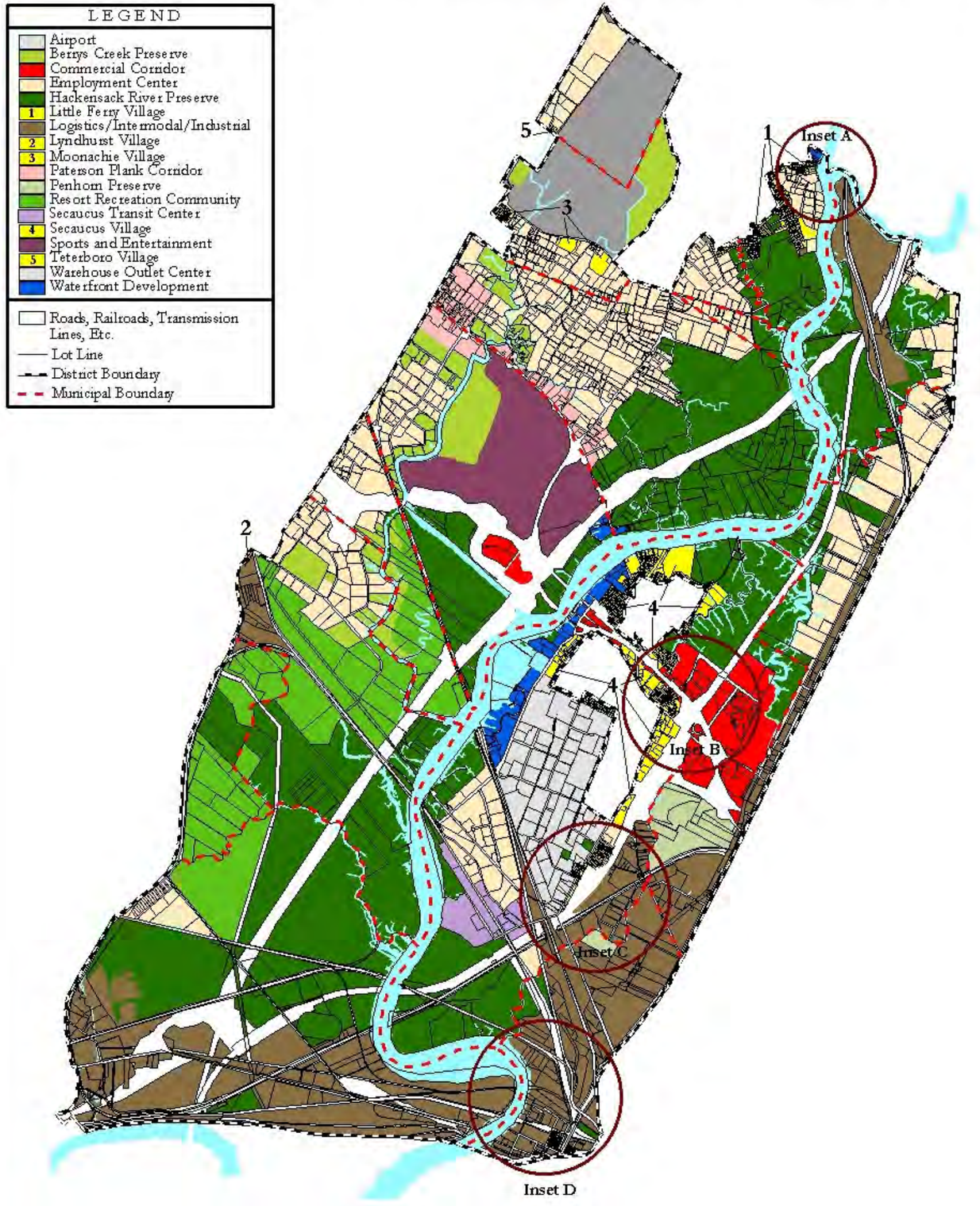
The site is known as the Hackensack Meadows, through which wind the Passaic and Hackensack rivers.

To build the city on dry land the level of the entire marsh must be raised ten feet by filling with 200,000,000 cubic yards of dirt. The Hackensack River must be straightened and deepened for the passage of large ships, and a system of canals dredged.

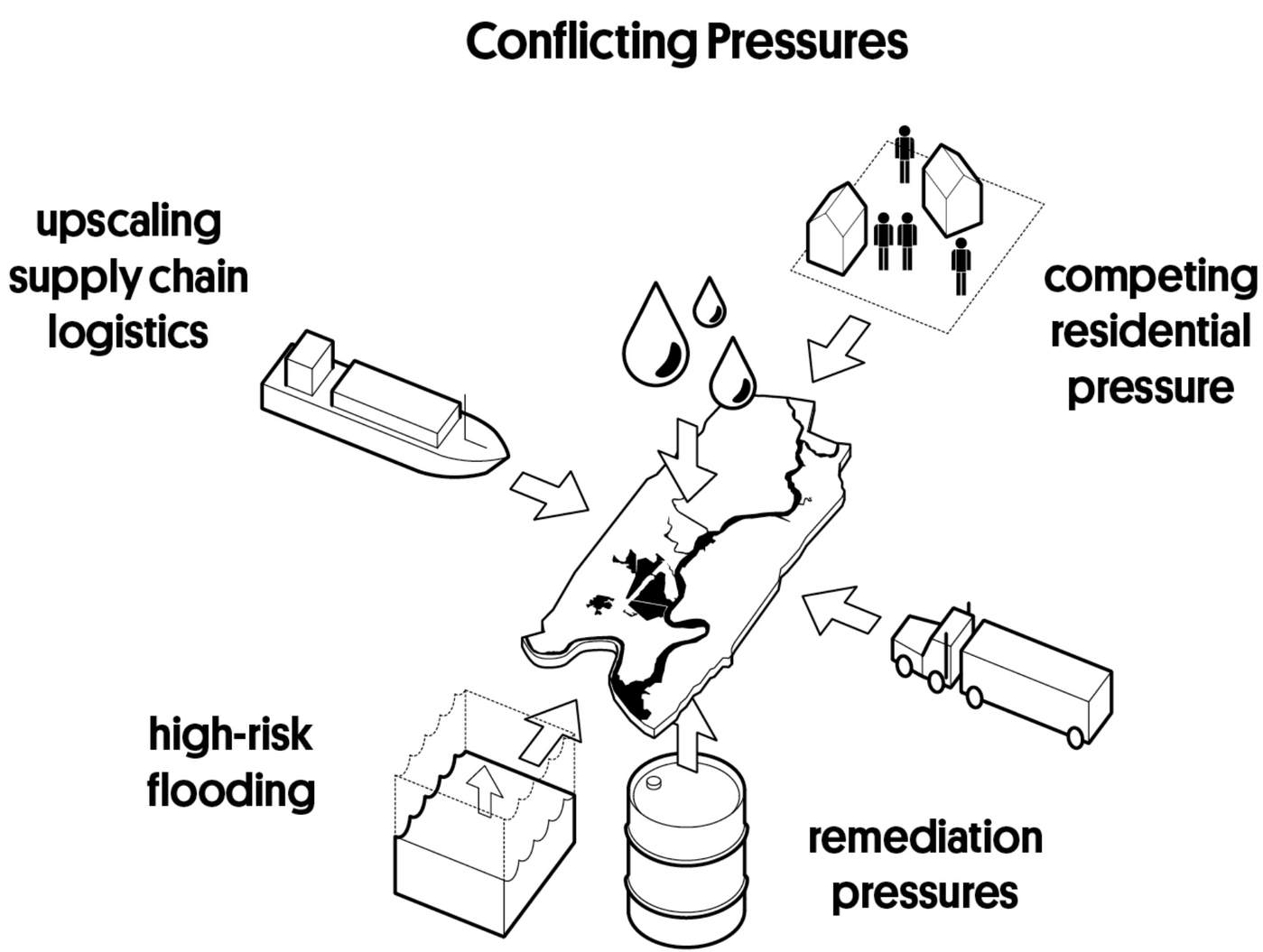
The cost is estimated at $8,700,000 to $14,400,000 to accommodate in the beginning a population of 730,000 people—about equal to that of Boston.

1970

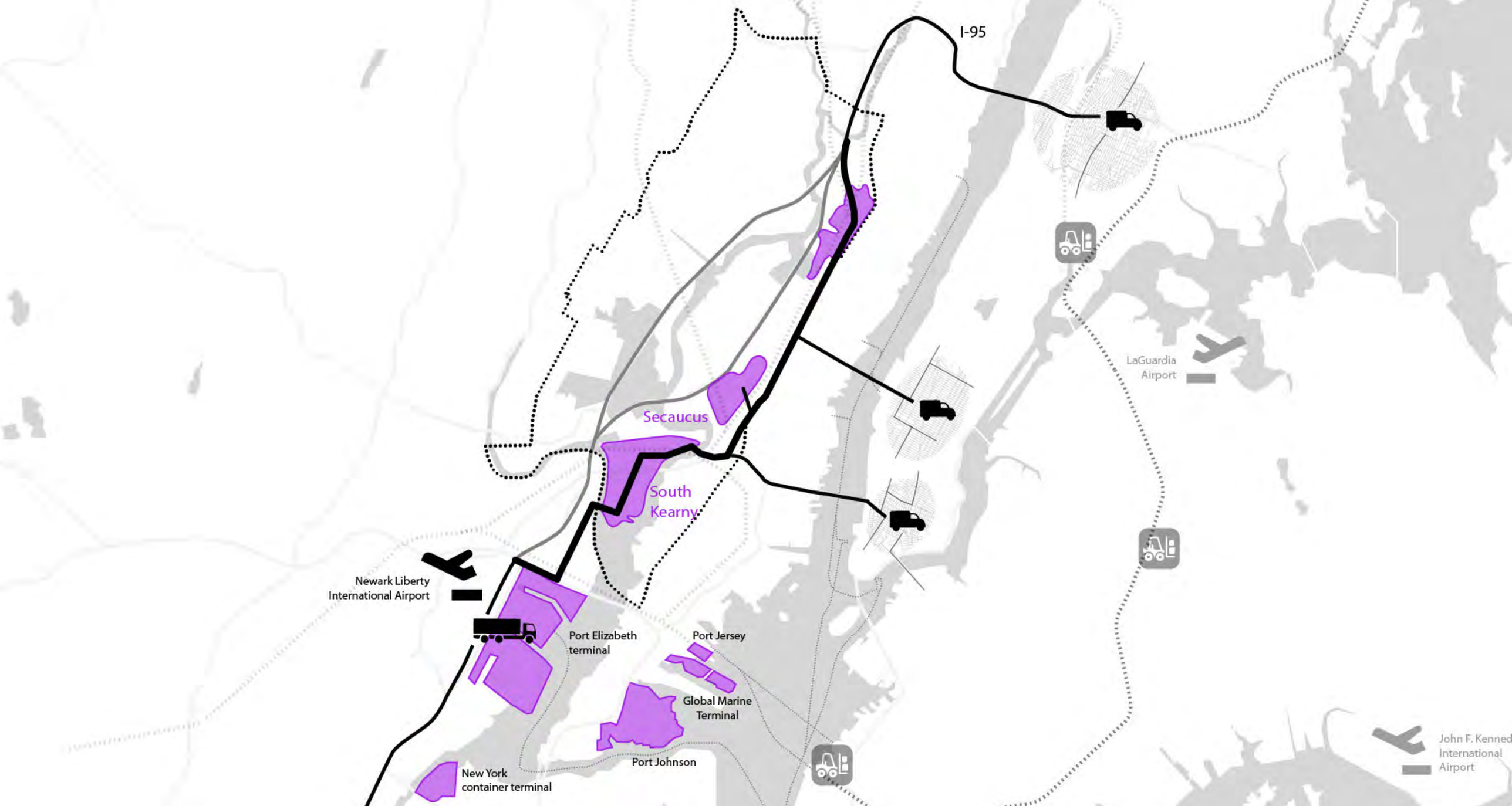
2004


LEGEND
Airport
Berrys Creek Preserve
Commercial Corridor
Employment Center
Hackensack River Preserve
1 Little Ferry Village
Logistics/Intermodal/Industrial
2 Lyndhurst Village
3 Moonachie Village
Paterson Plank Corridor
Penhorn Preserve
Resort Recreation Community
Secaucus Transit Center
4 Secaucus Village
Sports and Entertainment
5 Teterboro Village
Warehouse Outlet Center
Waterfront Development
Roads, Railroads, Transmission Lines, Etc.
Lot Line
District Boundary
Municipal Boundary
1
2
3
4
4
5
Inset A
Inset B
Inset C
Inset D

CONFLICTING PRESSURES



LOGISTICS AND SUPPLY CHAIN



ECOLOGY

ATLANTIC FLYAWAY

260 SPECIES OF BIRDS LIVE IN OR
MIGRATE THROUGH THE MEADOWLANDS

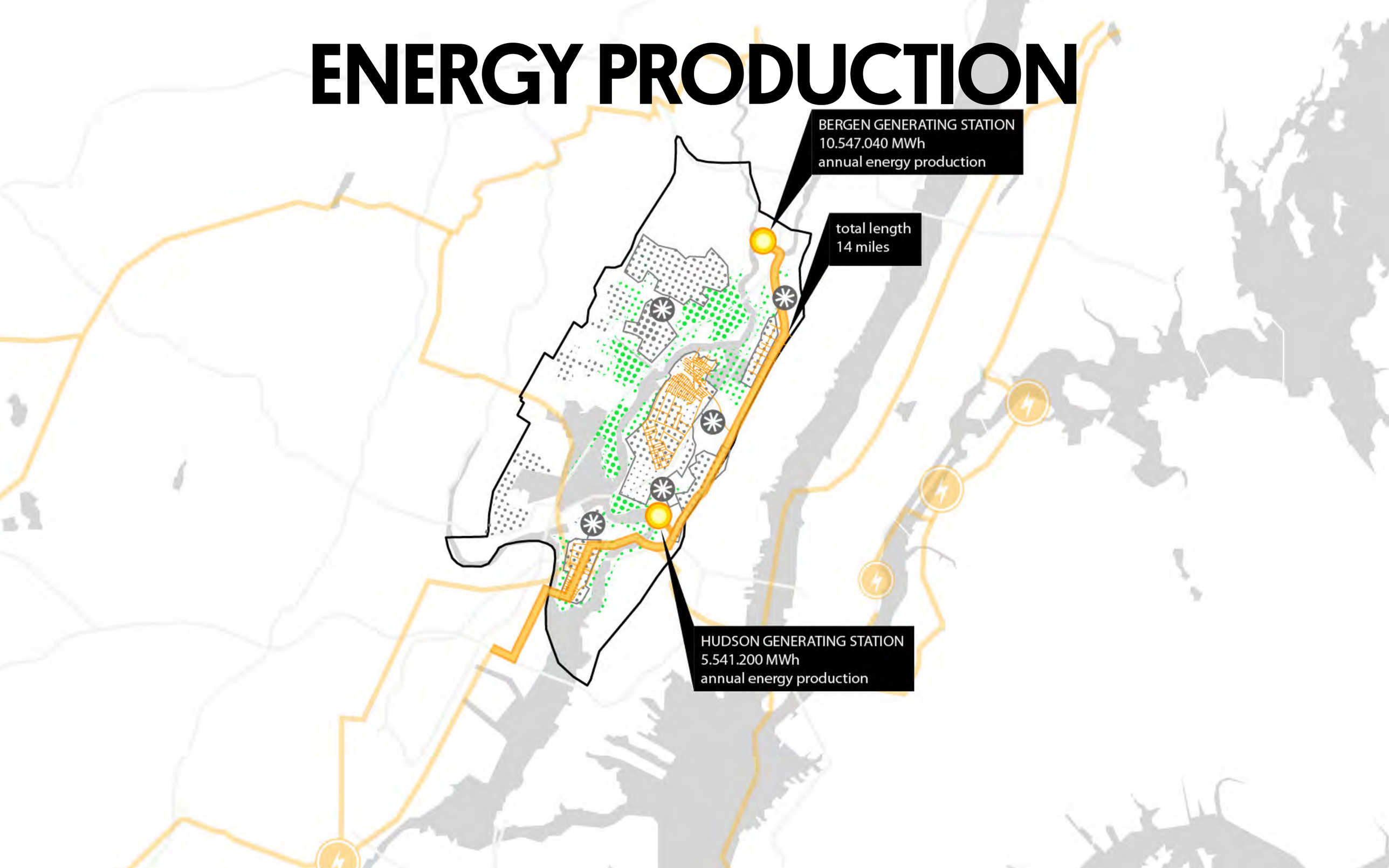
HACKENSACK MEADOWLANDS

NATURAL CORRIDOR UPLAND-OCEAN

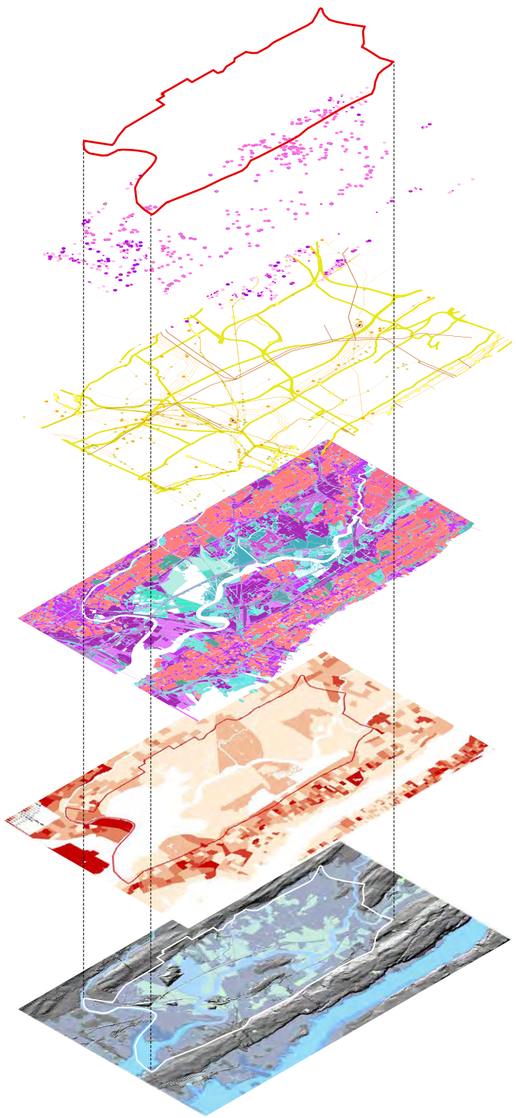
TRANSIT ORIENTED DEVELOPMENT

Paterson
Hackensack
Essex St.
Clifton
Passaic
Delawanne
Kingsland
Secaucus
Junction
East Orange
Grand Central
Terminal
New York
Penn St.
Hoboken
Newark
Penn St.
Summit
Newark Liberty
International Airport
New Jersey
North Elizabeth
Elizabeth
Cranford
Hudson
Bergen
Light r.
Linden

ENERGY PRODUCTION



RISKS AND VULNERABILITIES



PUBLIC HEALTH
Polluted sediment disturbance is a regional health hazard.

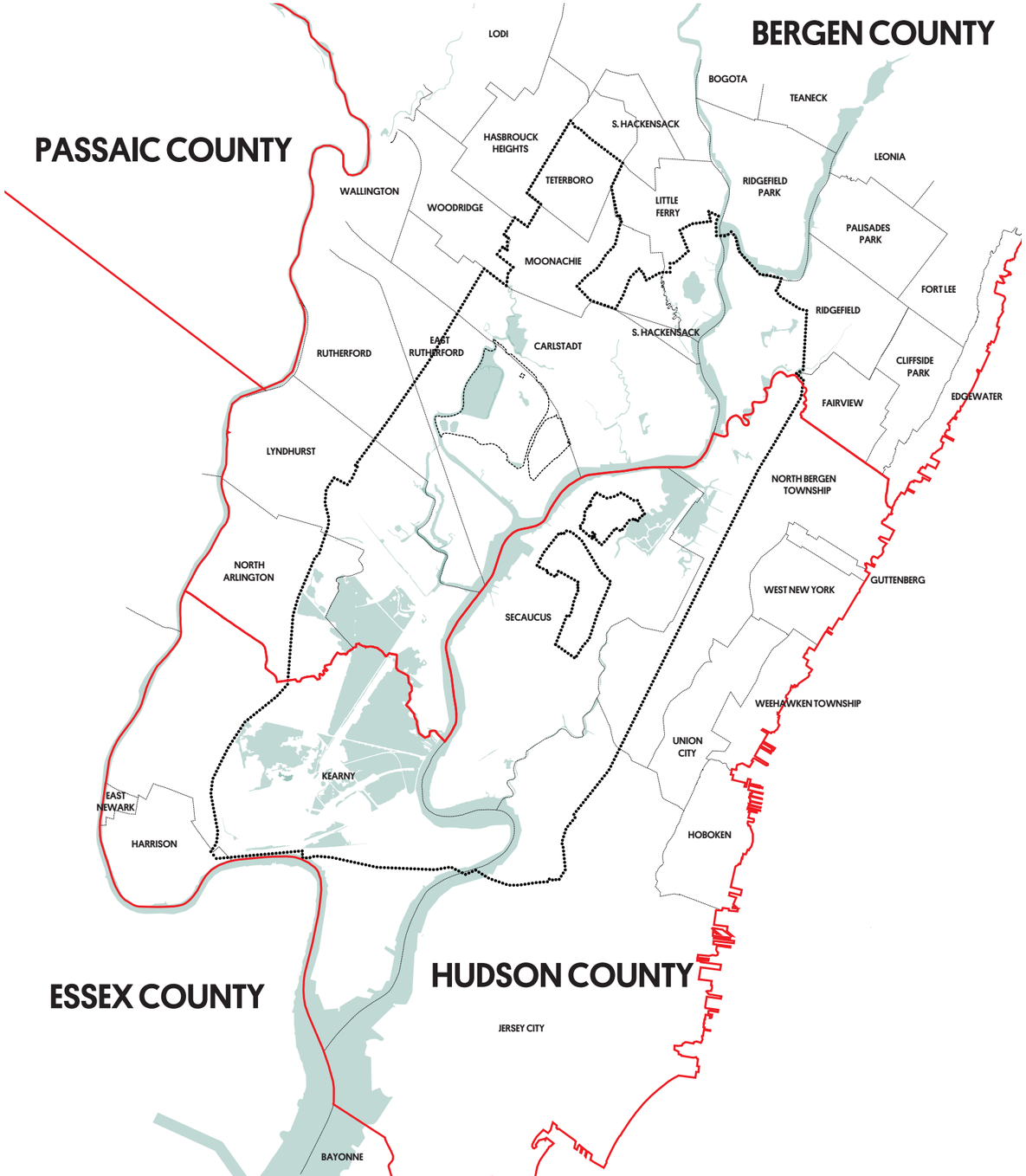
TRANSPORT
Movement of goods are at constant risk of being cut off from the region.

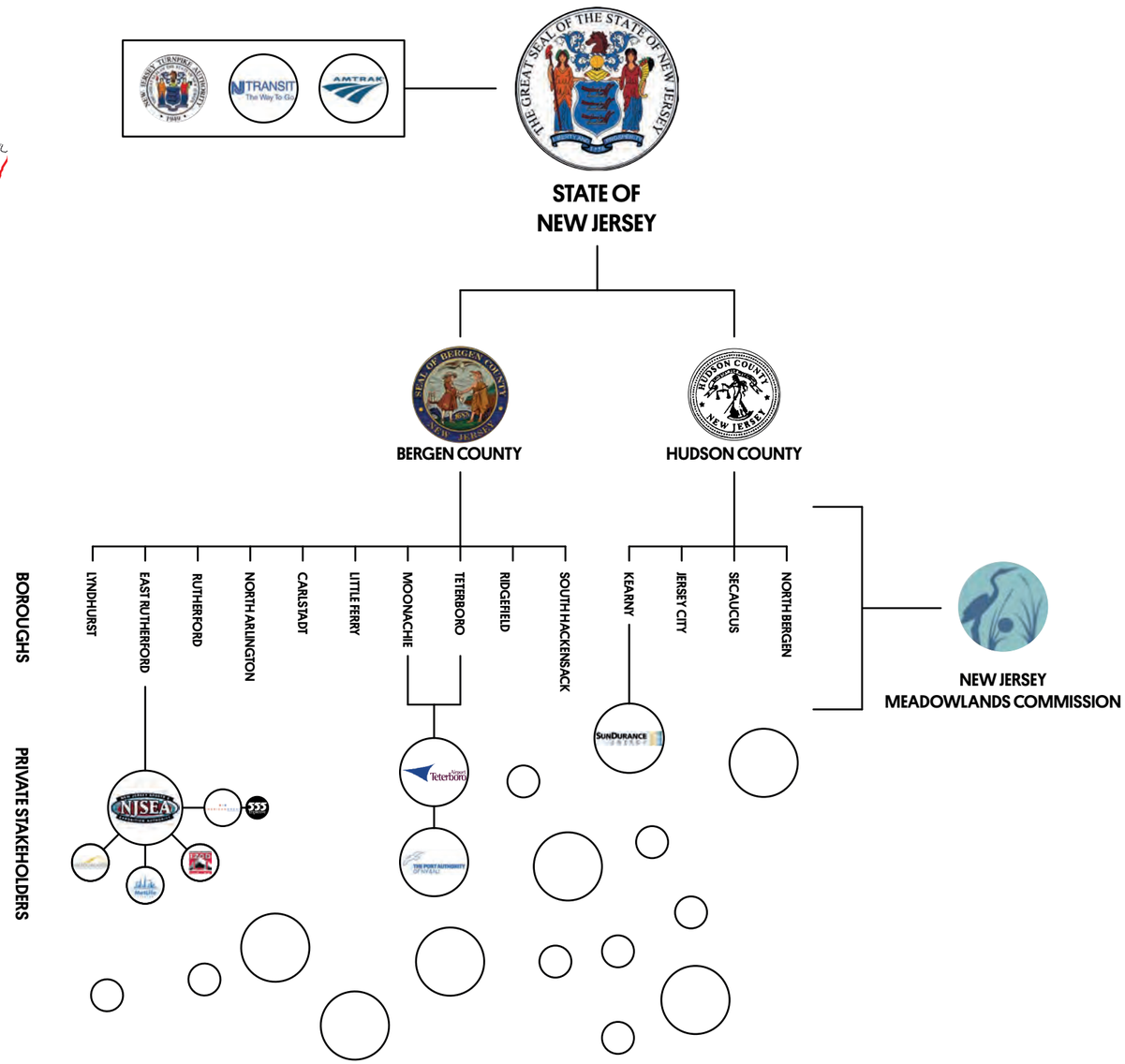
ENERGY
3 power plants and 21 substations remain at risk of flood-related damage and interruption.

LAND USE
$2 billion of physical damage will occur from inundation of the district's residential, commercial, and industrial structures every year.

SOCIAL VULNERABILITY
$1 billion worth of salaries from commercial and industrial jobs within the district are likely to be lost in the long term as a result of flooding vulnerability.

MEADOWLANDS STAKEHOLDERS



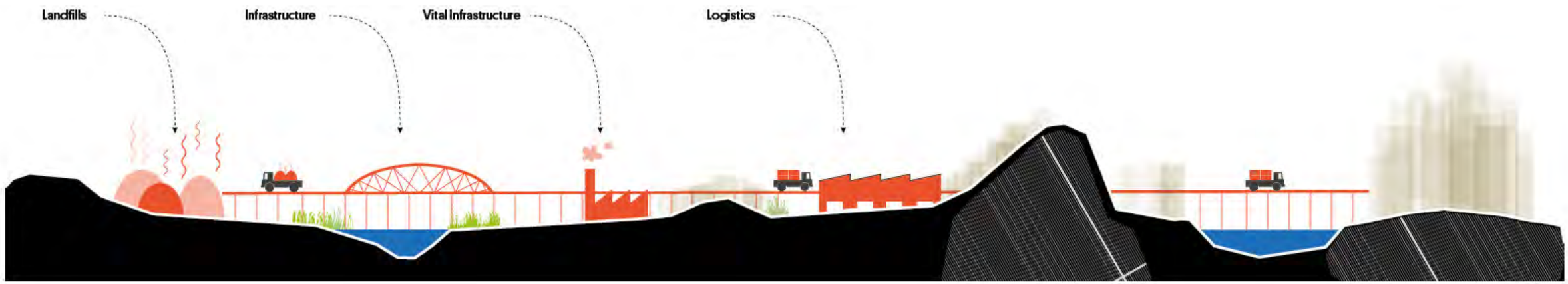



DESIGN
REBUILD BY DESIGN
TOWARDS A DELTA OF RESILIENT DISTRICTS
REGIONAL RESILIENCY STRATEGY
THE NEW MEADOWLANDS
REGIONAL URBAN WILDLIFE PARK
- PROTECT -
THE MEADOWBAND
- CONNECT -

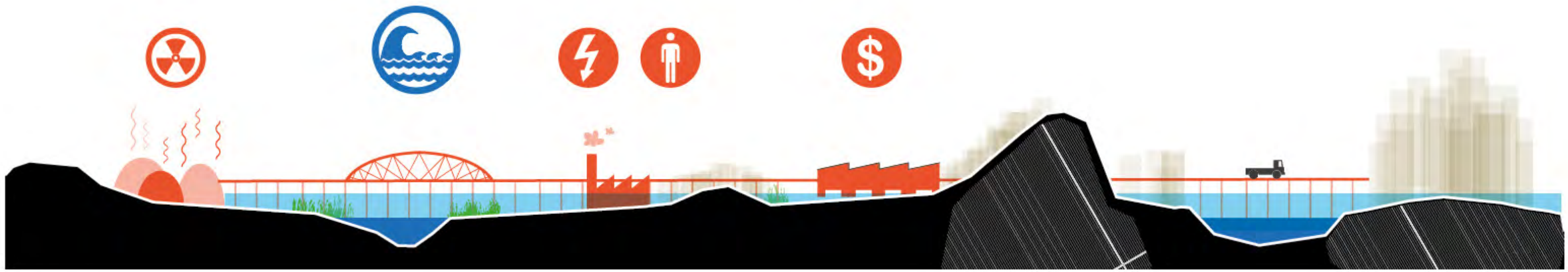

MAPPING OF RISKS AGAINST VULNERABILITIES

In 1900 The Meadowlands are a resilient system capable of handling flood

From the industrial revolution on industrial and infrastructural demands greatly affect the area...



...resulting in substantial damage by hurricane Sandy half a century later



protecting valuable land with berms and wetlands

The NEW MEADOWLANDS!

LAND USE PLANNING TRENDS

Hackensack Meadowlands Comprehensive Land Use Plan

1970

- District is 20 times as large as Central Park
- 1000 acres of public park and 500 acres of commercial recreation space
- build new residential islands in wetlands area
- 1,500 acres of marshland conservation, 4300 acres of commercial development
- proposes various flood control mechanisms, such as levees and tidal gates
- recommended elevation of new land 10 feet above mean sea level
- 70,000 units of residential development
- 23 million sq ft of commercial/office space
- 90 million sq ft of industrial/warehouse space

Special Area Management Plan (SAMP)

1995

Summary of growth needs (p. 1-21)
Residential: 14,000 housing units
Primary Office: 18.0 million square feet
Secondary Office: 6.3 million square feet
Warehouse/Distribution: 9.0 million square feet
Commercial: 2.5 million square feet

- less than one page devoted to flood control issues and management
- core goal to preserve, restore and enhance natural resources
- 749.8 acres of wetland fill
- 1688.9 acres of total development proposed in planning and satellite areas
17.75 million sq ft of offices, 2.7 million sq ft of commercial and 13.9 million sq ft of residential
- 40 dwelling units per acre proposed in Carlstadt

New Jersey Meadowlands Commission Master Plan

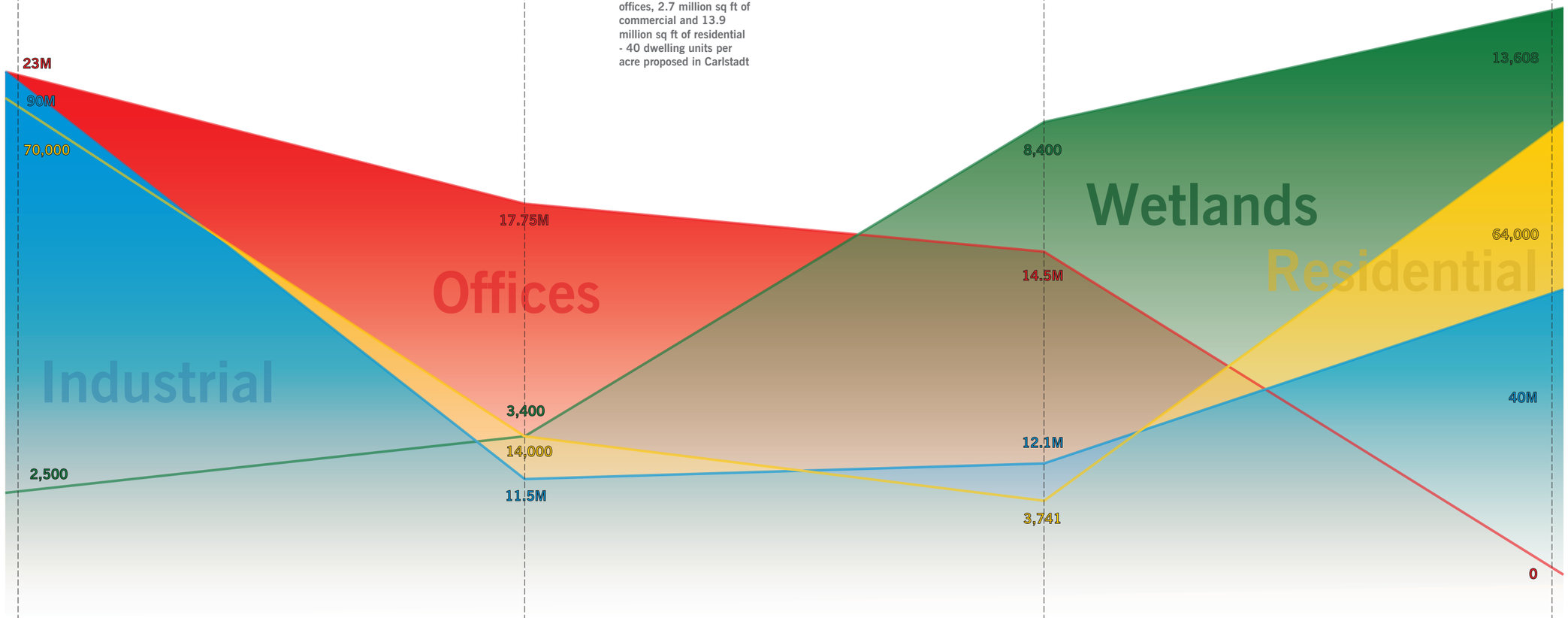
2004

- protection, enhancement and preservation of 8400 acres of wetlands
- removal of 3.5 million sq ft of existing structures for redevelopment
- 3741 new units of residential development
- 14.5 million sq ft of new commercial/office development
- 12.1 sq ft of new industrial development

New Meadowlands

2014

Meadowband – A 63 miles berm (Primary berm: 47 miles)
(Secondary berms: 16 miles) + Road + BRT
Recreational area proposed: 400 Acres
Wetland restoration area proposed: 3895 acres
Residential Units proposed: 96,700
Office area proposed: 0
Industrial / Commercial proposed: 43,141060 sqft
New Jobs: 10,784



TOWARDS A GRAND BARGAIN

Federal Investment in Protecting Land = Smarter and More Comprehensive Use of that Land

COALITION

MEADOWLANDS REGIONAL CHAMBER

Building Strong Businesses That Build Strong Communities

March 24, 2014

Mr. Alexander D'Hooghe
Director, Center for Advanced Urbanism, MIT
77 Massachusetts Avenue, E14-140
Cambridge, MA 02139-4307

Dear Alexander,

Please accept this letter of continued support on behalf of me personally and the entire Board of Directors of the Meadowlands Regional Chamber. Over recent months I have been incredibly impressed with the level of intellectual thought and understanding your team has of this unique geography we call the Meadowlands. You have moved the project so far in such a short time that it provides me with great confidence that we can achieve what this project is aimed at.

I hope the interaction with our organization has contributed to your research and please know you will have our full support to advance this project if you are successful in gaining the release of capital improvement funding for the pilot areas.

I am convinced that the implementation of funding for the pilot areas will produce a great ripple effect that will not only remedy the flood prospects of the future but produce new areas of development opportunity that can create jobs and help sustain a vibrant economy here in the Meadowlands.

Please stay in touch and communicate your next steps as we are ready to assist you further.

Respectfully,

James Kirkos
CEO

JK/lt

Meadows Office Complex | 201 Route 17 N., 2nd Floor | Rutherford NJ 07070
Phone: (201) 939-0707 | Fax: (201) 939-0522 | www.meadowlands.org

Hackensack RIVERKEEPER®, Inc.
Captain Bill Sheehan
Riverkeeper & Executive Director
231 Main Street
Hackensack, NJ 07601

Phone: 201-968-0808
Fax: 201-968-0336
info@HackensackRiverkeeper.org
www.HackensackRiverkeeper.org

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March 24, 2014

Dear Rebuild By Design jury:

Please accept this letter of support of the "New Meadowlands" project being submitted as an entry in the *Rebuild By Design* (RBD) competition for federal funding and support. RBD is an initiative of the Hurricane Sandy Rebuilding Task Force and the US Department of Housing and Urban Development. Throughout the third phase of the competition, the MIT CAU+ZUS+Urbanisten project team has been in close contact with our organization. During this time we communicated to them our own concerns – which they met – such that the wetlands in the Meadowlands District remain unaffected.

We also appreciate that the "New Meadowlands" team recognizes that the NJ Meadowlands District is an important region, and should be dealt with as such. Since Hurricane Sandy impacted, the communities within the Meadowlands and along the Hackensack River we have worked hard not only to recover and rebuild, but also to prepare for other future storms. We are deeply concerned about the continuing vulnerabilities and risks for our area, especially factoring climate change and sea level rise into the equation. The well-being of our ecosystem, stability of our communities and their economies need support. The New Meadowlands project provides this support; and we hope that federal assistance will make the populated portions of the Meadowlands District more resilient.

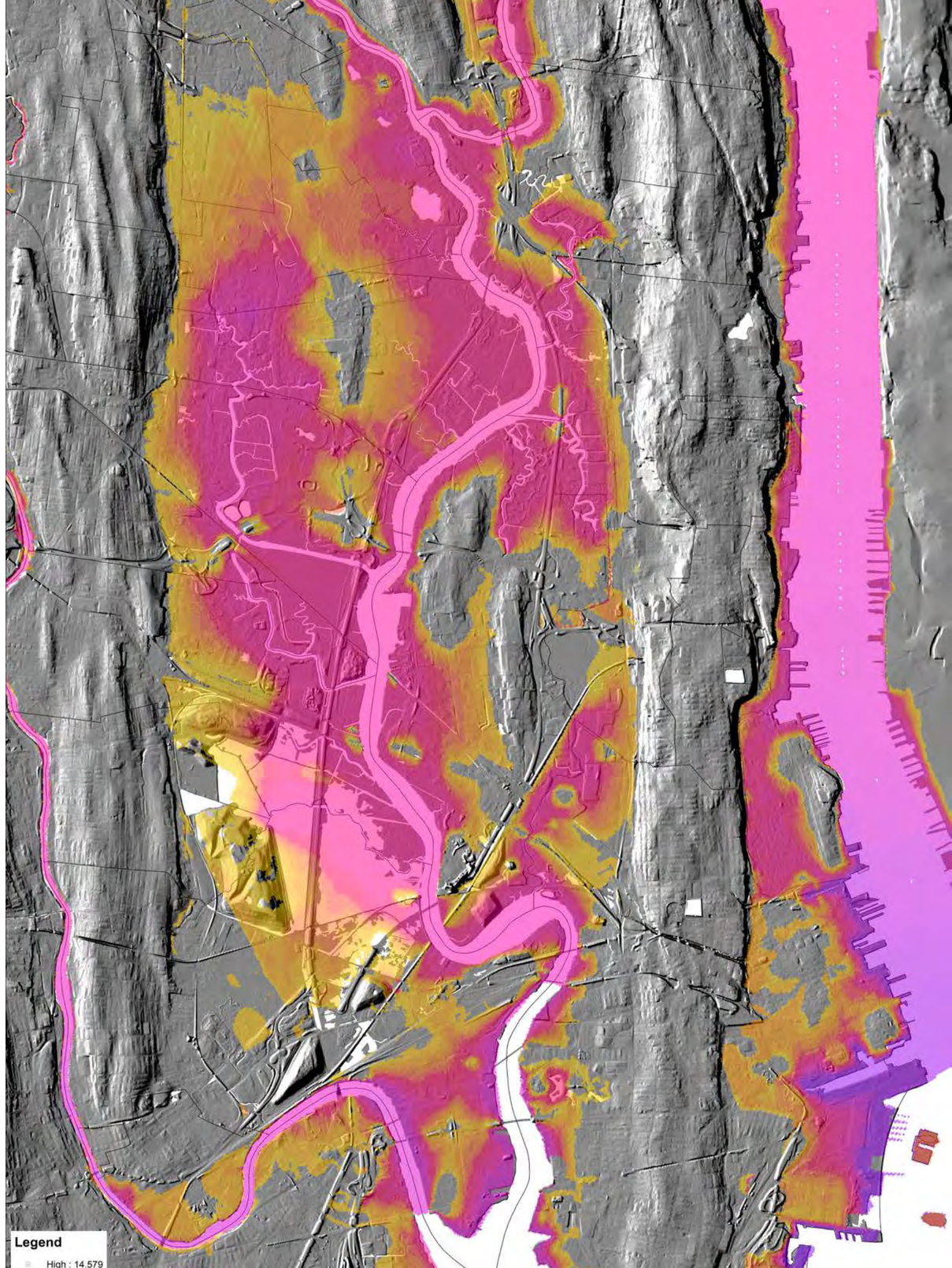
We are impressed by the extent to which the team developed a knowledge and understanding of the Meadowlands. Using state-of-the-art design, planning and engineering, we feel that the New Meadowlands project is incredibly timely for the area. In particular we value the fact that the project does not speak only to flood protection, but makes a major effort to increase resiliency measures by addressing issues of economics, infrastructural and utilities improvement, as well as ecological and recreational aspects of the area – the last two being of paramount importance to Hackensack Riverkeeper.

We look forward to continued collaboration with the team in the implementation of the New Meadowlands project, and to playing a significant role therein. We hope this project will allow the Meadowlands District to serve as a model of resiliency in our region – and as an example for others.

Yours in conservation,

Captain Bill Sheehan

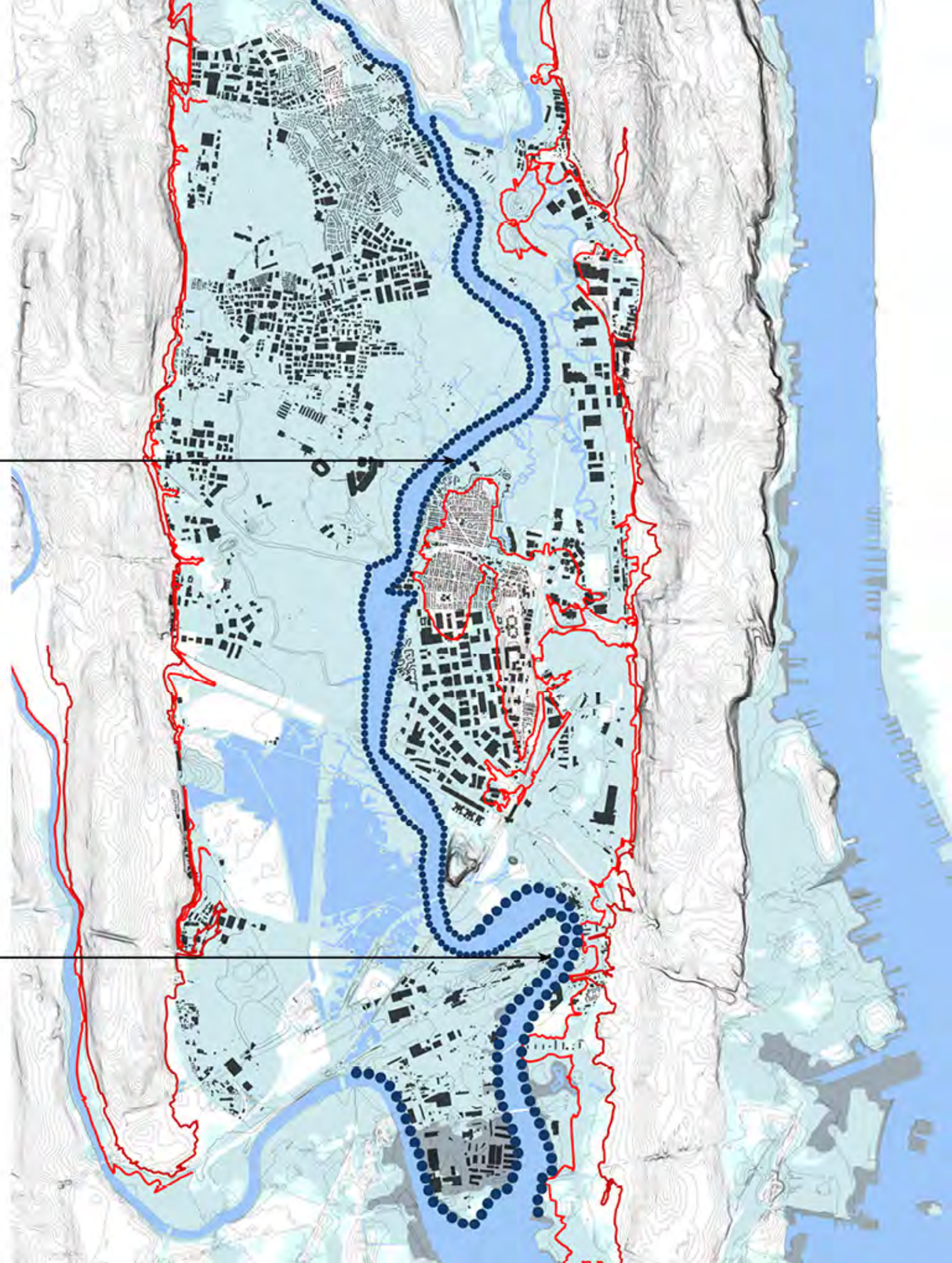
Hurricane Sandy



Flood Boundries

10 ft

20 ft
wave action



FEMA 1/ 500

FEMA 1/ 100

FEMA 1/ 100 V_Zone

Wave Action

What is at Risk

154,000 persons who work here

9,322 businesses

47,916 persons who live here

11,294 households with a mortgage

3 power plants and

21 substations

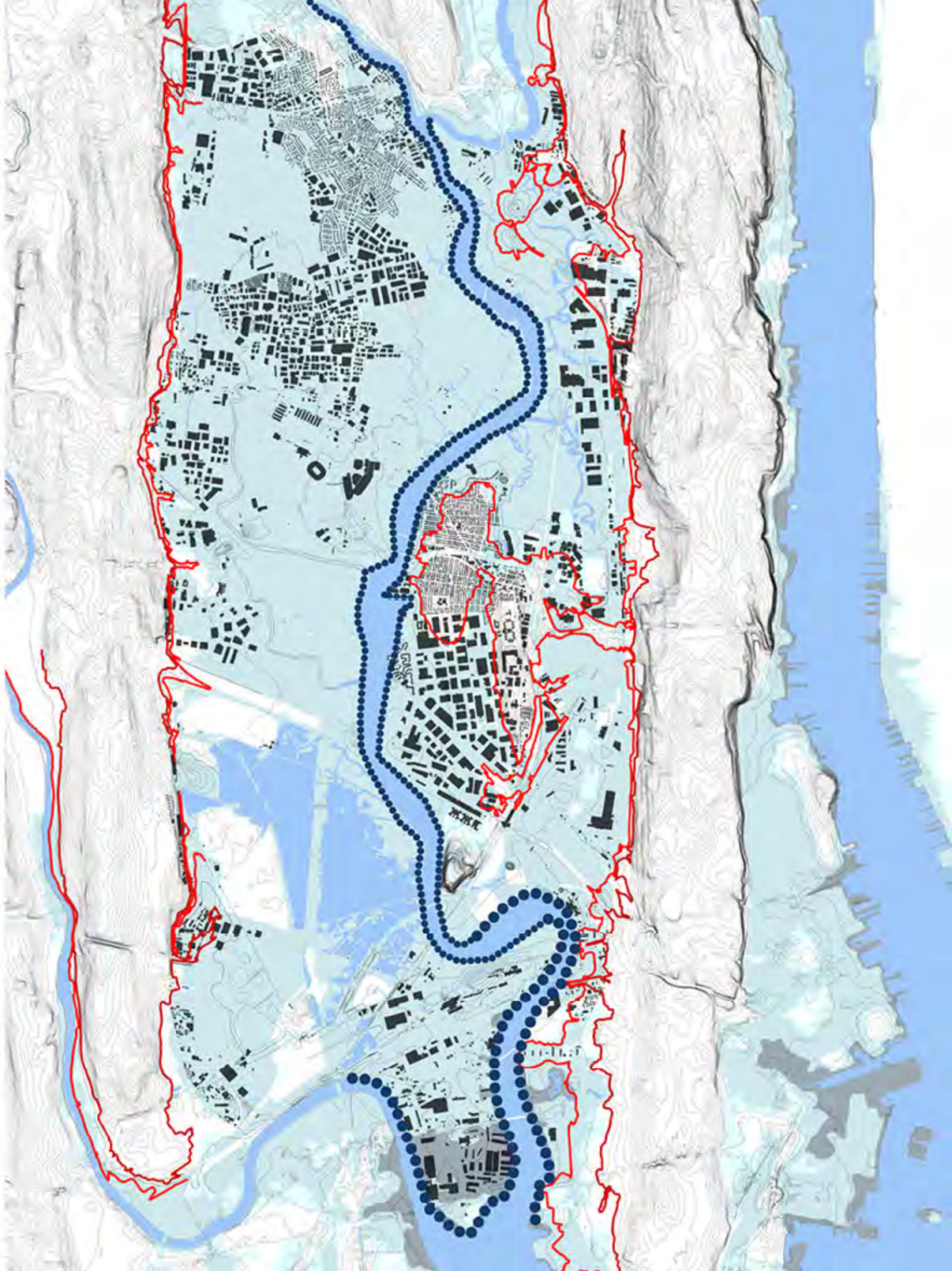
2,261 acres of rail yards

2 sewage plants

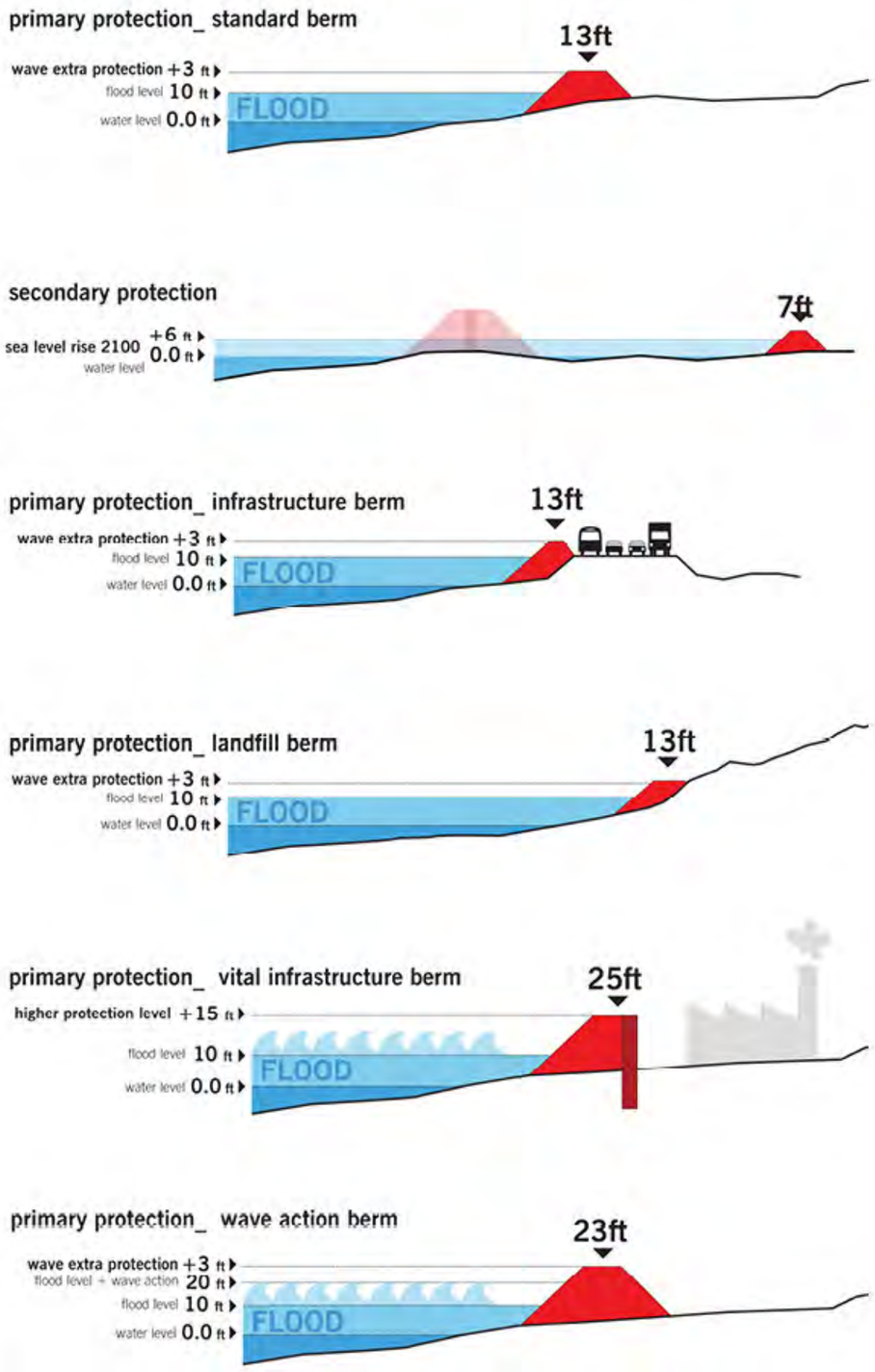
5 metro nodes

2 airports

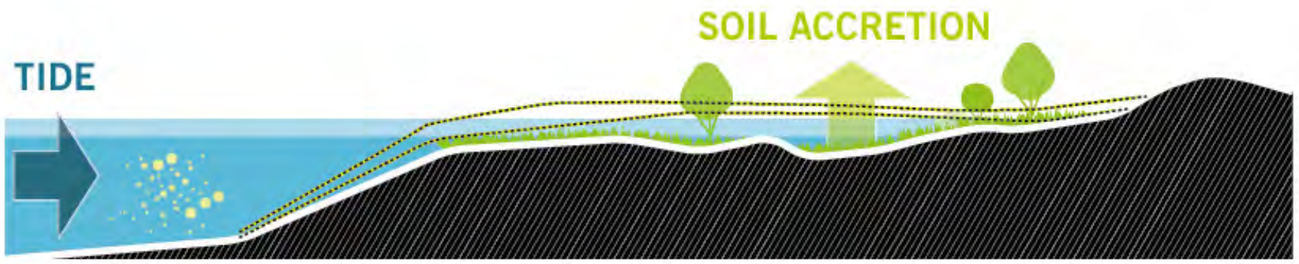
7 superfund sites national priority list



A Series of Berms



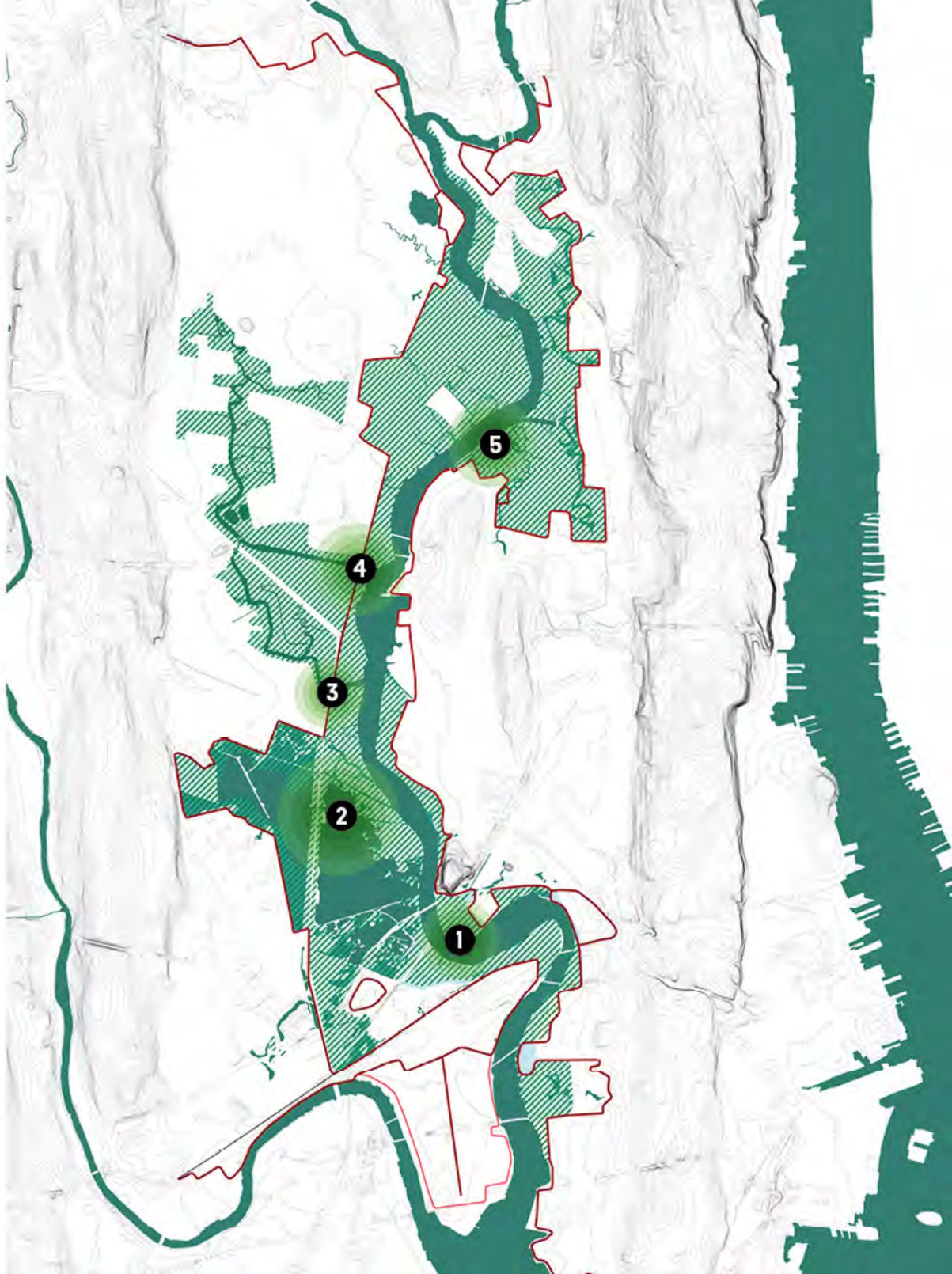
Wetland Restoration



Soil accretion rates

Data points

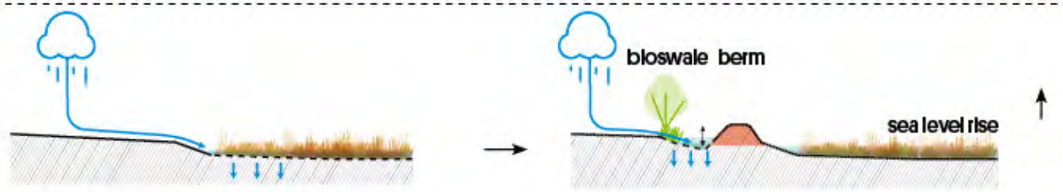
Riverbend	Sawmill creek	Lyndhurst	Berry's creek	Secaucus HS
6.3 mm/yr	11 mm/yr	4.2 mm/yr	9.4 mm/yr	6.7mm/yr



Fresh Water System

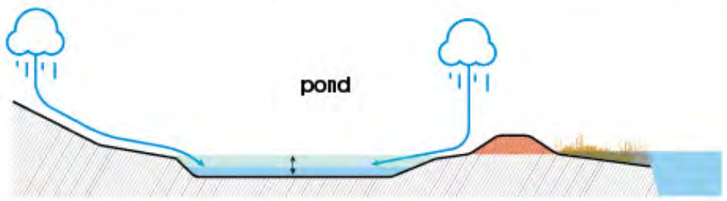
Fresh water forest

Bioswale

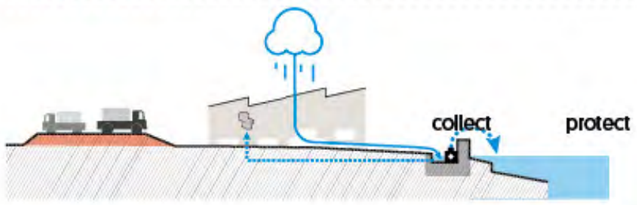


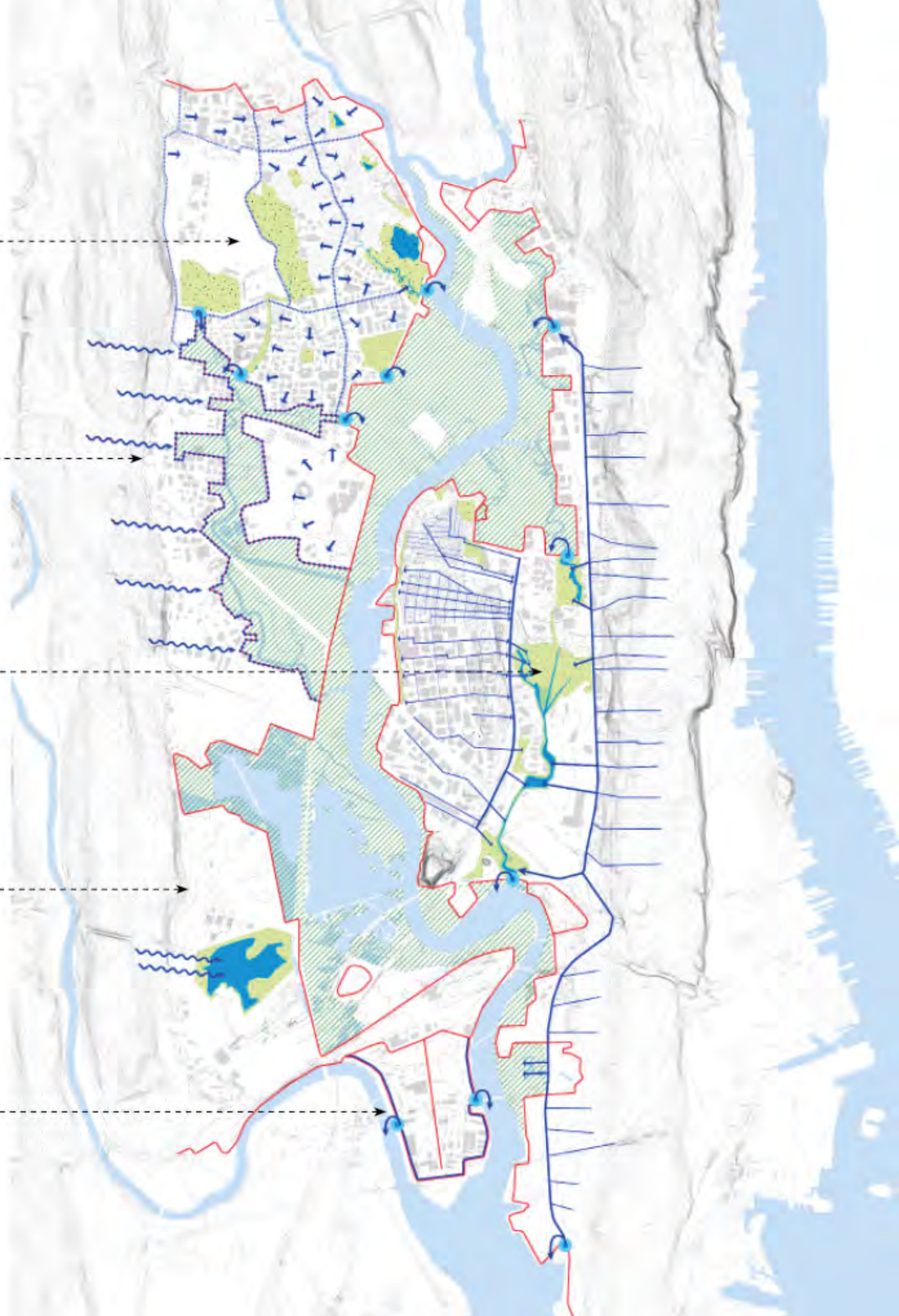
Fresh water marsh

Kearny fresh marsh



Flood wall





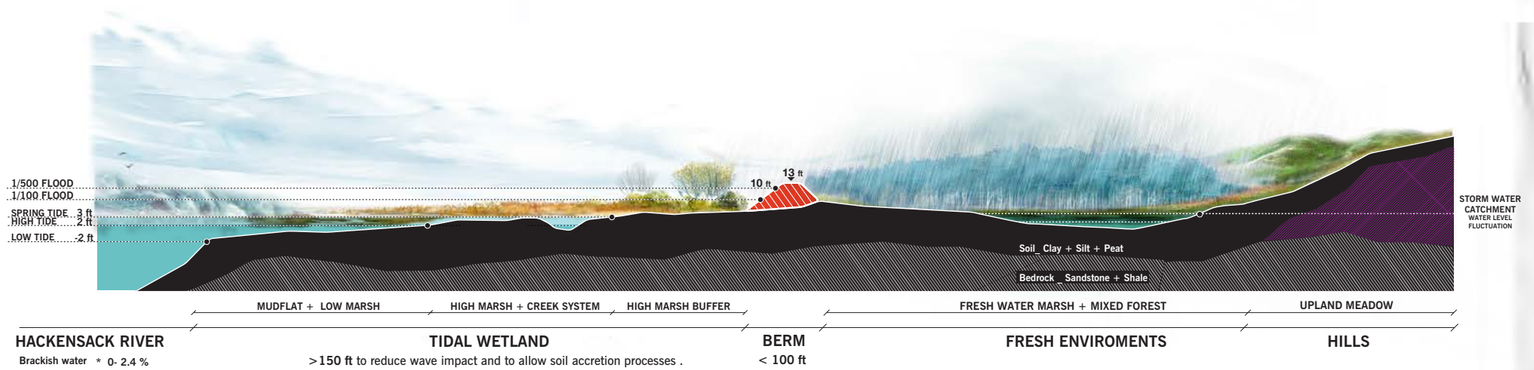
Creating a Comprehensive Plan

tidal wetland

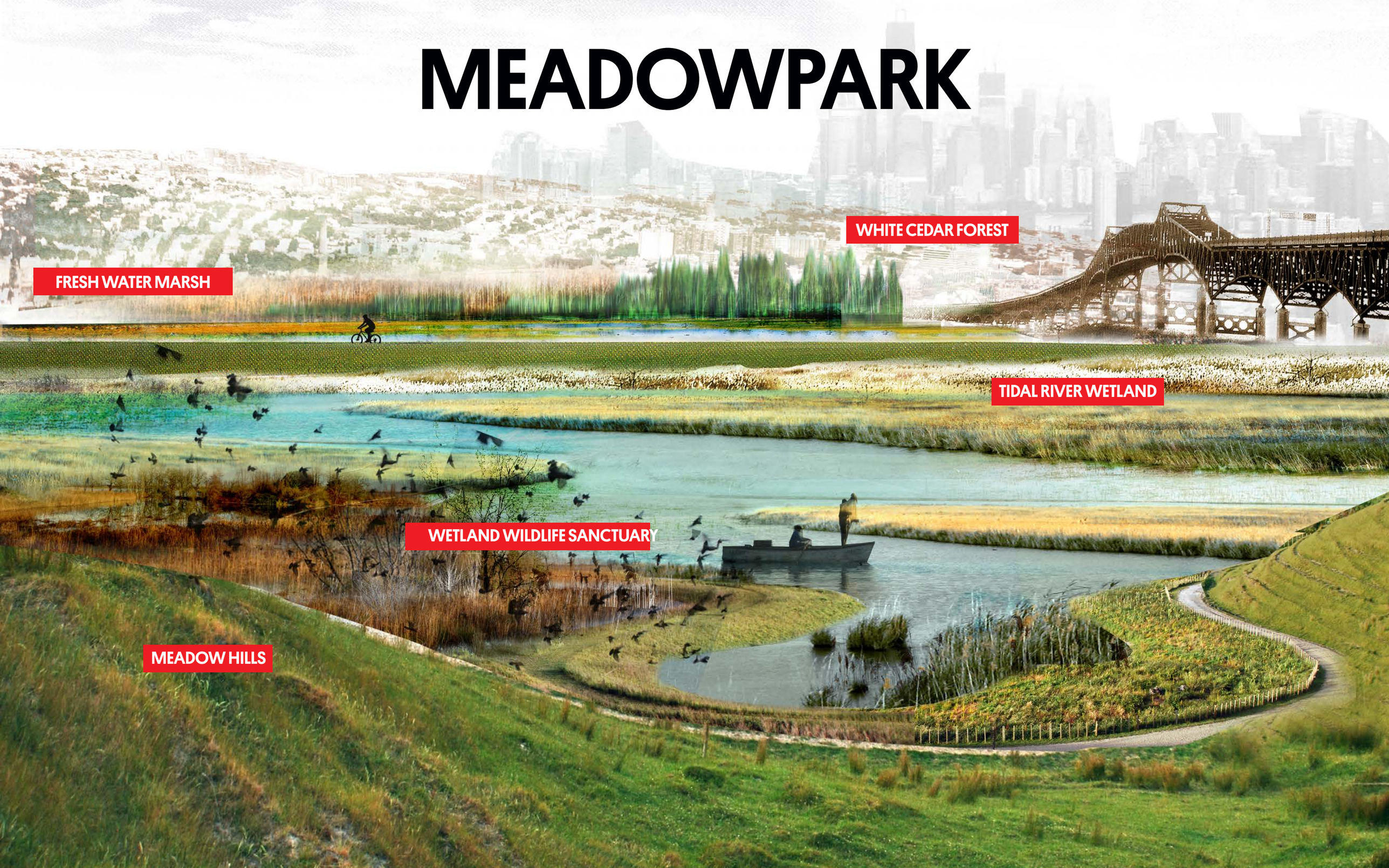
wildlife sanctuary

fresh water forest

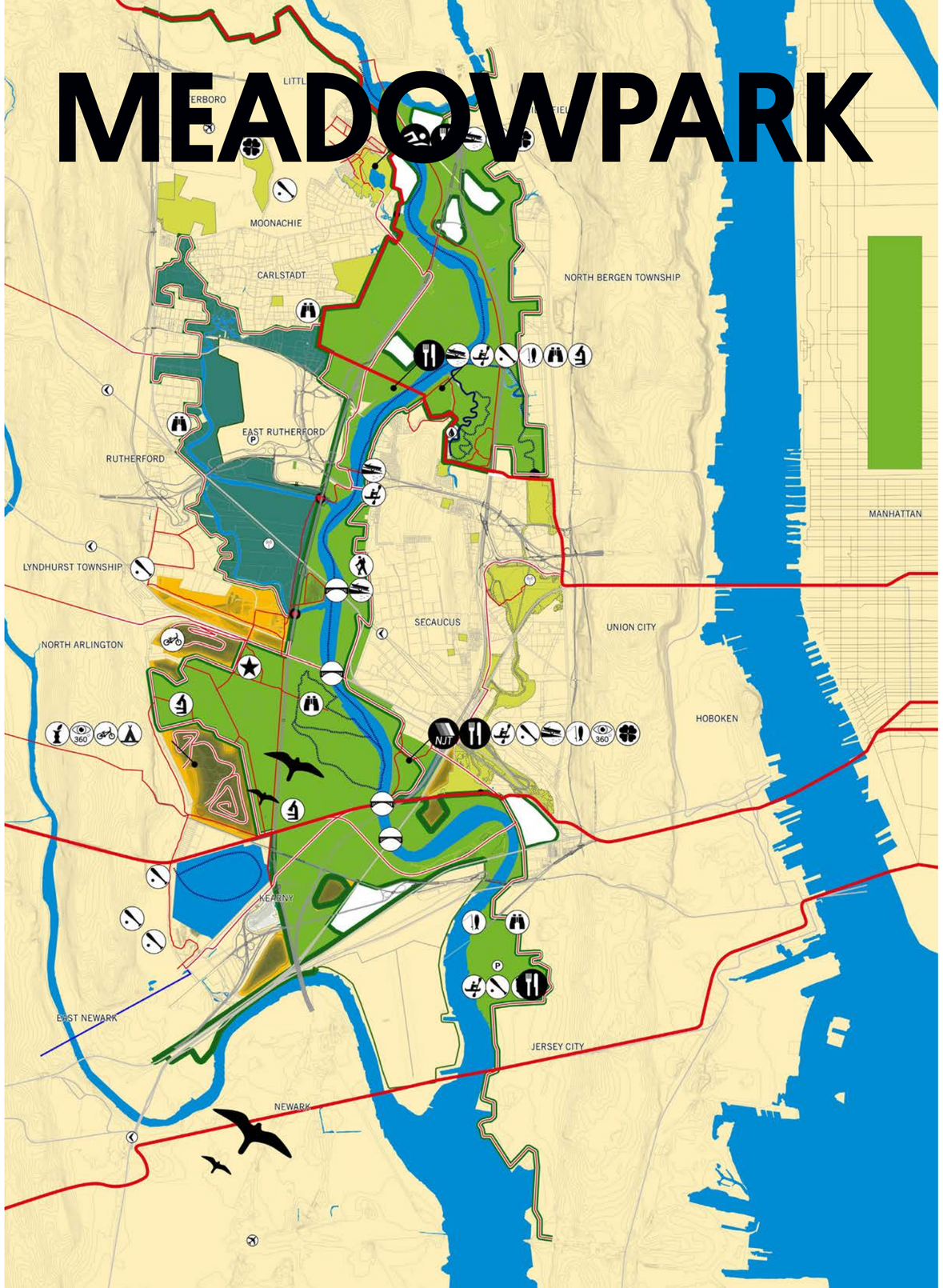
meadowhills



MEADOWPARK


FRESH WATER MARSH
WHITE CEDAR FOREST
TIDAL RIVER WETLAND
WETLAND WILDLIFE SANCTUARY
MEADOW HILLS

MEADOWPARK

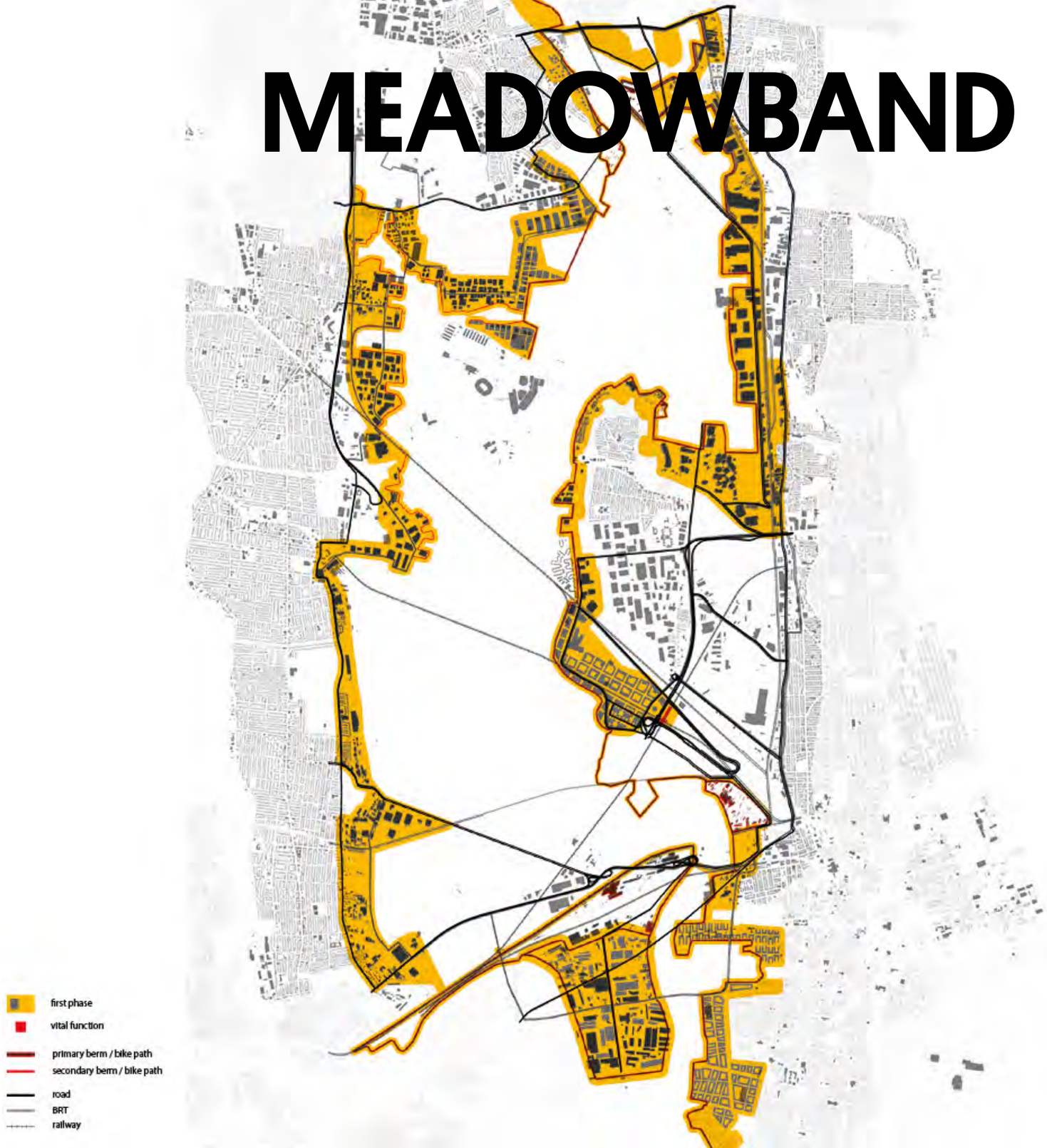

LITTL
ERBORO
MOONACHIE
CARLSTADT
NORTH BERGEN TOWNSHIP
EAST RUTHERFORD
RUTHERFORD
MANHATTAN
LYNDHURST TOWNSHIP
SECAUCUS
UNION CITY
NORTH ARLINGTON
HOBOKEN
KEARNY
EAST NEWARK
JERSEY CITY
NEWARK
Public Facility
Trails
Green Features
Ecological Areas
Infrastructure

MEADOWPARK

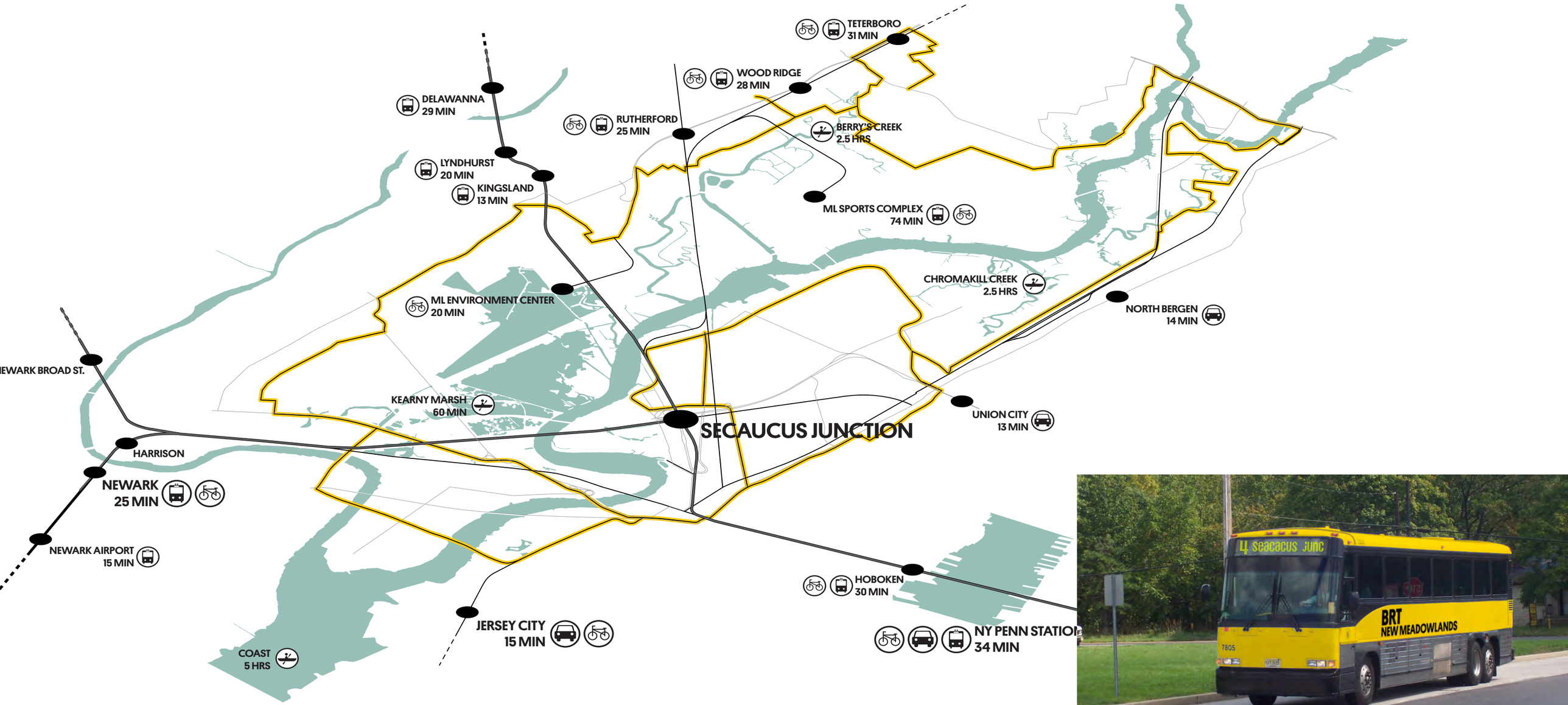
MEADOWPARK

MEADOWPARK

MEADOWBAND

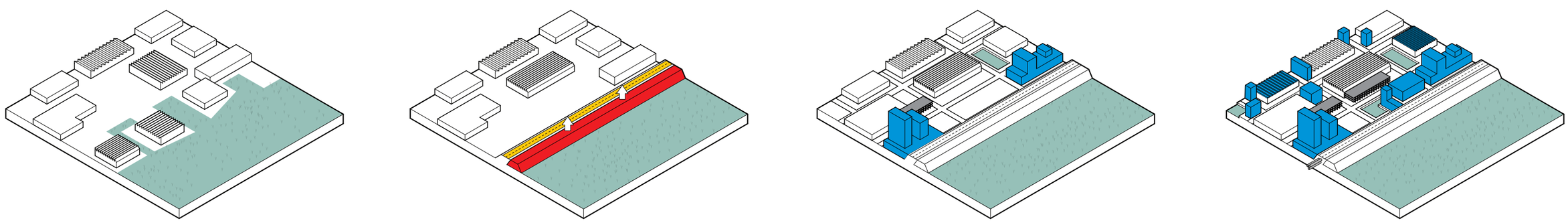

first phase
vital function
primary berm / bike path
secondary berm / bike path
road
BRT
railway

MEADOWBAND


TETERBORO
31 MIN
WOOD RIDGE
28 MIN
DELAWANNA
29 MIN
RUTHERFORD
25 MIN
BERRY'S CREEK
2.5 HRS
LYNDHURST
20 MIN
KINGSLAND
13 MIN
ML SPORTS COMPLEX
74 MIN
CHROMAKILL CREEK
2.5 HRS
ML ENVIRONMENT CENTER
20 MIN
NORTH BERGEN
14 MIN
EWARK BROAD ST.
KEARNY MARSH
60 MIN
UNION CITY
13 MIN
SECAUCUS JUNCTION
HARRISON
NEWARK
25 MIN
NEWARK AIRPORT
15 MIN
HOBOKEN
30 MIN
JERSEY CITY
15 MIN
NY PENN STATION
34 MIN
COAST
5 HRS

L4 Secaucus Junc
BRT
NEW MEADOWLANDS
7805

MEADOWBAND DEVELOPMENT

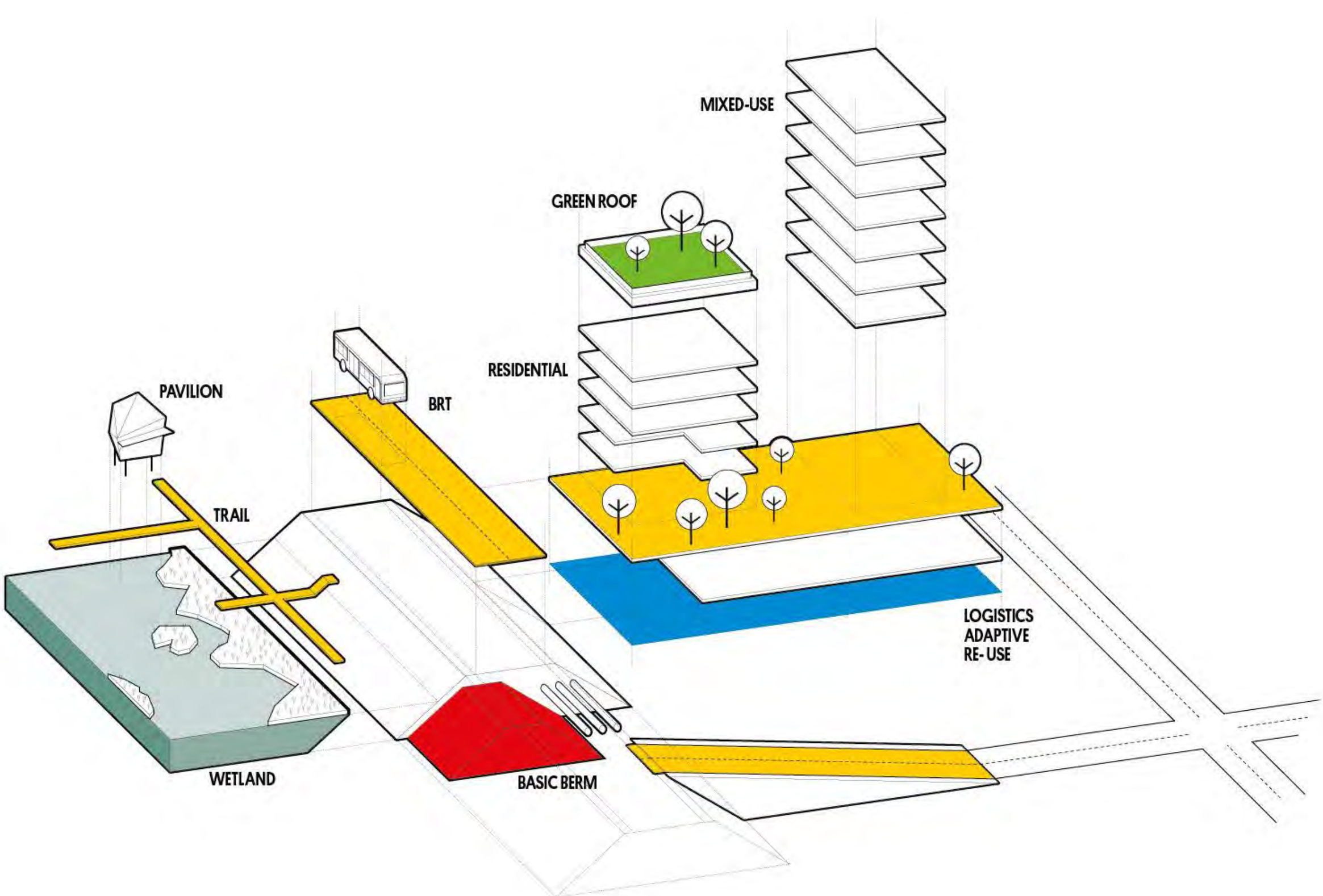


CURRENT CONDITION

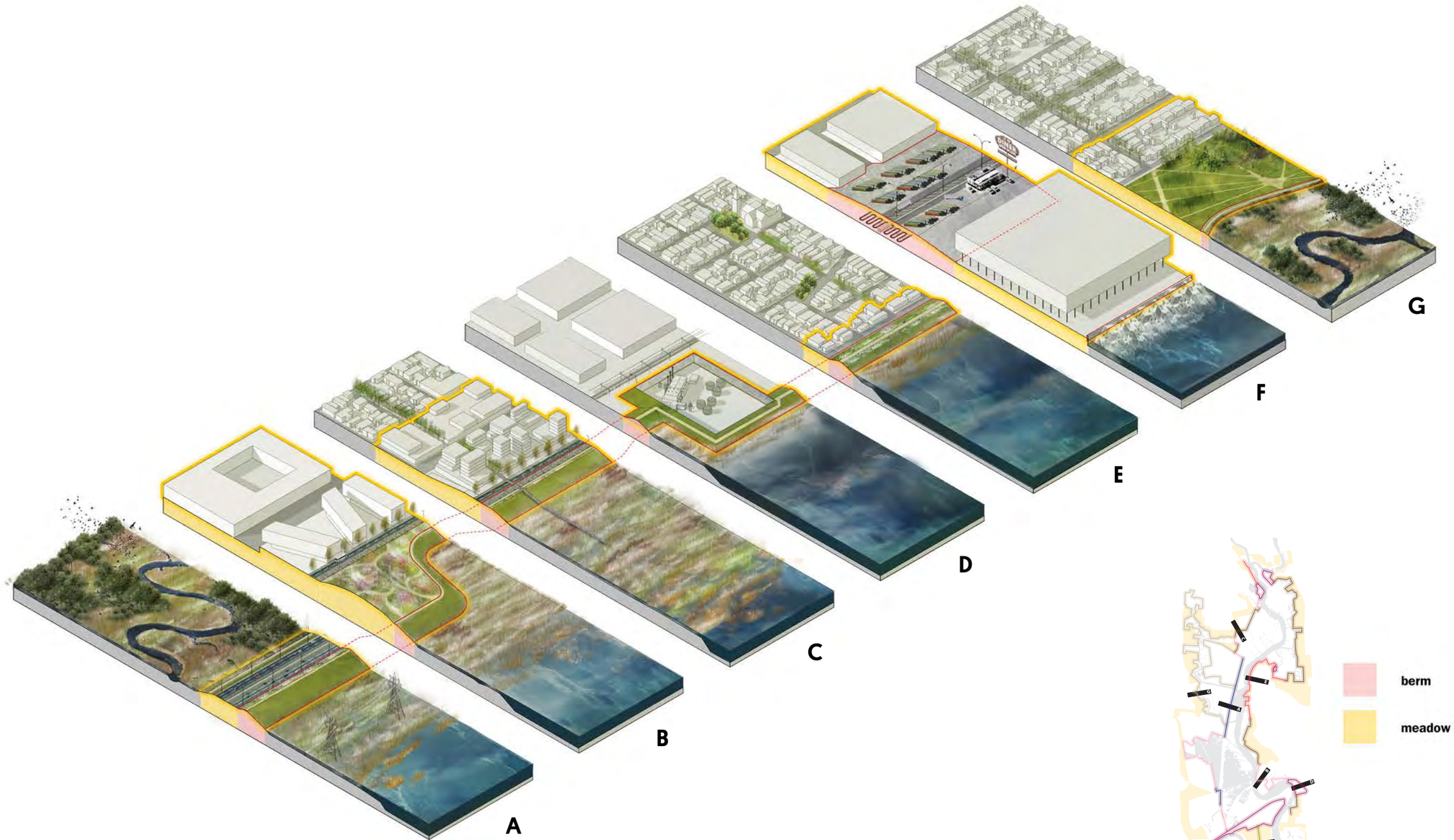
PROTECTION

REDEVELOPMENT

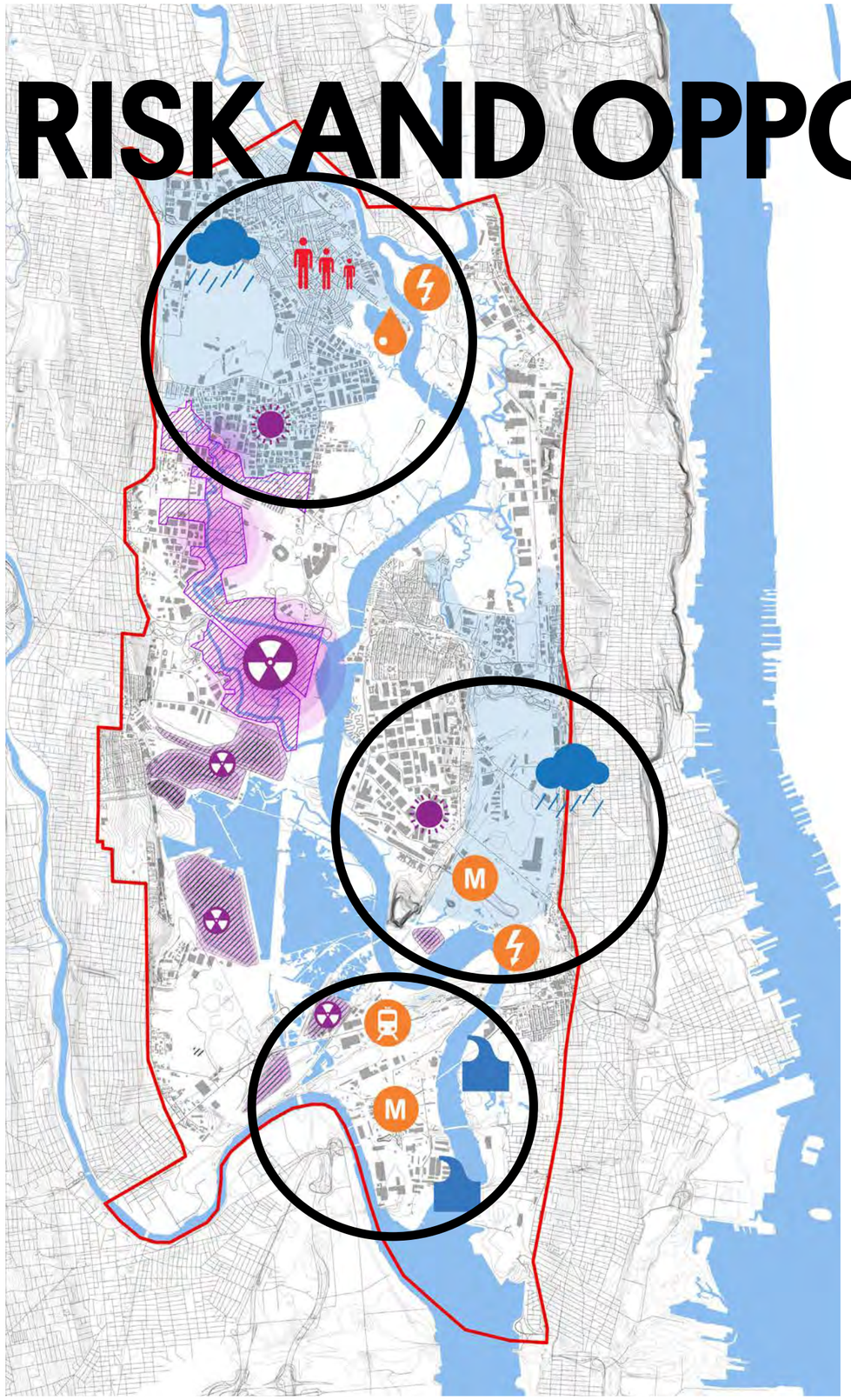
CONSOLIDATION


MIXED-USE
GREEN ROOF
RESIDENTIAL
PAVILION
BRT
TRAIL
LOGISTICS
ADAPTIVE
RE- USE
WETLAND
BASIC BERM

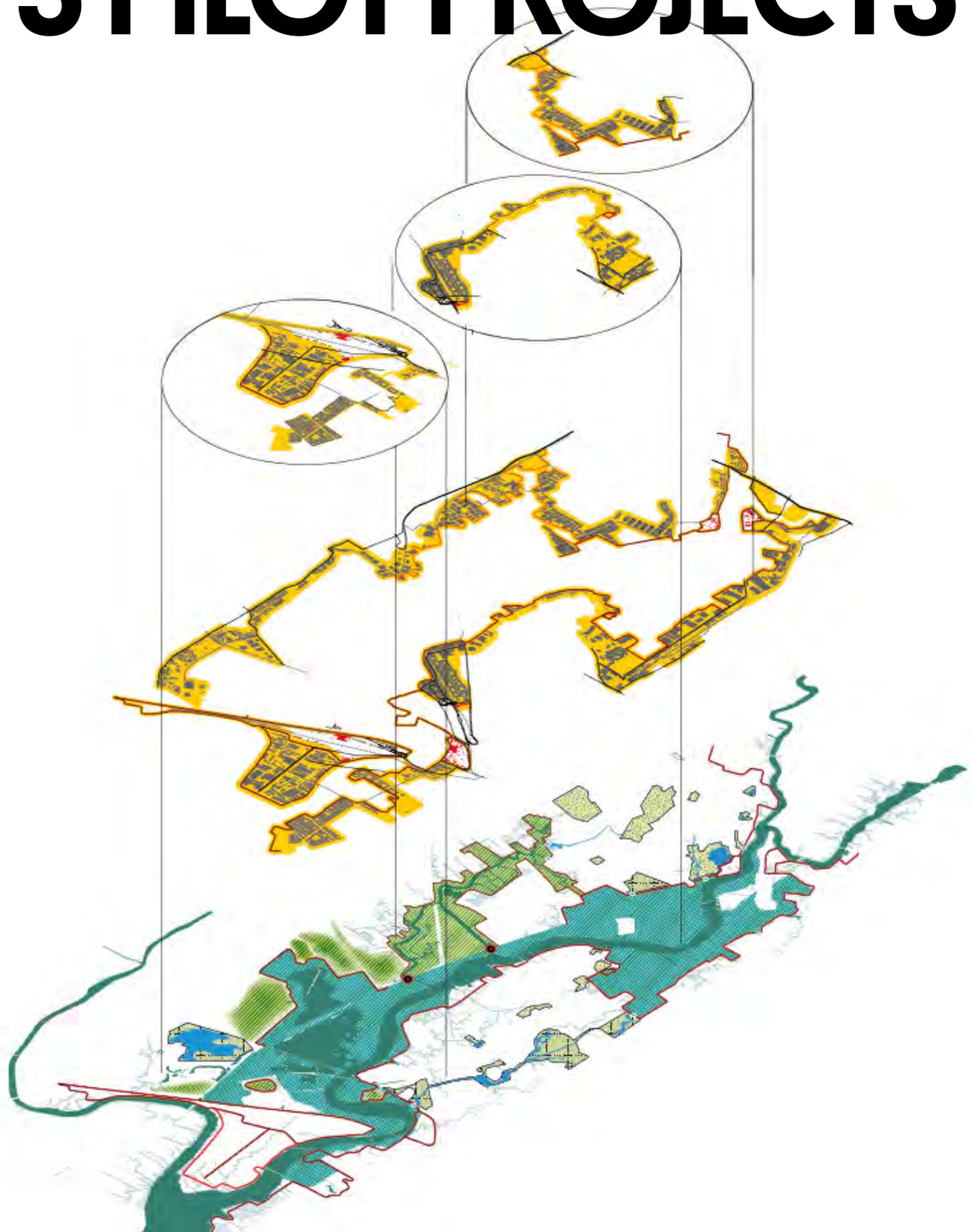
MEADOWBAND



BETWEEN RISK AND OPPORTUNITY



3 PILOT PROJECTS

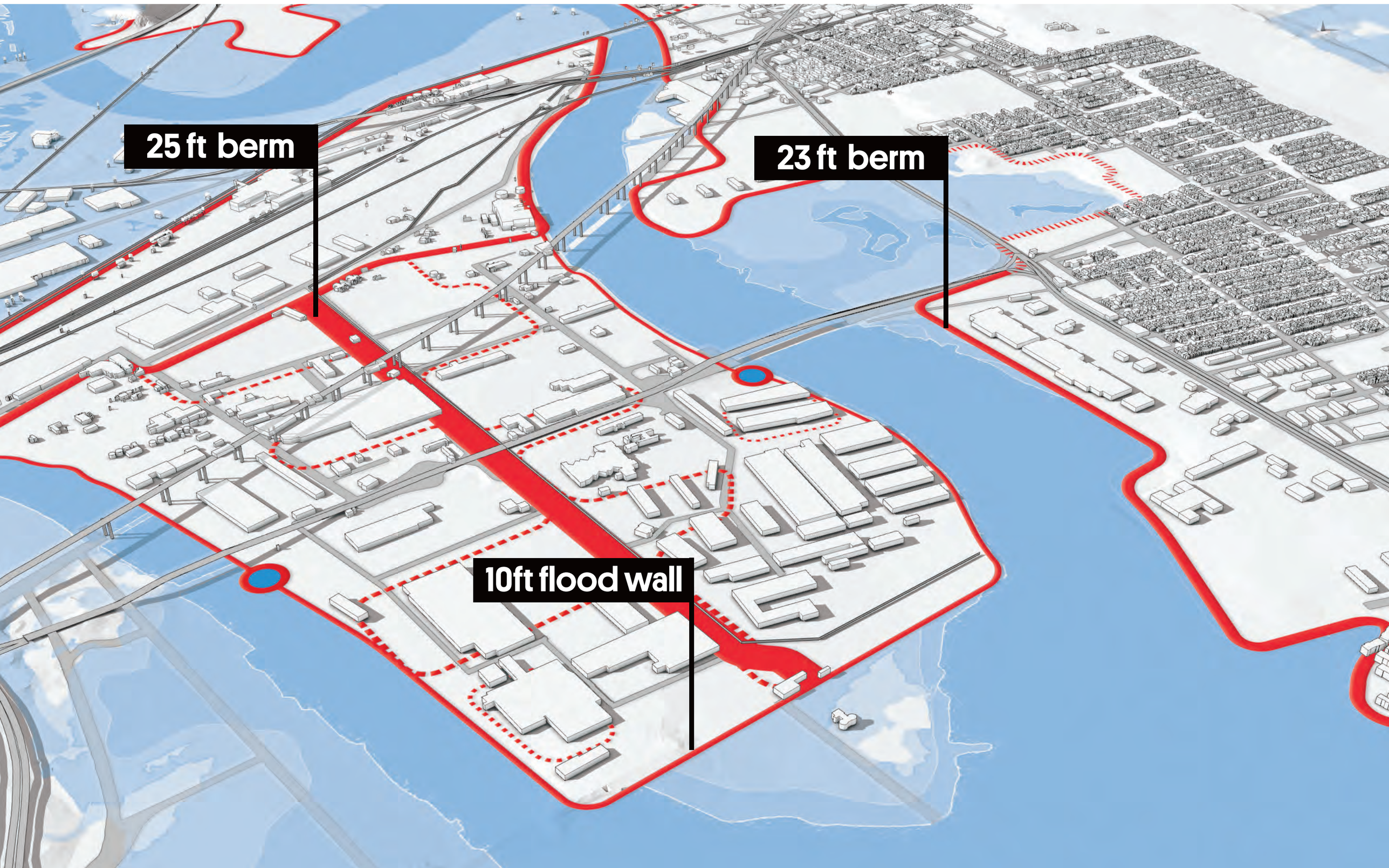


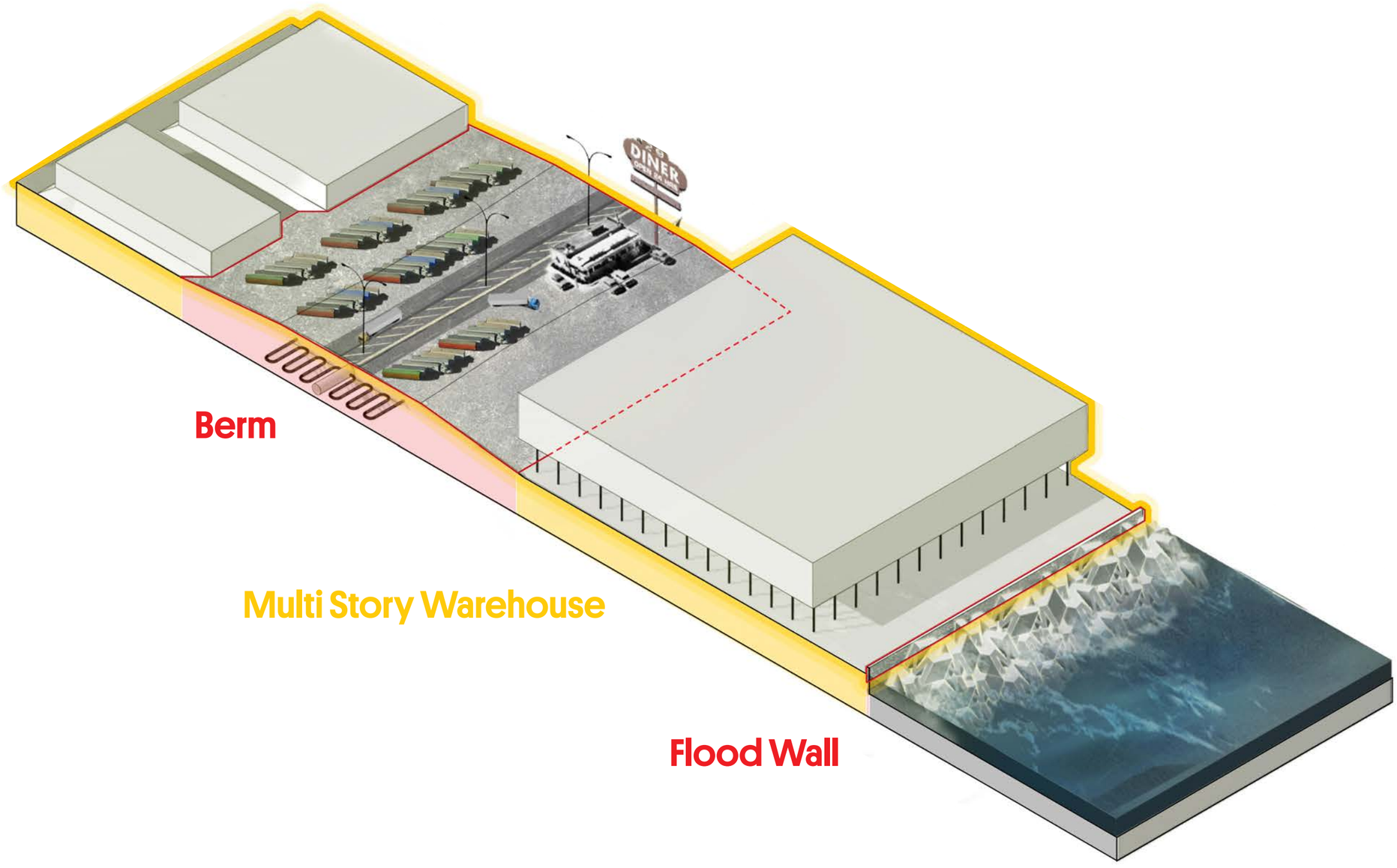
South Kearny

10 FT FLOOD EVENT

Jersey City

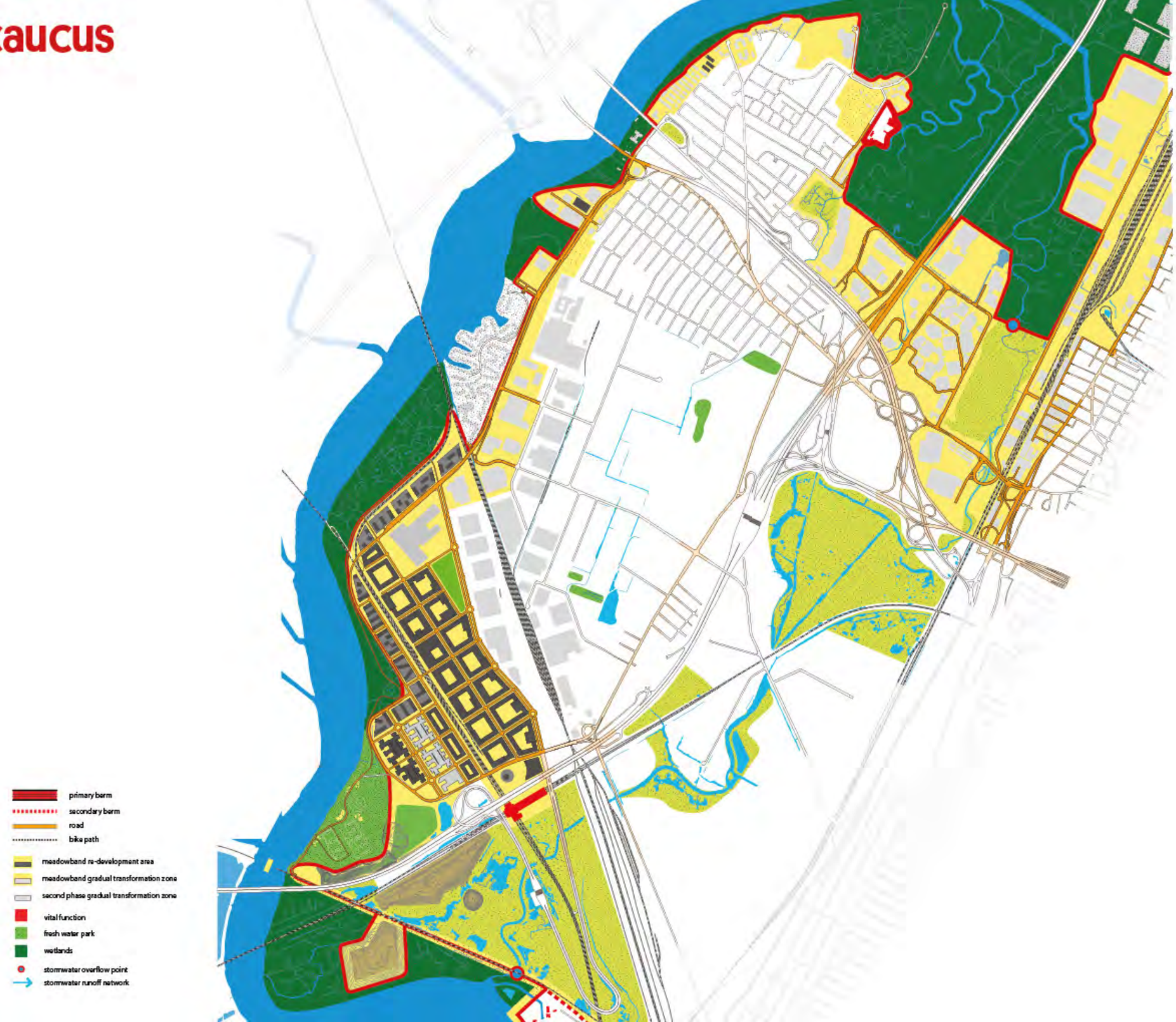
South Kearny


25 ft berm
23 ft berm
10ft flood wall

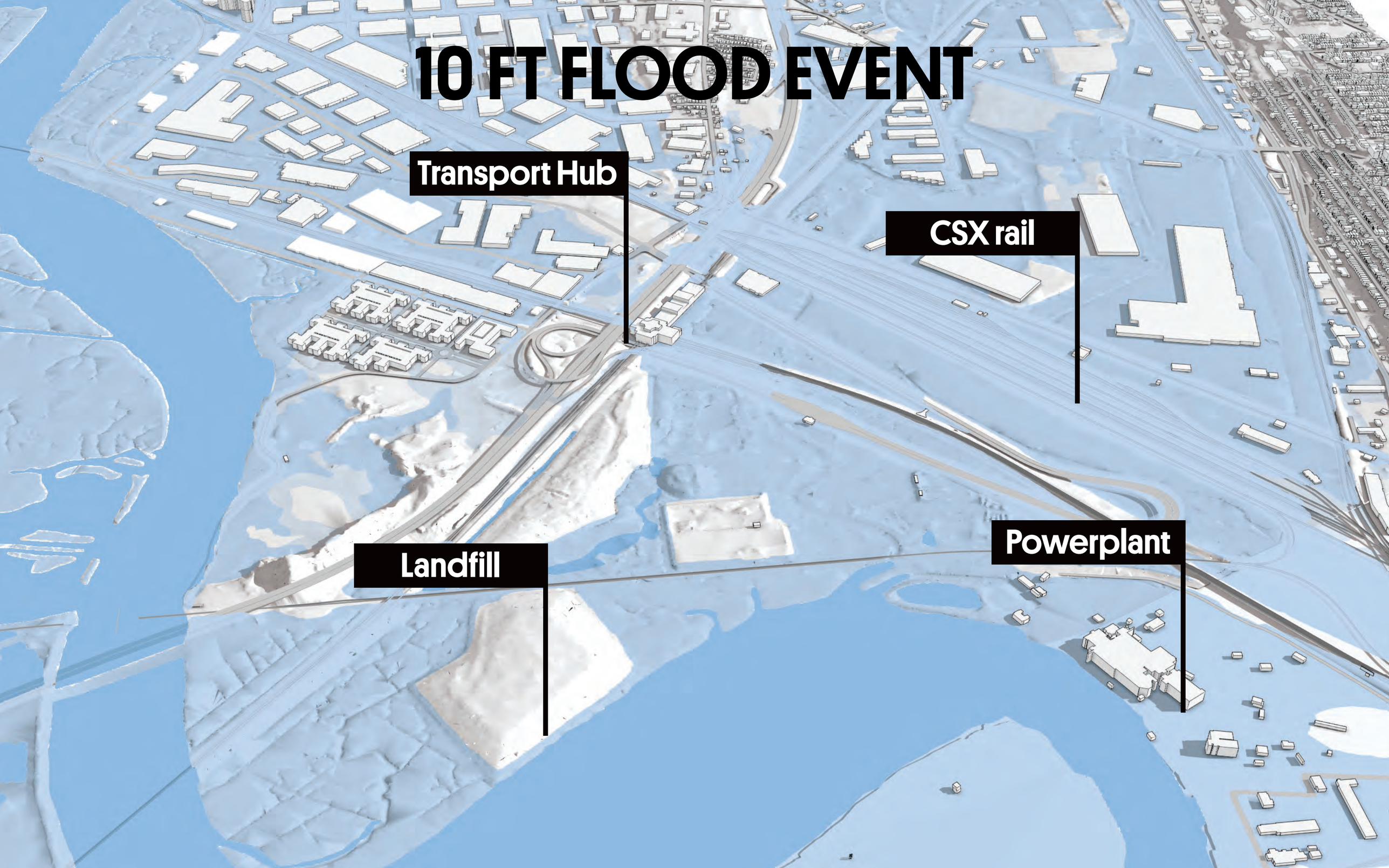

DINER
Berm
Multi Story Warehouse
Flood Wall

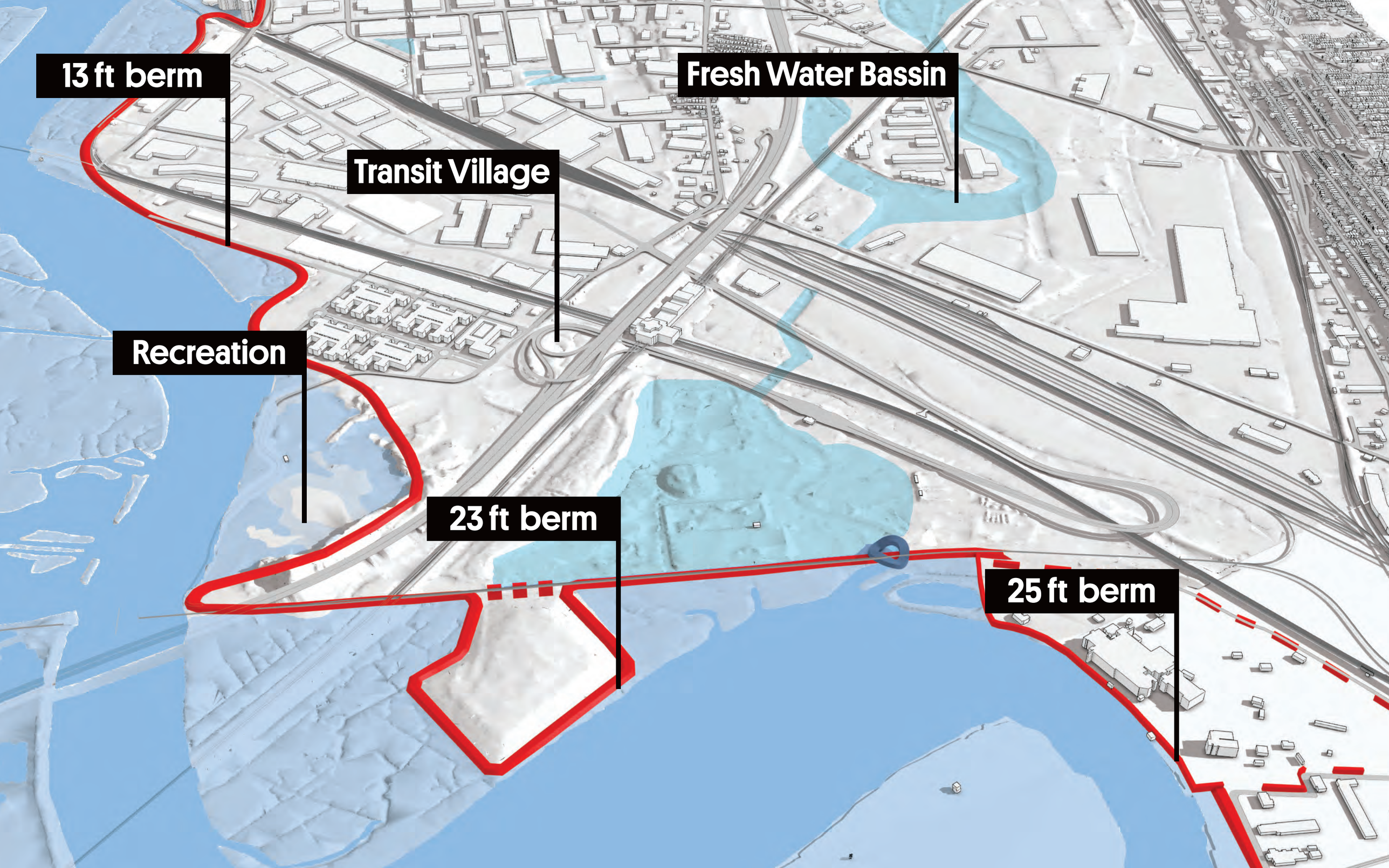

EXIT
PARK

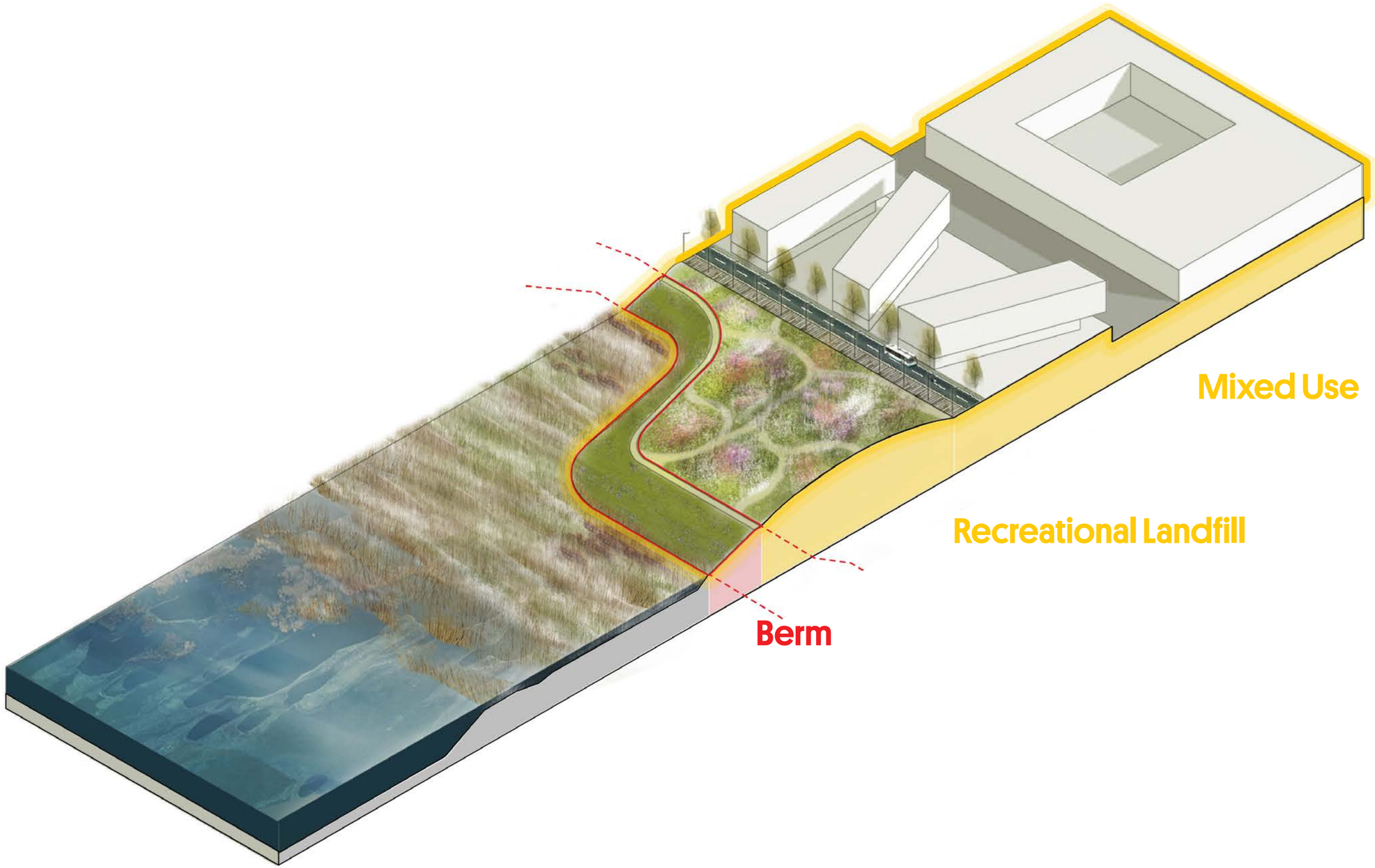
Secaucus


primary berm
secondary berm
road
bike path
meadowband re-development area
meadowband gradual transformation zone
second phase gradual transformation zone
vital function
fresh water park
wetlands
stormwater overflow point
stormwater runoff network

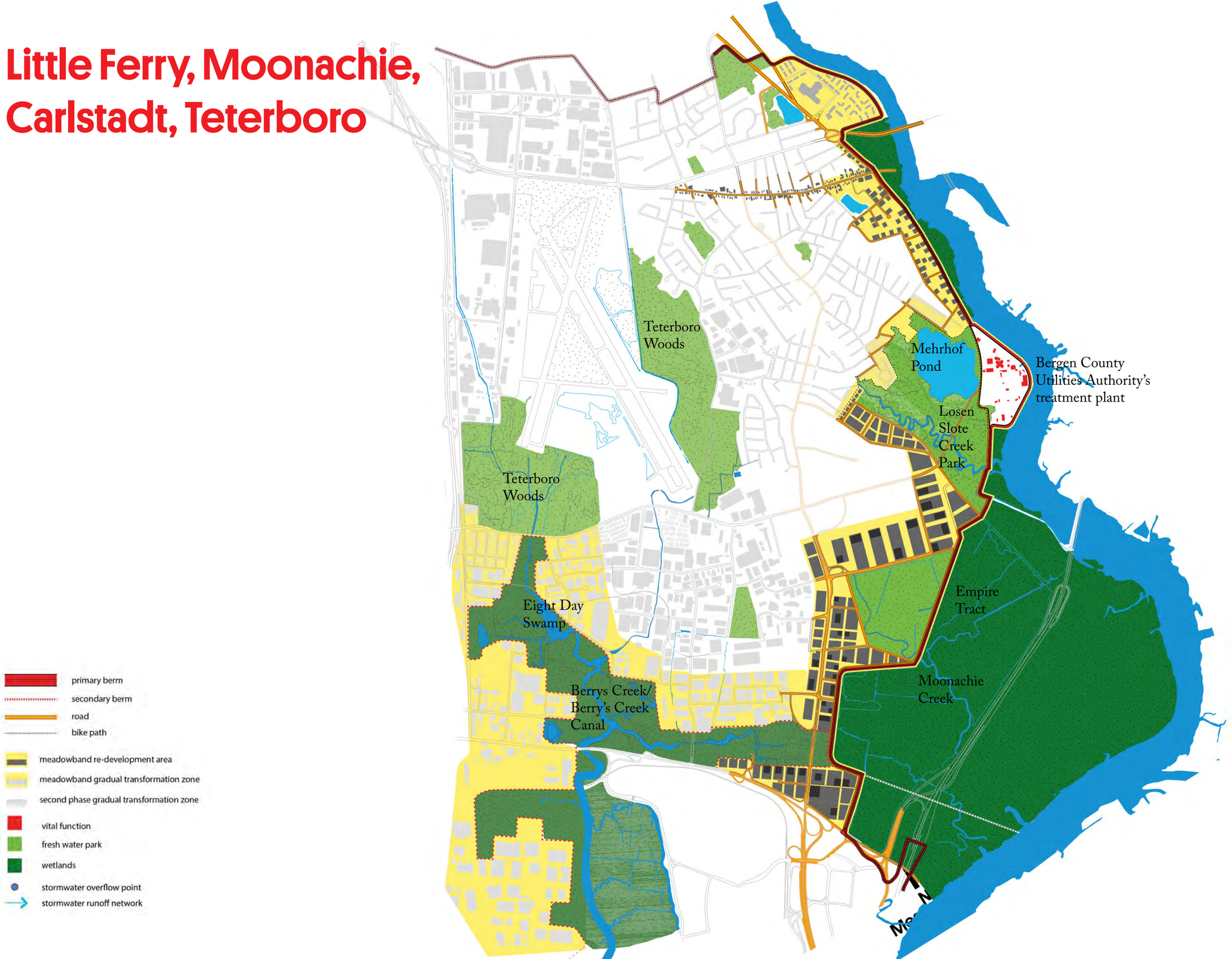
10 FT FLOOD EVENT




13 ft berm
Transit Village
Fresh Water Bassin
Recreation
23 ft berm
25 ft berm


Mixed Use
Recreational Landfill
Berm

Little Ferry, Moonachie, Carlstadt, Teterboro



Flood Simulations Without Berm

Flood Prediction
Current State

Flood Prediction
Current State

Flood Prediction
Current State

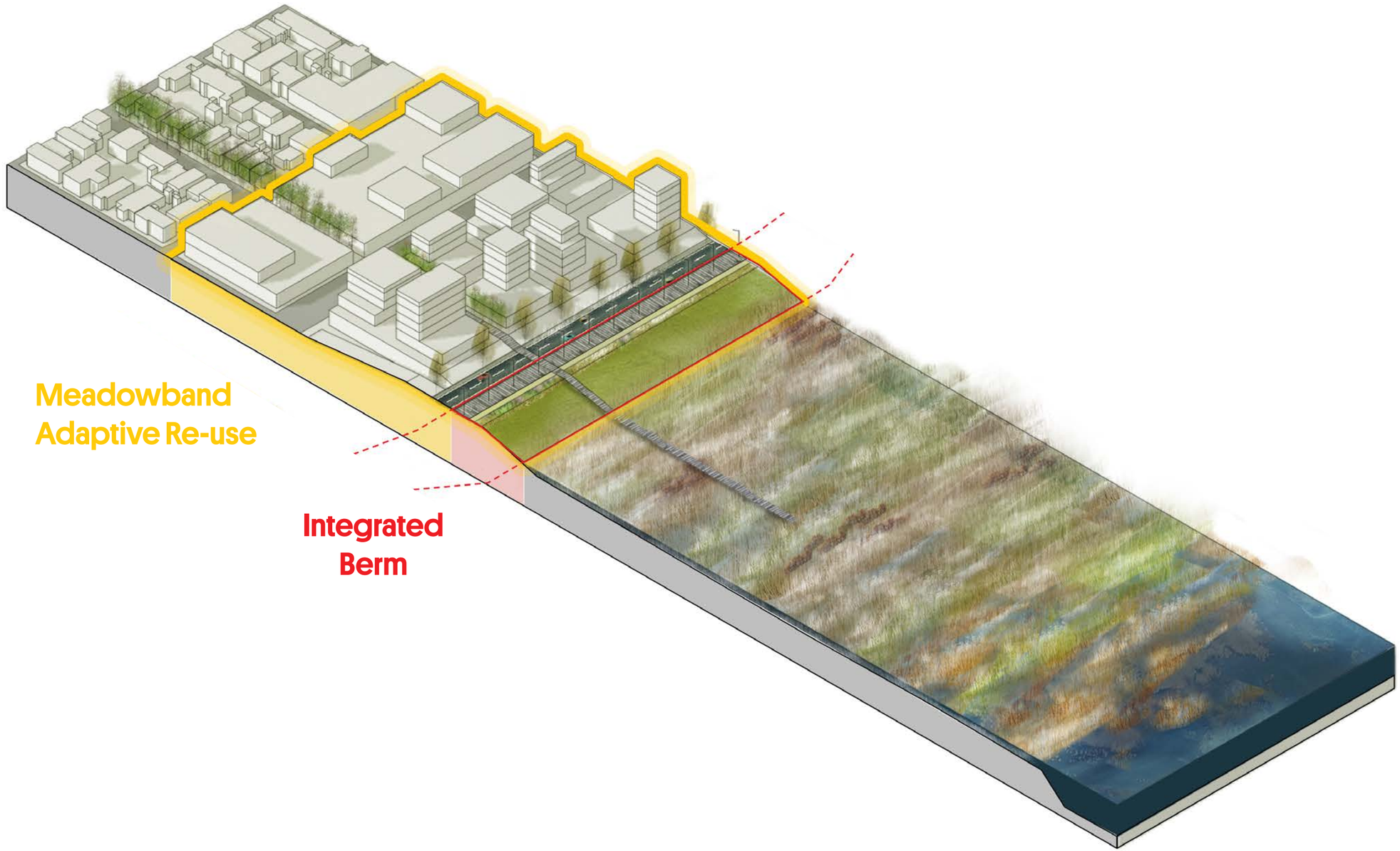
Flood Simulations With Berm

Flood Prediction
Proposed State

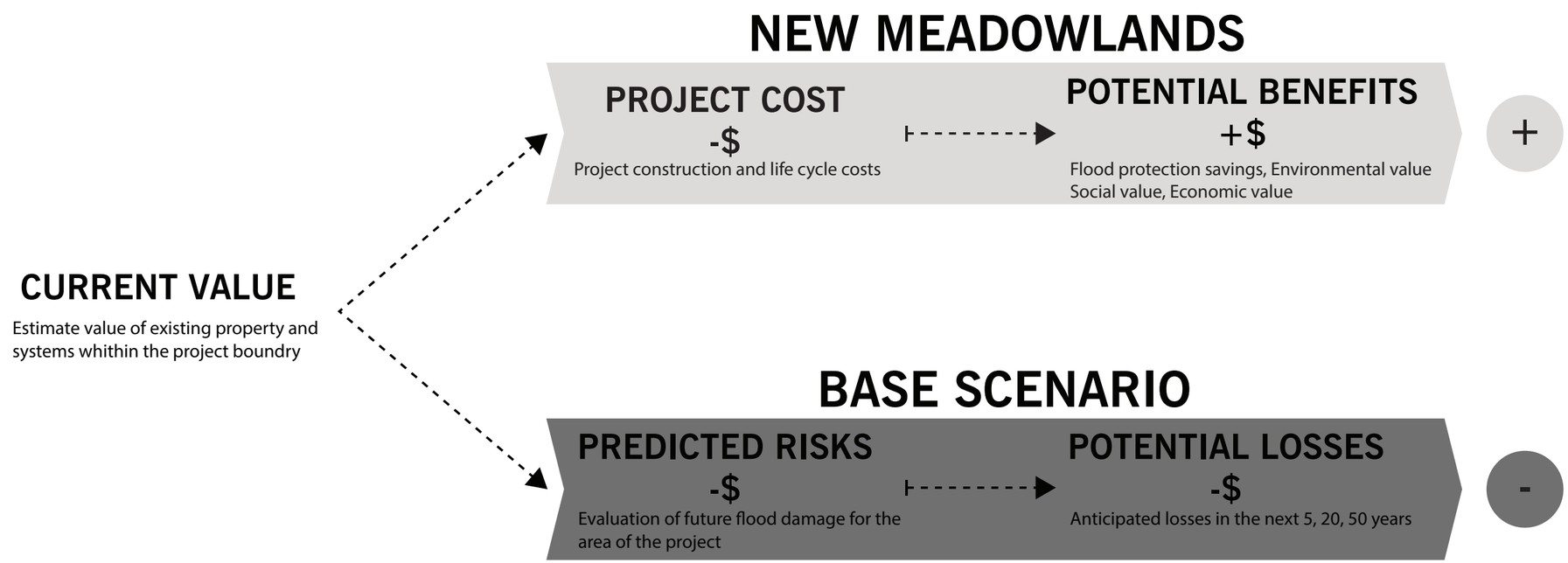
Flood Prediction
Proposed State

Flood Prediction
Proposed State

Flooding scenario for the northern pilot area. This is for the 1 in 500 year flood, which exceeds water levels during Sandy.


Meadowband
Adaptive Re-use
Integrated
Berm

COST BENEFIT CACULATION



CBA PROCESS

IMPLEMENTATION

How difficult is the implementation of our project?
Potential hurdels; Technical, Procedural (legal) and process (political, societal), Synergies / conflicts with ongoing, planned national/regional developments, Political and stakeholder issues

ROBUSTNESS AND FLEXIBILITY

What are the key risks and uncertainties that may affect the project and how do these affect the scores?

PROJECT SCORING

What are the positive and negative effects of our project, as compared to the reference situation?
Cost estimation

STAKEHOLDERS

Who are the key stakeholders relevant to the project?
Scalable to diffrent phases of the project (from local to regional)

RATIO = 1.77

PROJECT DEFINITION

key objectives, geographical boundaries, design philosophy, main components of the plan, development of the project in 5 years, in 20 years and in 50 years from now, Investment cost, Operation and maintenance cost

SITE AND PROBLEM ANALYSIS

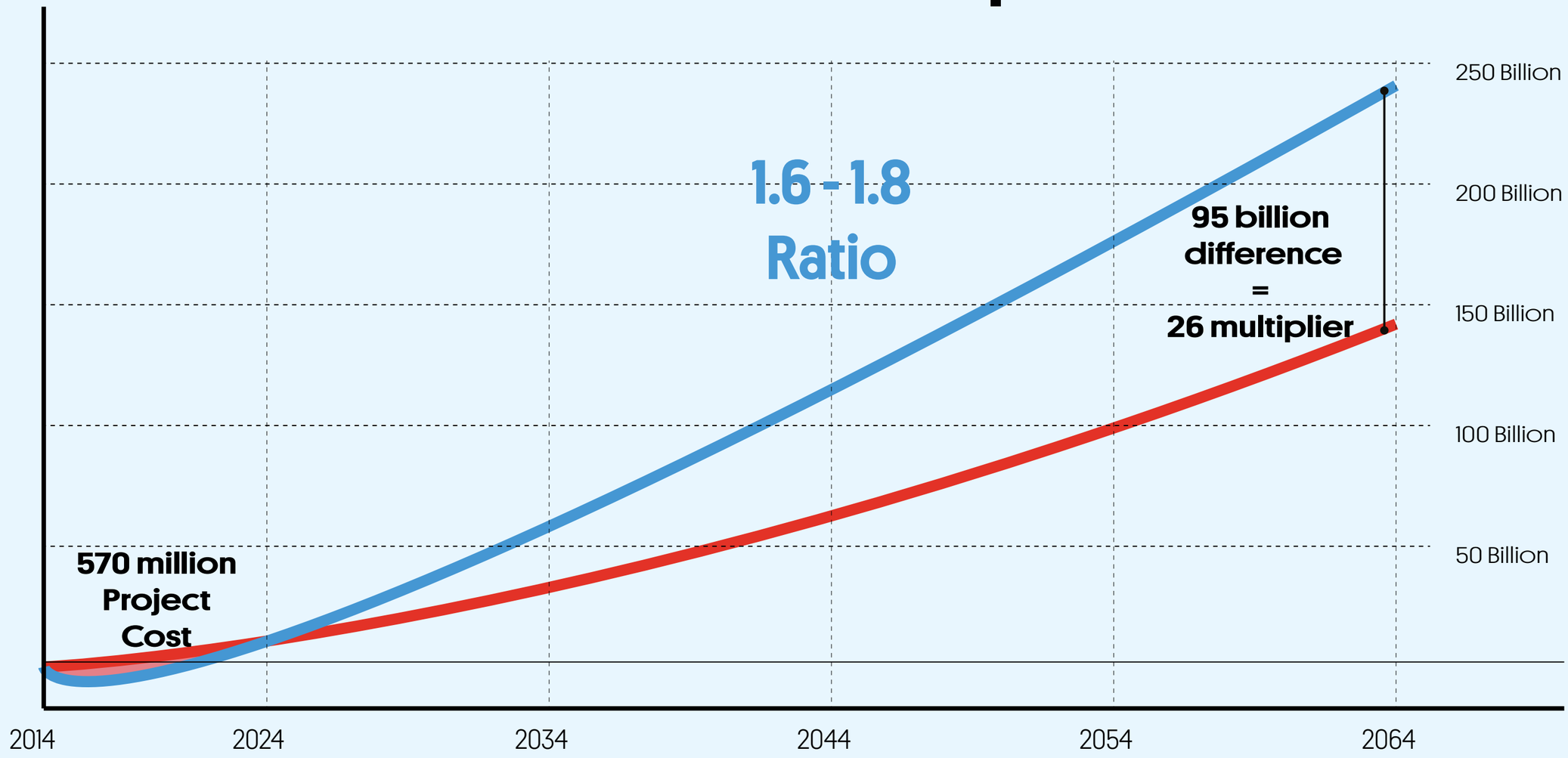
What is the problem we are trying to solve in our project?
A definition of context with its current values (Land value and building stock/ utilities and systems value/ ecological value/ etc.)

REFERENCE SITUATION

What realistically would happen now, in 5 years, in 20 and in 50 years if this specific project would not be implemented?

Cost Benefit Analysis

Pilot Area Example



Ratio derived from 50-year valuation of the reference scenario vs. 50-year valuation of the proposal scenario - 0% inflation - 5% discount rate

New Meadowlands

Pilot Area Benefits

FLOOD PROTECTION
Physical damage to structures avoided per year: $37 million

HEALTH
Health value of recreation space for the current population of residents: $3.3 million per year.

NEW RESIDENTS
Overall proposed 14,414 new residential units = 25,674 new residents

JOBS
Overall proposed 9,716,455 new commercial and Industrial sqft. = 2429 new jobs

WETLANDS
Value of new wetlands: $5,290,928 per year

ACCESS
Value of new recreation space in proximity to current residents: $41,175 per year

NEW DEVELOPMENT
Net value for new construction of residential and commercial development amounts to $19 billion.

TAX REVENUE
The area could expect an increase in tax revenue totaled at $561,760,390 Million

New
Meadowlands

THE BIG U!


SANDY SURGE LEVELS
2050 100-YR STORM
2050 500-YR STORM
C1
C2
C3

BIG


BIG
Bjarke Ingels Group
THE BIG U


BIG
THE BIG U

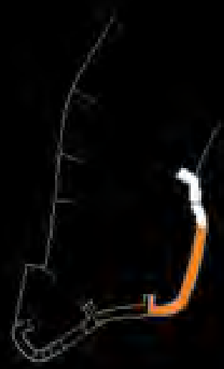
EXISTING CONDITION

SECTION

BIG

THE BRIDGING BERM

SECTION



+9' FOOT SPLASH ALLOWANCE
+8' FEMA 2050 100 YEAR FLOODPLAN

+5' SANDY
+4' FEMA 2050 50 YEAR FLOODPLAN

TOP SOIL
CLAY CAP
COMPACTED EMBANKMENT
RECYCLED ASPHALT BIKEWAY

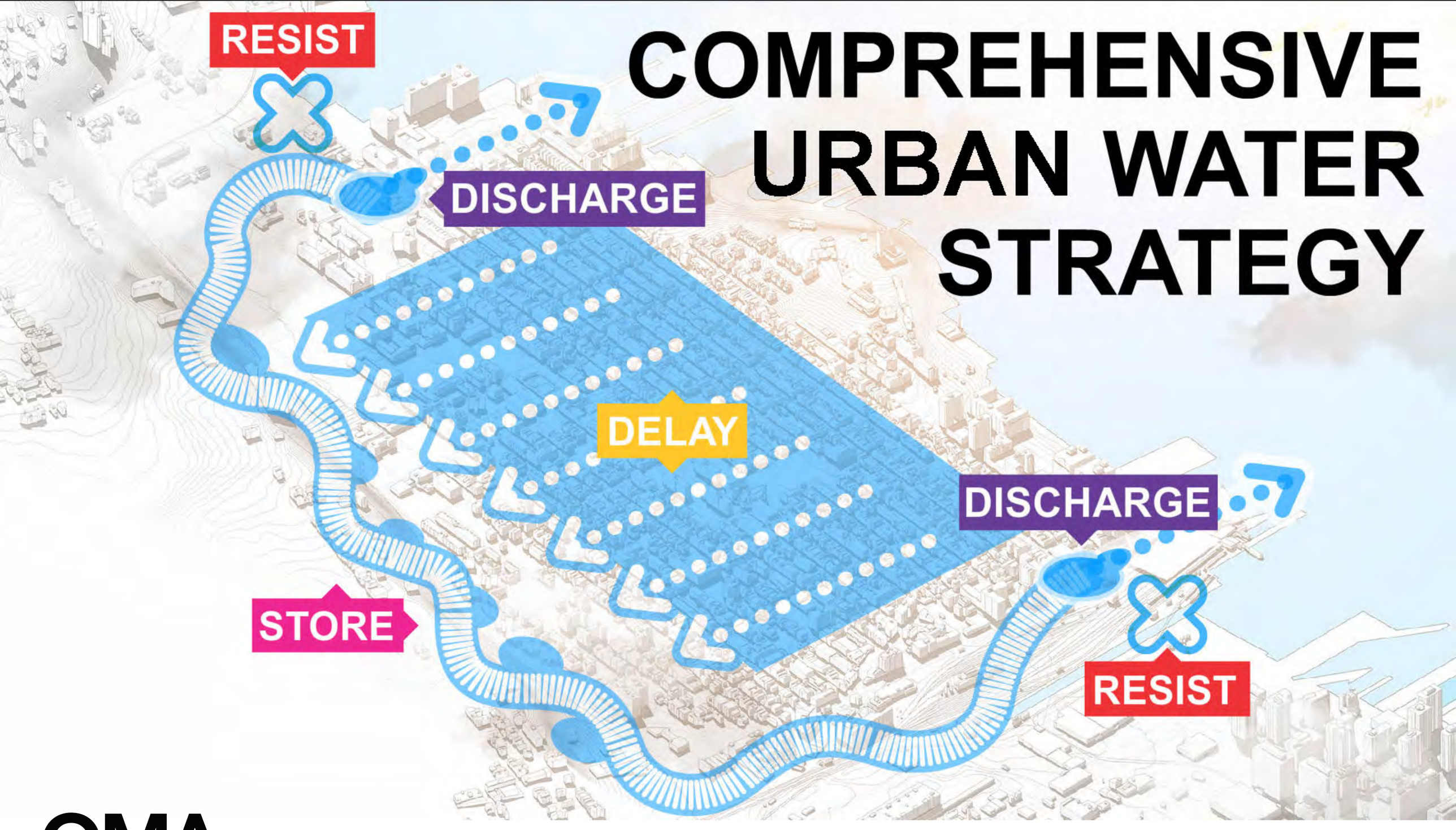
CONCRETE BLOCK
CONRETE CAP WALL AND SHEET PILE
SLURRY WALL

3'-2"
3'-10"
16'-0"
9'-0"
6'-10"
9'-8"

16'-0"
28'-11"
8'-0"
11'-4"

BIG

COMPREHENSIVE URBAN WATER STRATEGY



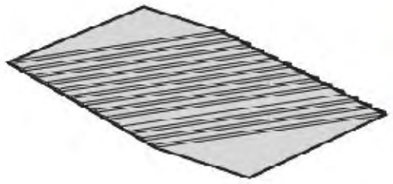
OMA

RESIST

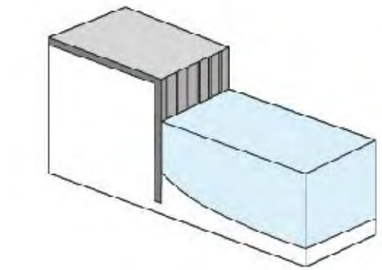
OMA

RESIST

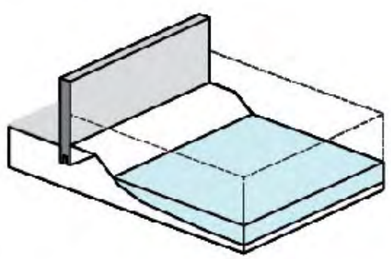
TERRACED EDGE



BULKHEAD



DEPLOYABLE FLOOD WALL

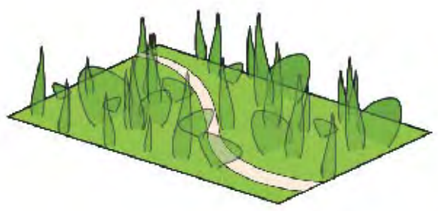


OMA

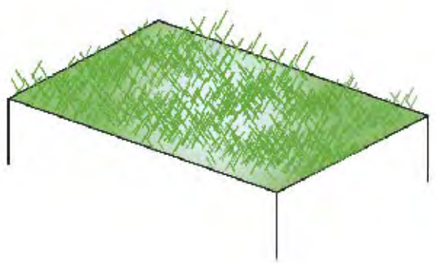
DELAY

OMA

DELAY



PARKLAND / TERRACED EDGE



GREEN ROOF

BIOSWALE

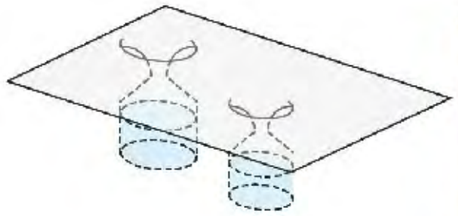
OMA

STORE

OMA

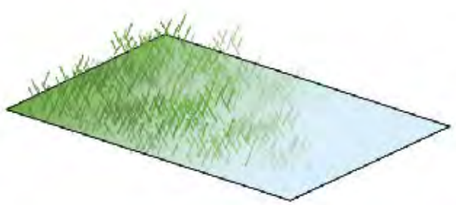
STORE

CISTERN



BIORETENTION BASIN

CONSTRUCTED WETLANDS



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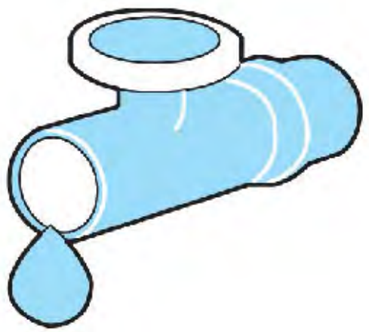
DISCHARGE

OMA

DISCHARGE

STORMWATER PUMP



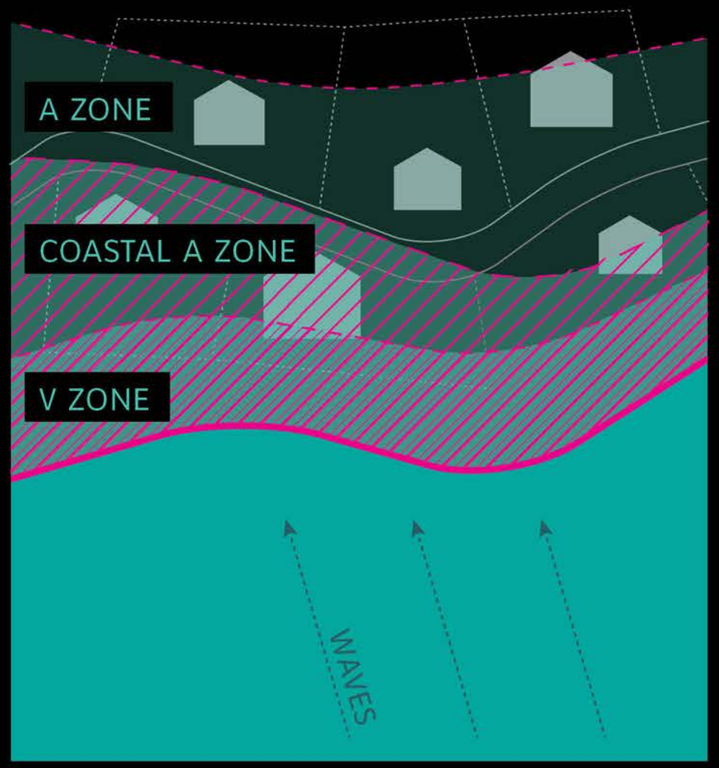
STORM DRAIN

OMA

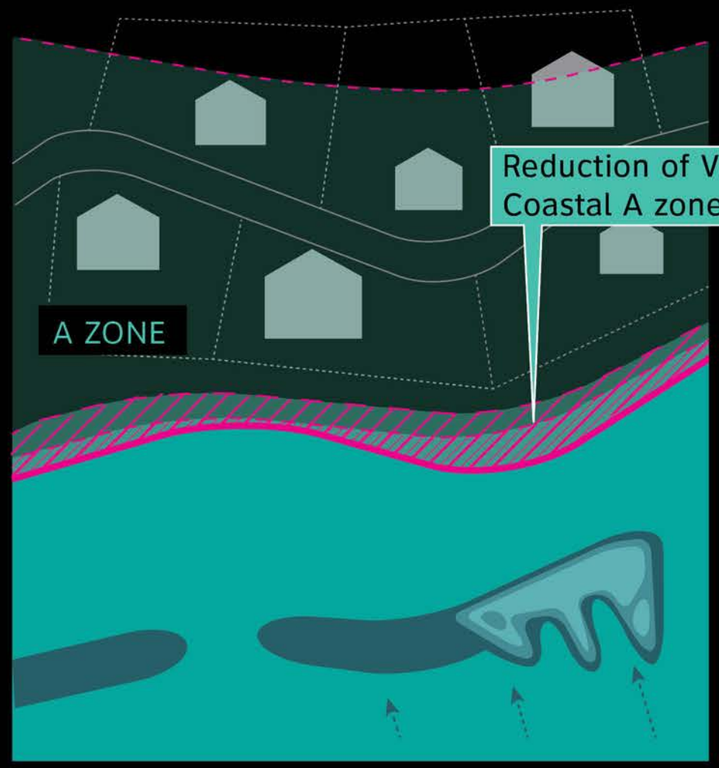
OMA

RISK REDUCTION : FLOOD HAZARD

EVERYDAY



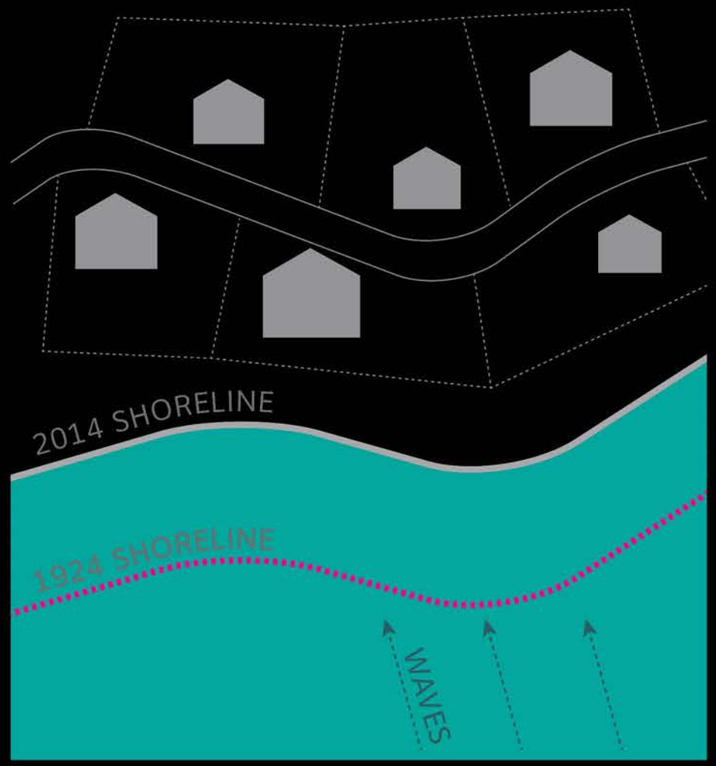
FLOOD EVENT



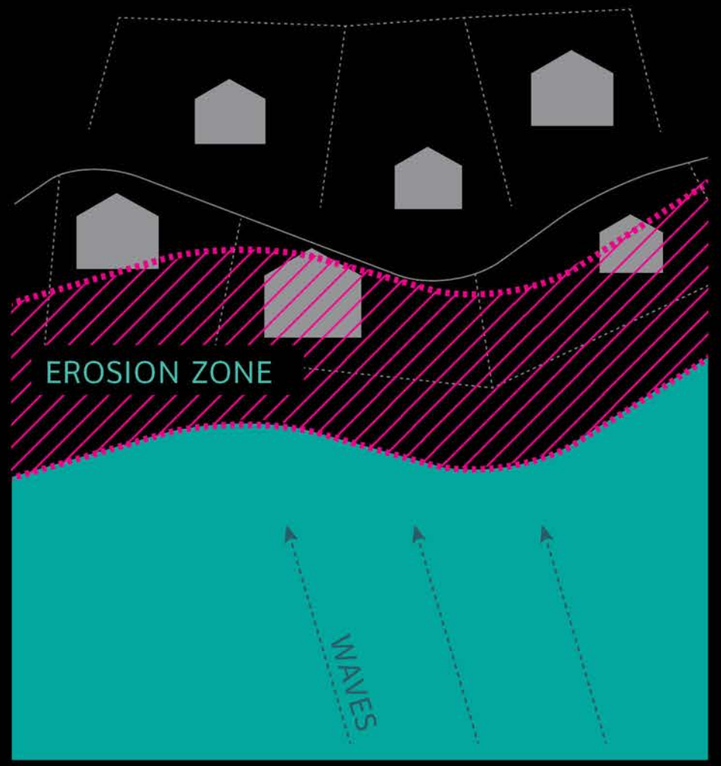
FLOOD EVENT + BREAKWATER

SCAPE

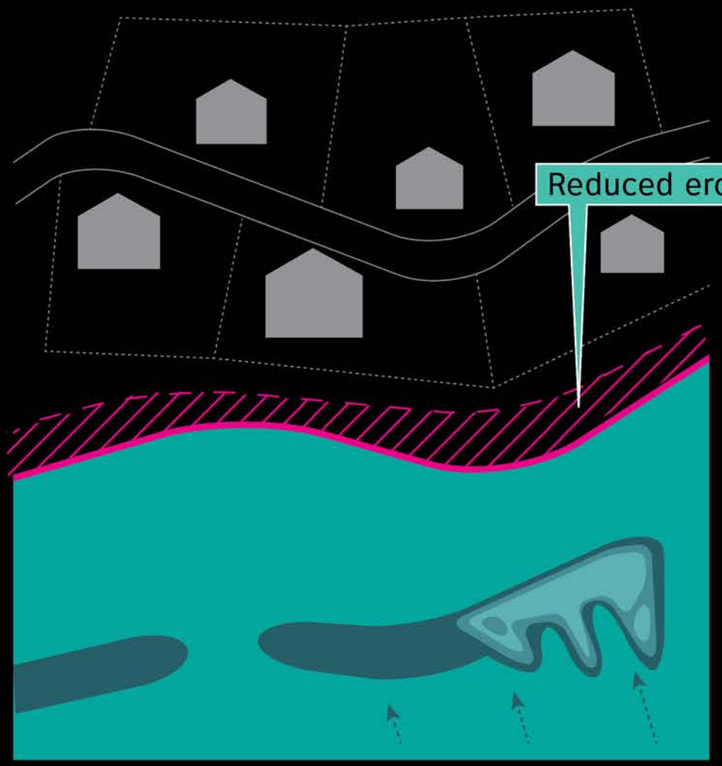
RISK REDUCTION : SHORELINE LOSS



HISTORIC SHORELINE LOSS



PROJECTED SHORELINE LOSS
WITH NO INTERVENTION



SHORELINE STABILIZATION
WITH INTERVENTION

SCAPE

DESIGN FOR HABITAT

TYPICAL BREAKWATER

MODIFY FORM TO AVOID CRITICAL HABITAT

ECOLOGICAL VALUE- HIGH

MODIFY FORM FOR LOCALIZED, MICRO-SCALE COMPLEXITY

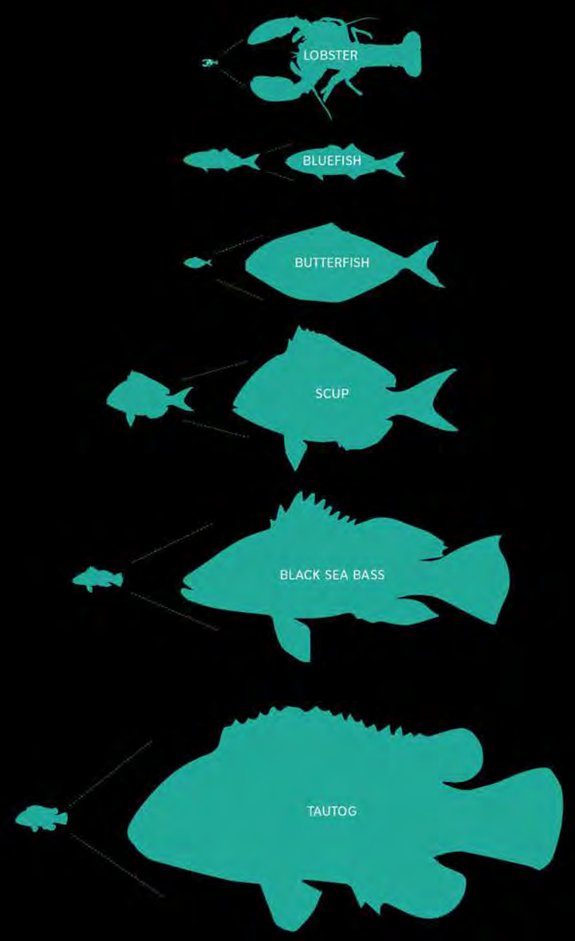
ECOLOGICAL VALUE- HIGH

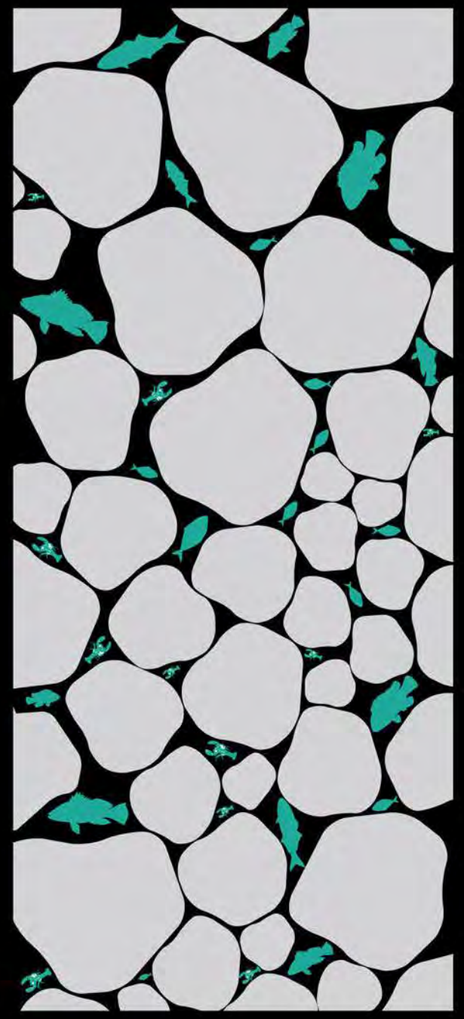
HARD STRUCTURE COMPLEXITY ON WAVE-WARD SIDE

PORE SPACE REMAINS OPEN

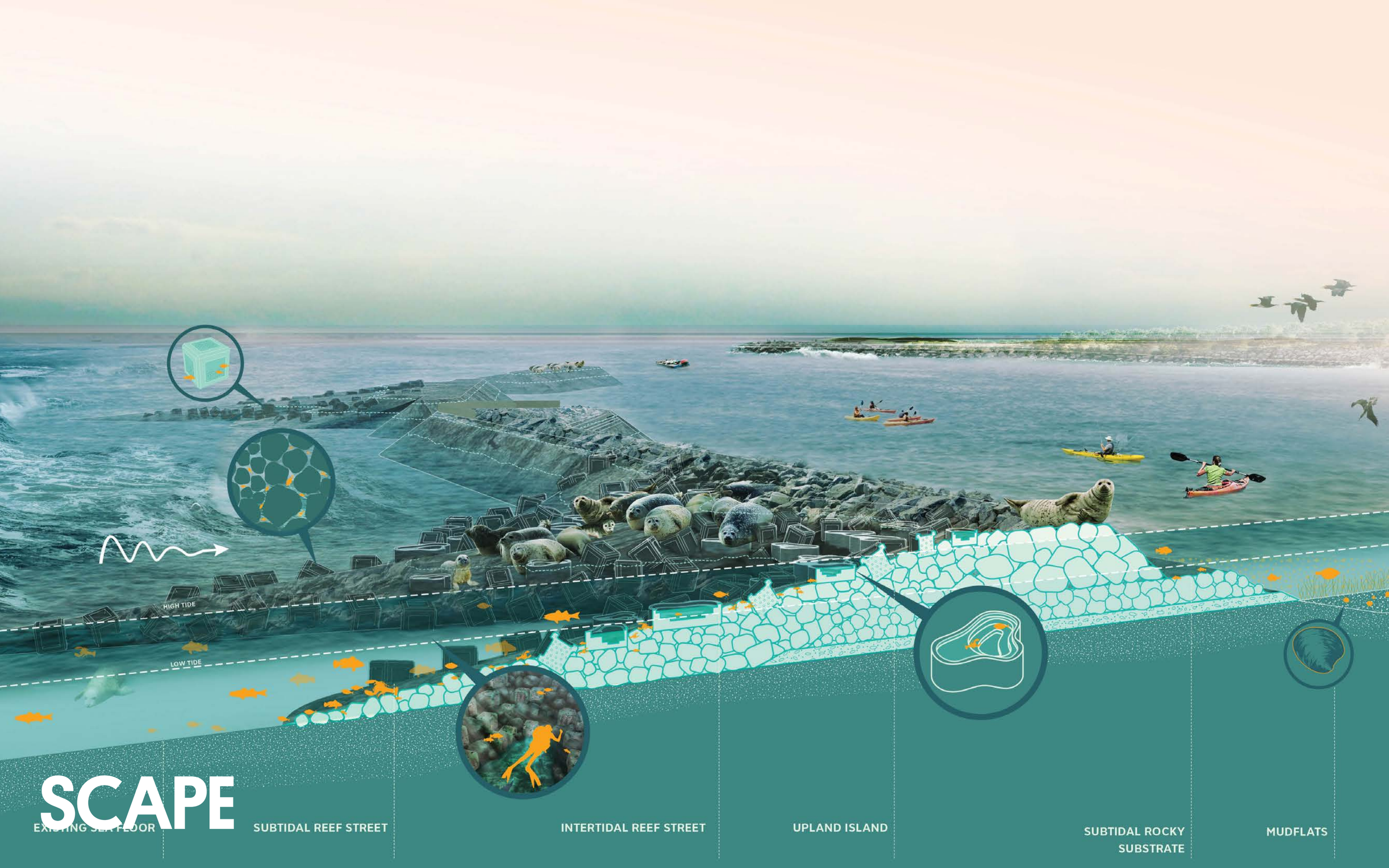
SCAPE

CREATE NICHES





SCAPE


HIGH TIDE
LOW TIDE
SCAPE
EXISTING SEAFLOOR
SUBTIDAL REEF STREET
INTERTIDAL REEF STREET
UPLAND ISLAND
SUBTIDAL ROCKY SUBSTRATE
MUDFLATS