

# Building Circular Economies in New York City's Industrial Business Zones

---

Eliza Ezrapour

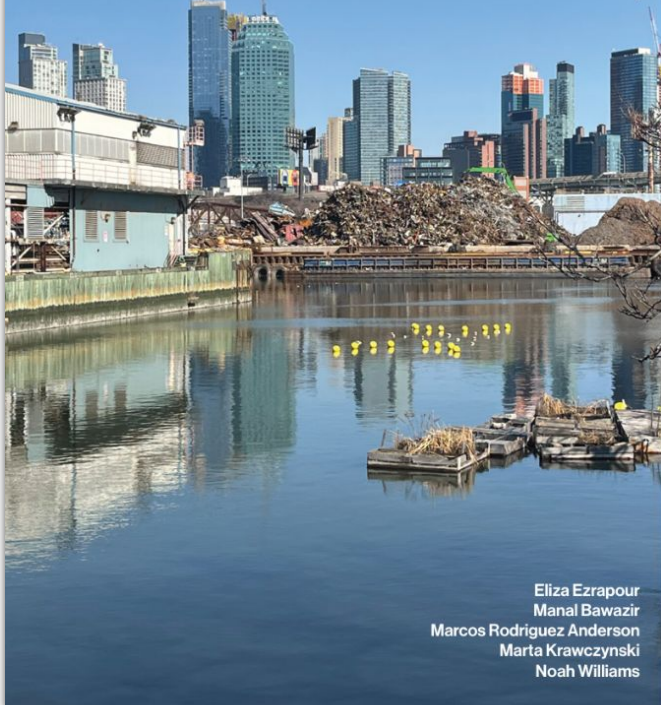
***Manal Bawazir***

Marcos Rodriguez Anderson

***Marta Krawczynski***

***Noah Williams***

# Building Circular Economies in New York City's Industrial Business Zones



Eliza Ezrapour  
Manal Bawazir  
Marcos Rodriguez Anderson  
Marta Krawczynski  
Noah Williams

## TABLE OF CONTENTS

I

Objectives

II

Key Questions

III

Challenges

IV

Research Methodologies

V

Findings

VI

Strategies & Recommendation

VII

Siting Analysis

VIII

Questions

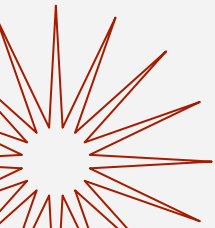


# Project Objectives

---

The objective of the project is to provide support to Town+Gown: NYC in researching and analyzing the viability of Industrial Business Zones as the foundations of local circular economics for construction and demolition waste (CDW).

The Capstone Team is conducting research on five IBZs to provide recommendations that will address the following key questions:

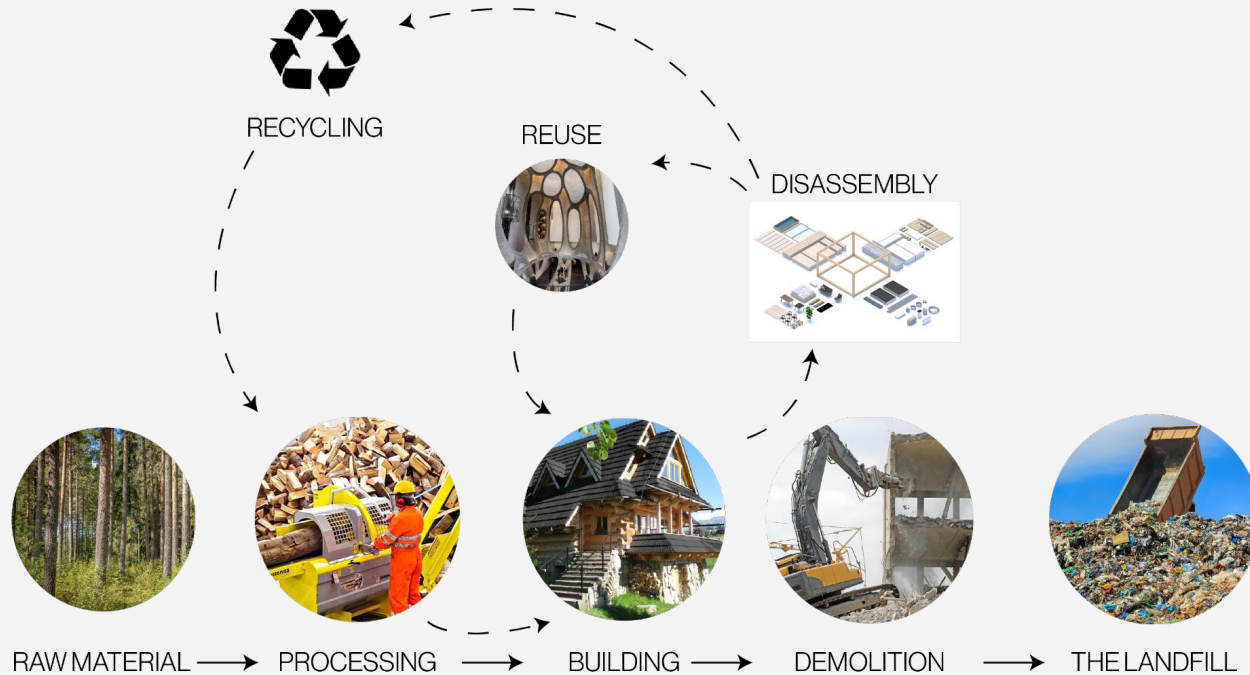


# Key Questions

- What are the current **environmental, socio-economic, and spatial conditions** in the industrial business zones?
  - Which **firms within the IBZs** could effectively participate in a local CDW economy?
  - Is **current land use** compatible with **new interim processing facilities** and if so what **incentives** exist to promote a circular CDW economy?
  - What would be the likely **employment growth generated by local CDW economies?**
  - What, if any, are the **potential negative effects of a local CDW economy** on nearby residents?
-

# Linear Economy → Circular Economy

Rethinking the “take, make, dispose” model

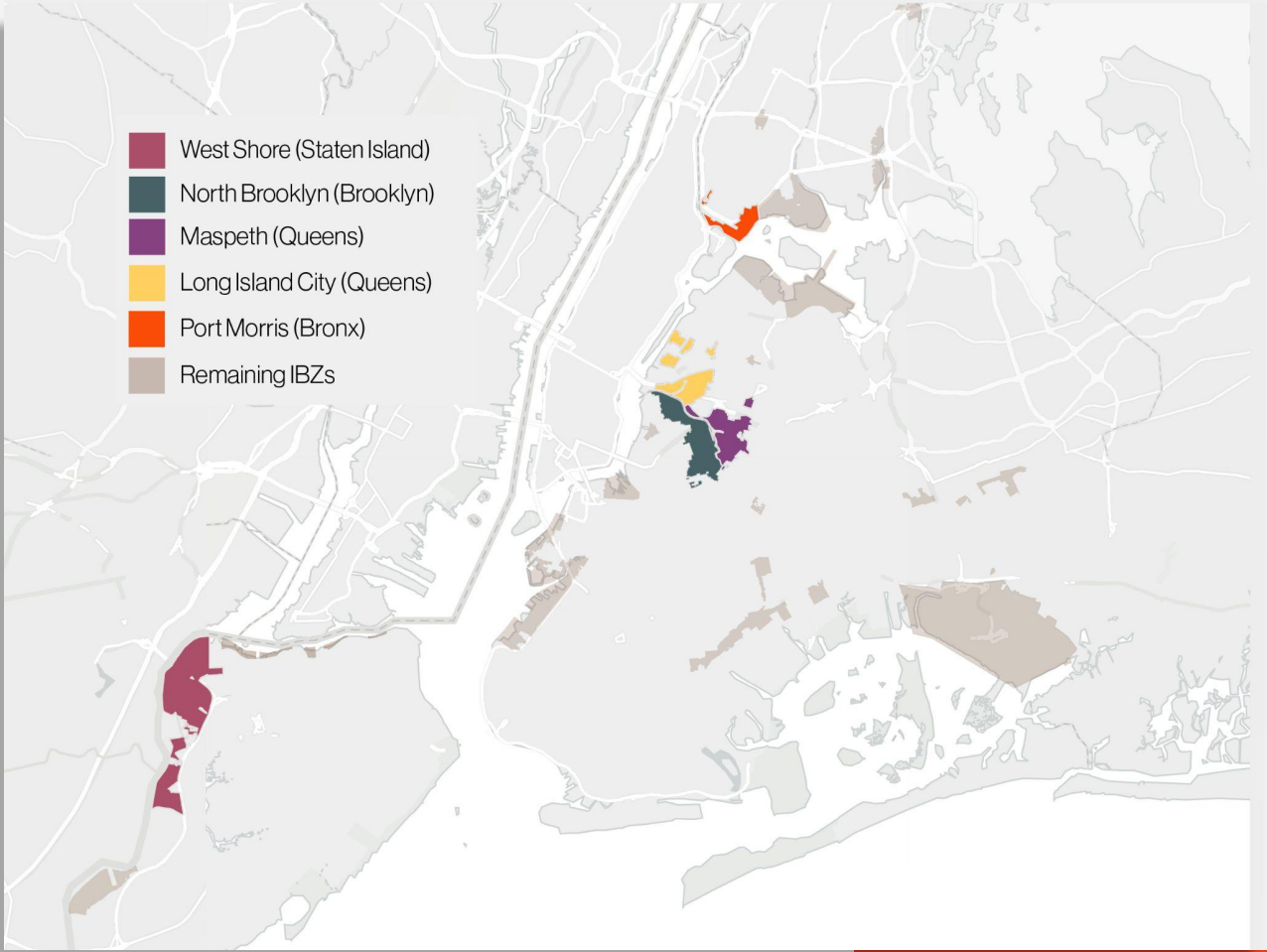


# Research Methodologies

- *Preliminary Analysis of NYC's 21 Industrial Business Zone (IBZ)*
  - C+D Transfer Stations Presence
  - Environmental Conditions
  - Transportation Infrastructure
  - Zoning + Land Use
- *Literature Review*
  - Circular Economy
  - Urban Resource Recovery
  - Local Incentives
  - Land use, zoning, and policy
- *Stakeholder Outreach*
  - Interviews with experts
  - CDW Businesses Survey
- *Site Visits and Field Survey*
- *Data Collection & Analysis*



# Industrial Business Zones Chosen for Case Studies



# Circular Economy Precedents

**Local:** **CLCPI** recommended the implementation of a virtual real-time CDW matching digital platform

**Country-Wide:** **US BCSD** connects businesses and organizations through its Materials Marketplace

**Abroad:** Material tracking and exchange in the **European Union**

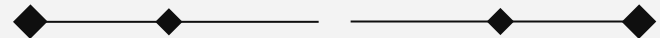
- CIRCult report
- European Circular Economy Stakeholder Platform



## Materials Passports

- 2015 EU Action Plan for the Circular Economy
- EU Buildings as Material Banks Project (BAMP)
- Underdeveloped in US

# Findings



# Qualitative Responses

Industry  
Landscape

Incentives for  
CDW Recovery

Key Stakeholders

Workforce  
Opportunities

# Industry Landscape

## Interim Processing Facilities

- Hotels and self-storage facilities are limited
- Distribution centers are encouraged
- Require at least 1.5 Acres of land
- Must be away from residential uses and close to transportation infrastructure
- Requires critical mass of CDW materials

## Project Development Timeline

- Each public agency has its own CDW management practice
- Public infrastructure project mandate recycling rate
- Sorting materials must be planned in every phase of the project

## CDW Materials

- Materials ability to travel and avoid contamination
- Recycling materials vs. advancements in metal and cement manufacturing
- OER Soil Bank

# Existing Incentives and Mandates

Programs	Description	Agencies
<b>Build NYC</b>	Offers tax exempt bond financing to help fund real estate and operation costs.	NYCEDC
<b>New York City Industrial Development Agency (NYCIDA)</b>	Supports business relocation and expansion by lowering the cost of capital investments.	NYCEDC
<b>IBZ Relocation Credit</b>	Provides a tax credit of \$1,000 per employee available to manufacturing firms relocating to an IBZ.	SBS
<b>Relocation Employment Assistance Program (REAP)</b>	Awards tax credits for businesses relocating to designated locations in the outer boroughs or uptown from lower Manhattan.	DOF



careers  
businesses  
neighborhoods



# Existing Incentives and Mandates

Programs	Description	Agencies
<b>Leadership in Energy and Environmental Design (LEED)</b>	Requires low energy intensity designations for substantial building improvements and new constructions.	OEC
<b>Internal Agency Practices</b>	NYC agencies have applied strategies to increase CDW recovery for decades.	DDC



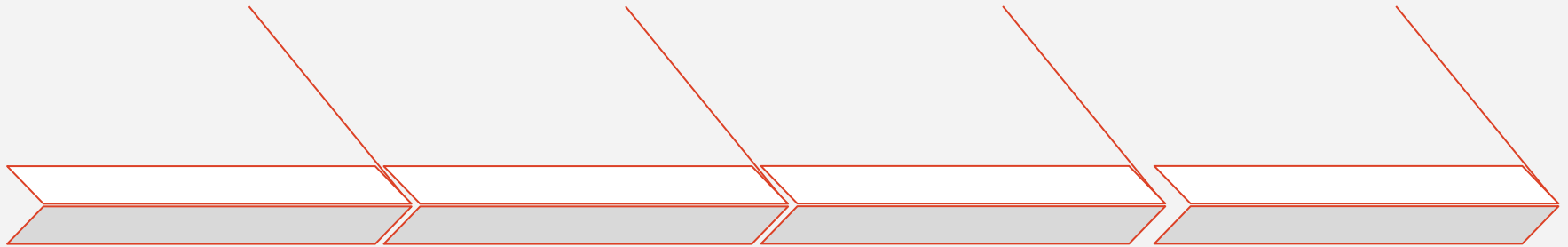
# Key Stakeholders

City Officials

Developers

Contractors

Waste Transfer Stations



Develop policy governing:

- Construction practices
- Emissions standards
- Land use & zoning

Envision projects on the basis of City policy & create industry practices

Compete for bids on the basis of cost & quality

Recycle or send CDW to landfill based on cost, driven by end market & volume of material

*Our recommendations*

# Workforce Opportunities

Workforce  
Development  
could occur at  
every stage of the  
process

Carting

Construction

Demolition

Environmental salvage

Transfer Facilities

Transport



# Strategies ➤ Recommendations

Construct new CDW recovery and reuse facilities within the IBZs.

Expand existing mandates & incentives for CDW recovery.

Strengthen third-party oversight of CDW recycling reporting.

Knowledge sharing network and materials exchange in IBZs.

Pilot a materials passport program in the IBZs.

Pursue a zoning text amendment to protect CDW recovery and reuse activities in industrial zones.

Develop a framework for measuring outcomes.

Construct new CDW recovery and reuse facilities within the IBZs

***NYC should facilitate the siting of two tiers of CDW processing & storage facilities:***

Full scale CDW recycling facilities on the scale of Cooper Transfer Station.

Small-scale material hubs that can act as short-term depots serving local businesses and other end users of recovered materials.

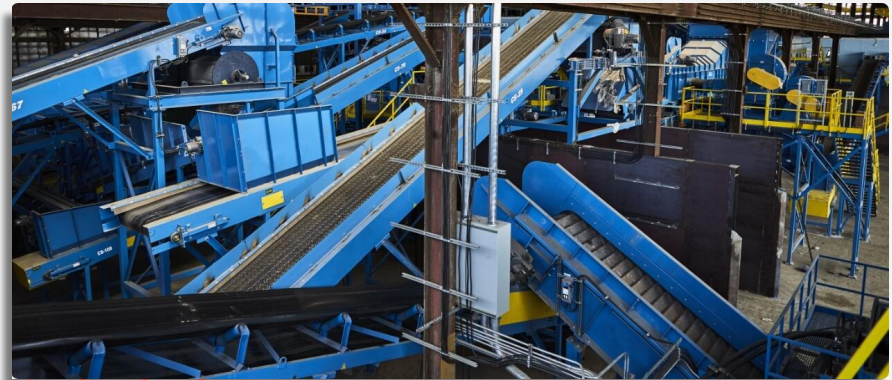


Image Source: Cooper Recycling



# Expand existing mandates & incentives for CDW recovery.

	Current Function	Expanded Function
<b>The New York City Industrial Development Agency (NYCIDA)</b>	NYCIDA provides property tax incentives to owners providing an industrial service deemed beneficial to the City.	NYCIDA could be expanded to include direct incentives for private firms investing in the development of new CDW processing facilities or construction companies that are actively partaking in CDW recovery.
<b>Build NYC</b>	Build NYC offers tax exempt bond financing for registered 501(c)(3) applicants and developers constructing tax exempt facilities.	Include the development of facilities participating in a local circular CDW economy in the list of tax exempt uses.
<b>IBZ Relocation Credit and Relocation Employment Assistance Program (REAP)</b>	IBZ Relocation Credit & REAP provide a per employee tax credit and income tax credits, respectively, for businesses that relocate to industrial areas.	Expansion of these programs could include increased financial benefits for firms that are participating in CDW recovery.

## Strengthen third-party oversight of CDW recycling reporting.

While the RCI provides a framework for third-party oversight of CDW recycling, a more robust standard for recycling rate reporting is necessary to ensure that CDW regulatory thresholds are met

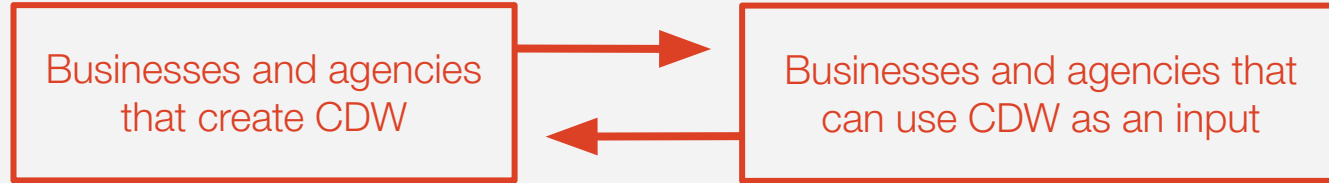


New York City should require that all recycling rates for CDW be substantiated by independent third-party evaluators.



# Knowledge sharing network and materials exchange in IBZs.

- Identified need for a critical mass of CDW materials and end users
- Materials marketplace centered on the IBZs will facilitate the exchange of CDW



## ***This dedicated materials exchange would:***

- Reduce storage times of materials and allow for less acreage devoted to storage
- Encourage synergy between heavy industry and recycled manufacturing
- Divert materials from landfill to productive alternative uses



## Pilot a materials passport program in the IBZs.



City-Wide Platform for CDW that tracks materials on a focused scale, leveraging existing networks established by real-time materials exchange.



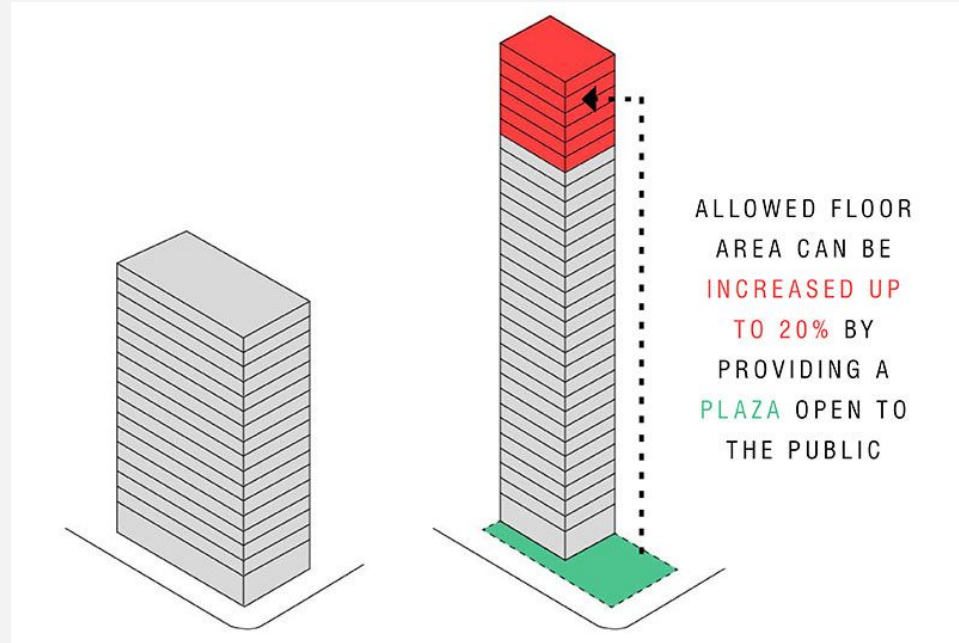
donate**NYC**



# Pursue a zoning text amendment to protect CDW recovery and reuse activities in industrial zones.

**Incentive zoning:** a tool that provides bonuses to developers in exchange for the provision of public amenities or benefits

**Privately Open Public Spaces (POPS):** a tool that allows for the creation of public spaces through the exchange of FAR bonuses or waivers between private owners and the city



## Develop a framework for measuring outcomes.







As these recommendations are implemented, Town+Gown should develop a framework to gauge the success of the various recommendations included in this report.

---





# Siting Classification

	Fully tax-exempt land	
Public <i>All Public Facilities</i>	City owned land	  
	Public Authority, State or Federal Government owned land	 
	Concrete and cement	26 (13%)
Private <i>Only CDW Related Facilities</i>	Fabricators and scrap metal	82 (42%)
	Recycling and garbage	52 (27%)
	Miscellaneous	33 (17%)
	<b>Total Privately Owned CDW Related Facilities</b>	<b>193 (100%)</b>

# Ideal Sites

## ***First Priority***

Government land

or

Tax exempt land

or

Vacant land

## ***Second Priority***

Truck route access

Easy land to redevelop such as parking lots,  
warehouses or fields

## ***Third Priority***

Public Transit

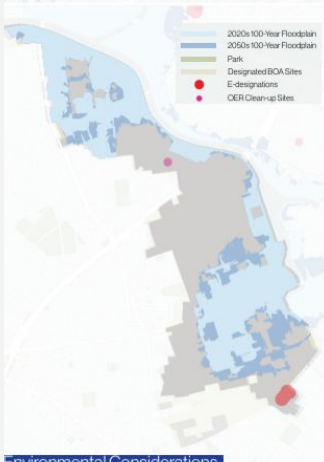
Freight line access

Water access

2+ acres of land



Owned by either a public authority or the state or federal government

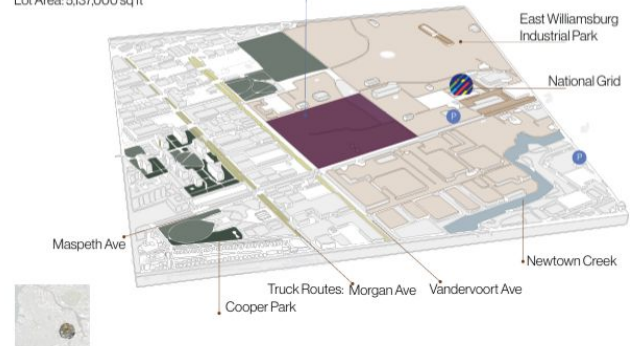


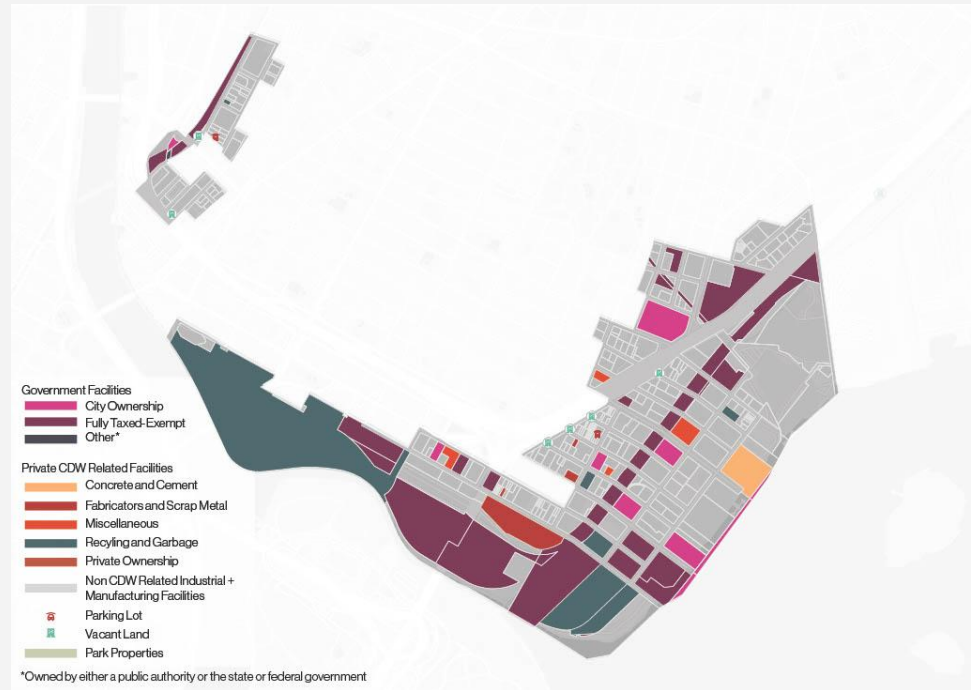
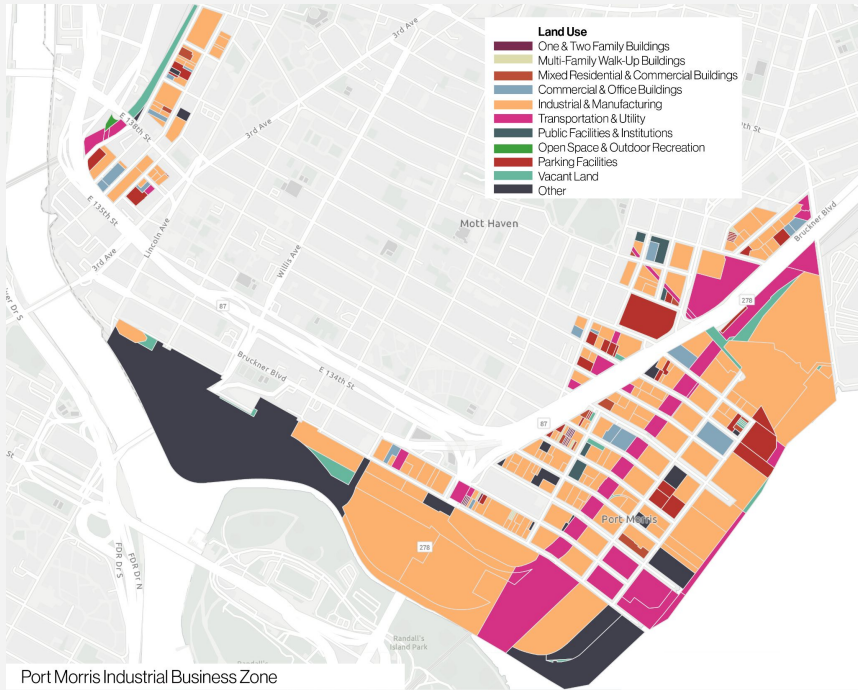
Site Analysis: North Brooklyn



Potential North Brooklyn Facility  
Cooper Fields  
Brooklyn (Borough 3) | Block 2837 | Lot 1

Owner Type: Mixed  
Owner: Brooklyn Union Gas Company  
Land Use: Transportation & Utility  
Lot Area: 5,137,000 sq ft

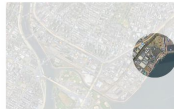
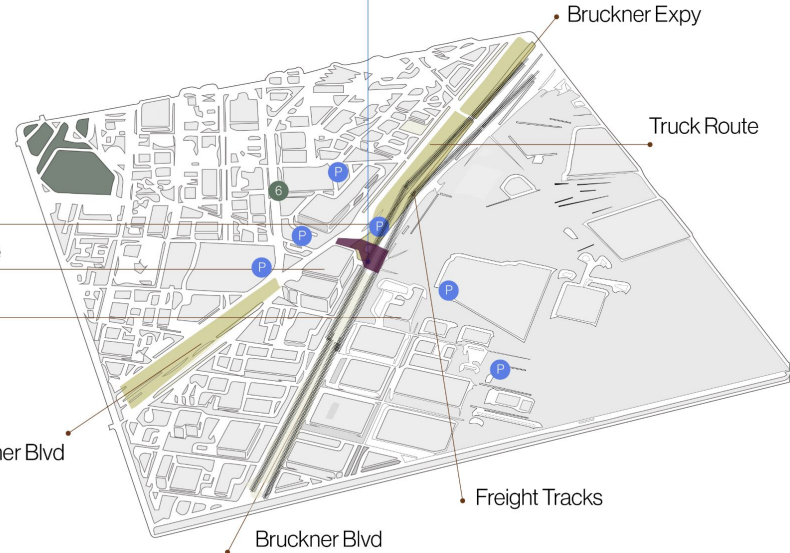
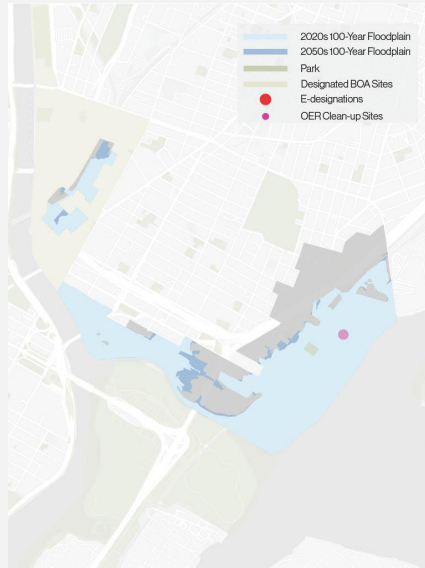




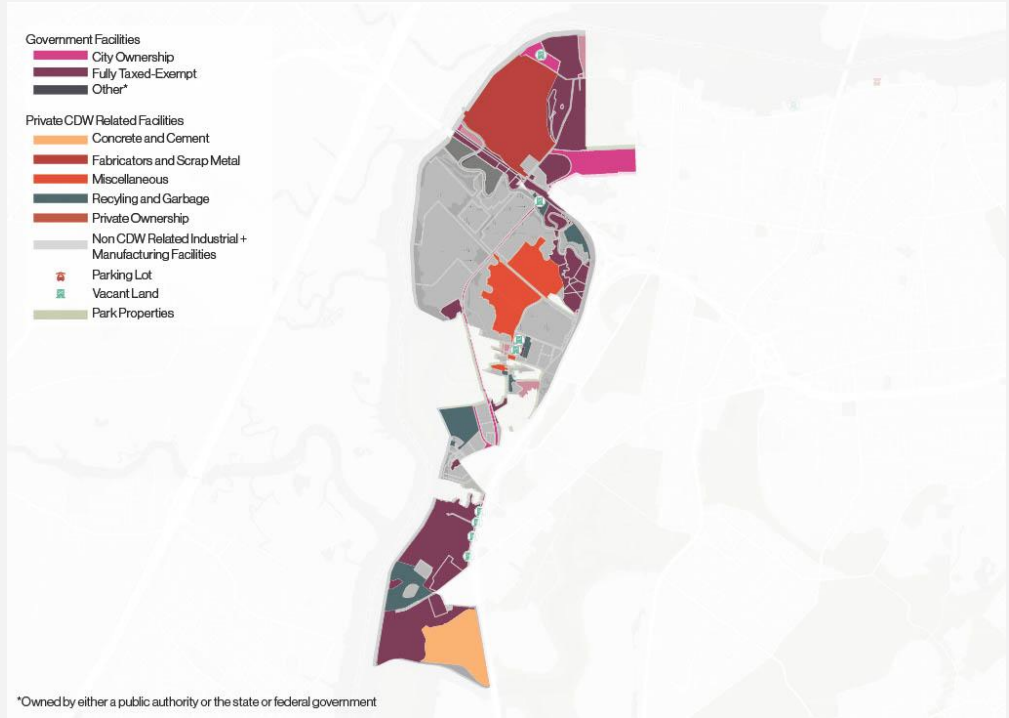
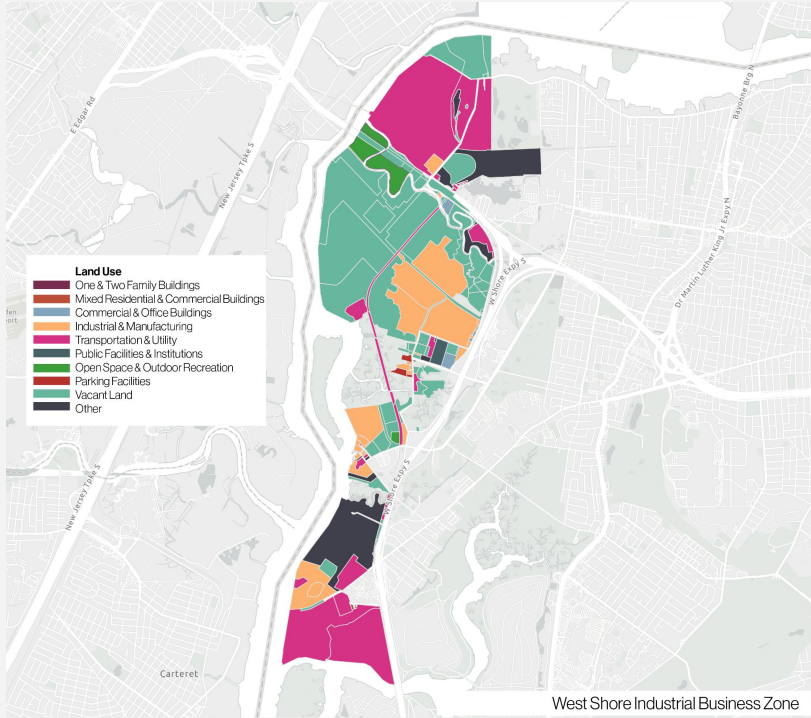
# Port Morris

Potential Port Morris Facility  
 Vacant Site between Port Morris and Hunts Point  
 Bronx (Borough 2) | Block 2599 | Lot 175

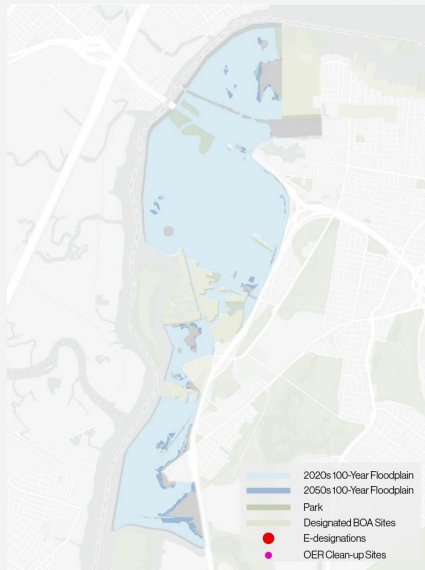
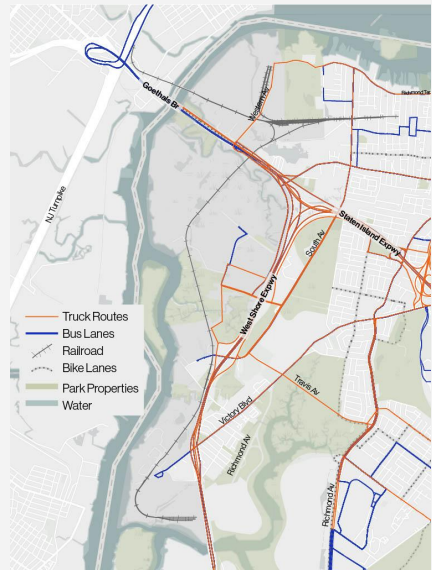
Owner: 980 BLC Owner LLC  
 Land Use: Vacant Land  
 Lot Area: 35,800 sq ft



Parking Space



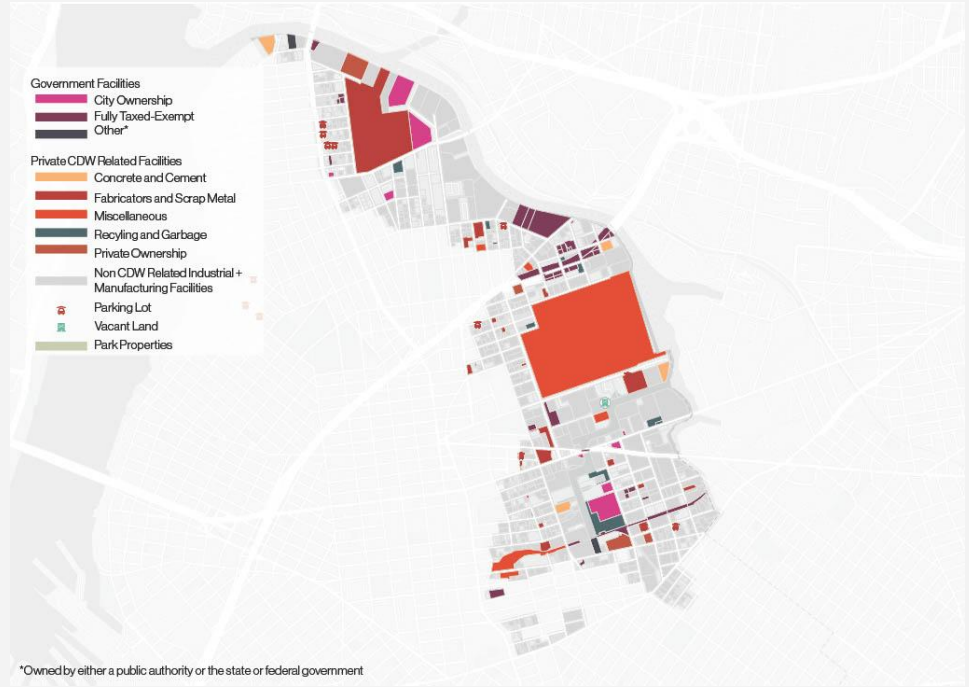
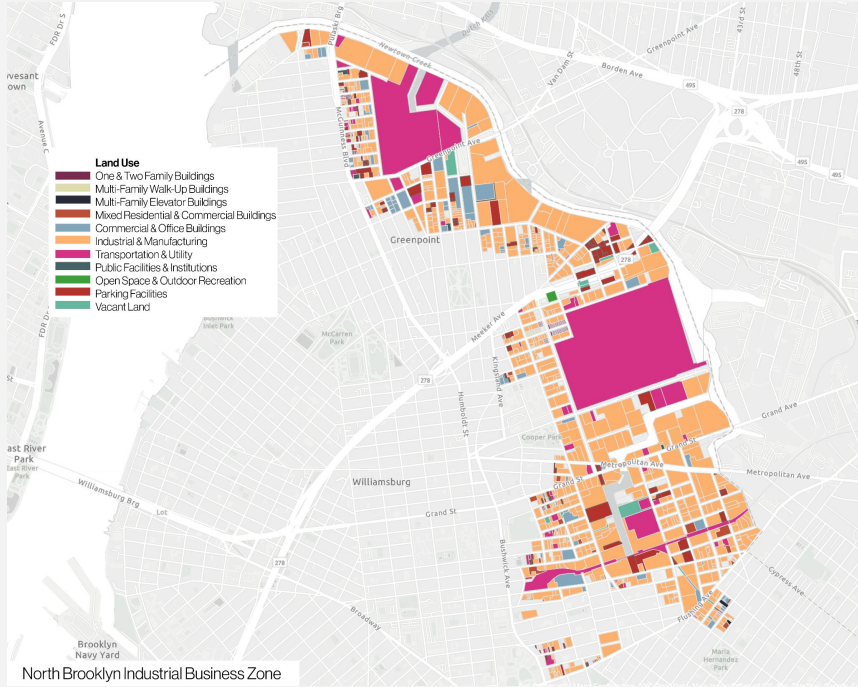
# West Shore



Potential West Shore Facility  
 Undeveloped land next to DSNY in West Shore  
 Staten Island (Borough 5) | Block 2705 | Lot 300

Owner Type: Mixed  
 Owner: Consolidated Edison COOF N.Y., INC.  
 Land Use: Transportation & Utility  
 Total Area: 4,425,876 sq ft



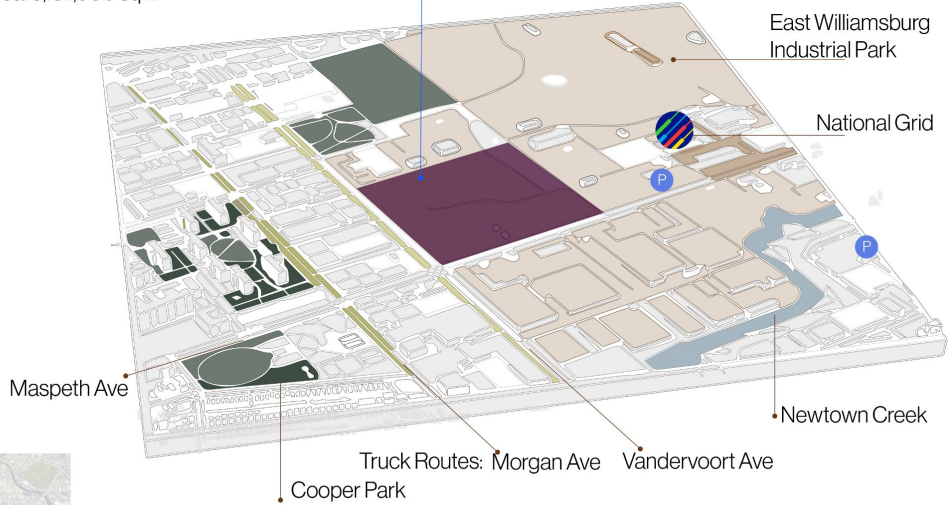
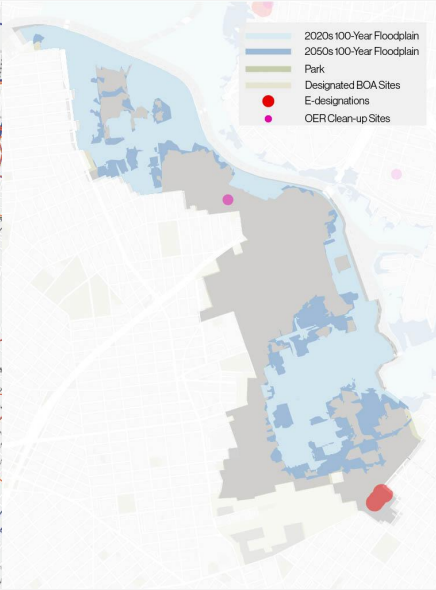
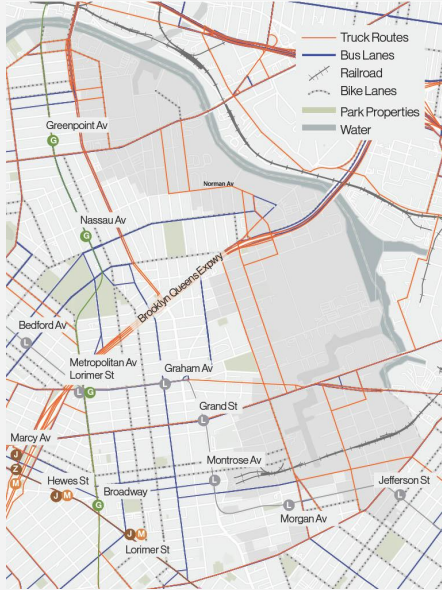


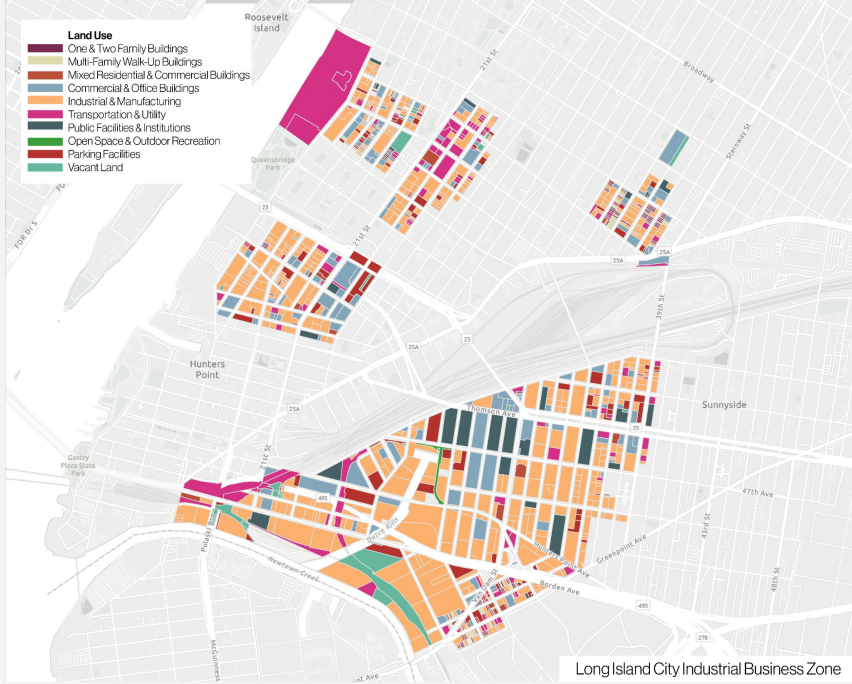
# North Brooklyn

Potential North Brooklyn Facility  
 Cooper Fields  
 Brooklyn (Borough 3) | Block 2837 | Lot 1

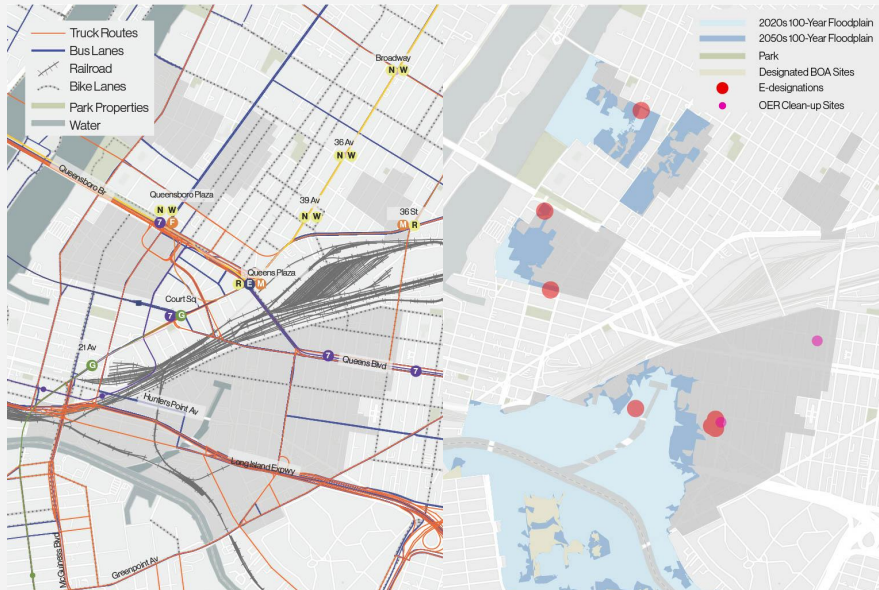


Owner Type: Mixed  
 Owner: Brooklyn Union Gas Company  
 Land Use: Transportation & Utility  
 Lot Area: 5,137,000 sq ft



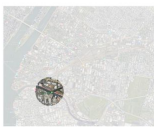
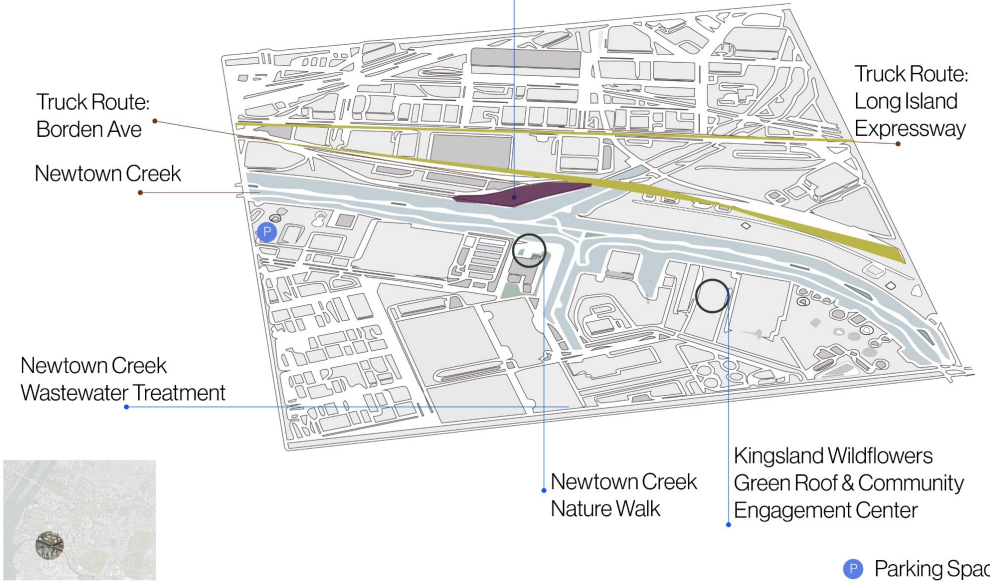


# Long Island City

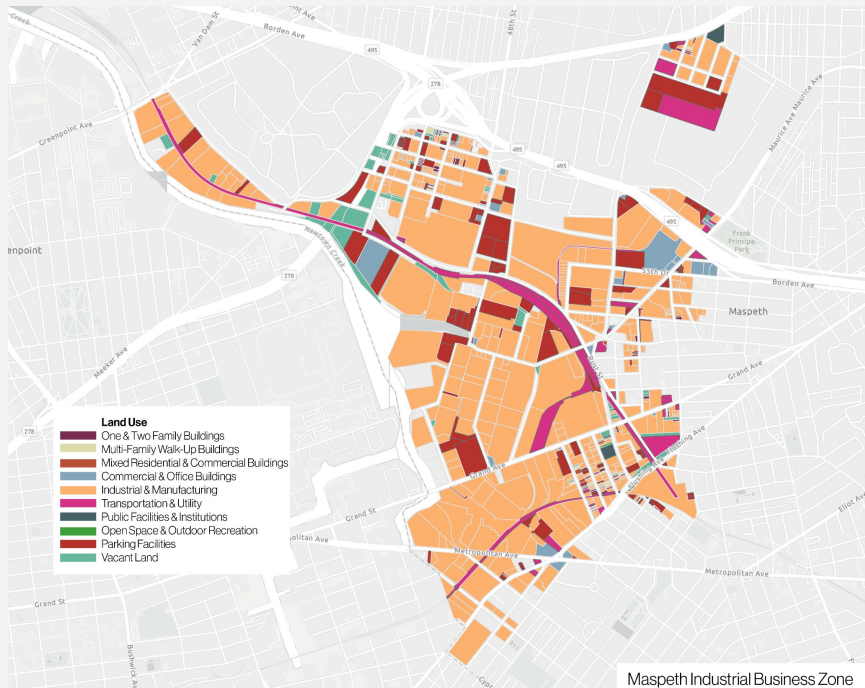


Potential Long Island City Facility  
 Underutilized MTA property in Long Island City  
 Queens (Borough 4) | Block 68 | Lot 150

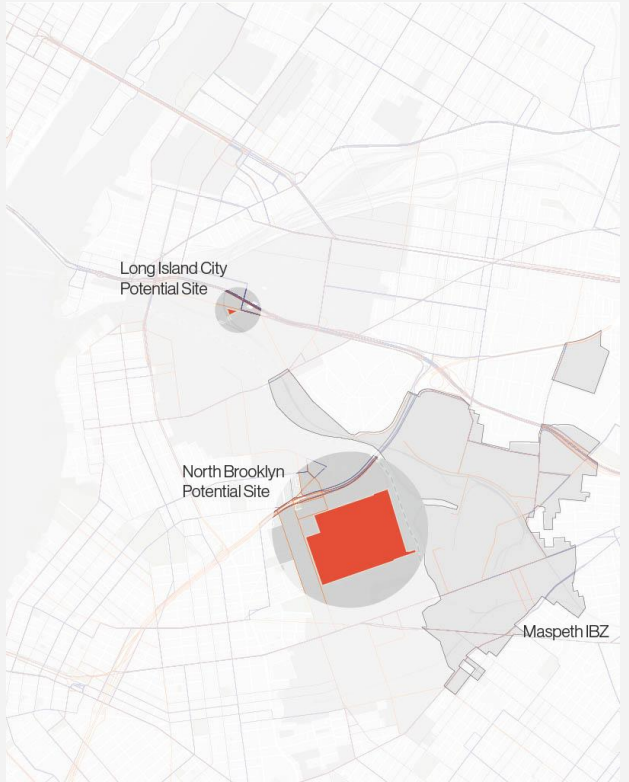
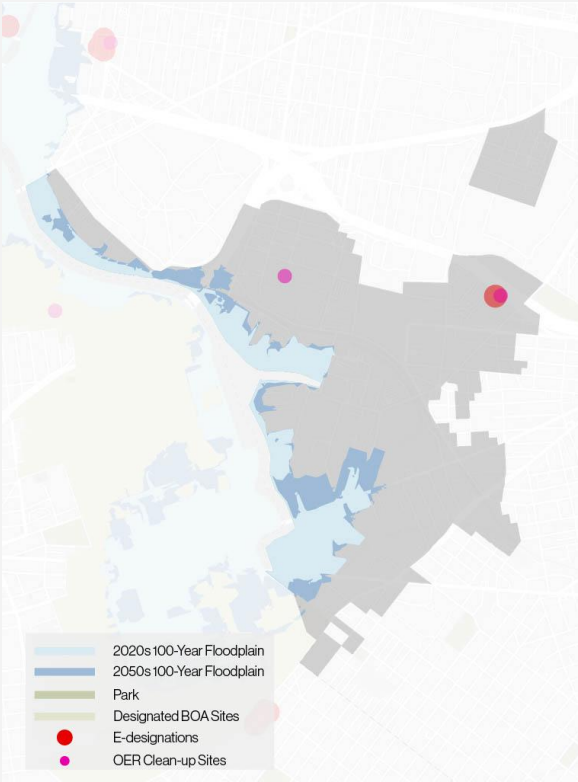
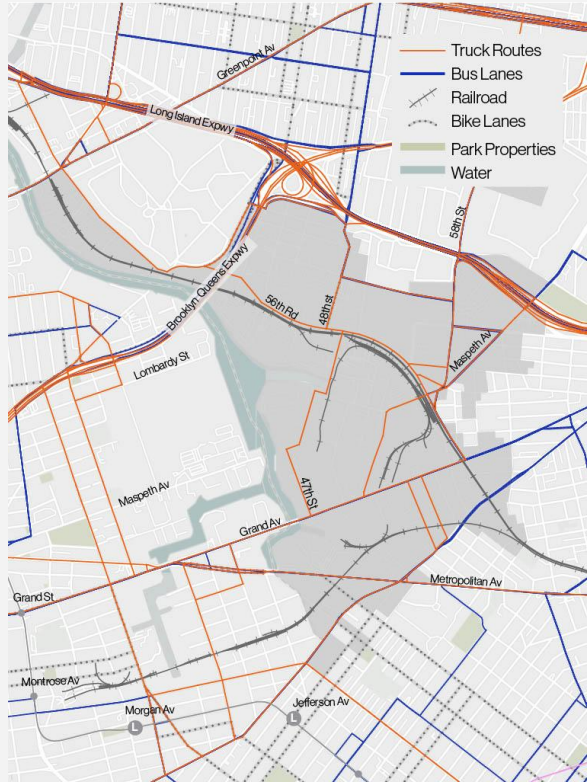
Owner Type: Mixed  
 Owner: MTA - LIRR  
 Lot Area: 290,000 sqft



P Parking Space



Maspeth



# Thank You

---

Questions?

**CREDITS:** This presentation template was created by **Slidesgo**, and includes icons by **Flaticon**, and infographics & images by **Freepik**