



# CARTERET

## A STORY OF SEVERANCE



A THESIS PRESENTATION BY **WILLIAM MAGNANINI**

Under the Guidance of **Wolfram Hoefer**

Committee Members: **Anette Freytag, Angela Oberg, David Tulloch**



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01

# THE IMPORTANCE OF WATER TO CITIES

GLOBALLY AND AT HOME





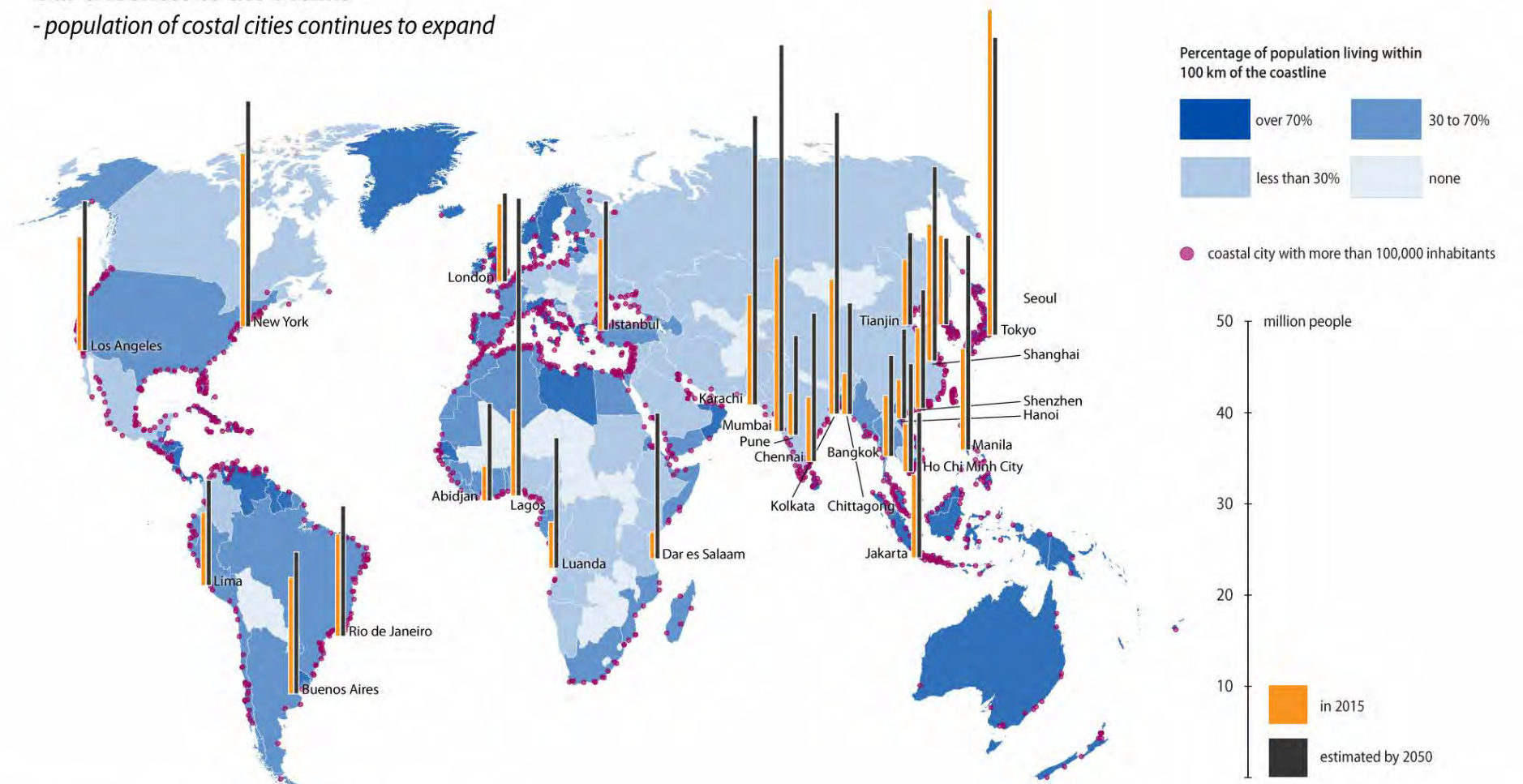
# WATER AND DEVELOPMENT

- Water Birthed Civilization
- Navigational Tools
- Trade Networks
- Agriculture
- Development and Urbanization



Source: Charles F. Gritzner, *Exploring Our World, Past and Present*, D. C. Heath and Company (adapted)

**Our closeness to the oceans**  
- population of coastal cities continues to expand



Source: Hoonrweg & Pope (2014), Burket et al. (2000), Natural Earth.



**NEW JERSEY**  
**RICH IN WATERWAYS**



RIVERS



STREAMS



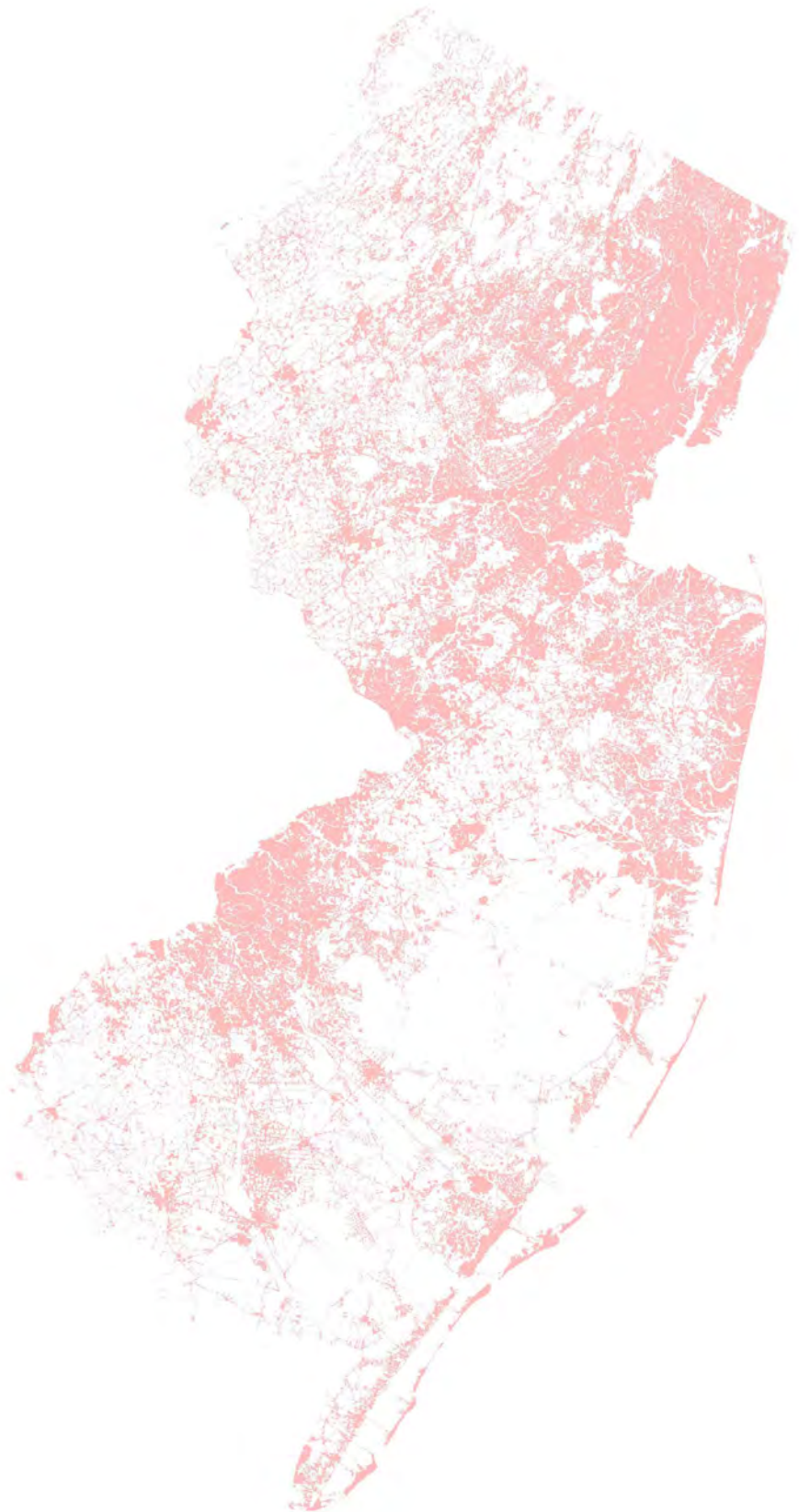
WETLANDS



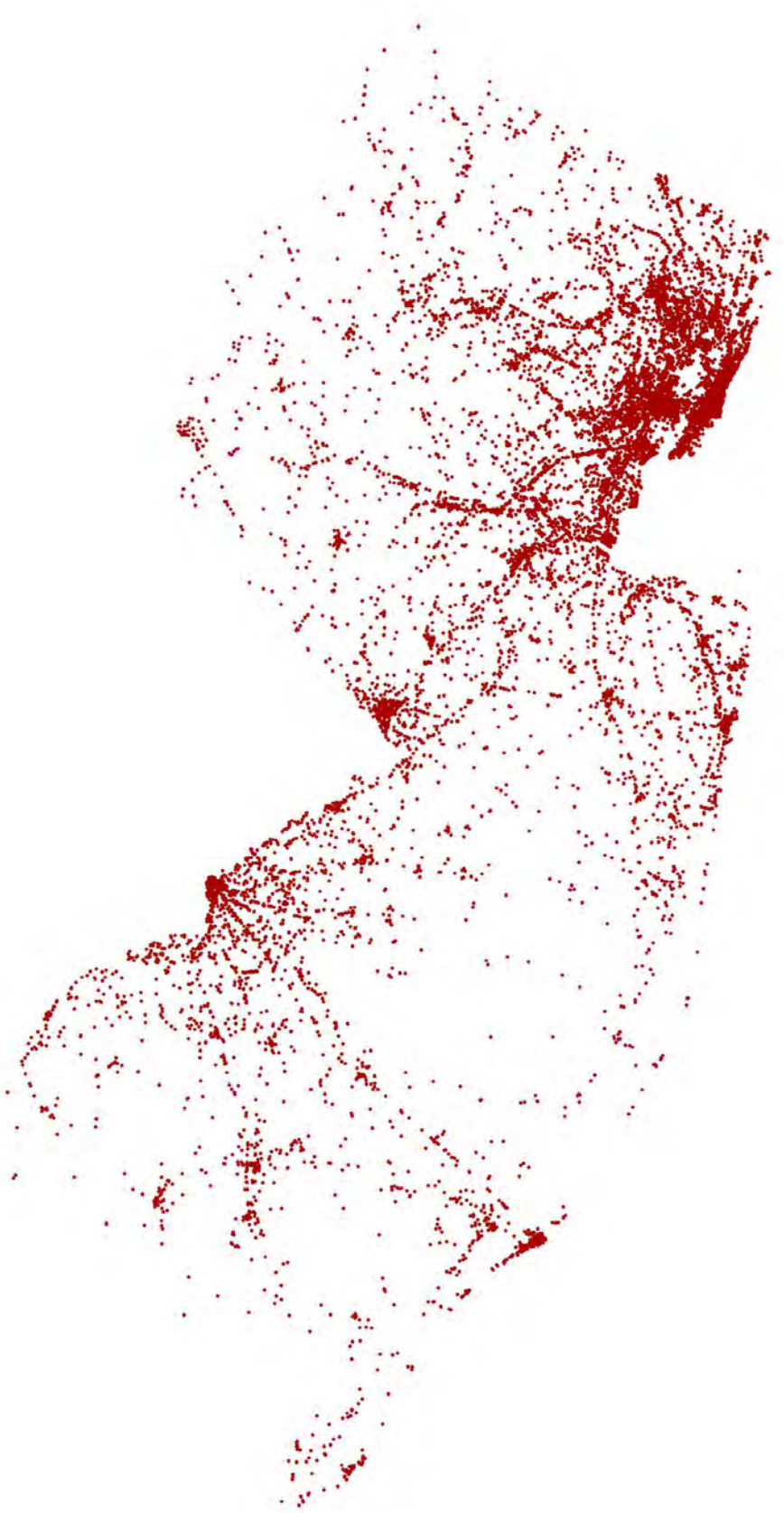
**NEW JERSEY**  
**RICH IN DEVELOPMENT**



IMPERVIOUS SURFACES



URBANIZATION



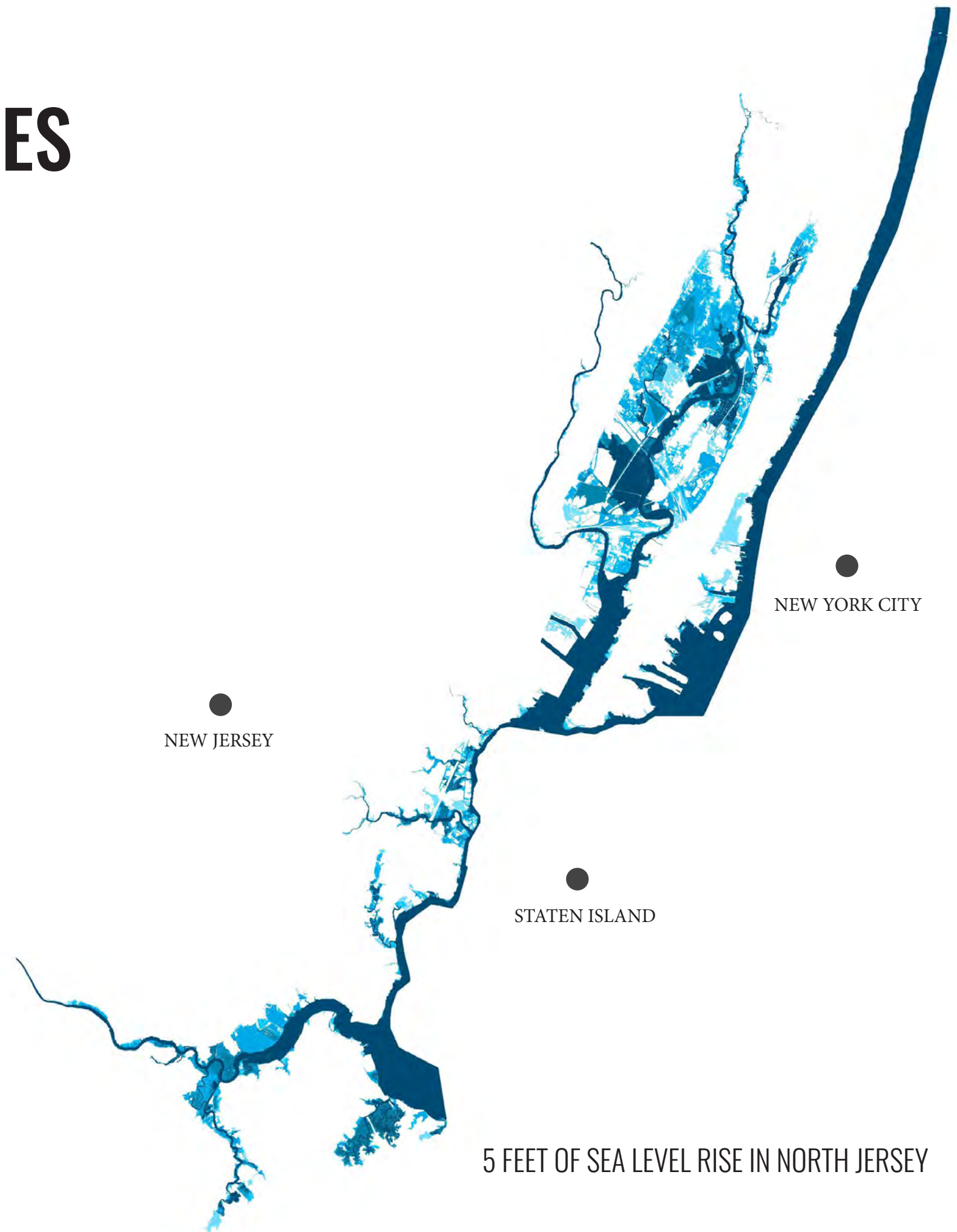
CONTAMINATED SITES



# JERSEY'S WATERFRONT CHALLENGES

## A CHANGING LANDSCAPE

- Roughly 130 Miles of Coastline
- Most Densely Populated State in U.S.
- Urban Hubs Built Along Waterways
- Climate Resiliency Issues
- Water Management and Redevelopment





# 02 THE ARTHUR KILL WATERSHED

REGIONALLY SIGNIFICANT

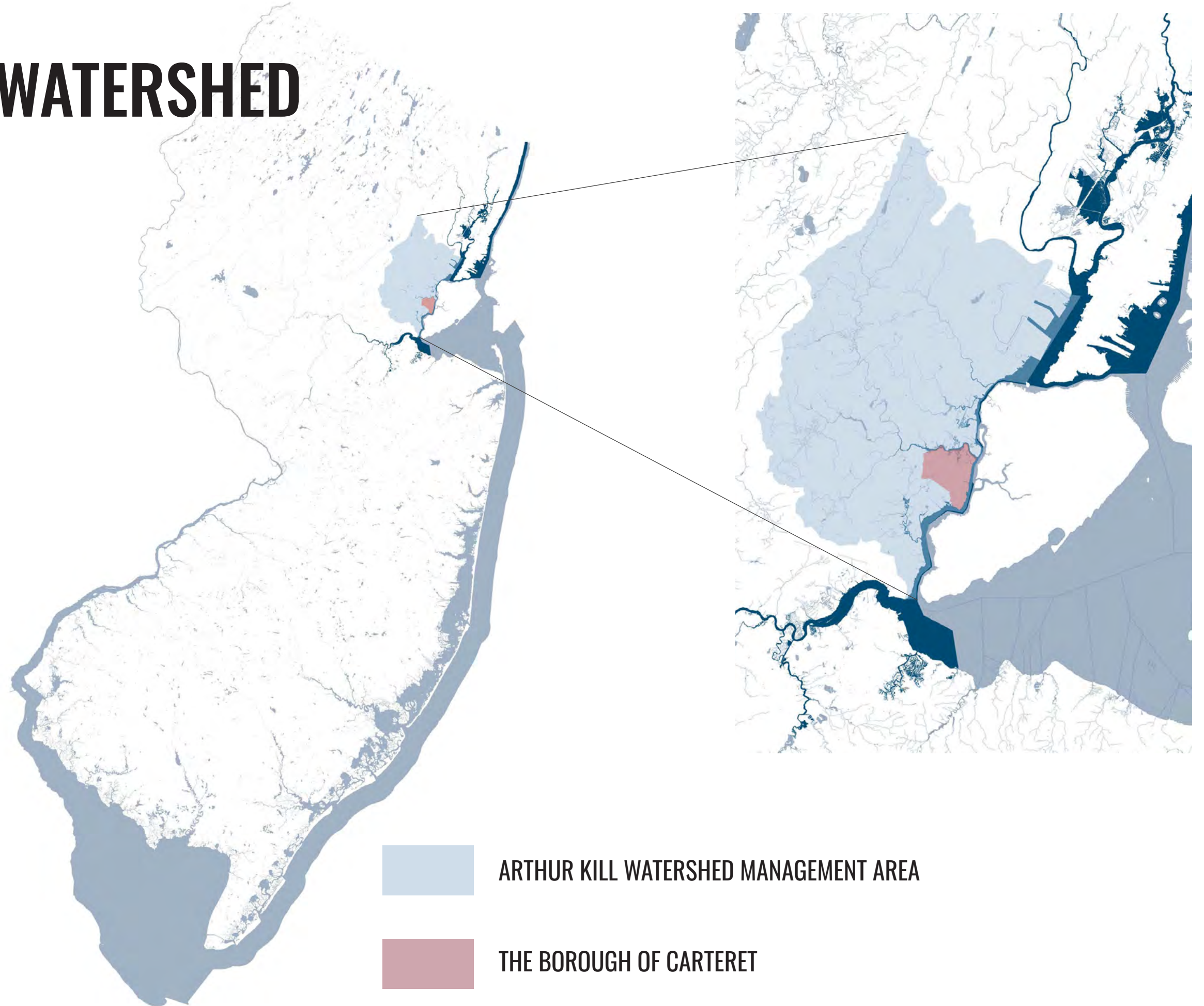


CREDIT: DOC SEARLS VIA FLICKR



# THE ARTHUR KILL WATERSHED

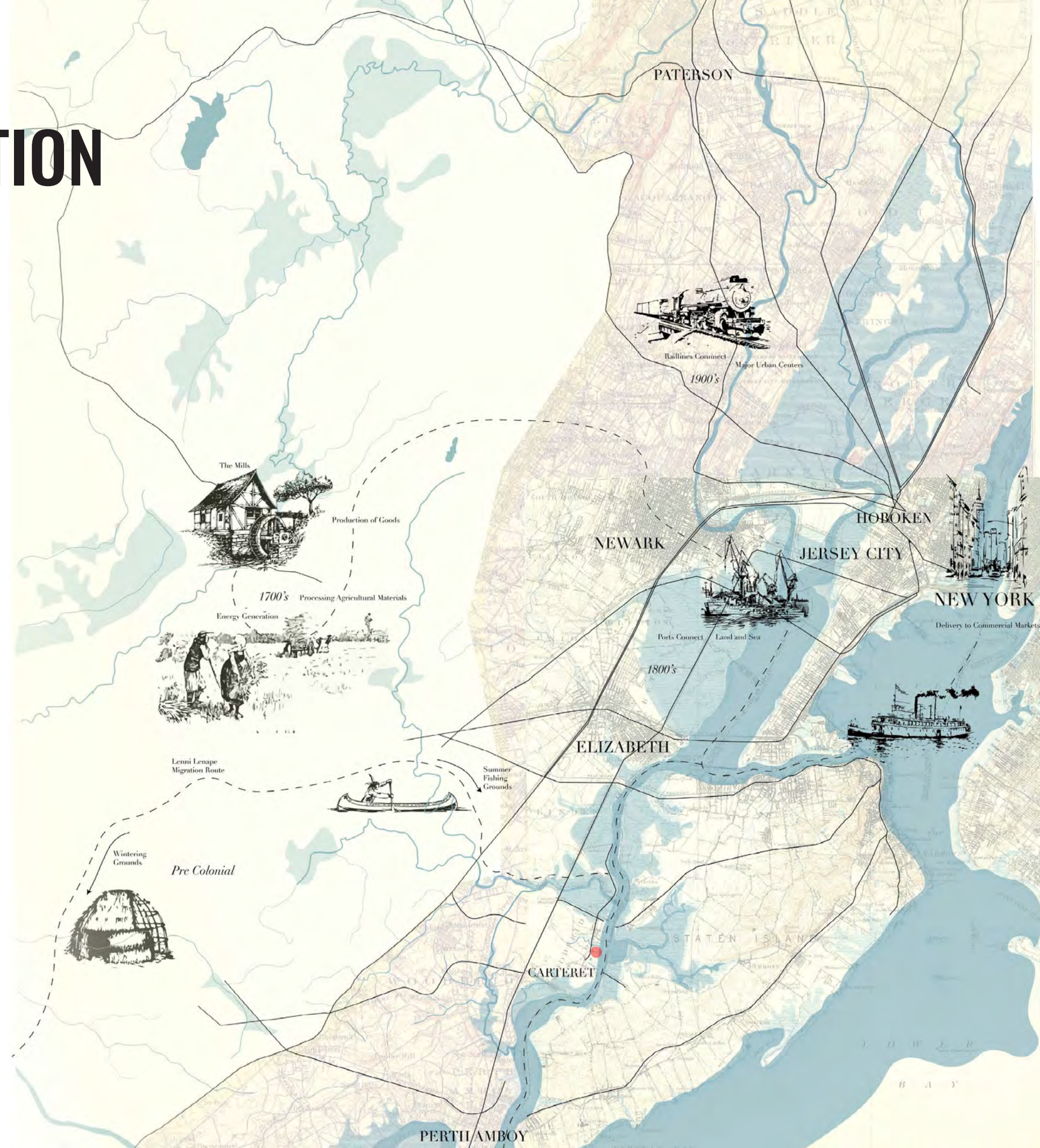
- Heavily Industrialized
- Ecosystem Degredation
- Popolous and Redeveloping
- New Jersey Gold Coast





# WATER AND INDUSTRIALIZATION

- New York's Bread Basket
- Major Port Cities
- Cyclical Immigration
- Center for Commerce and Industry
- Interconnected Network
- Change and Identity

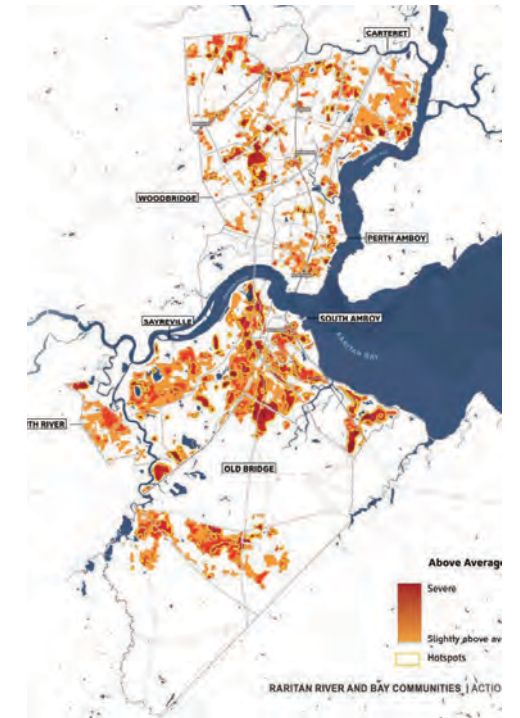
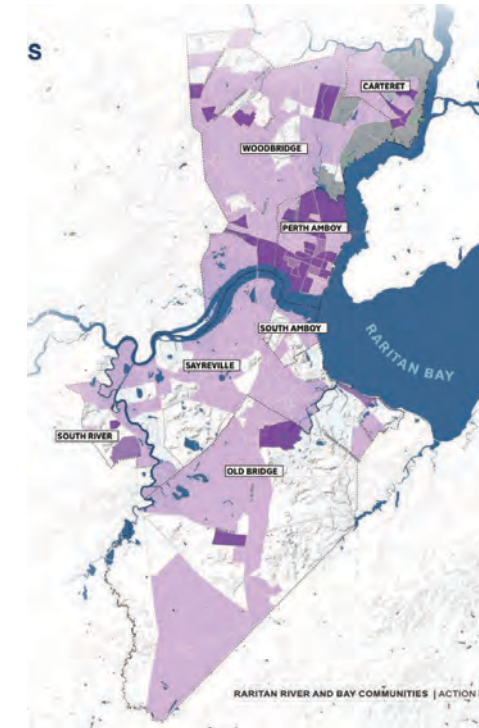




# REGIONAL CHALLENGES AND OPPORTUNITIES

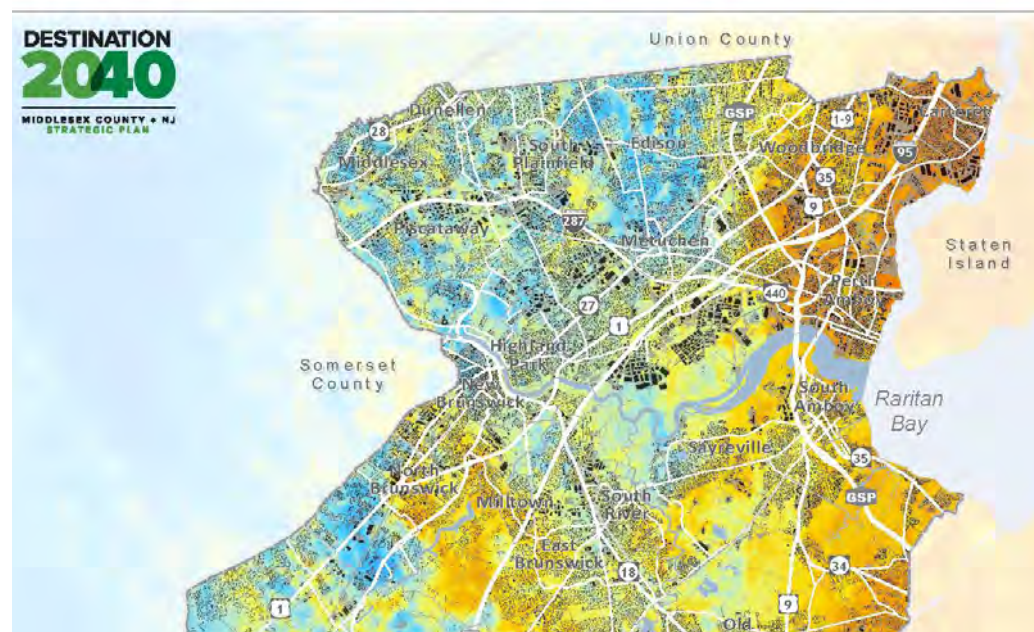
## RESILIENT NEW JERSEY & MIDDLESEX COUNTY DESTINATION 2040

- Urban Heat Island Effect
- Flooding and Sea Level Rise
- Vulnerable Populations and Ecosystems
- Contaminated Sites
- Critical Infrastructure

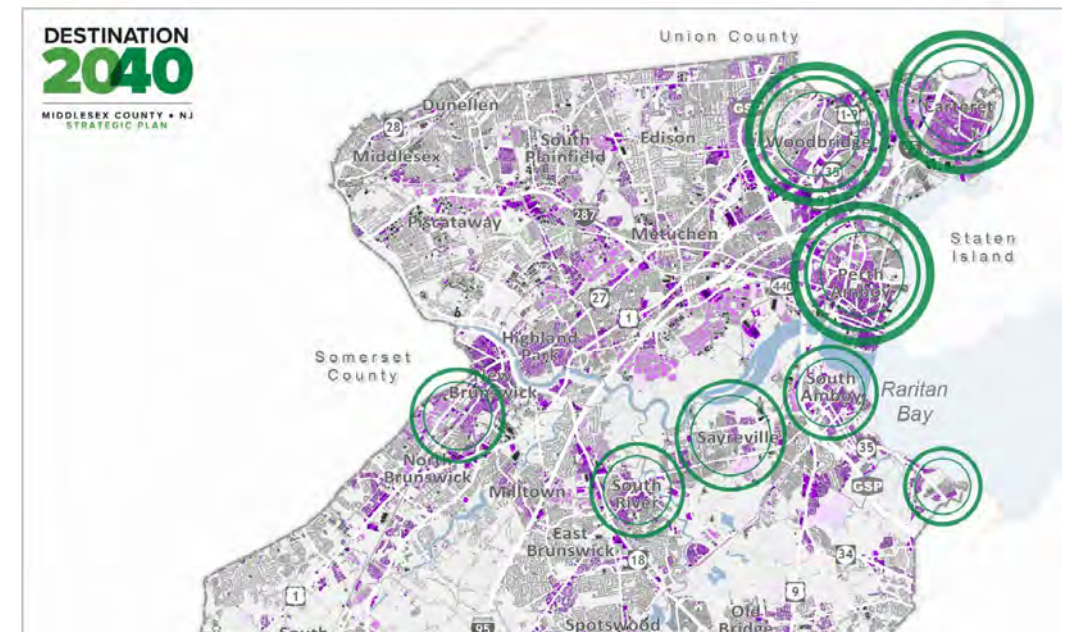


Credit: Resilient NJ Action Plan, Multiple Stakeholders

### Urban Heat Island (8/26/21) & Impervious Surfaces



### Urban Environmental Resource Improvement Locations



Credit: Center of Urban Environmental Sustainability, Rutgers University



**03**

## **WHY CARTERET?**

A STORY OF SEVERANCE

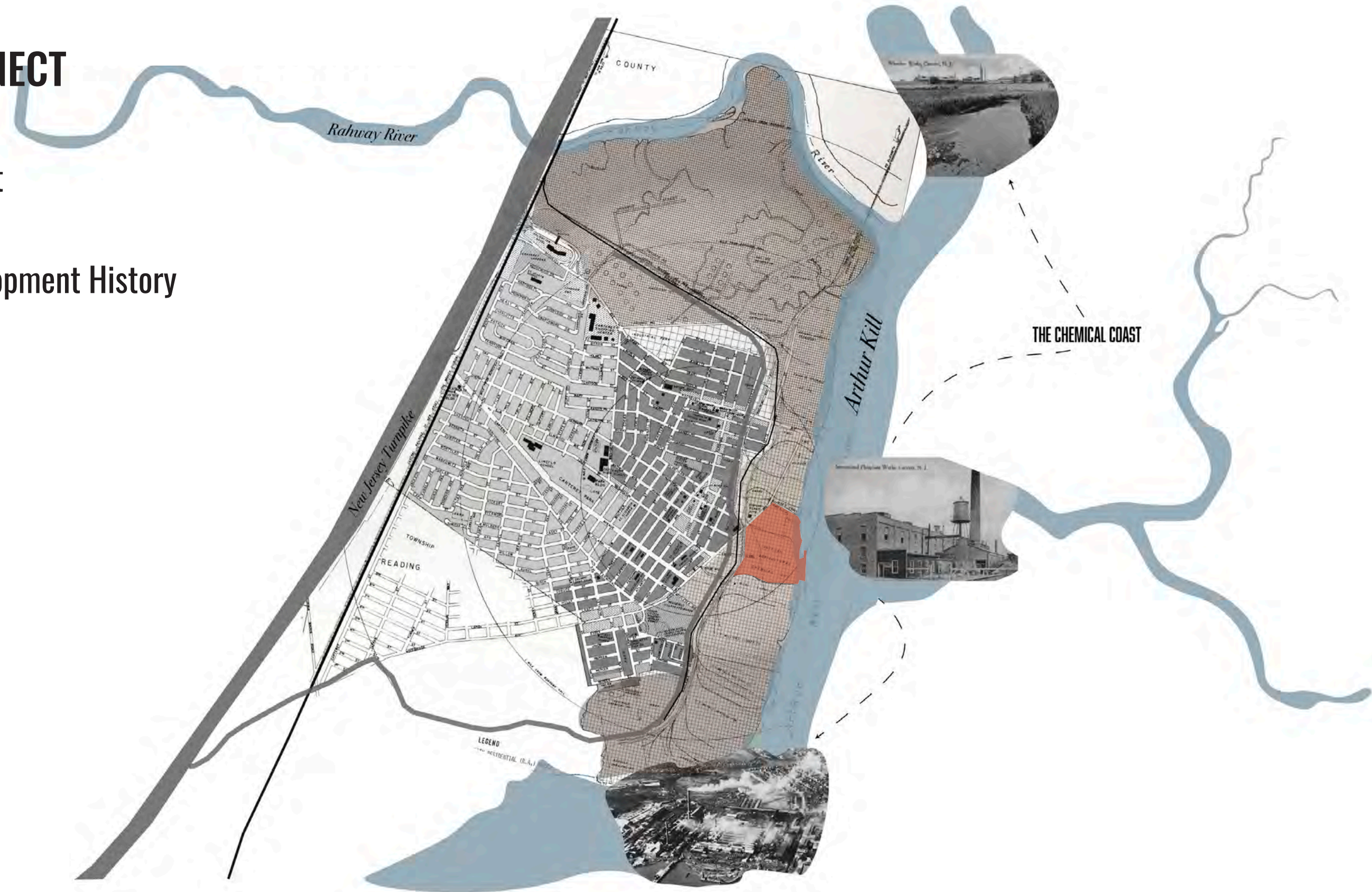




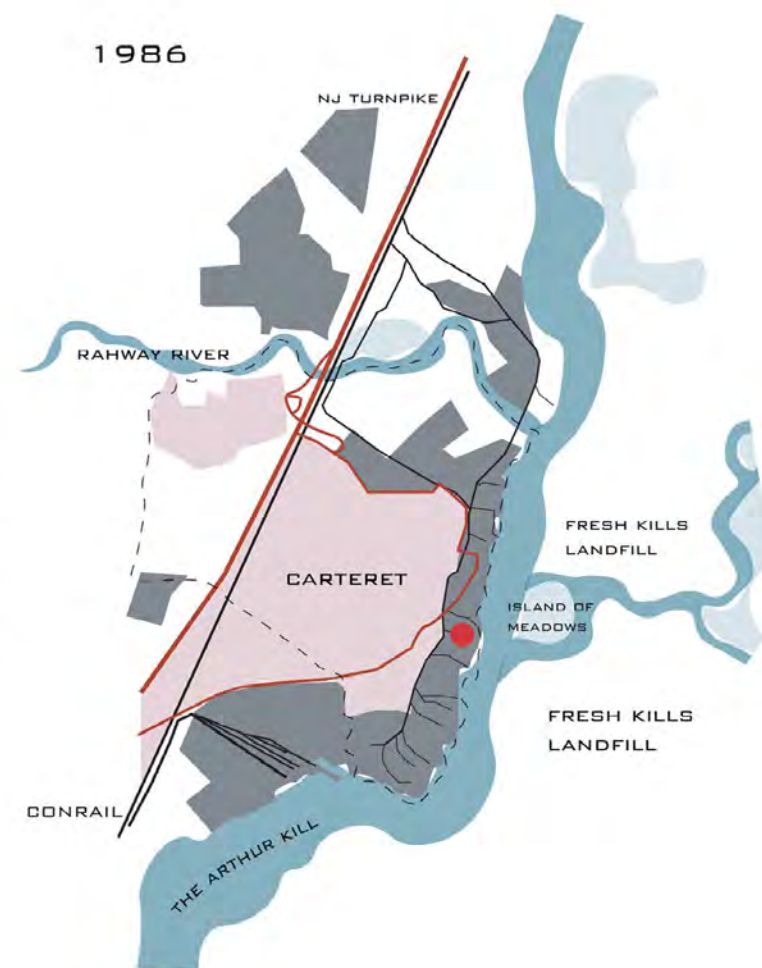
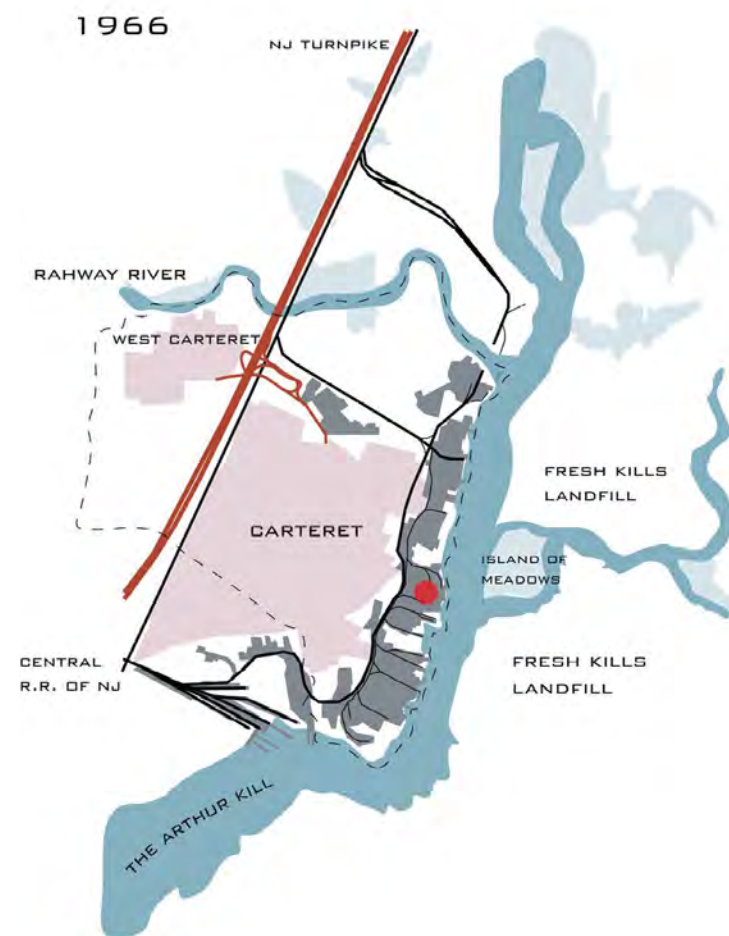
# A STORY OF SEVERANCE

## A UNIQUE DISCONNECT

- The Chemical Coast
- A Product of Development History







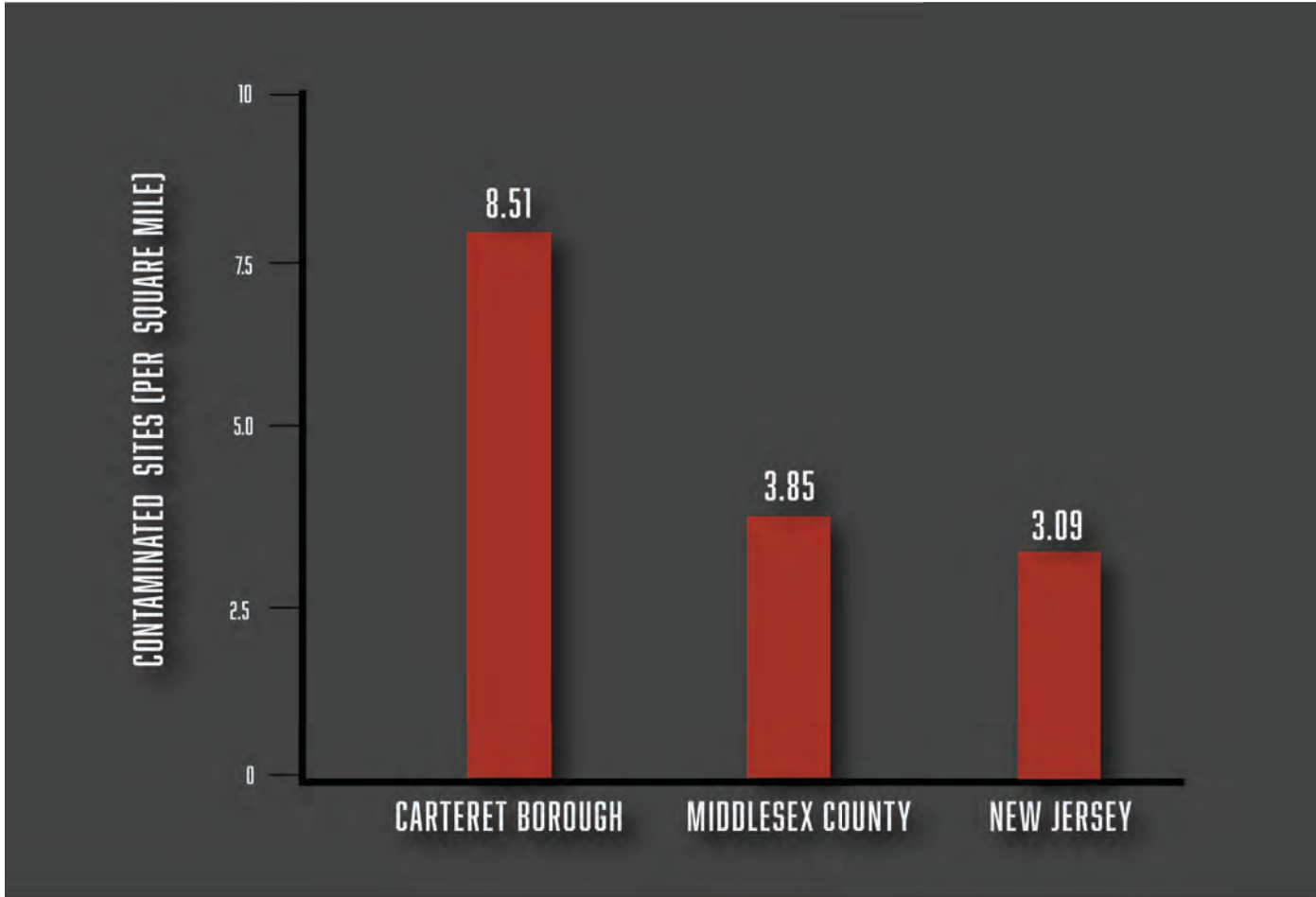
## LEGEND





# AN INDUSTRIAL LEGACY

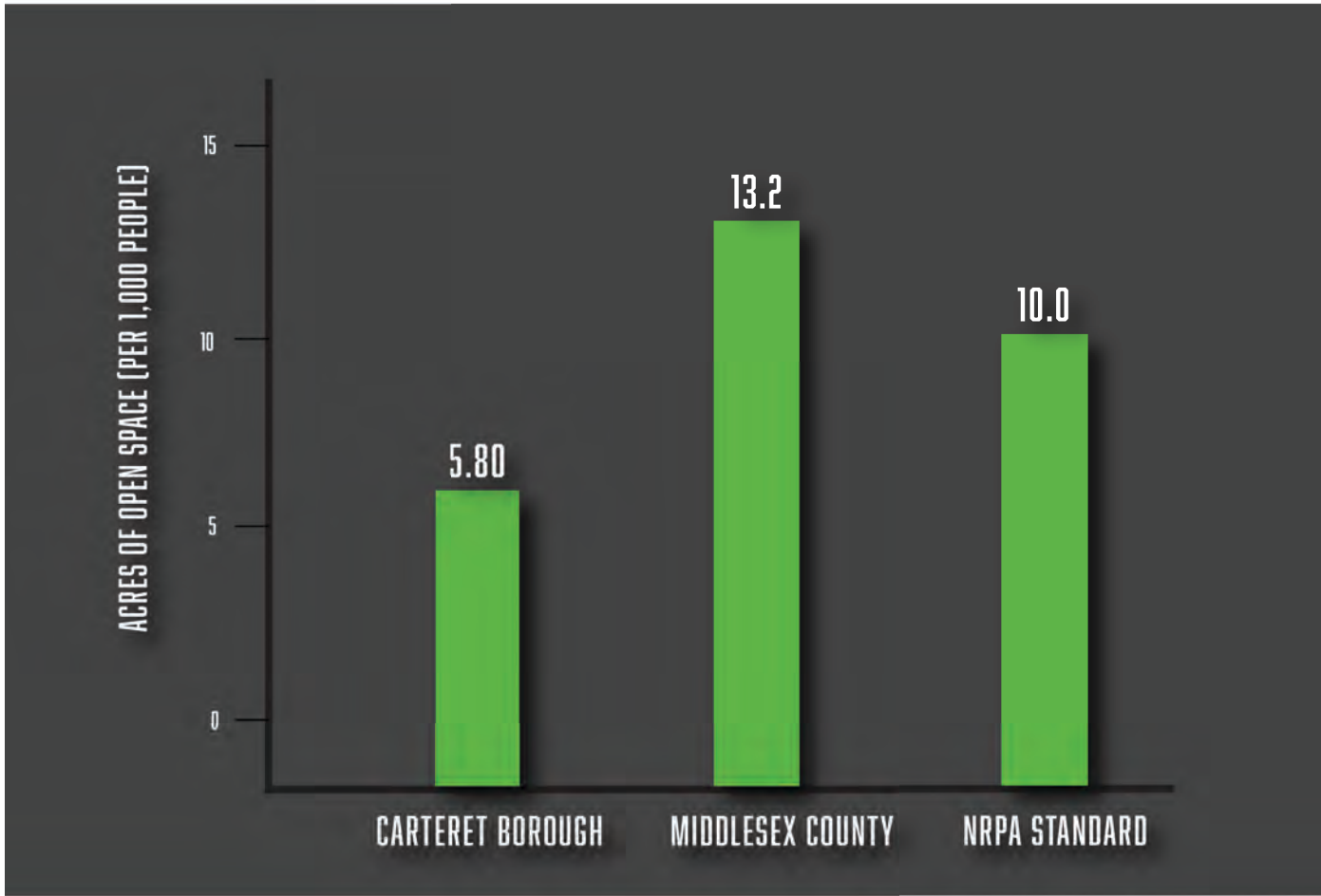
## KNOWN CONTAMINATED SITES





# AN INDUSTRIAL LEGACY

## OPEN SPACE ACCESS

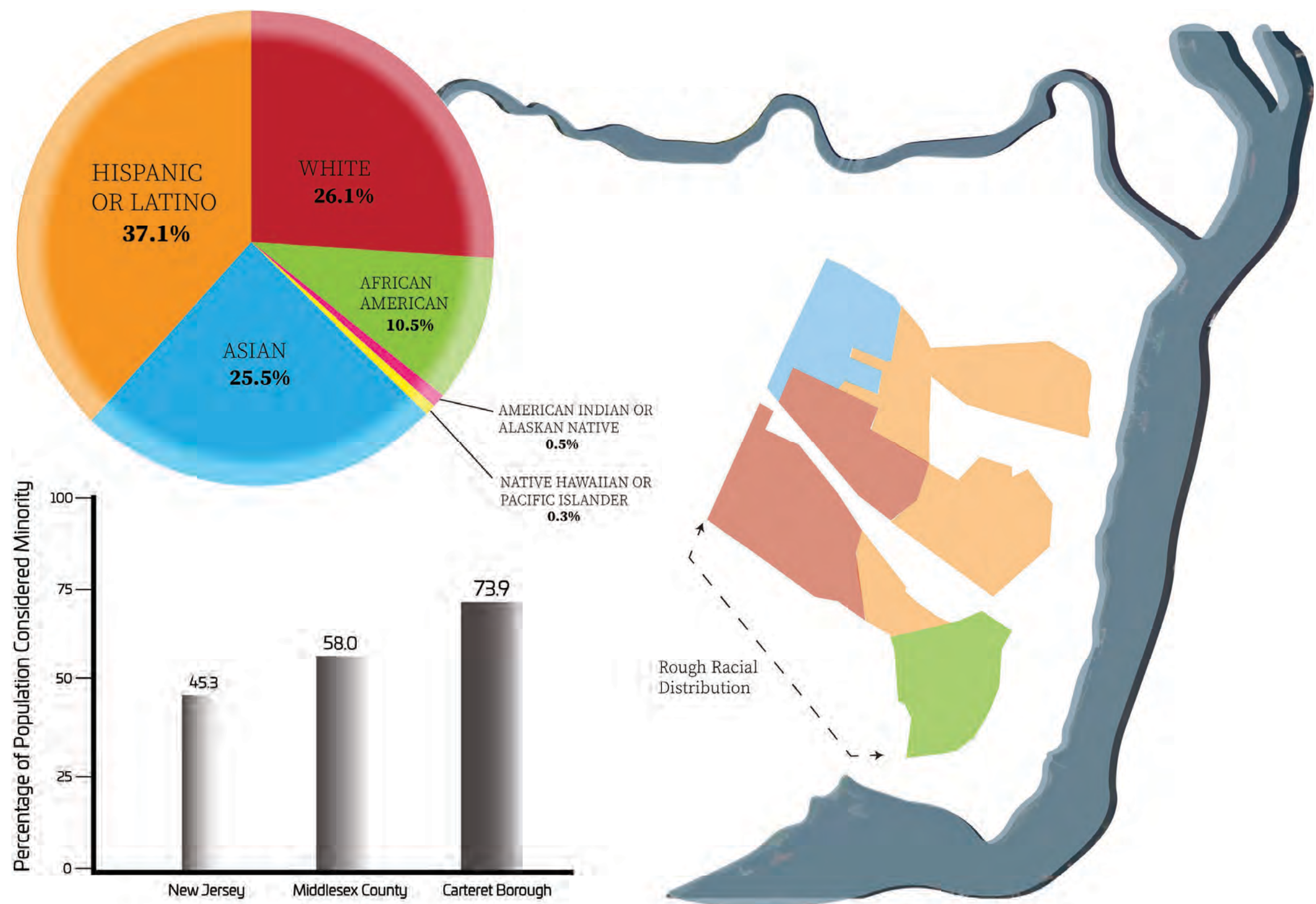




# AN OVERBURDENED COMMUNITY

## DEMOGRAPHICS

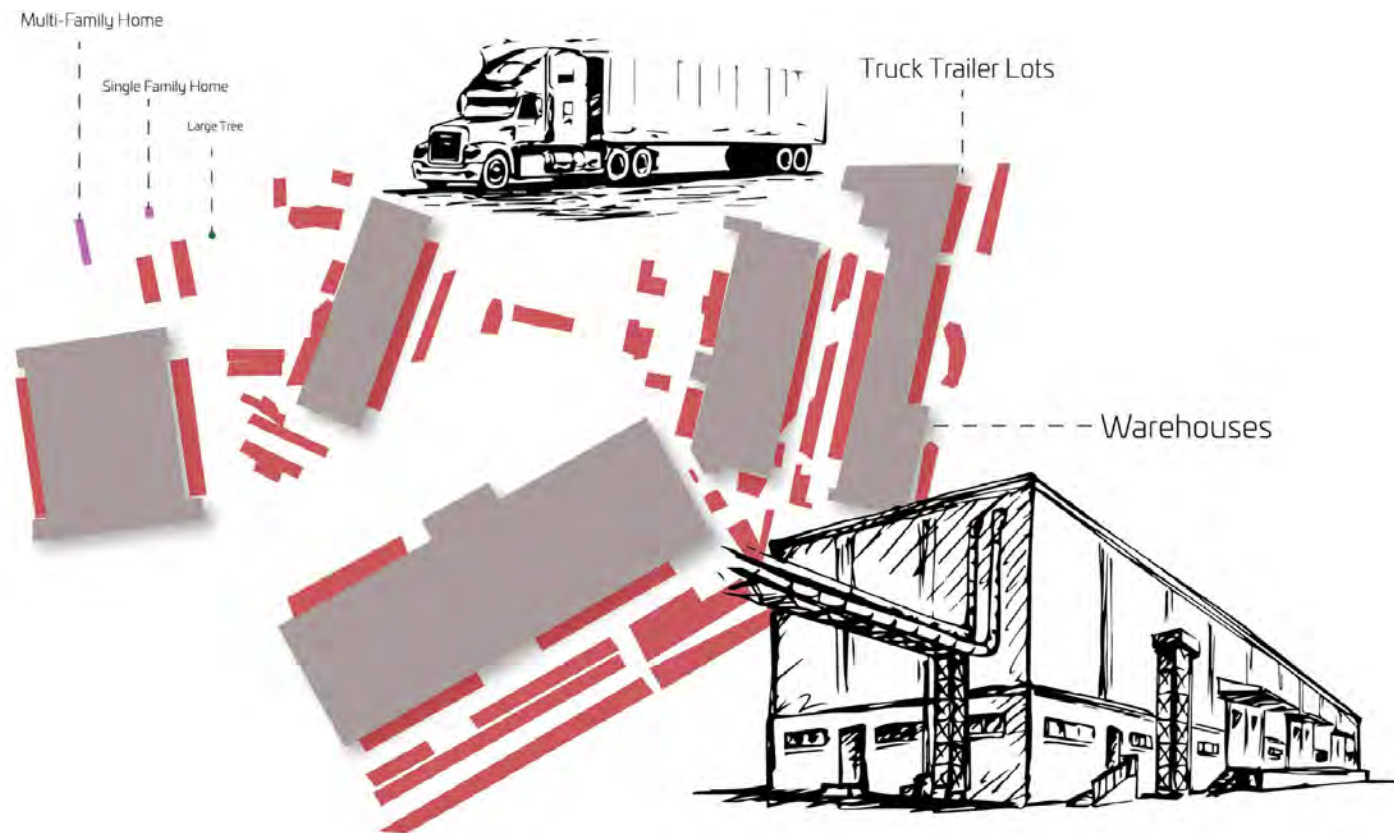
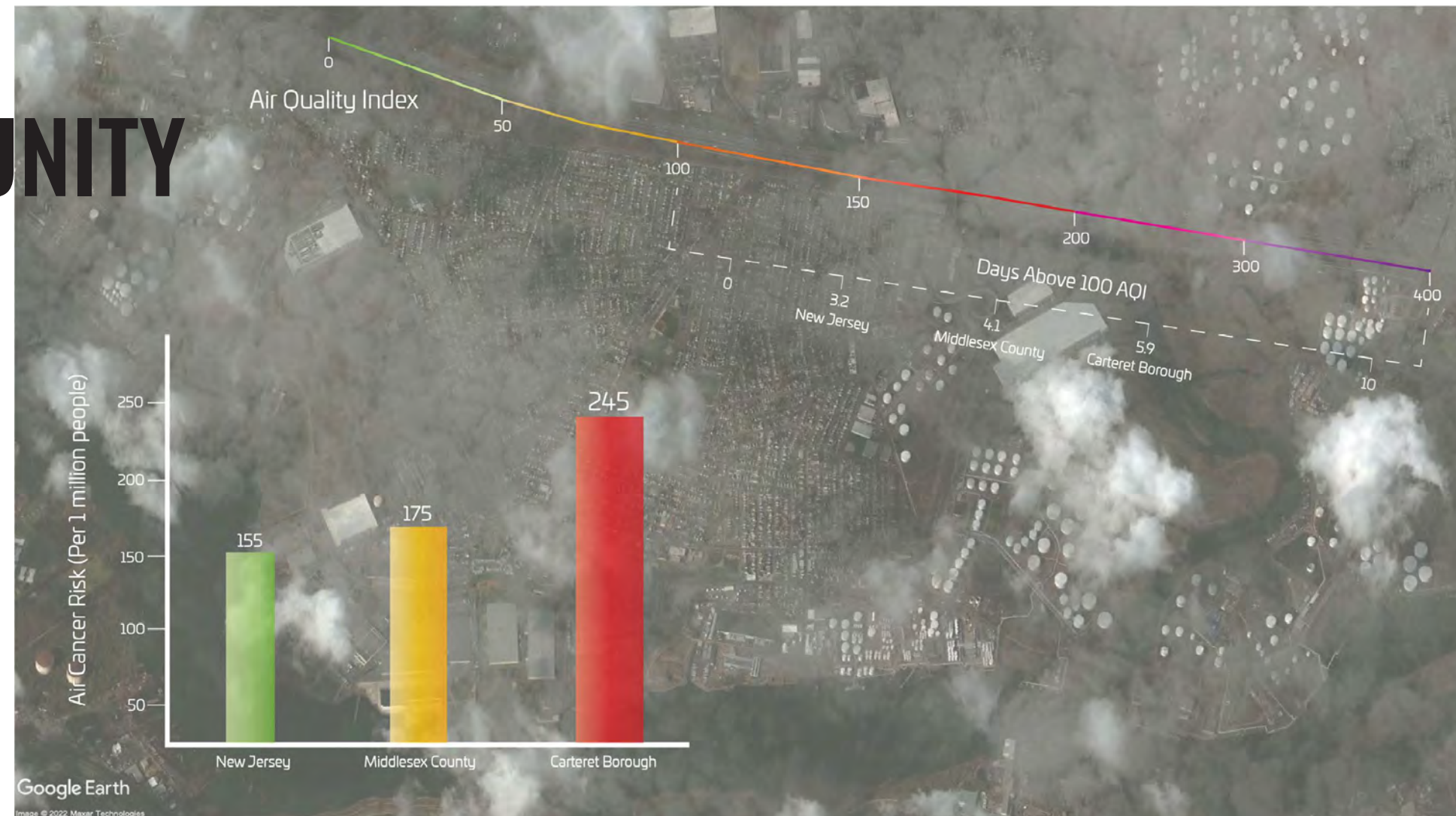
- Areas of Low Income
- Prevalent Contamination
- Surrounded by Industry



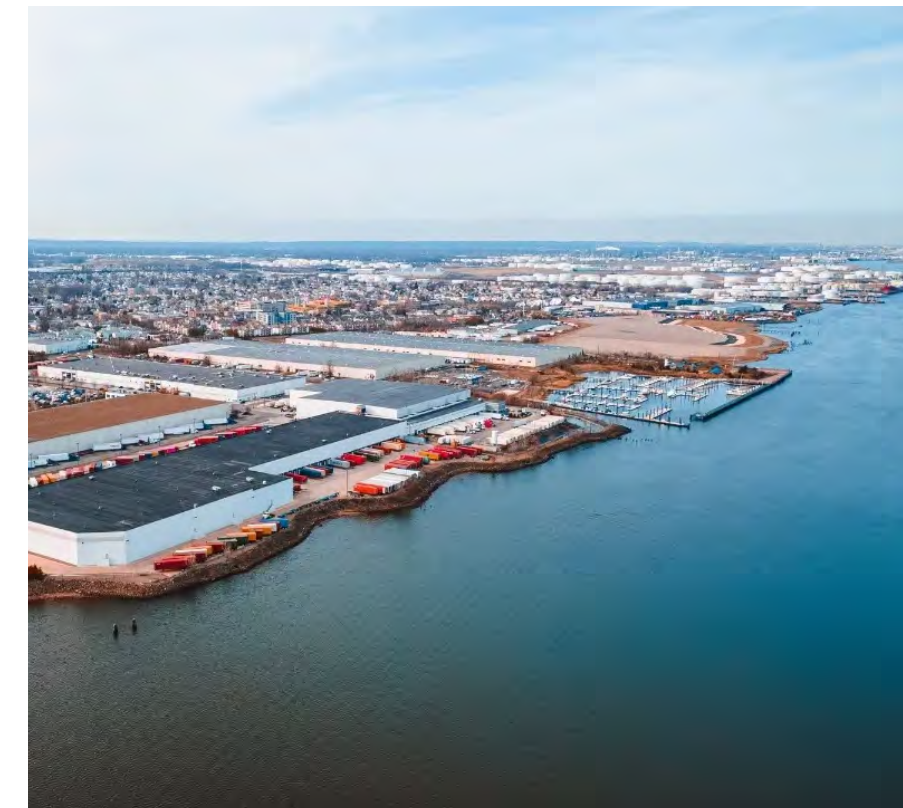


# AN OVERBURDENED COMMUNITY

- Warehousing Dominance
- Air Quality Issues
- Prevalence of Airborne Ailments



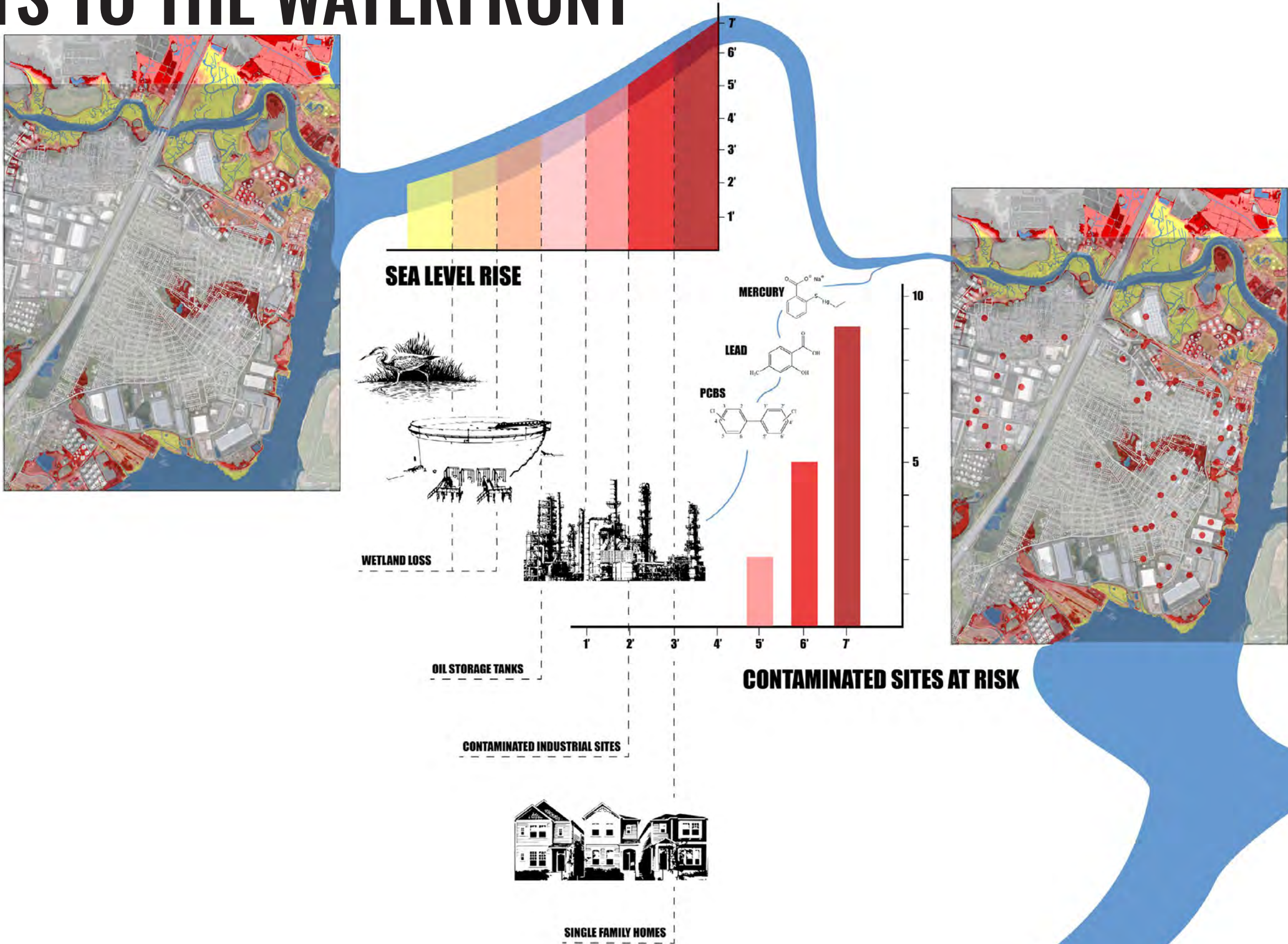
Credit: Borough of Carteret



Credit: Borough of Carteret



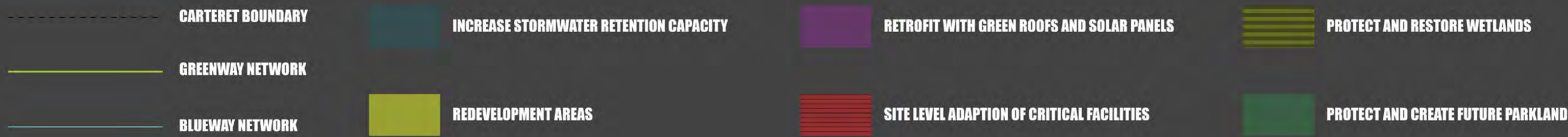
# NEW THREATS TO THE WATERFRONT







Google Earth





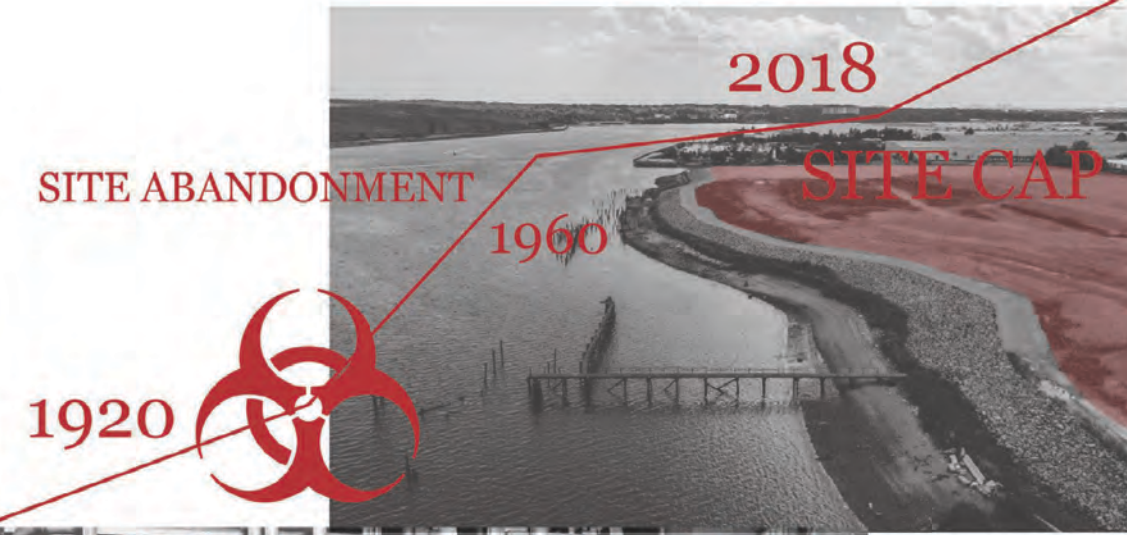
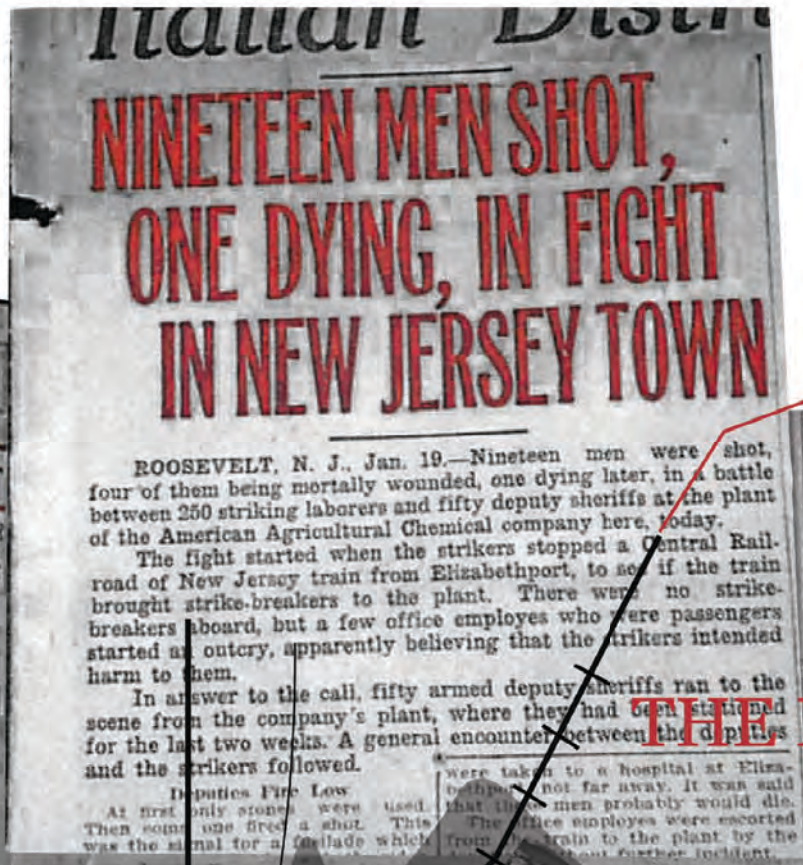
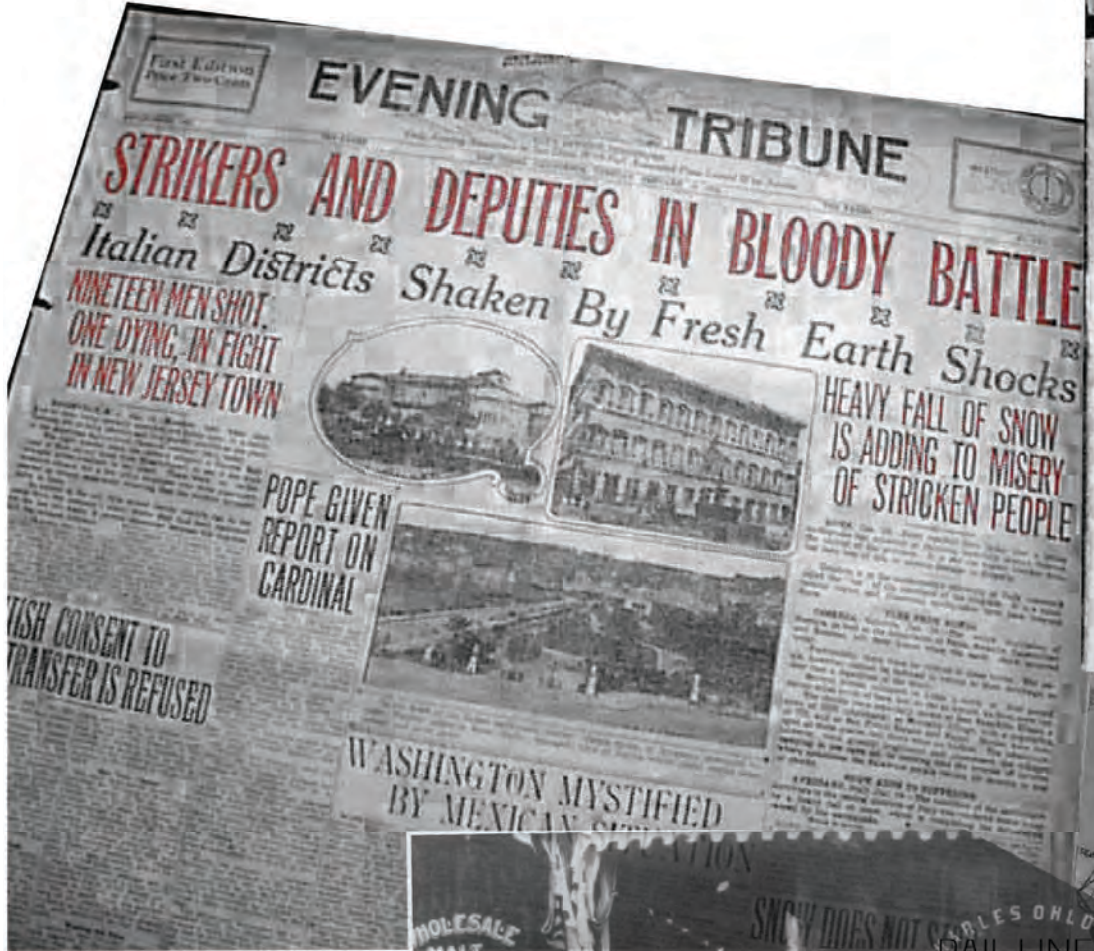
# 04 THE DUPONT SITE

AN OPPORTUNITY TO RECONNECT





# CHEMICAL CATASTROPHE



AMERICAN AGRICULTURAL  
CHEMICAL COMPANY

1890  LEIBIG MANUFACTURING COMPANY

SITE ABANDONMENT

SITE CAP

1920

1960

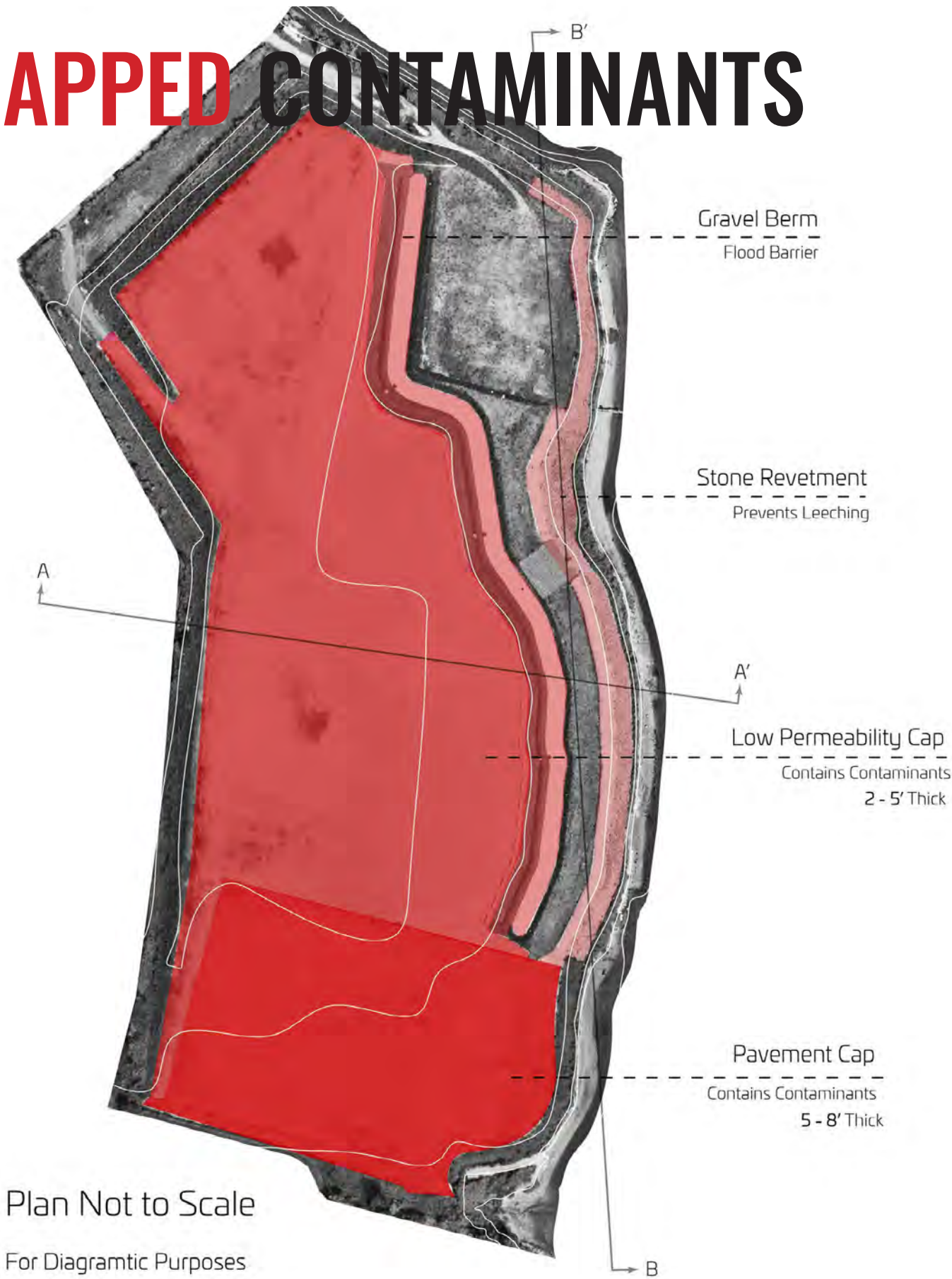
2018

DUPONT ACQUISITION

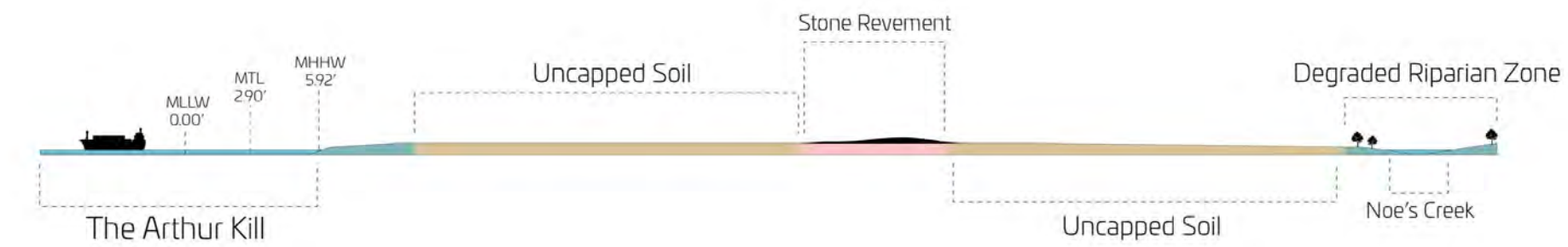
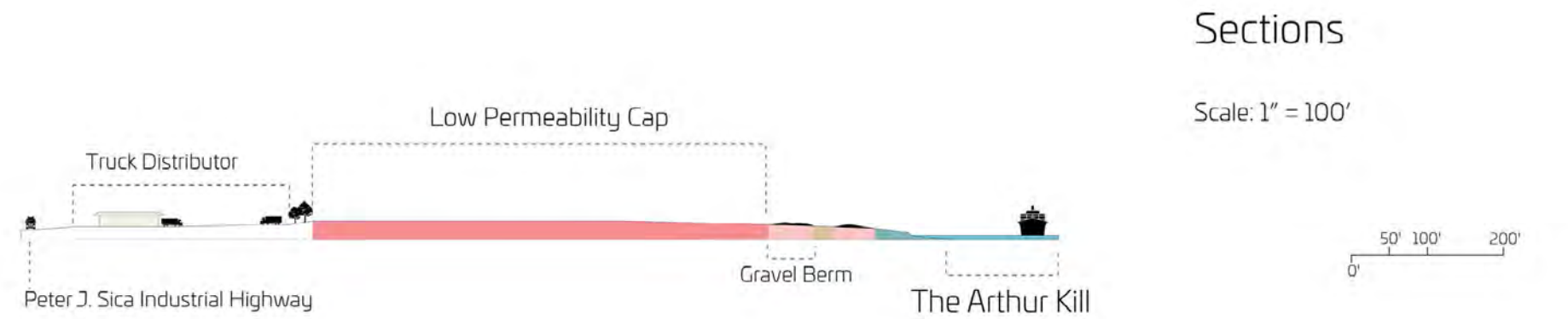
THE ROOSEVELT MASSACRE  
1915



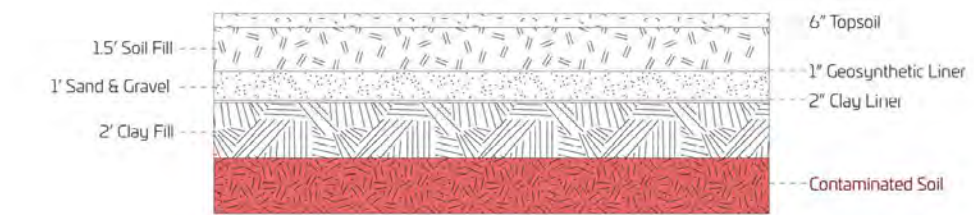
# CAPPED CONTAMINANTS



Plan Not to Scale  
For Diagramtic Purposes

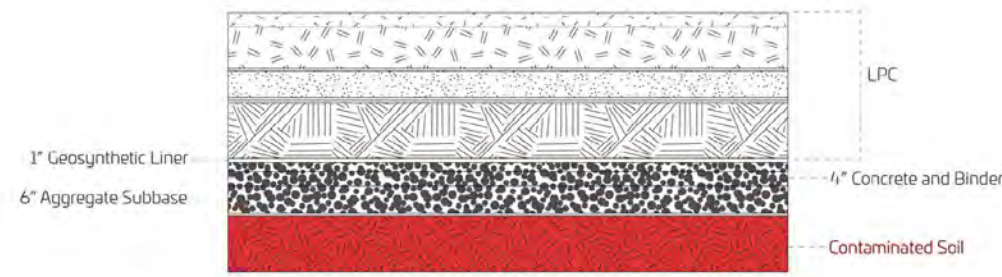


Standard Low Permeability Cap (Clay)



CAP Details Not to Scale  
For Diagramtic Purposes

Standard Pavement Cap (Concrete)





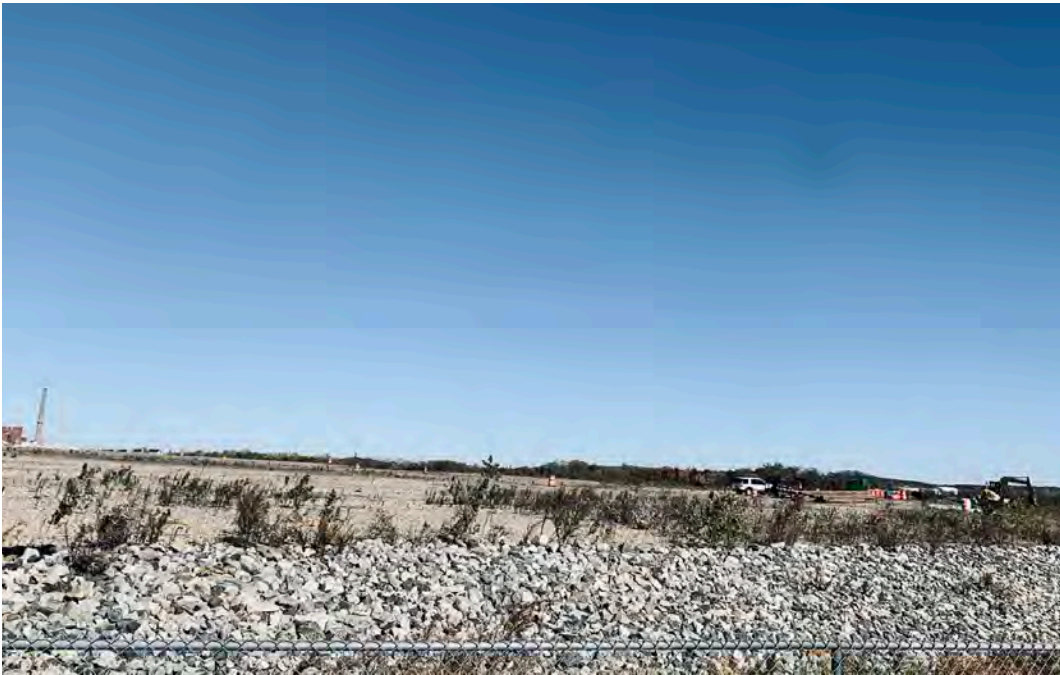
# SITE VISIT



SHORELINE ON THE ARTHUR KILL



BOAT LAUNCH AT CWFP



CAPPED AREA



REMEDATION "NOTICE"

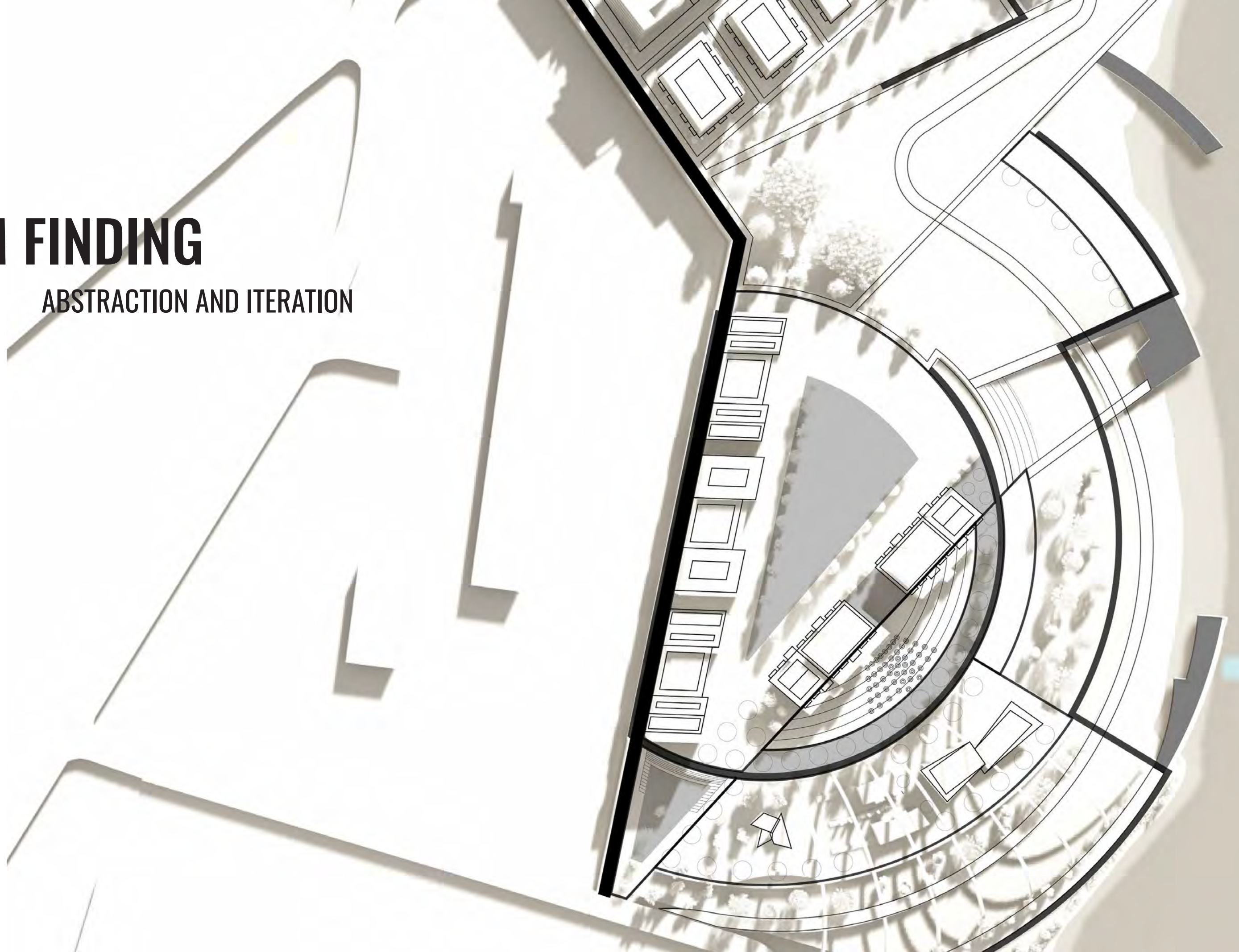


NOE'S CREEK



# 05 FORM FINDING

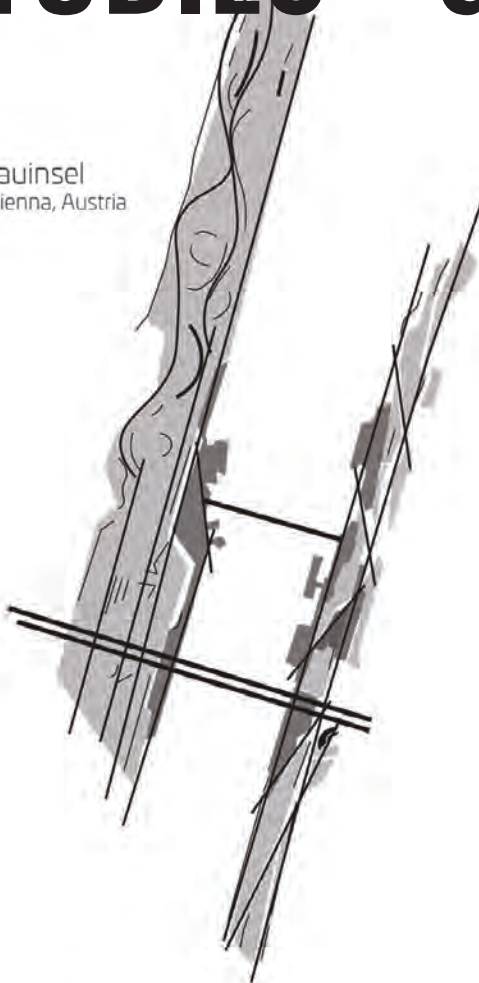
ABSTRACTION AND ITERATION



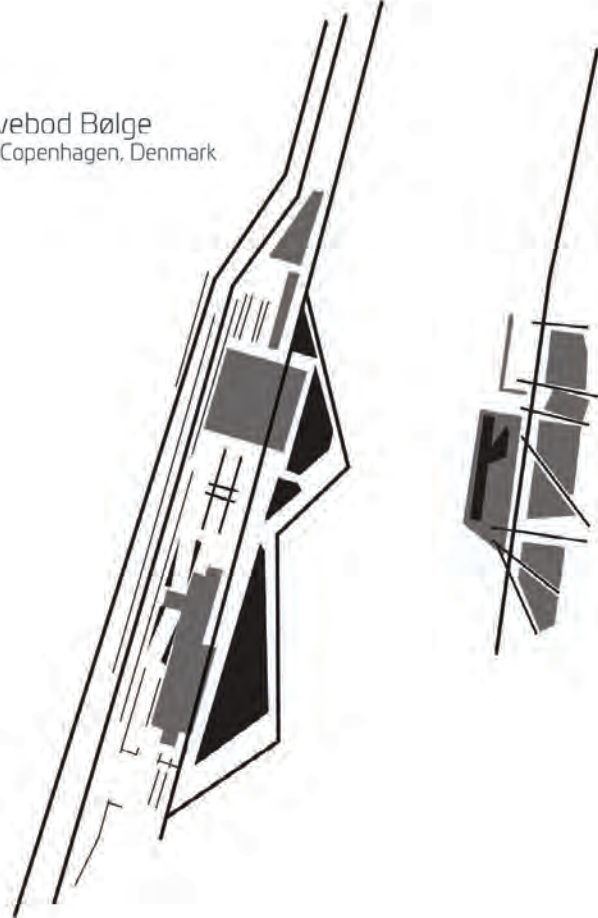


# CASE STUDIES - GEOMETRIC ABSTRACTIONS

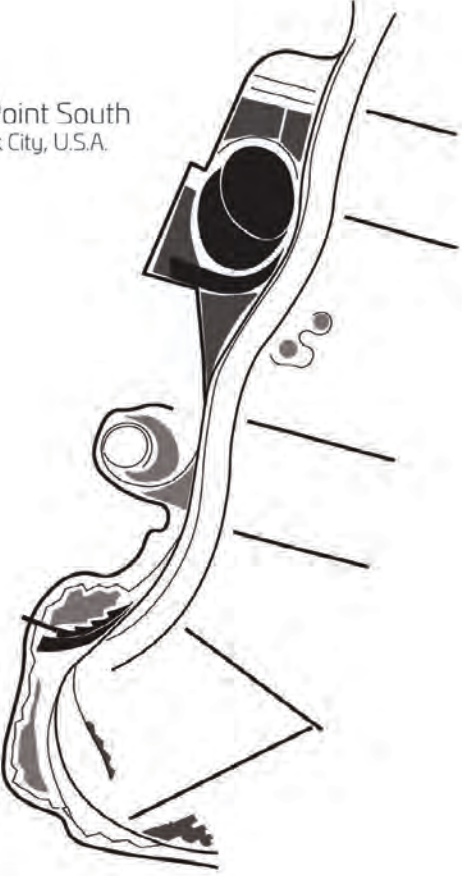
Donauinsel  
Vienna, Austria



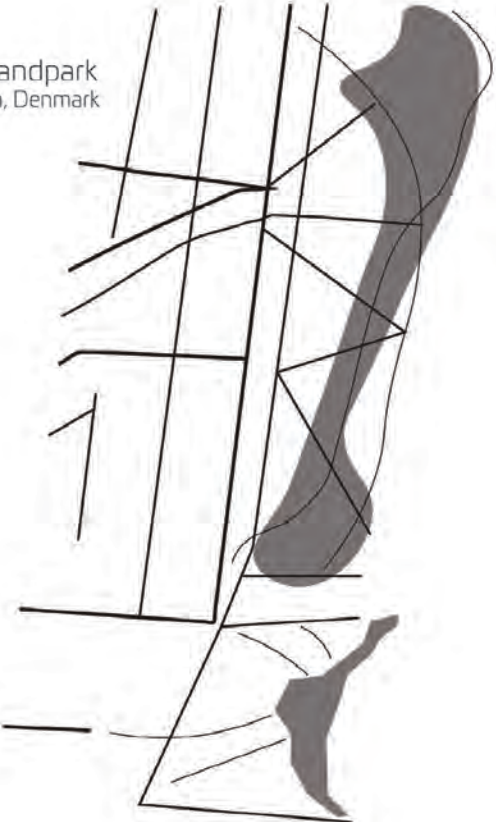
Kalvebod Bølge  
Copenhagen, Denmark



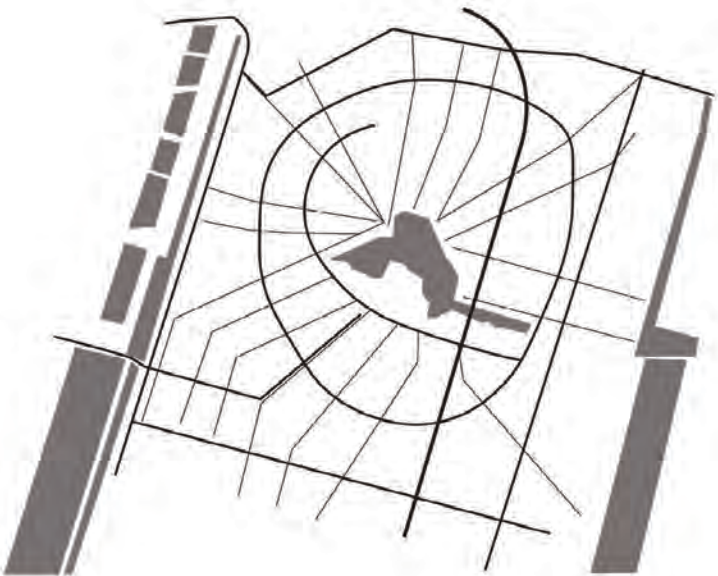
Hunter's Point South  
New York City, U.S.A.



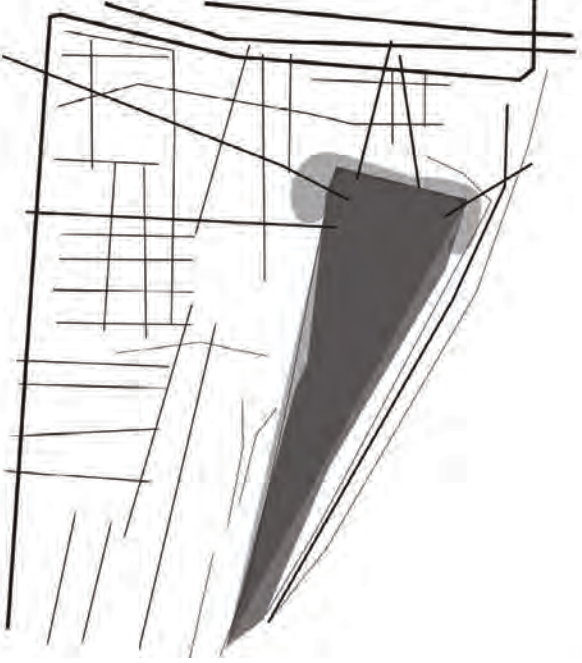
Hvidovre Strandpark  
Copenhagen, Denmark



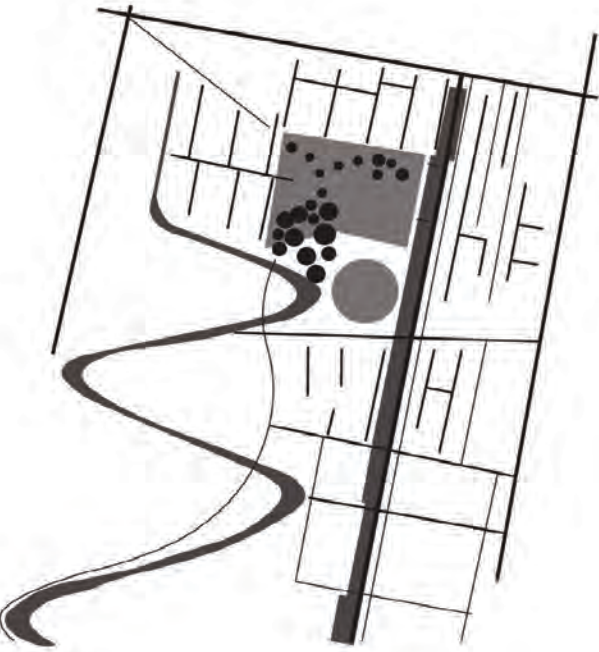
Seestadt Aspern  
Vienna, Austria



MOL Campus  
Budapest, Hungary



Copenhagen University  
Copenhagen, Denmark



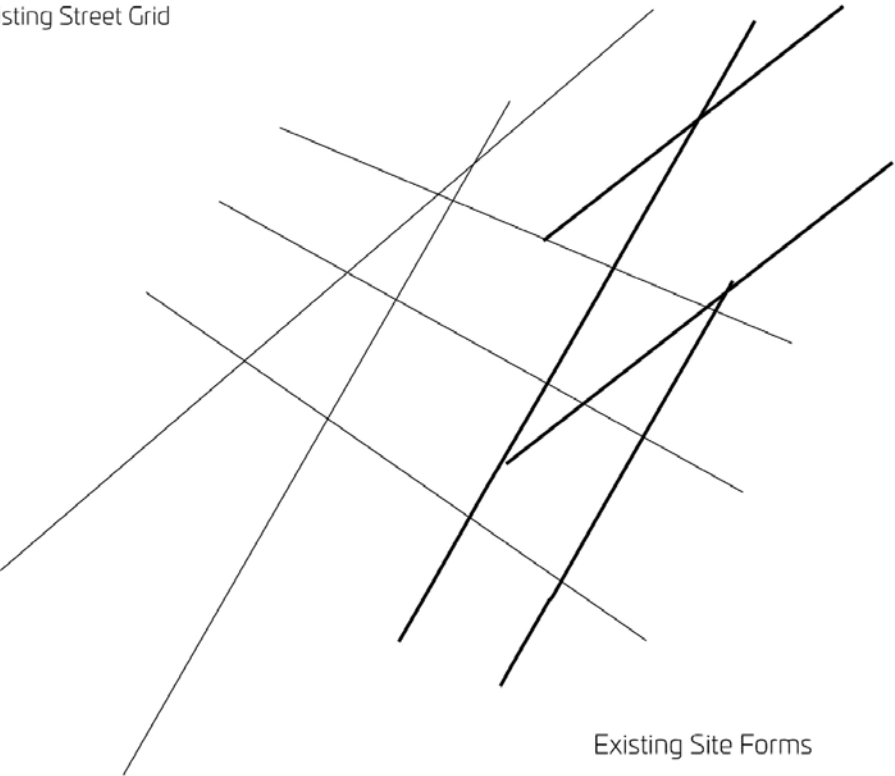
Remisparken  
Copenhagen, Denmark



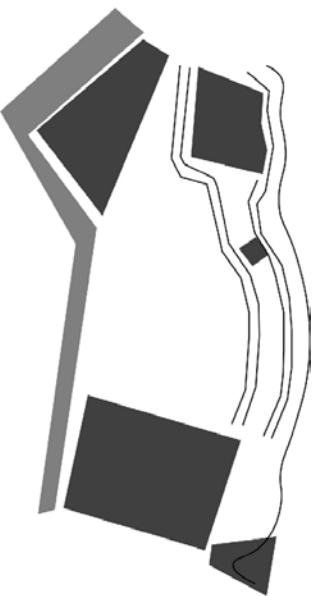


# EXISTING AND CONTEXTUAL SITE FORMS

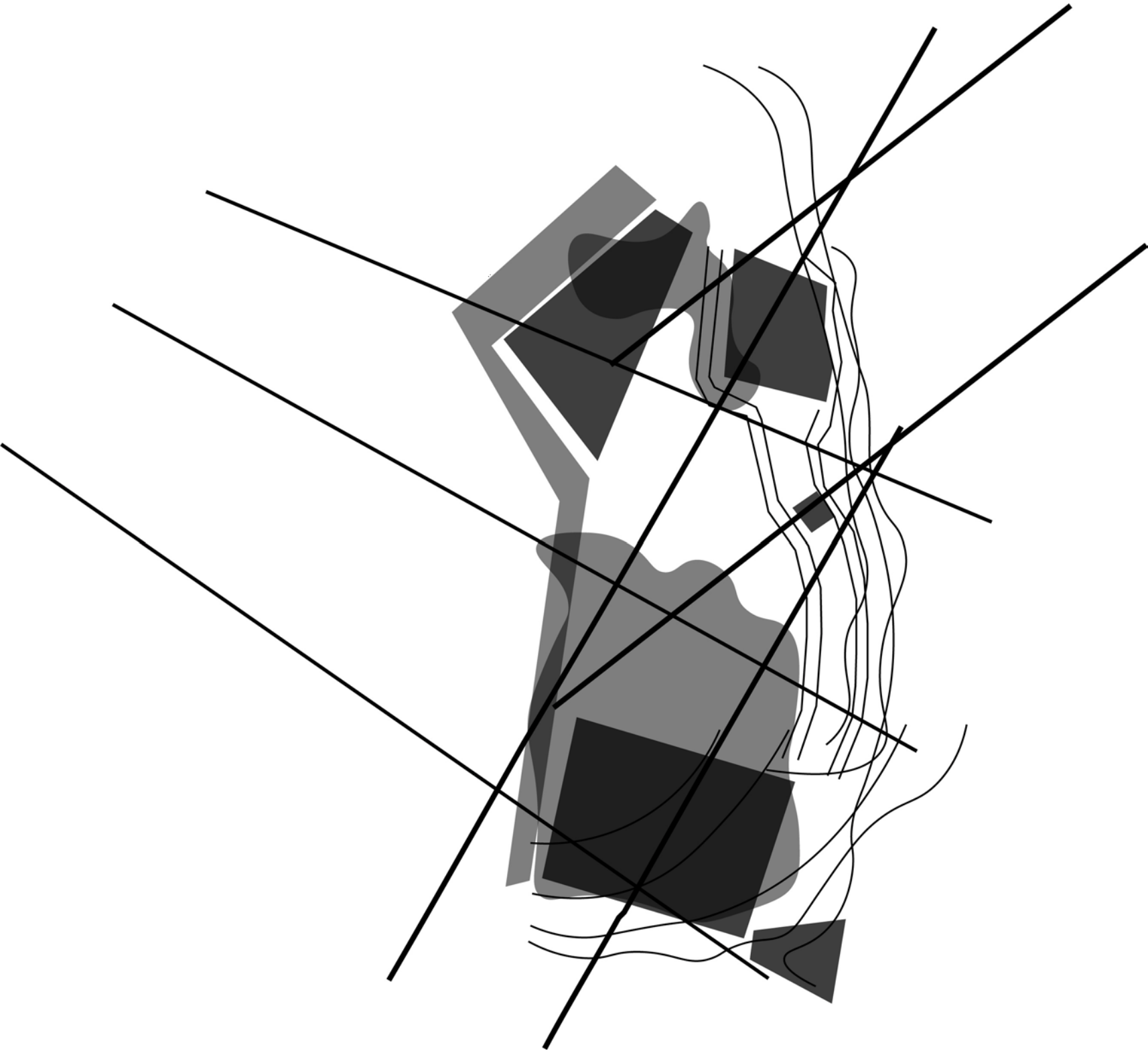
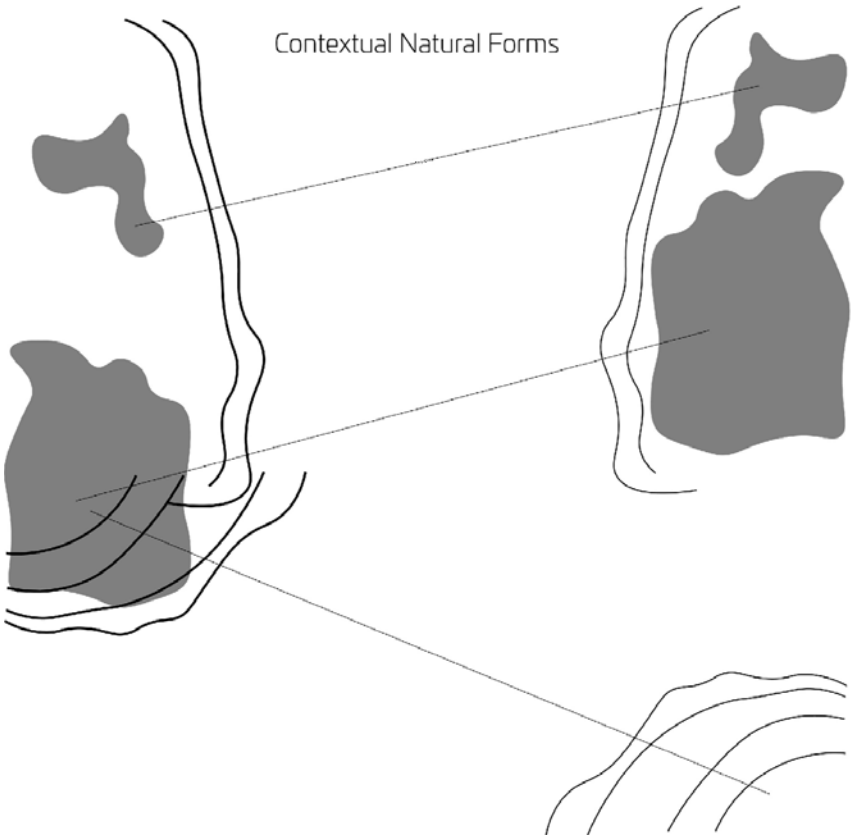
Existing Street Grid



Existing Site Forms



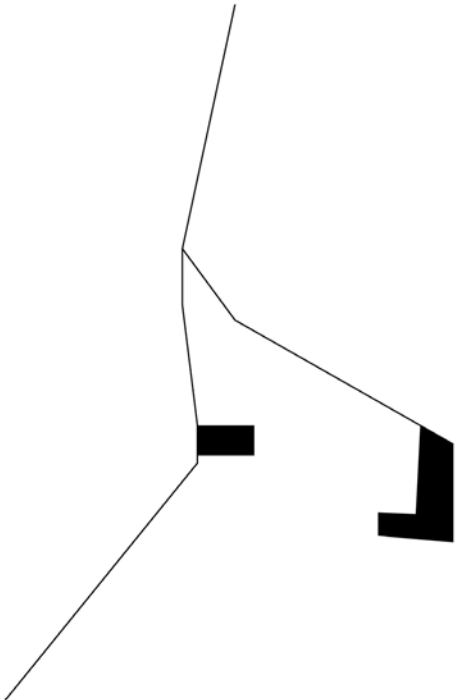
Contextual Natural Forms





# HISTORIC SITE FORMS

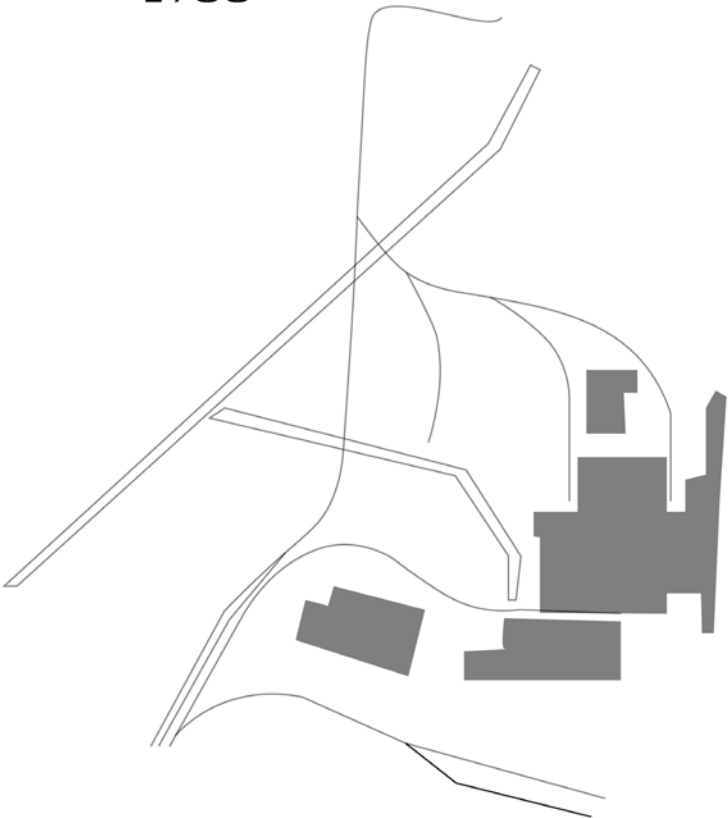
1900



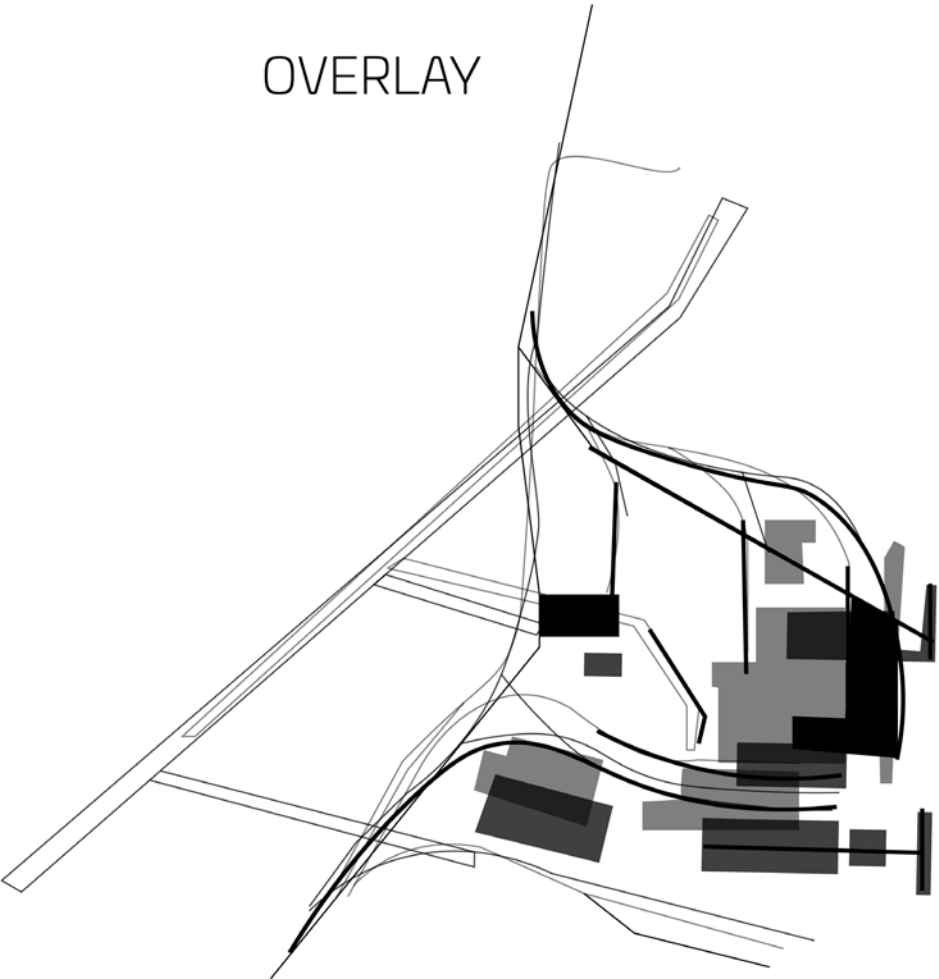
1947



1966

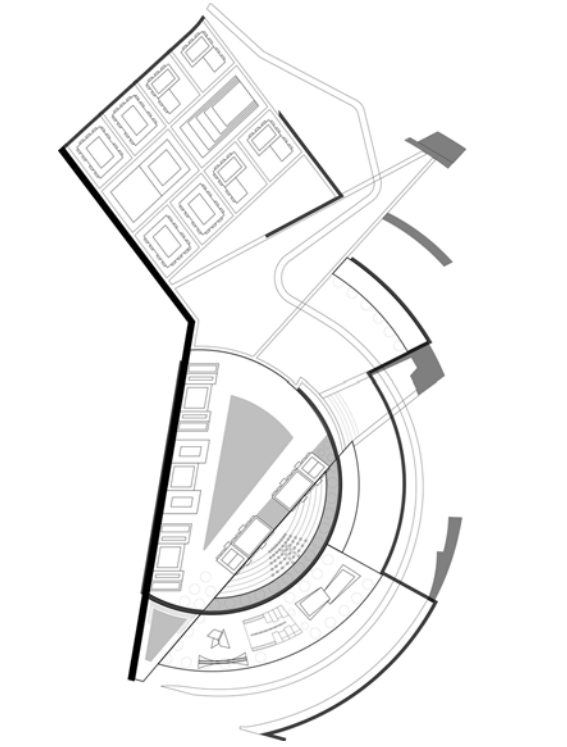
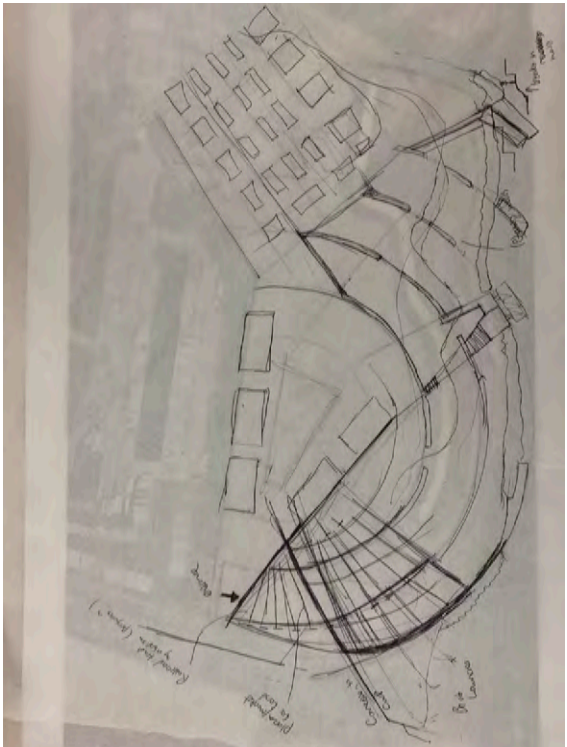
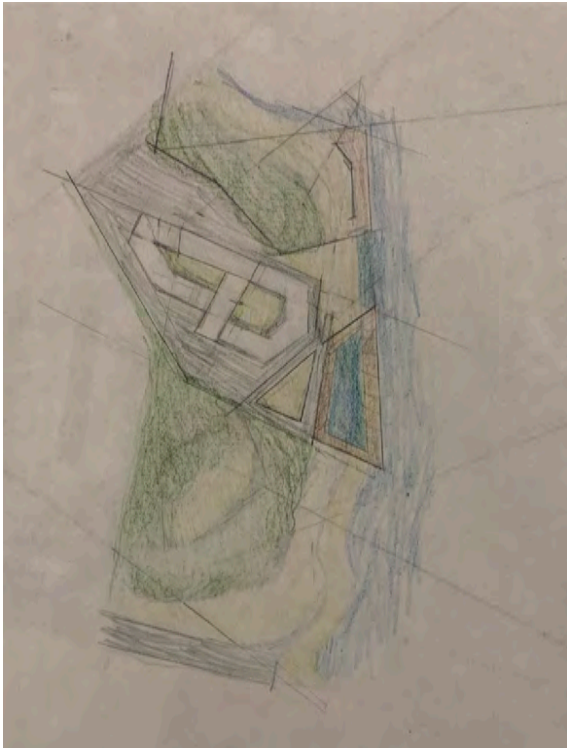
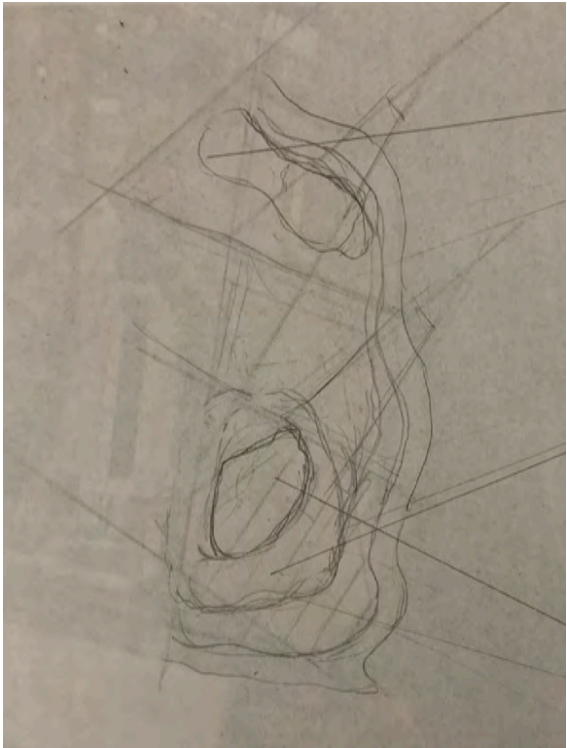
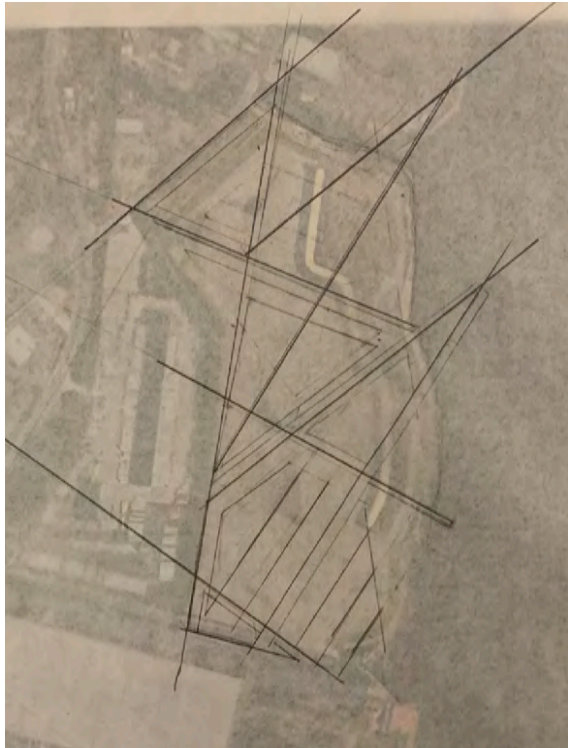


OVERLAY



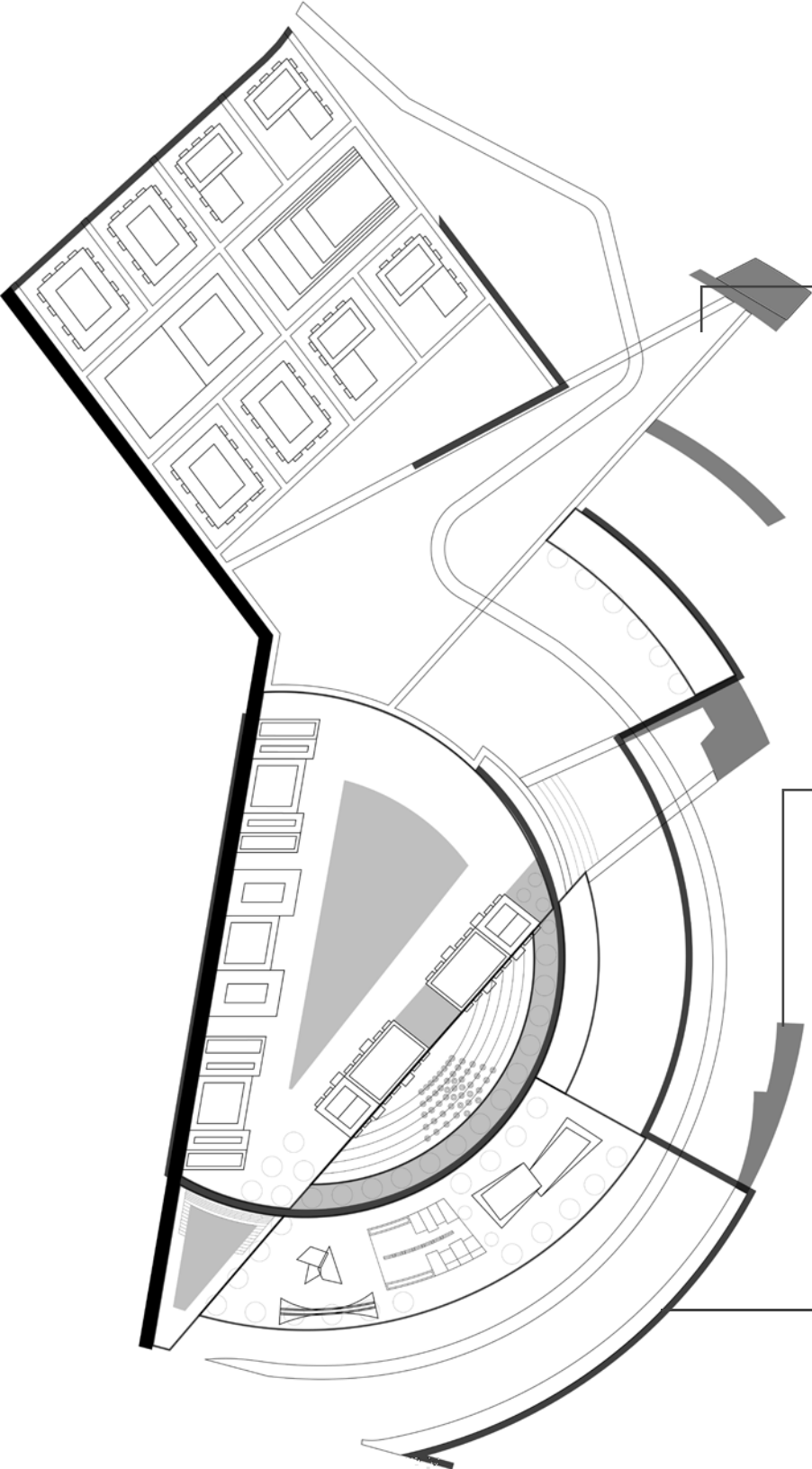


# FORM ITERATION AND EXPERIMENTATION



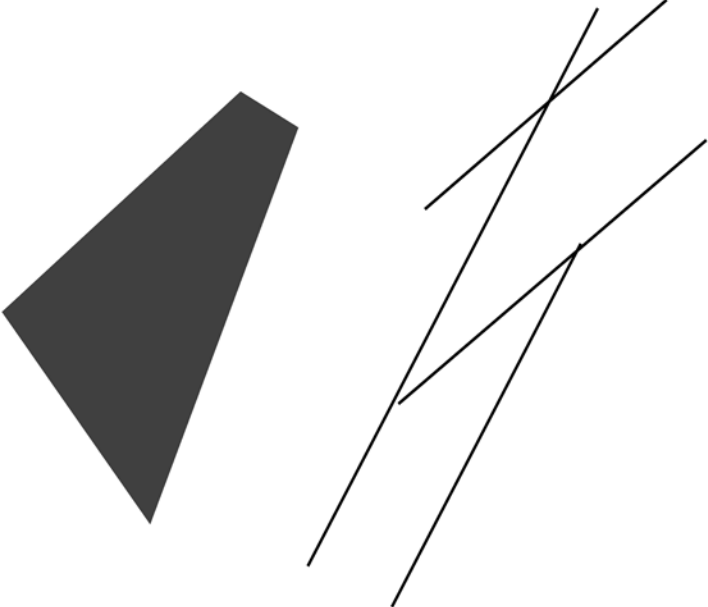


# BREAKING DOWN THE FINAL FORM



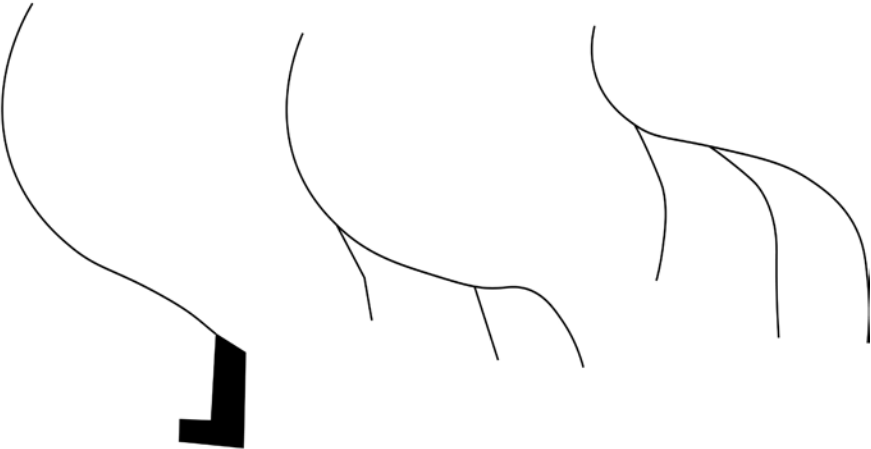
Triangular Forms

Street Grid and Existing Site Forms



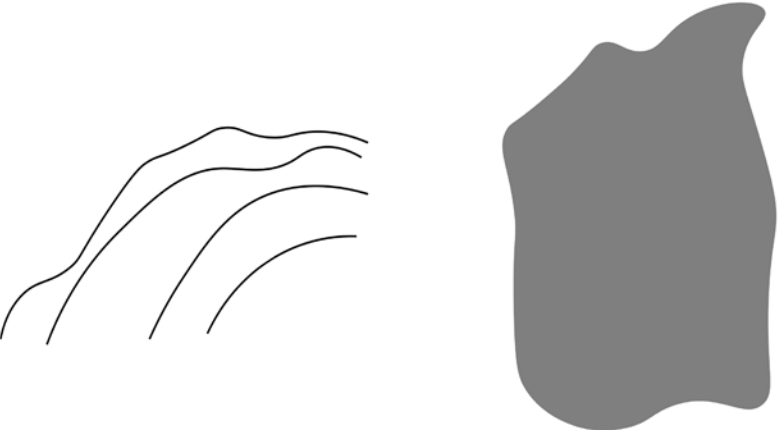
“Fingers” or Guerneys

Historic Forms - Railroad Lines



Radial Mound Forms

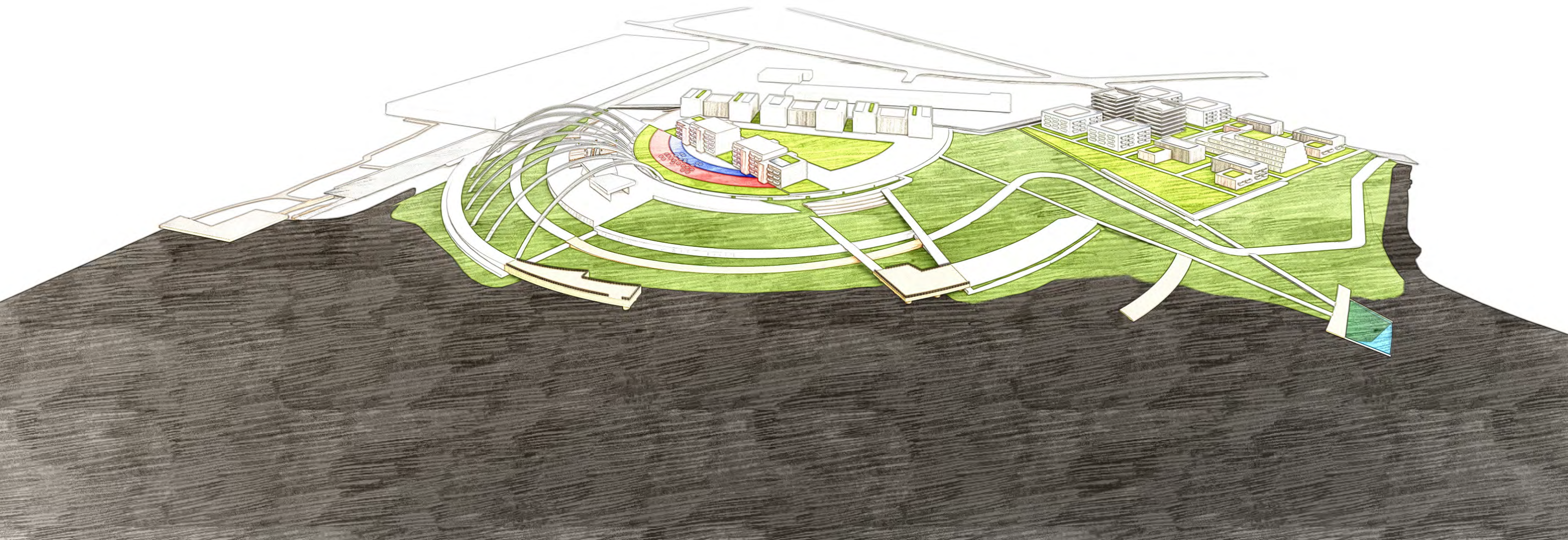
Contextual Land Forms





# 06 SITE DESIGN

PLANNING FOR THE FUTURE





# FINAL DESIGN

RESIDENTIAL COMMUNITY

RIVER WALK

WATERFRONT PARK

FERRY STOP

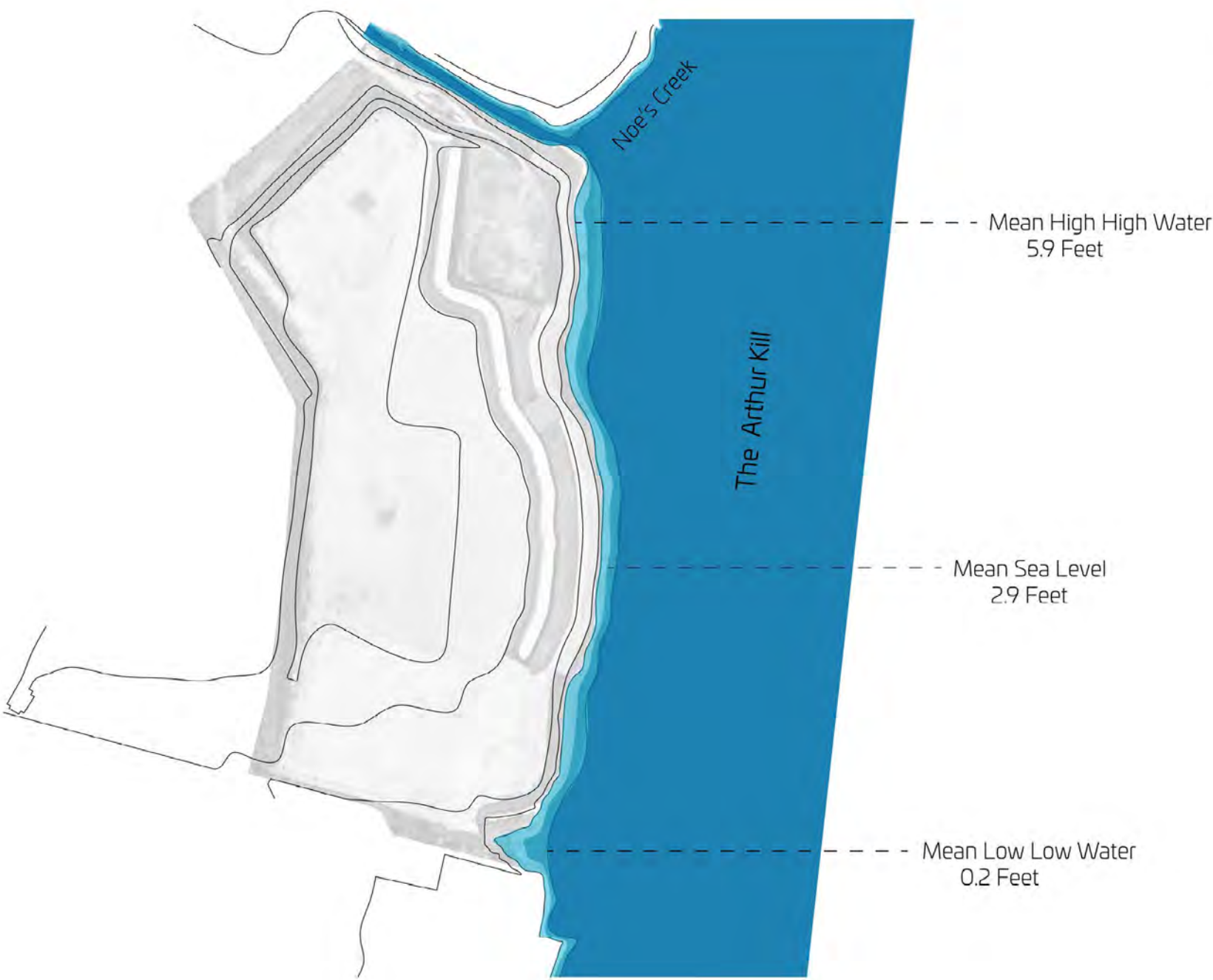
STREET MARKET PLAZA



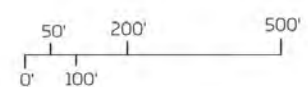
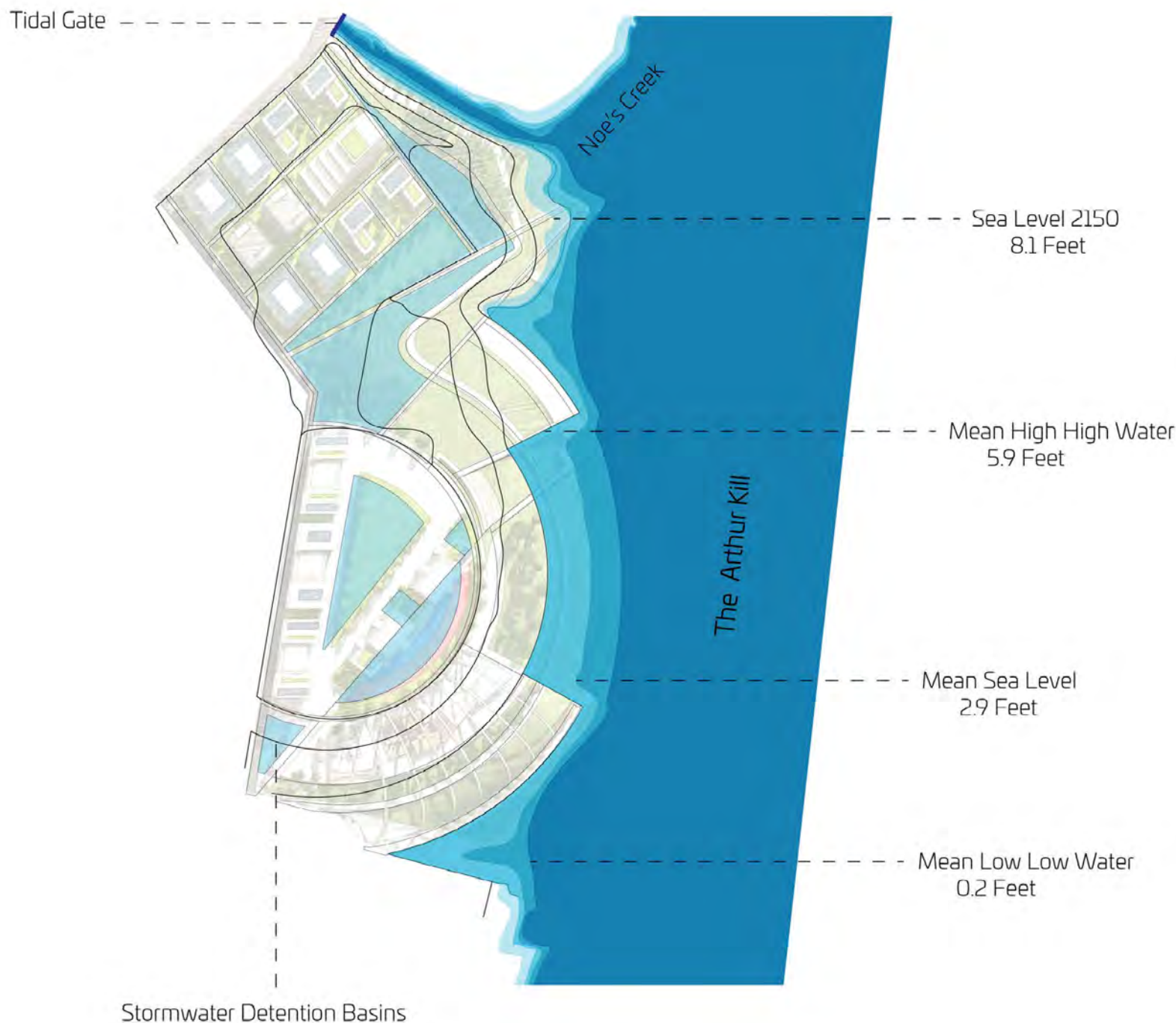


# STORMWATER MANAGEMENT AND COASTAL RESILIENCY

Existing Conditions



Proposed Design





# PROPOSED CIRCULATION

IMPROVE INTERSECTION





# CASE STUDIES - CONCEPT AND PROGRAMMING

## RIVERWALKS AND WATERFRONT PARKS



DONAUINSEL, VIENNA



HVIDOVRE STRANDPARK, COPENHAGEN



KALVEBOD BØLGE, COPENHAGEN





# CASE STUDIES - CONCEPT AND PROGRAMMING

## RESIDENTIAL LIFE AND STREET MARKETS



COPENHAGEN UNIVERSITY, COPENHAGEN



SEESTADT, VIENNA



MOL CAMPUS, BUDAPEST



SZIMPLA KERT, BUDAPEST



DONAU CANAL, VIENNA



REFFEN, COPENHAGEN



# RIVER WALK EXTENSION

## BUILDING OUT A GREENWAY SYSTEM



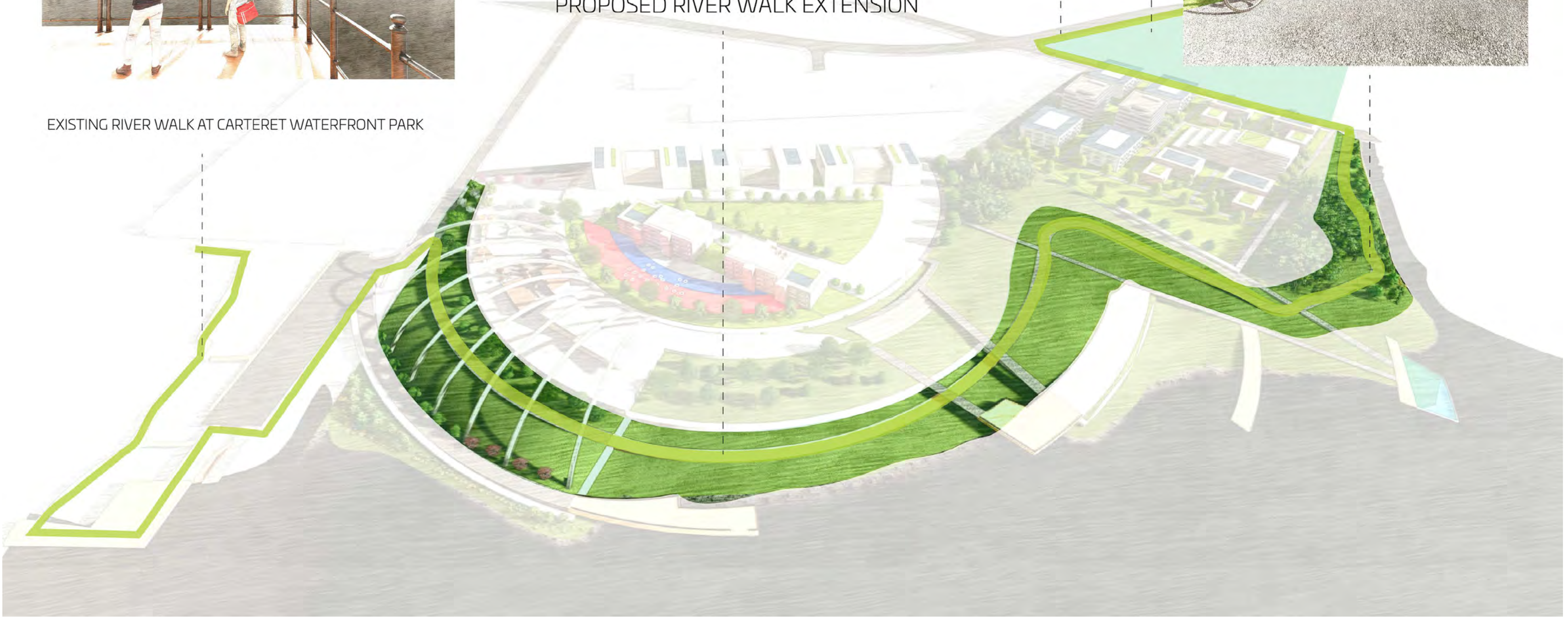
EXISTING RIVER WALK AT CARTERET WATERFRONT PARK



PROPOSED RIVER WALK EXTENSION

CONNECTION TO CIVIC CENTER PARK

CARTERET RECYCLING DEPARTMENT





# RESIDENTIAL LIFE



FERRY STOP FOR PUBLIC TRANSIT



PARKING TOWERS



OPEN COMMUNAL YARDS



ROOFTOP DECKS

MULTI-USE OPEN SPACE

SOLAR PANELS

GREEN ROOFS

## QUICK FACTS ABOUT DEVELOPMENT

504 UNITS AT 1,000 SQUARE FEET PER UNIT

HOUSING FOR 1,000 - 2,000 PEOPLE

1 PARKING SPOT PER UNIT

504 TOTAL PARKING SPOTS

PUBLIC TRANSIT TO NYC





# A PUBLIC WATERFRONT PARK

EXPANDING THE ACCESSIBLE COASTLINE



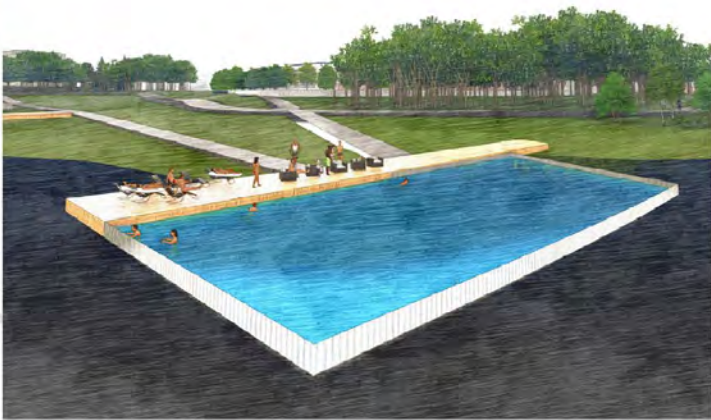
A GRAND ENTRANCE



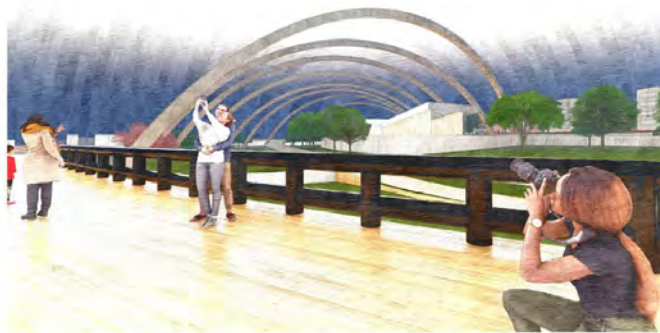
A CULTURALLY RICH MARKETPLACE



NPK SPLASH PARK



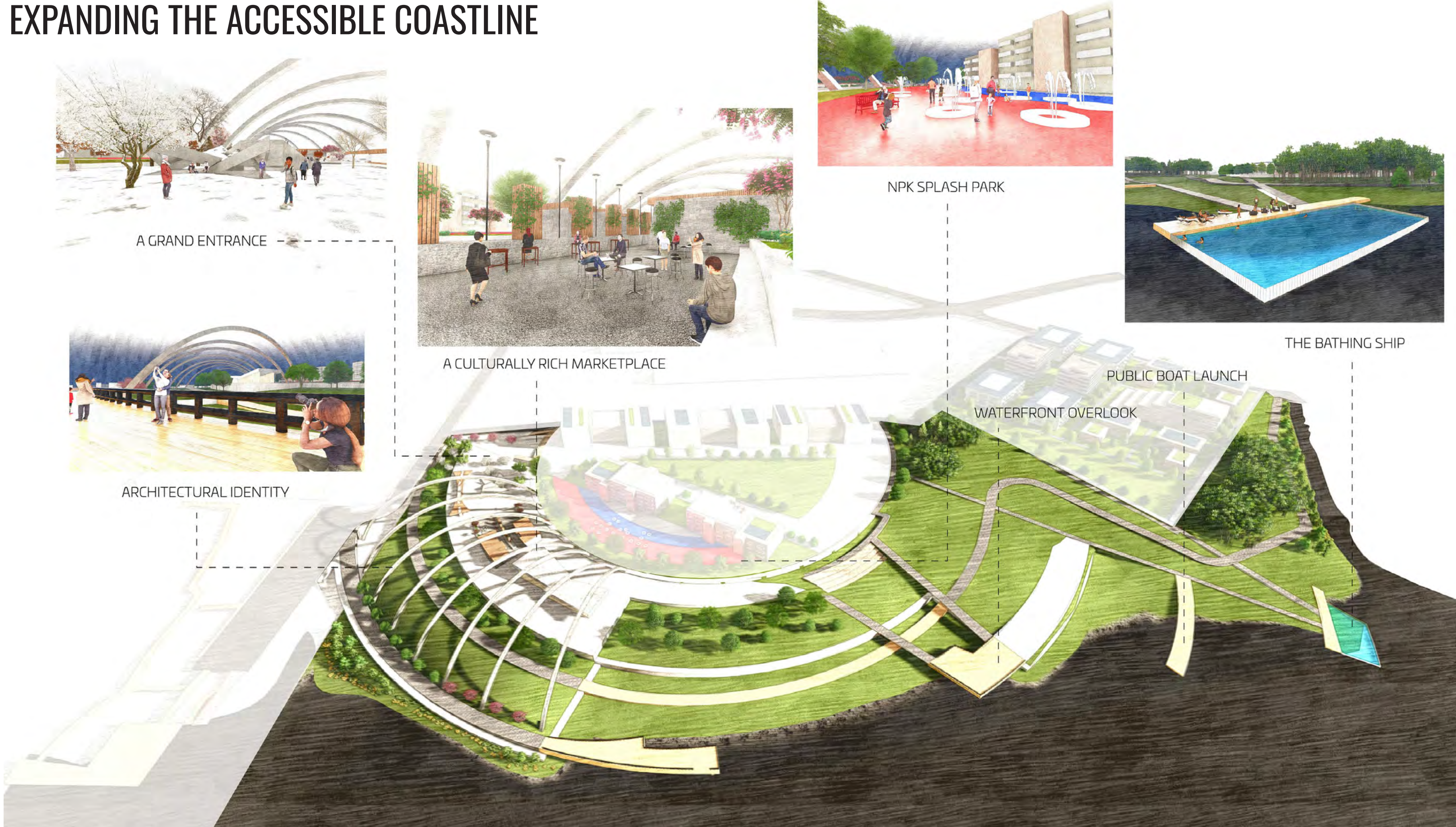
THE BATHING SHIP



ARCHITECTURAL IDENTITY

WATERFRONT OVERLOOK

PUBLIC BOAT LAUNCH





**EXPANDING CARTERET'S ACCESSIBLE WATERFRONT**  
**NEW LIFE ON THE BANKS OF THE ARTHUR KILL**

