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***Columbia University
Graduate School of
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Masters Degree
Architecture and Urban Design
June 2019 - May 2020***

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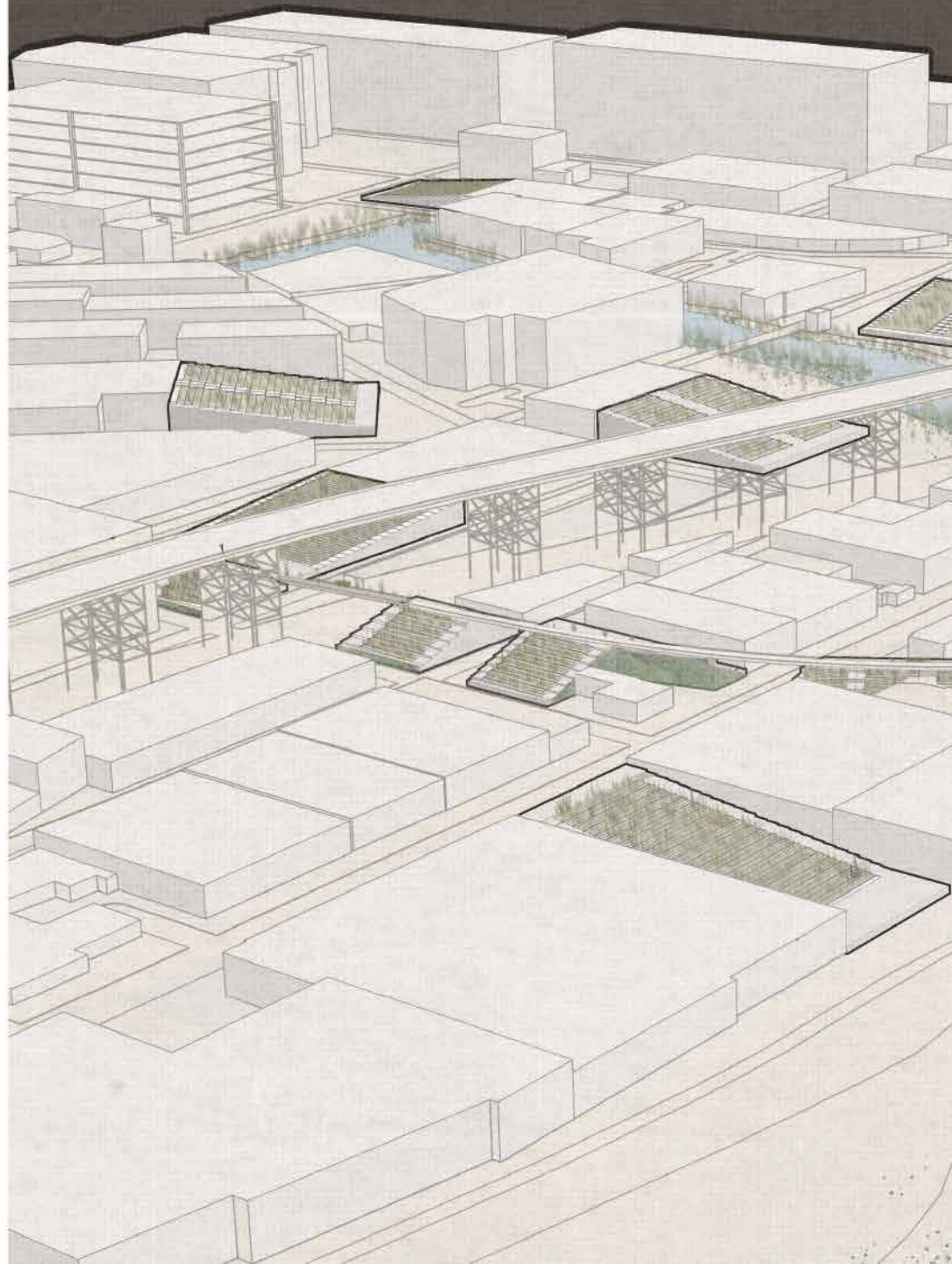
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Altman

C. S. Opportunities

Industrial Waterfronts

Connecting Long Island City's (LIC) Industrial Business Zone (IBZ) back to its waterfront. By integrating engineered and natural marshlands along Newtown Creek, we can spur economic growth within the industrial community and remote the ecological restoration of the creek.





Sewage Shed

New York City's waste water utilizes a combined sewage system resulting in waste water overflows on a regular basis. These overflows are killing our aquatic ecosystems. Newtown Creek is one of the many postindustrial inlets that suffer heavily from sewage overflow.

Newtown Creek waste water treatment plant was built in 2010 to help mediate this issue. However, we still see raw sewage being dumped into our water ways.

Newtown Creek Waste Water Treatment Plant

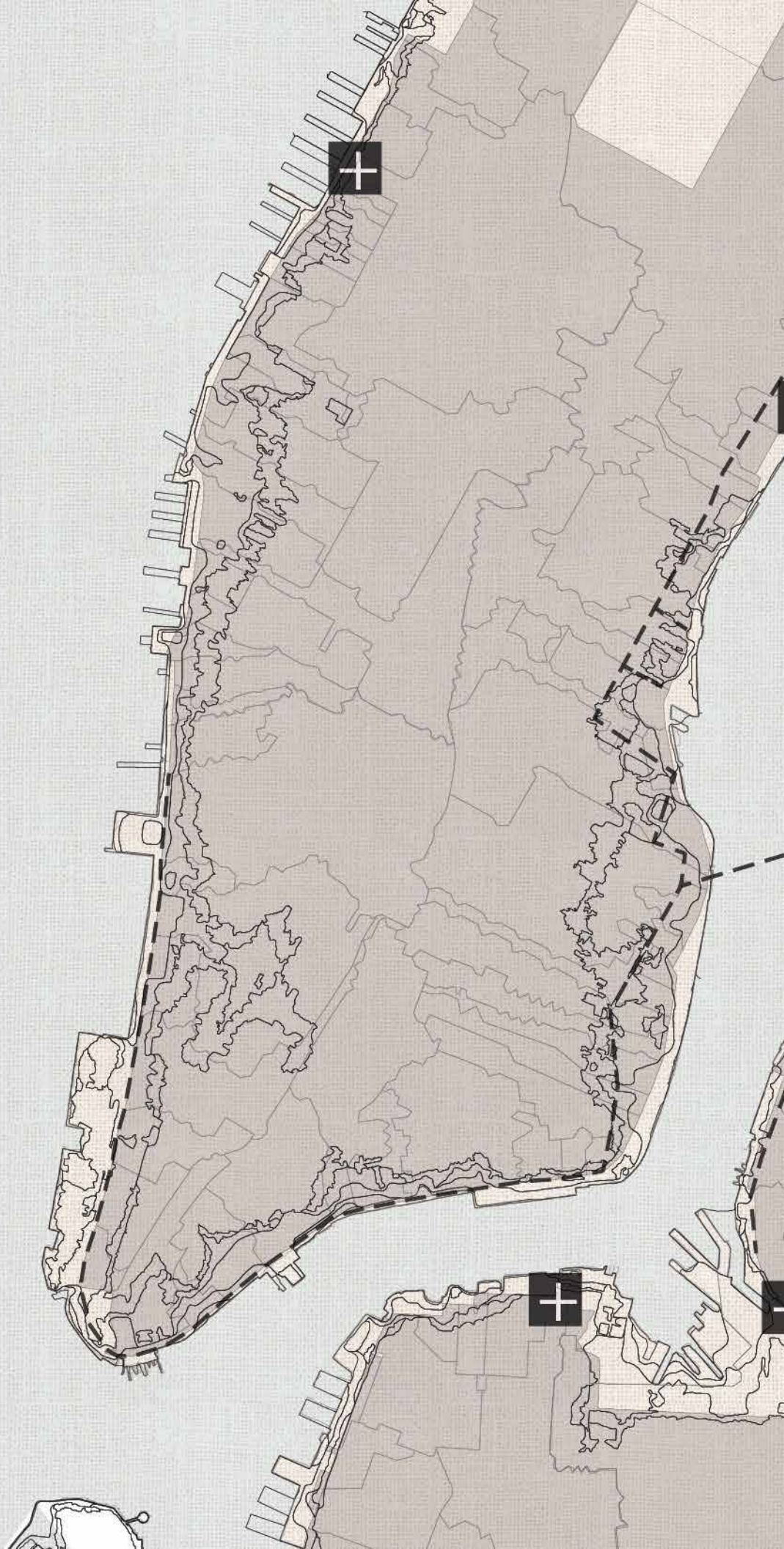
***Weekly Overflow:
100,000,000 gallons***

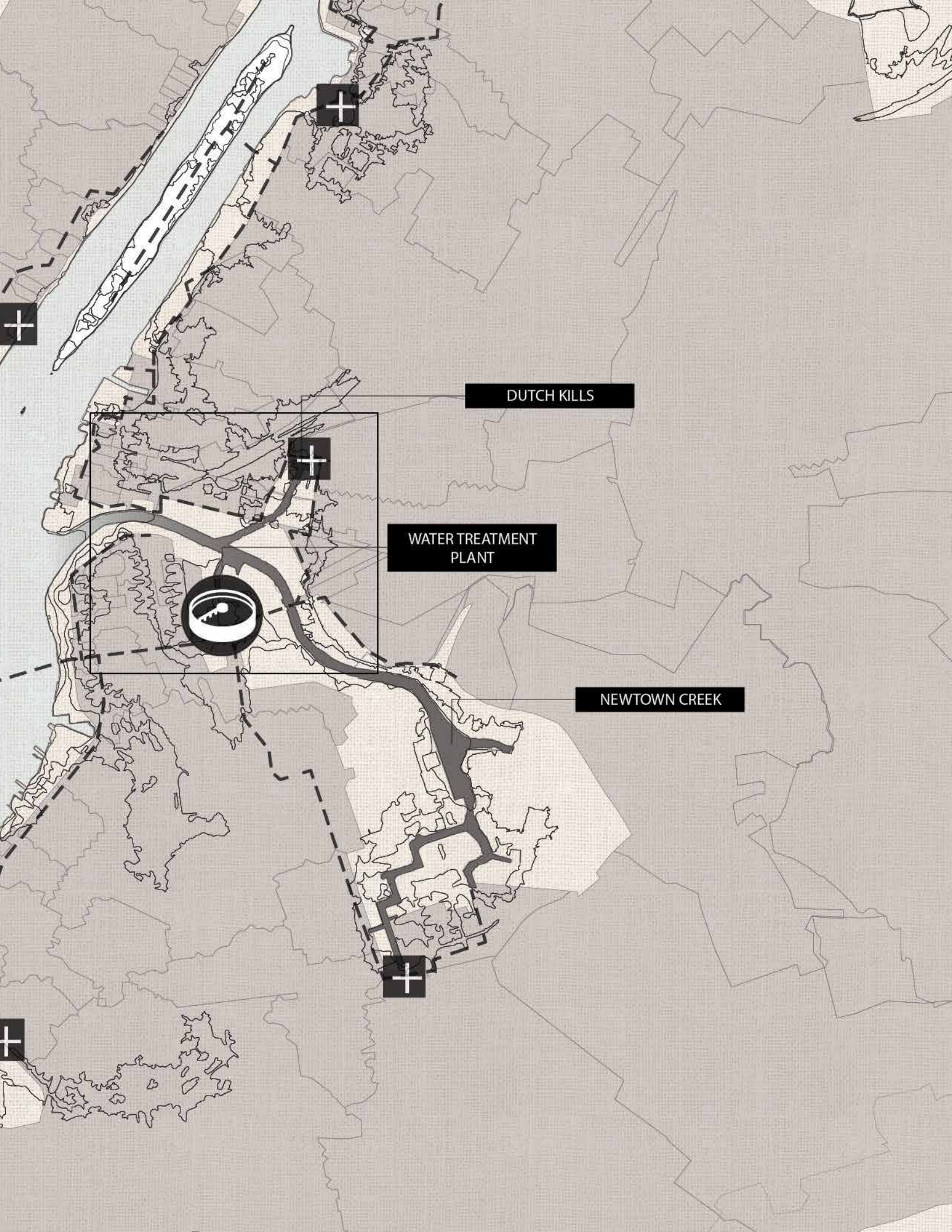
***Capacity:
31,000,000 gallons***

***Average Sewage
Treated:
250,000,000 gallons***

+ Regulation Point

Data Source: Eldredge, Niles & Horenstein, Sidney (2014). Concrete Jungle: New York City and Our Last Best Hope for a Sustainable Future. Berkeley, California: University of California Press. p. 157. ISBN 978-0-520-27015-2.

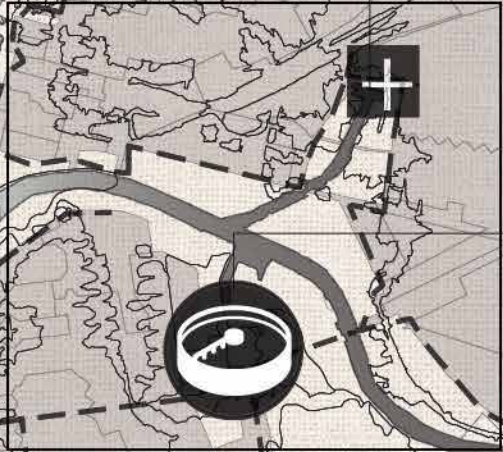




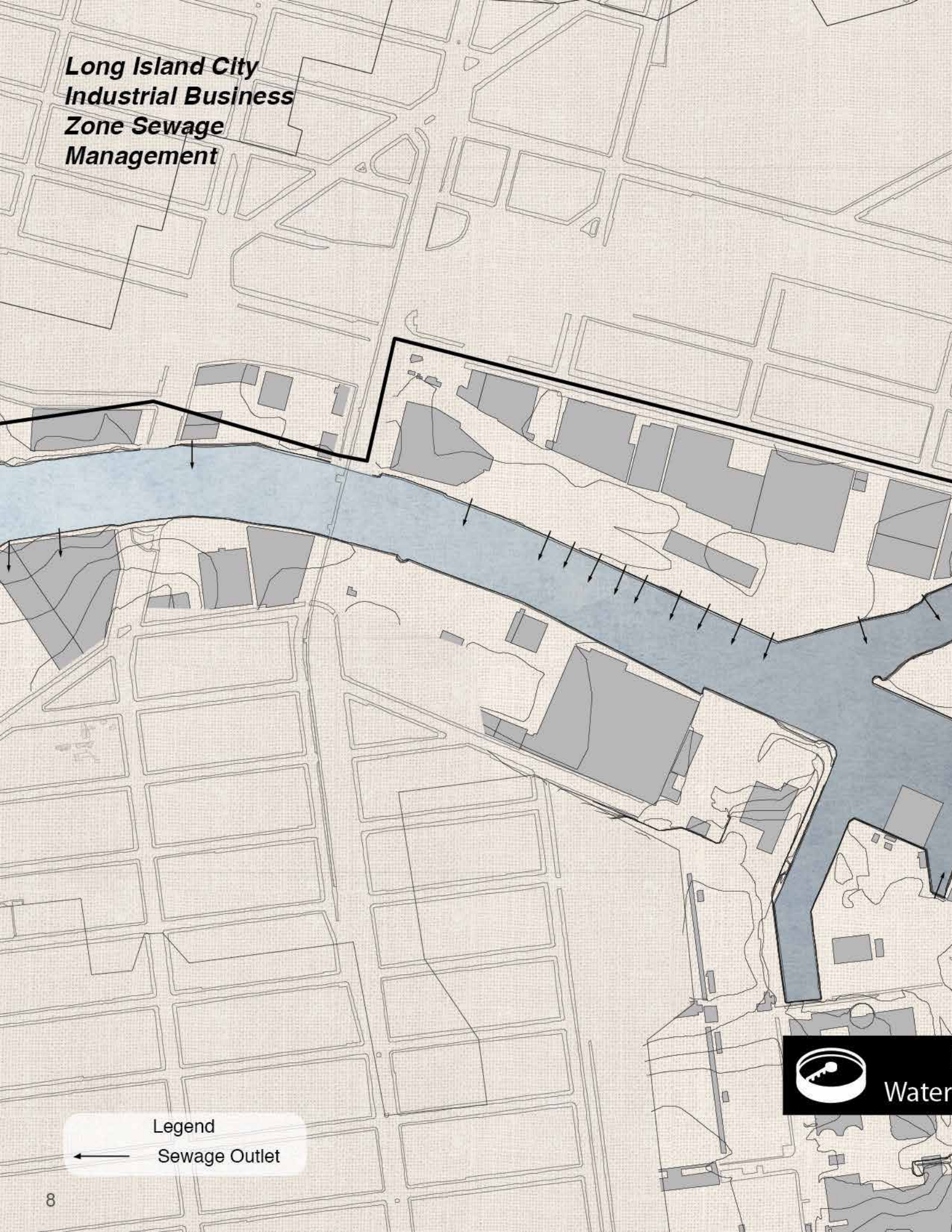
DUTCH KILLS

WATER TREATMENT
PLANT

NEWTOWN CREEK



**Long Island City
Industrial Business
Zone Sewage
Management**



Legend



Sewage Outlet




Water




 BORDEN AVE
PUMP STATION

Newtown Creek
Treatment Plant

Long Island City Industrial Business Zone Employees and Students

 Industrial

 Not Industrial

Number of Employees

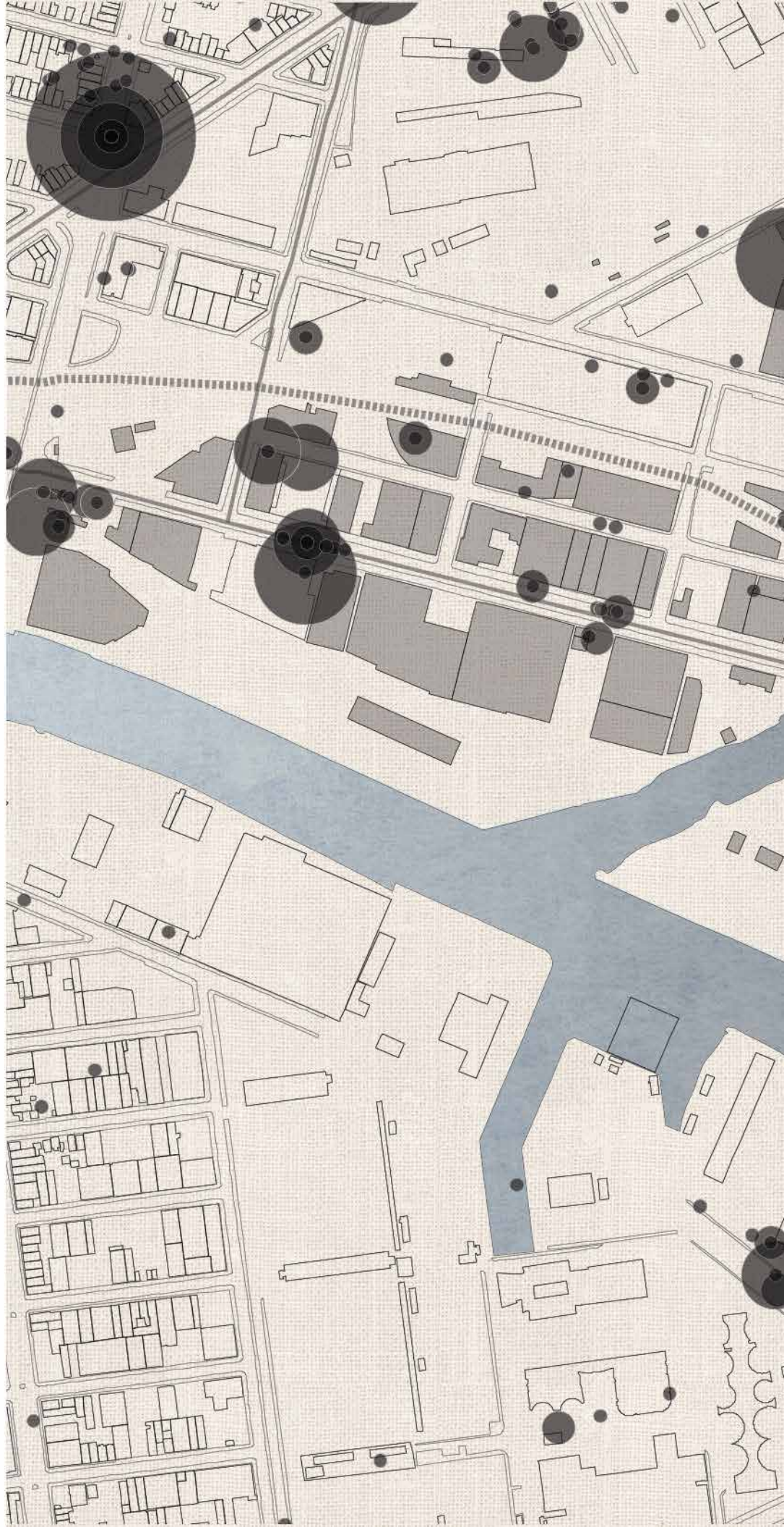
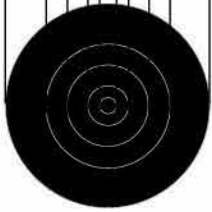
700-501

500-101

10 - 51

51 - 21

20 - 0



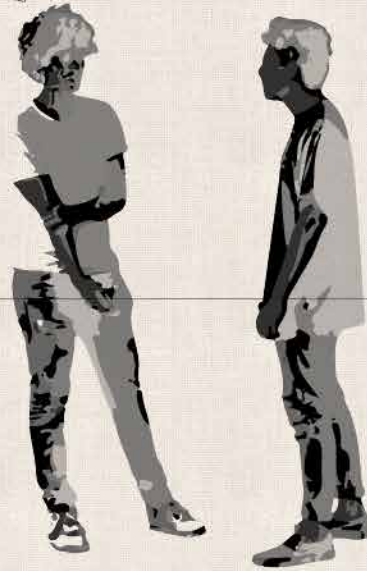


**Sewage Treatment
Research Begins at
LaGuardia
Community College**

CUNY LAGUARDIA COMMUNITY COLLEGE

HEY, THERE'S A
NEW **LAB CLASS**

COOL!
BETTER THAN SITTING
IN **BUISNESS**
LECTURES.





HOW
CAN **PLANTS CLEAN**
SEWAGE?

**Ranch on Rails
Community Garden
Collaboration**



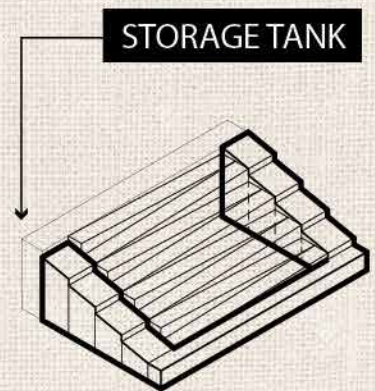
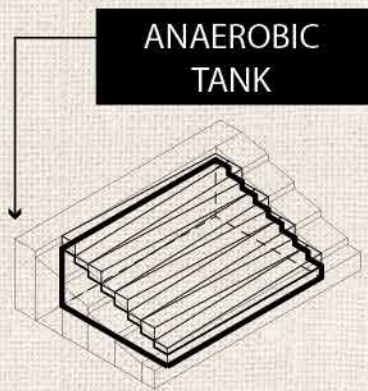
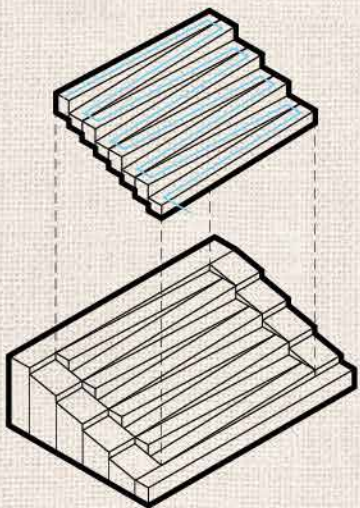
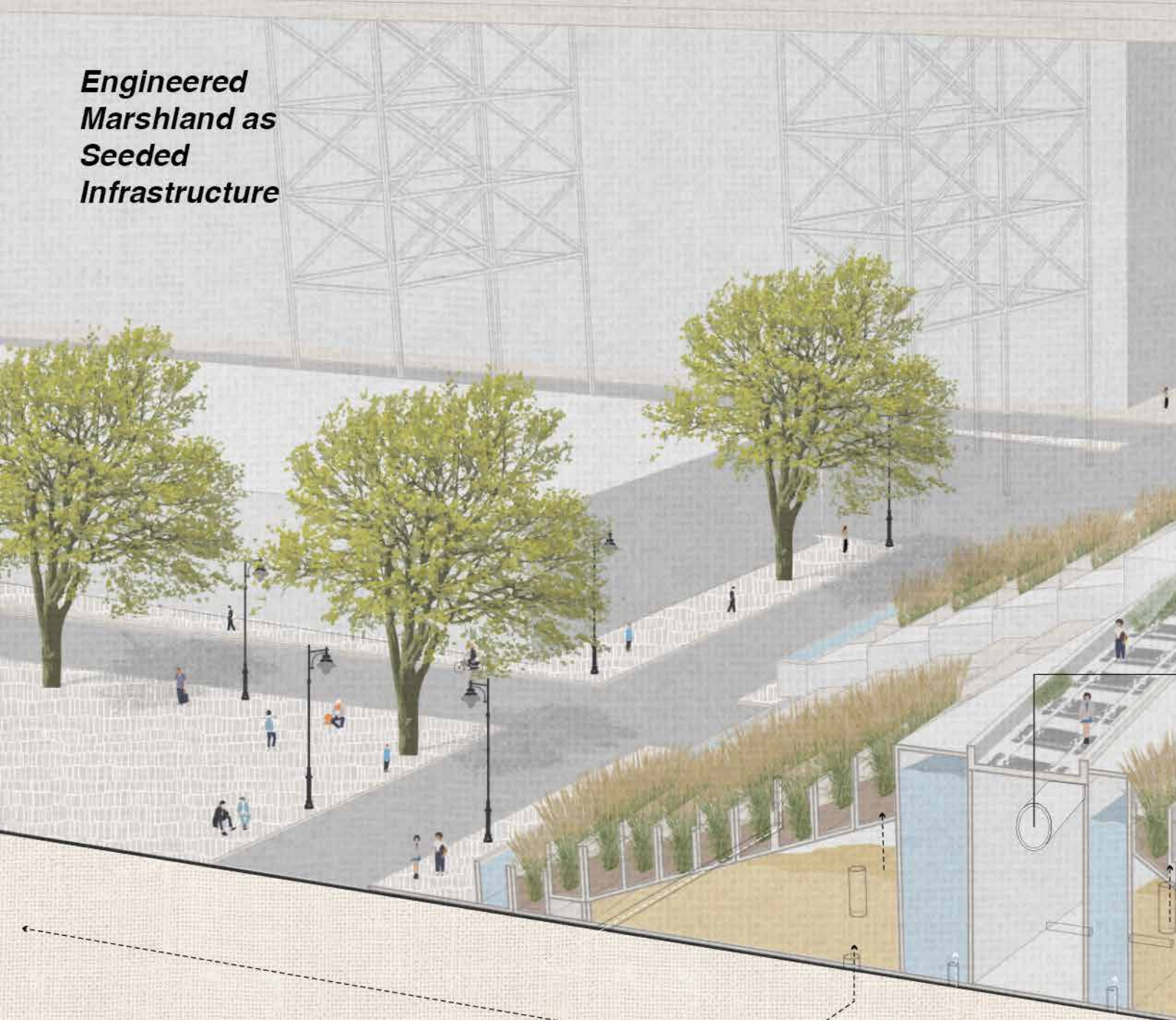


WE'RE CLEANING
WATER FOR
THE GARDEN.

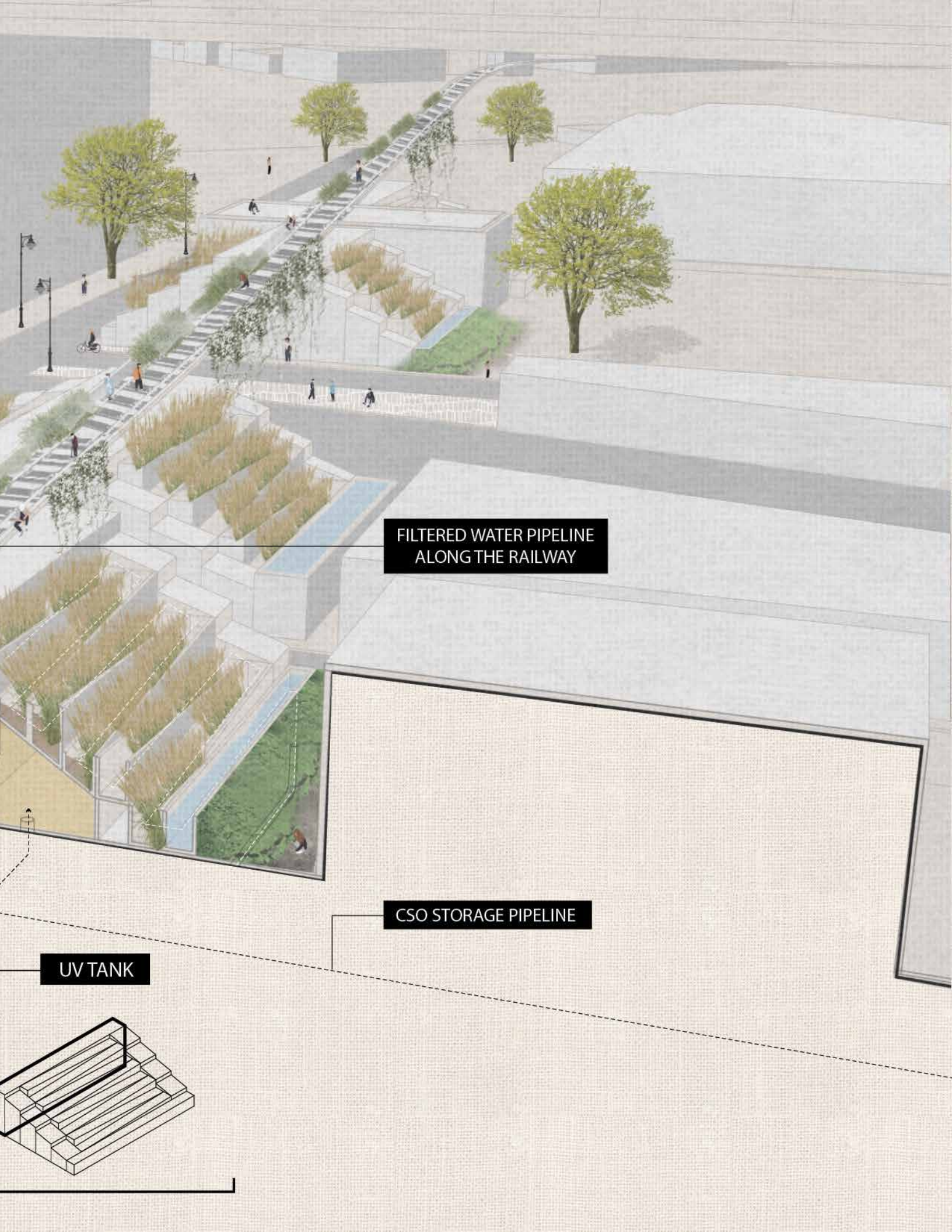
Adobe Photoshop Clip Image is too big to be exported

IMPROVE

**Engineered
Marshland as
Seeded
Infrastructure**



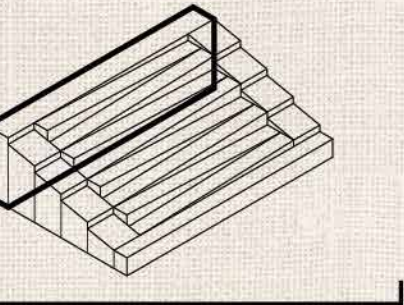
MODULE ASSEMBLIES



FILTERED WATER PIPELINE
ALONG THE RAILWAY

CSO STORAGE PIPELINE

UV TANK



Strata of Industry and Infrastructure



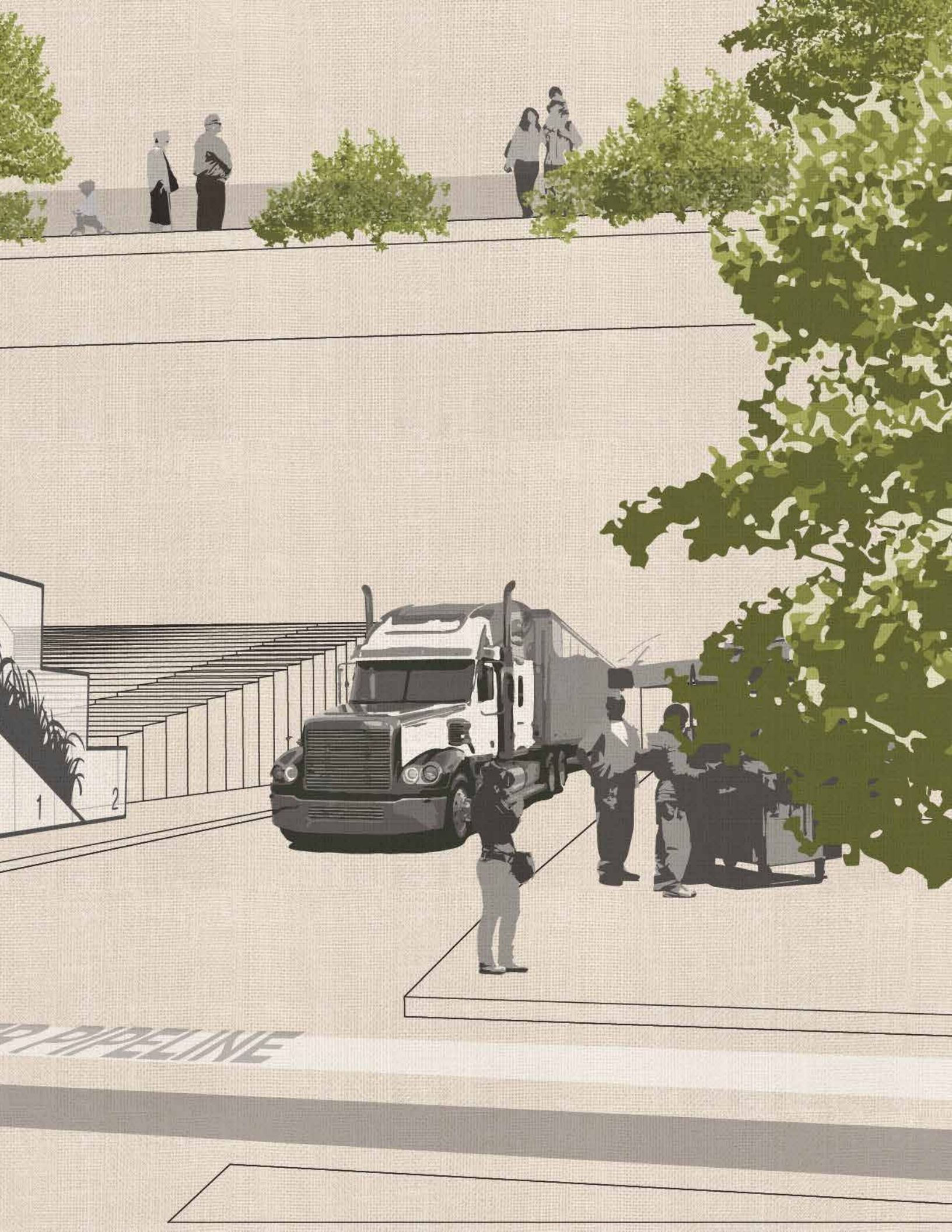
I KILL GERMS

NO I EAT ORGANIC WASTE!



I EAT ORGANIC WASTE

FILTERED WATER
CSO TUNNEL



PIPELINE

**Neighborhood Scale
Grey Water Pipeline**



**FILTERED WATER PIPELINE
FOR THE REST OF IBZ**

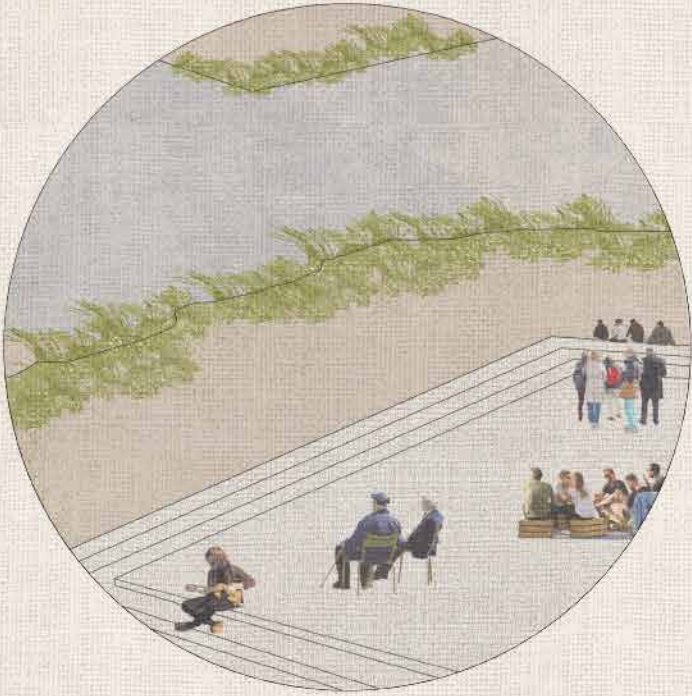
CSO STORAGE PIPELINE



NE
Z

E

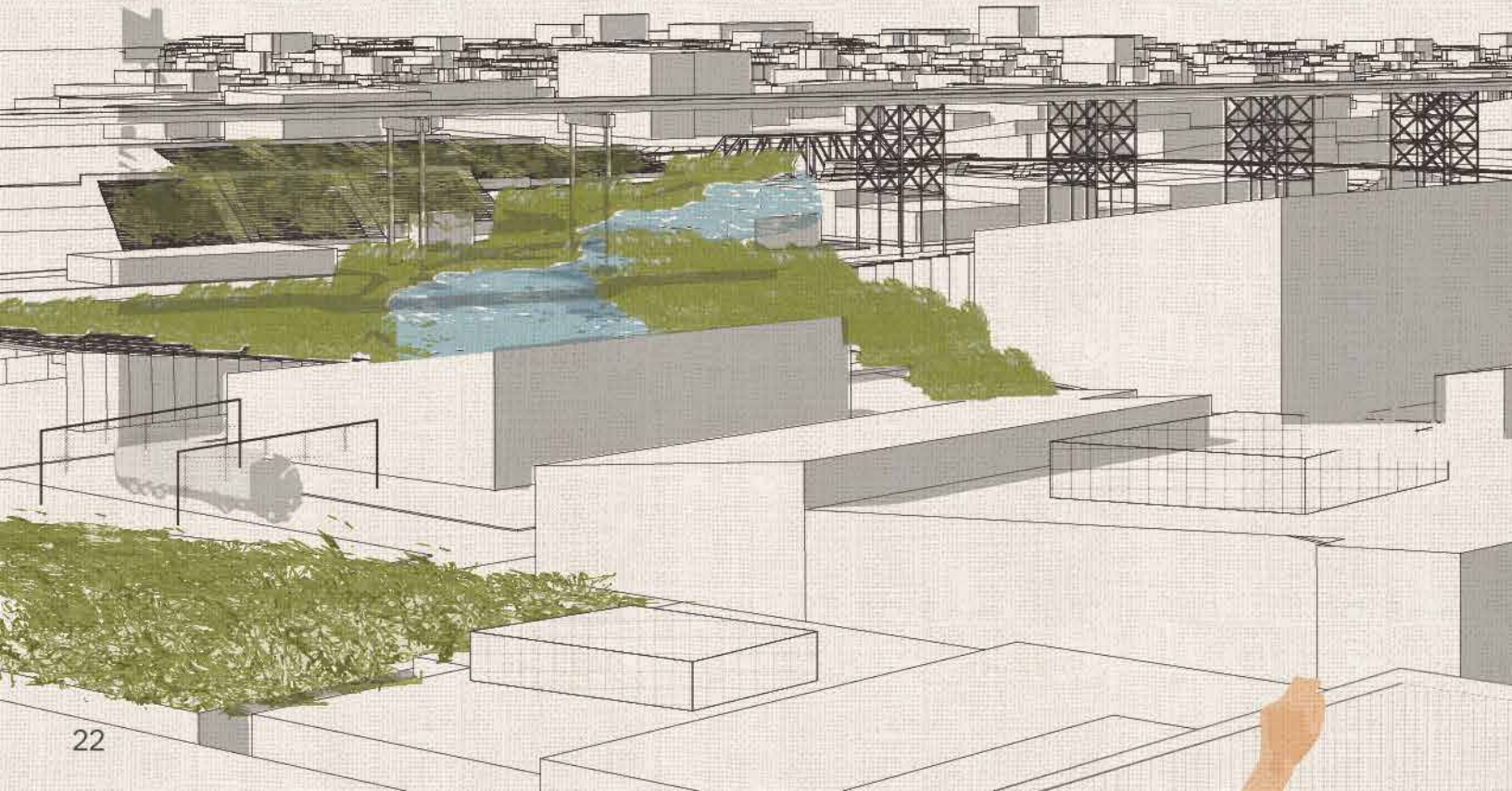
Water for People and Industry



PUBLIC SUNKEN PLAZA

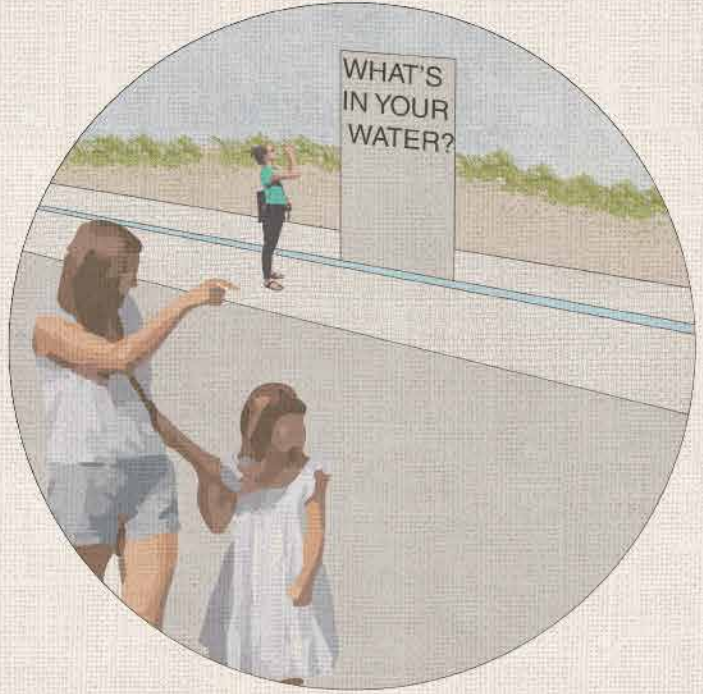


WATER COLLECTION

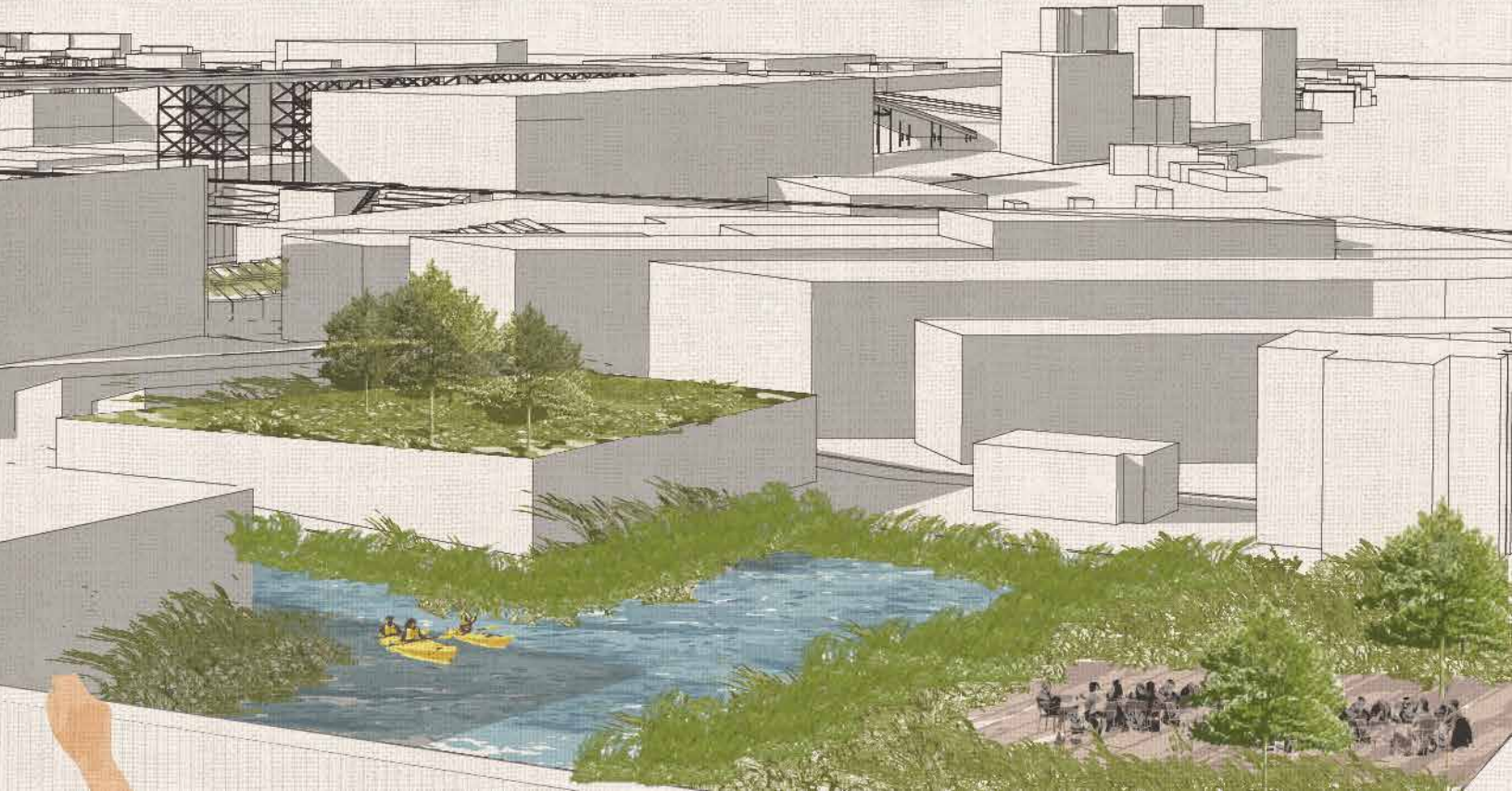




TRUCK WASH



INFRASTRUCTURE AWARENESS



Water Cleansing as a New Industry



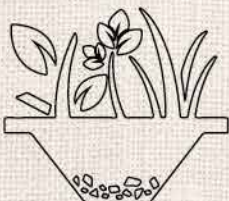
GREEN INFRASTRUCTURE PRODUCTION



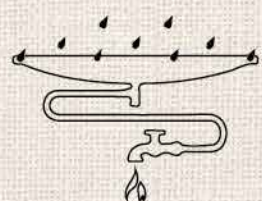
DEP Easements on Public Owned Land For Marsh Renaturalization



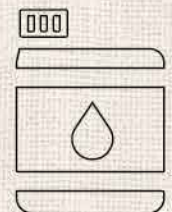
**EDUCATIONAL
BILLBOARD**



**BIOSWALE
PRODUCTION**



**BLUE ROOF
PRODUCTION**



**WATER HOLDING TANK
PRODUCTION**



**GREEN ROOF
PRODUCTION**

A Resilient Industrial Waterfront



IM A
NATURAL MARSH

I CLEAN SURFACE
RUN OFF

CHECK HOW IM DOING

THIS IS WHAT THE LAND LOOKED
LIKE BEFORE BUILDINGS AND
ROADS WERE BUILT

WHO'S AT THE DOWNSHIP?

THE MULE LIVED BUILT THE CIRCULARITY SYSTEM

WHY ARE WE JUST AN INEFFECTIVE
PRODUCTION LINE IN THE CITY?

IM AN
ENGINEERED MARSH

I CLEAN YOUR
SEWAGE

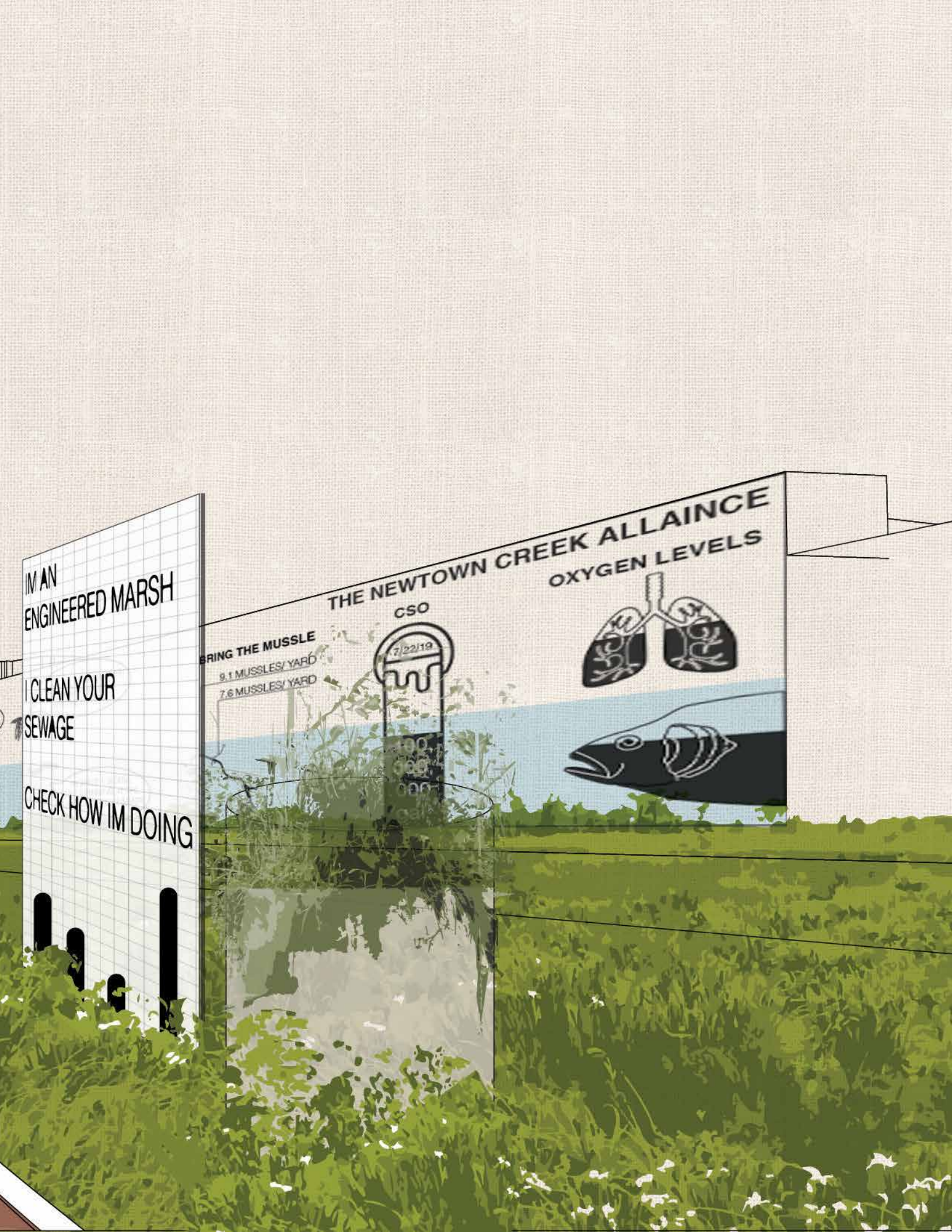
CHECK HOW IM DOING

BRING THE MUSSLE
9.1 MUSSLES/YARD
7.6 MUSSLES/YARD

THE NEWTOWN CREEK ALLAINCE
OXYGEN LEVELS

CSO

7/22/19



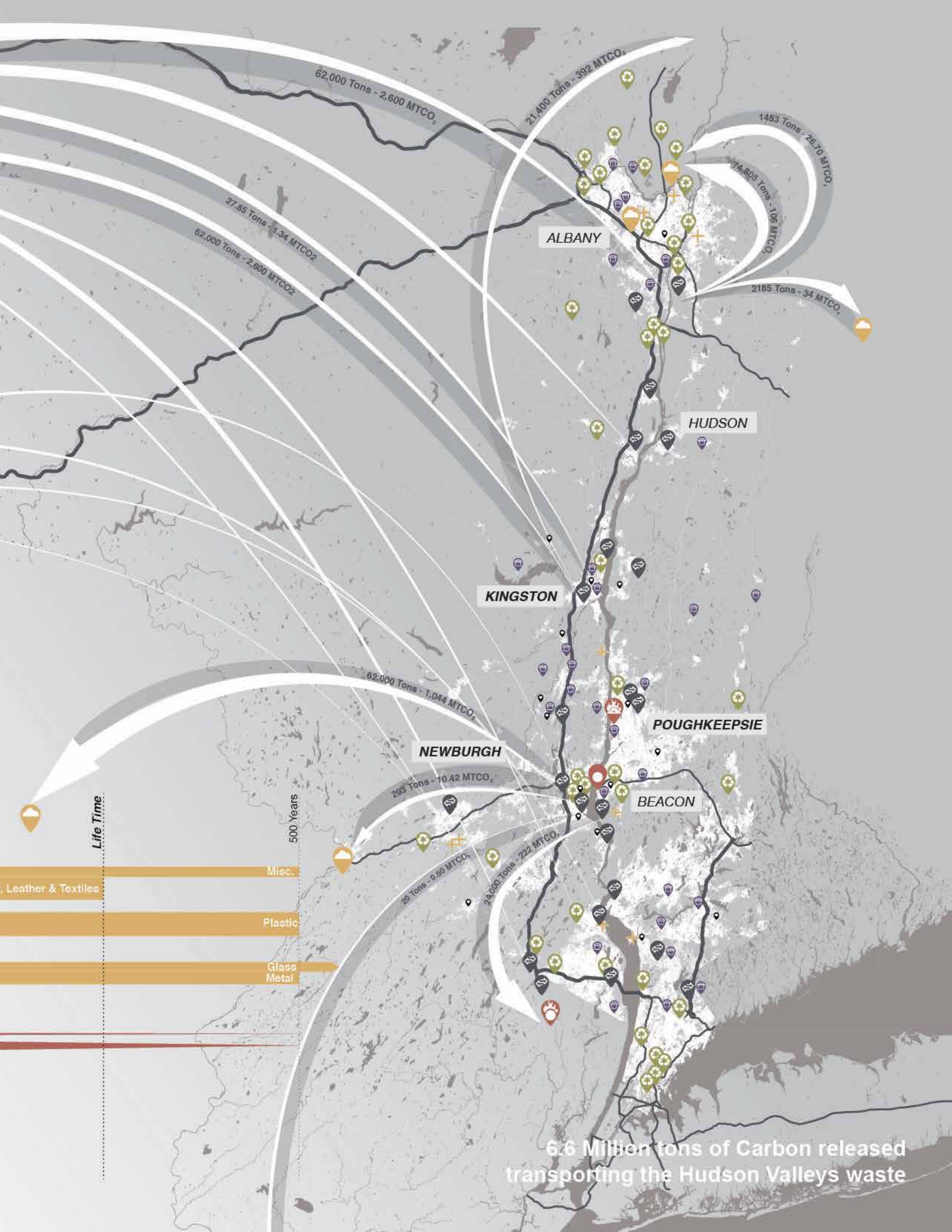
Tracing Trash

Waste Networks

Mapping the Hudson Valleys trash network to understand the carbon footprint of our trash. We've mapped the life cycles of trash and their travel to their final destination.

The notion of throwing “away” has reached new scales with suburbanization. With contemporary consumption patterns we use non-biodegradable materials for short periods of time only to be send to other municipalities. Housing a landfill has been very profitable for post-industrial communities however they are reaching capacity. With all NYS landfills to be at capacity by 2040, we need to question our definition of trash.





6.6 Million tons of Carbon released transporting the Hudson Valleys waste

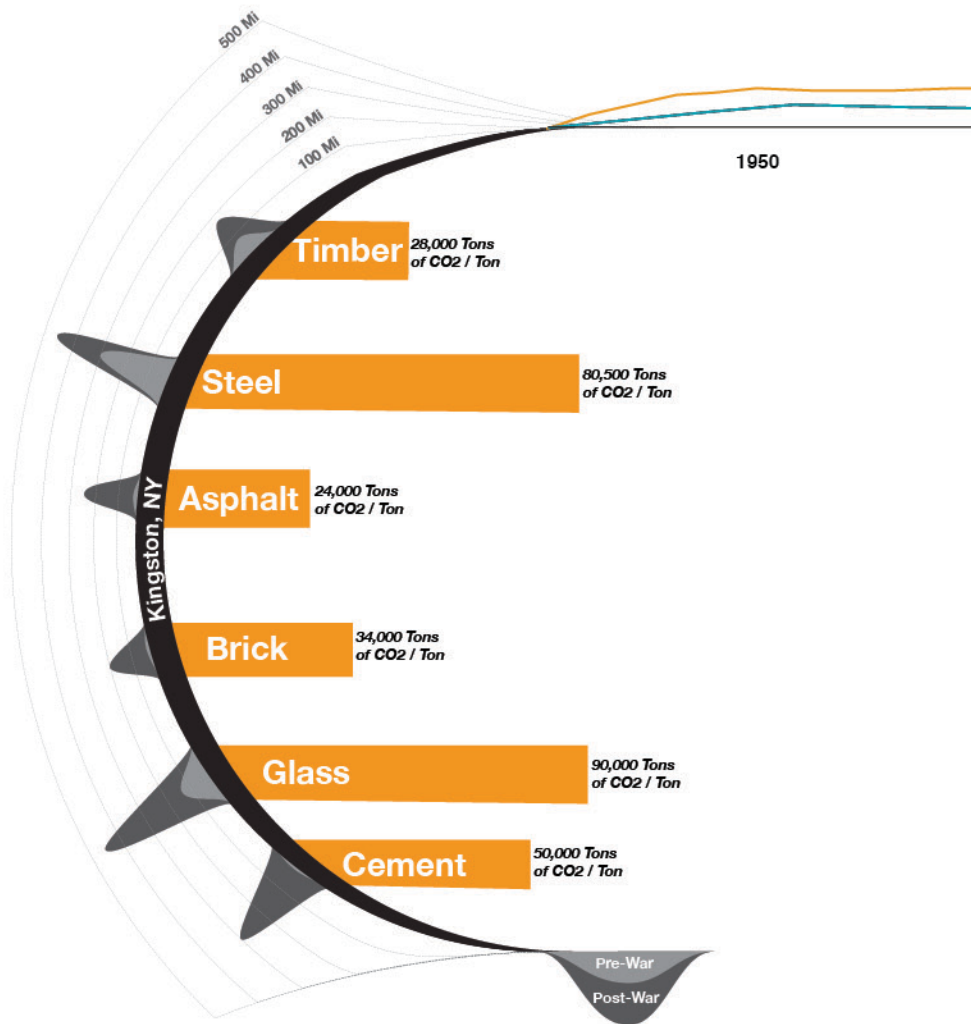
Tracing Trash

Constructing Carbon

The construction industry used to be the foundation of the Hudson Valley economy. Today, its building stock is riddled with dated and abandoned buildings, destined for the landfill in the coming years.

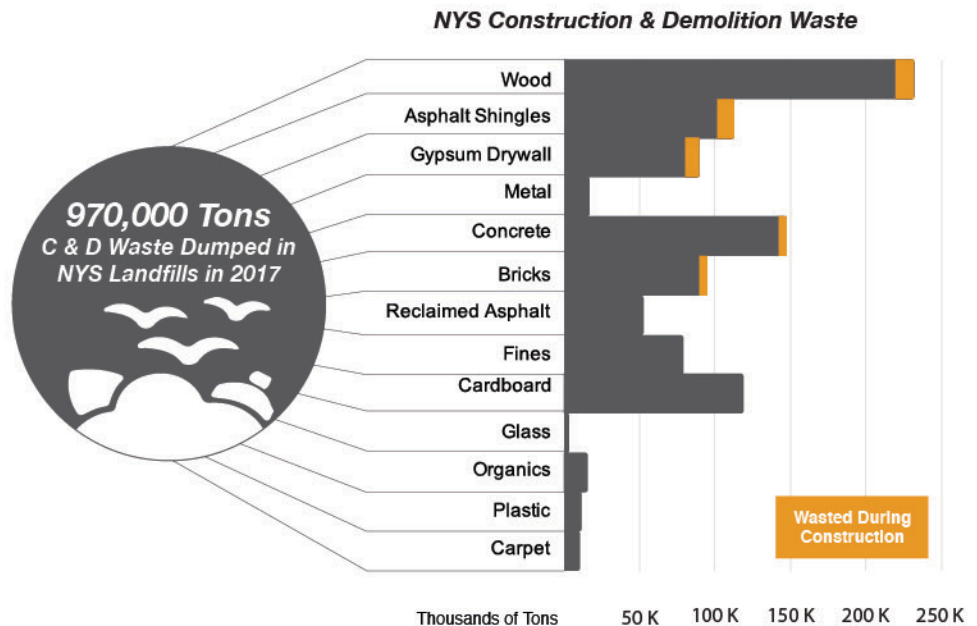
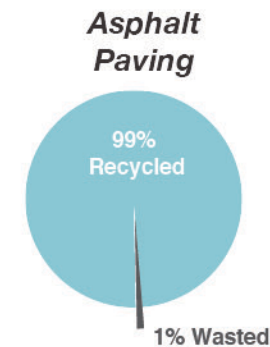
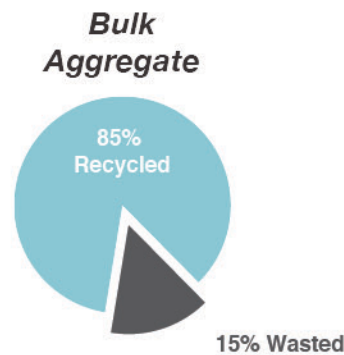
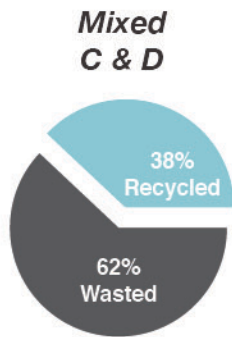
What is our carbon investment in our structures?

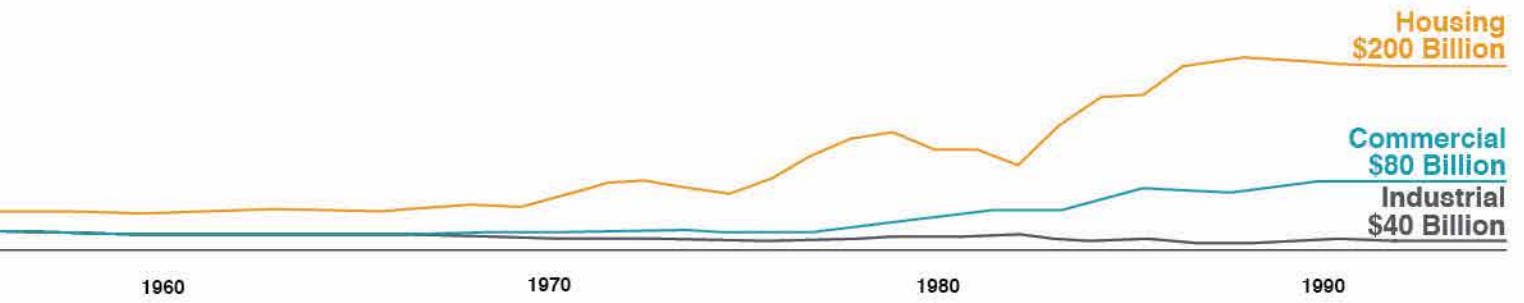
What is the carbon investment in the demolition of these structures?



Carbon in Travel From Kingston

NYS Construction & Demolition Waste Categories

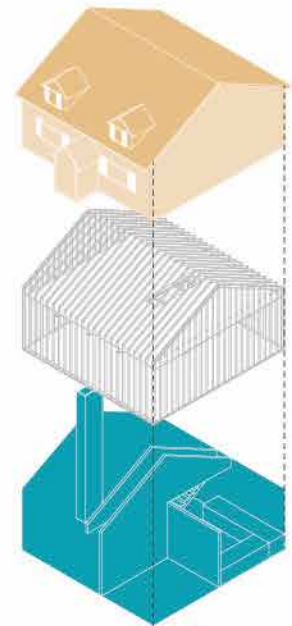
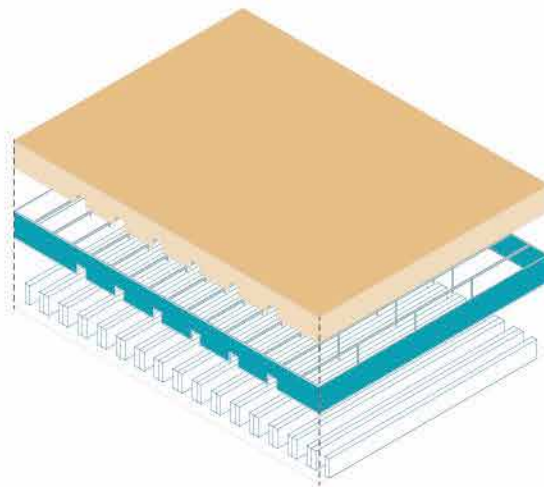
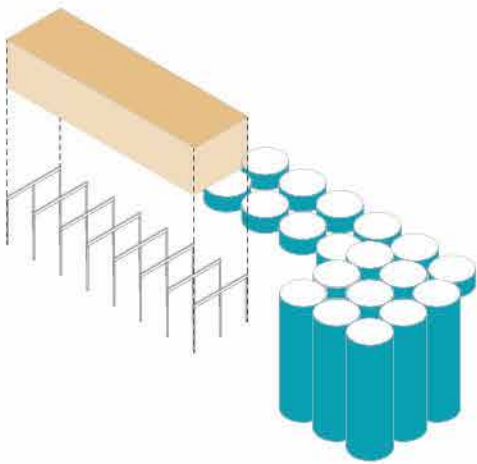




Abandoned Concrete Factory
Kingston


Big Box Store
Home Depot, Kingston

Single Family House
188 Bruyn Avenue, Kingston



 **Abandoned for 25 Years - Isolated and Dilapidated**

 **25 Year Use - Depreciated Value Tax Breaks**

 **25 Year Life Span - Housing for a Generation**

Not in Operation

1340 Tons of Operational CO2 per year

4.5 Tons of CO2 per year

7,000 Tons of Embodied Carbon

4,800 Tons of Embodied Carbon

27 Tons of Embodied Carbon

Tech City Co-Op *Up-cycling Center*

Team Members: Laszlo Kovacs, Ritchie Ju, Sophie Lee

This proposal reimagines an abandoned IBM plant as a hub for building material up-cycling. The campus can develop incrementally as the waste materials on site are up-cycled.

The co-operative model can encourage existing small businesses to relocate for carbon-saving industrial amenities.

The Hudson valley region has provided the building materials for over 150 years. This campus can continue this legacy with sustainable materials for a resilient building industry





Cooperative Anchor Tenants



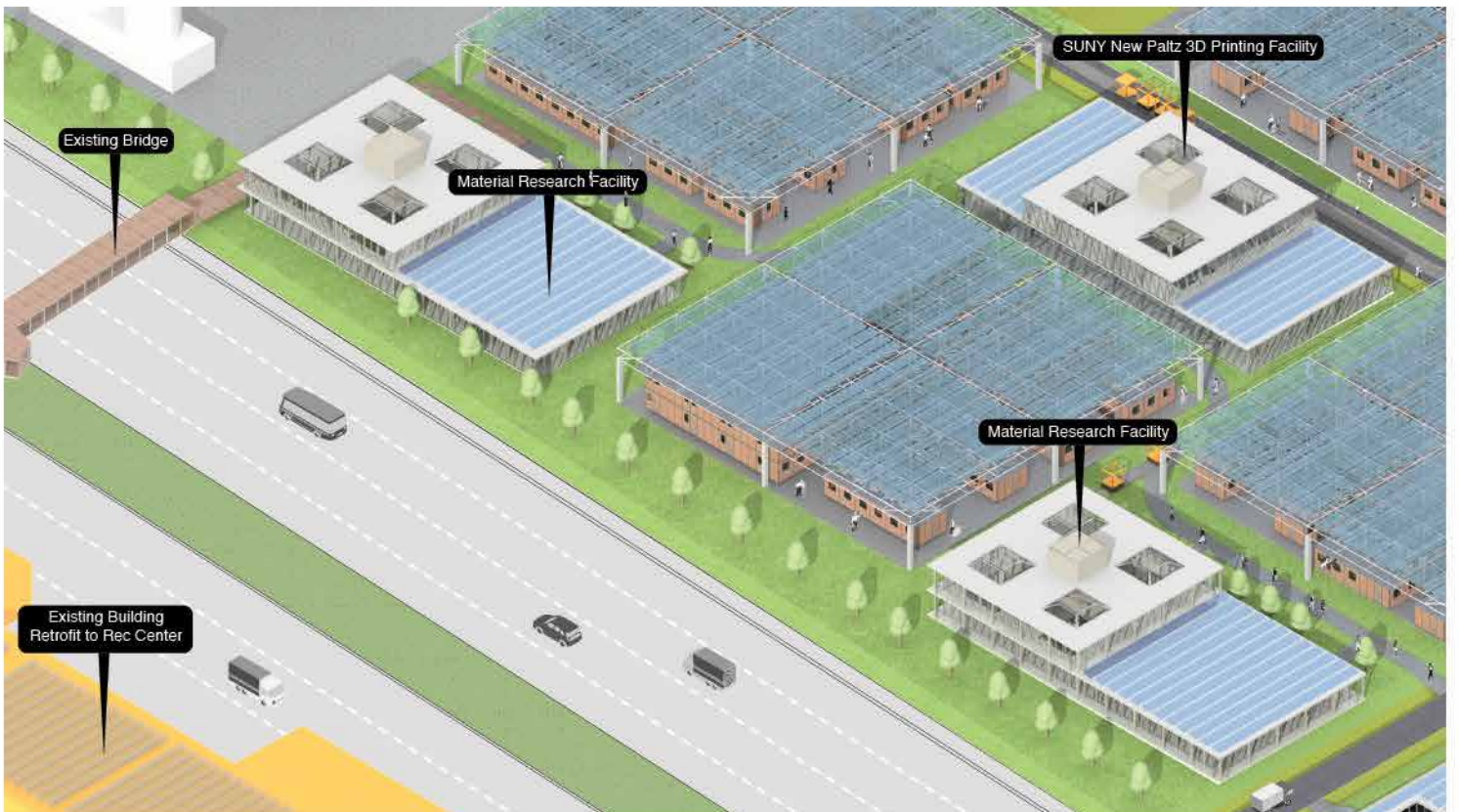
Solar Canopy Modular Units



Tech Incubator Hub



Material Research Facility



SUNY New Paltz Material Research Satellite Facility

Cooperative Anchor Tenants



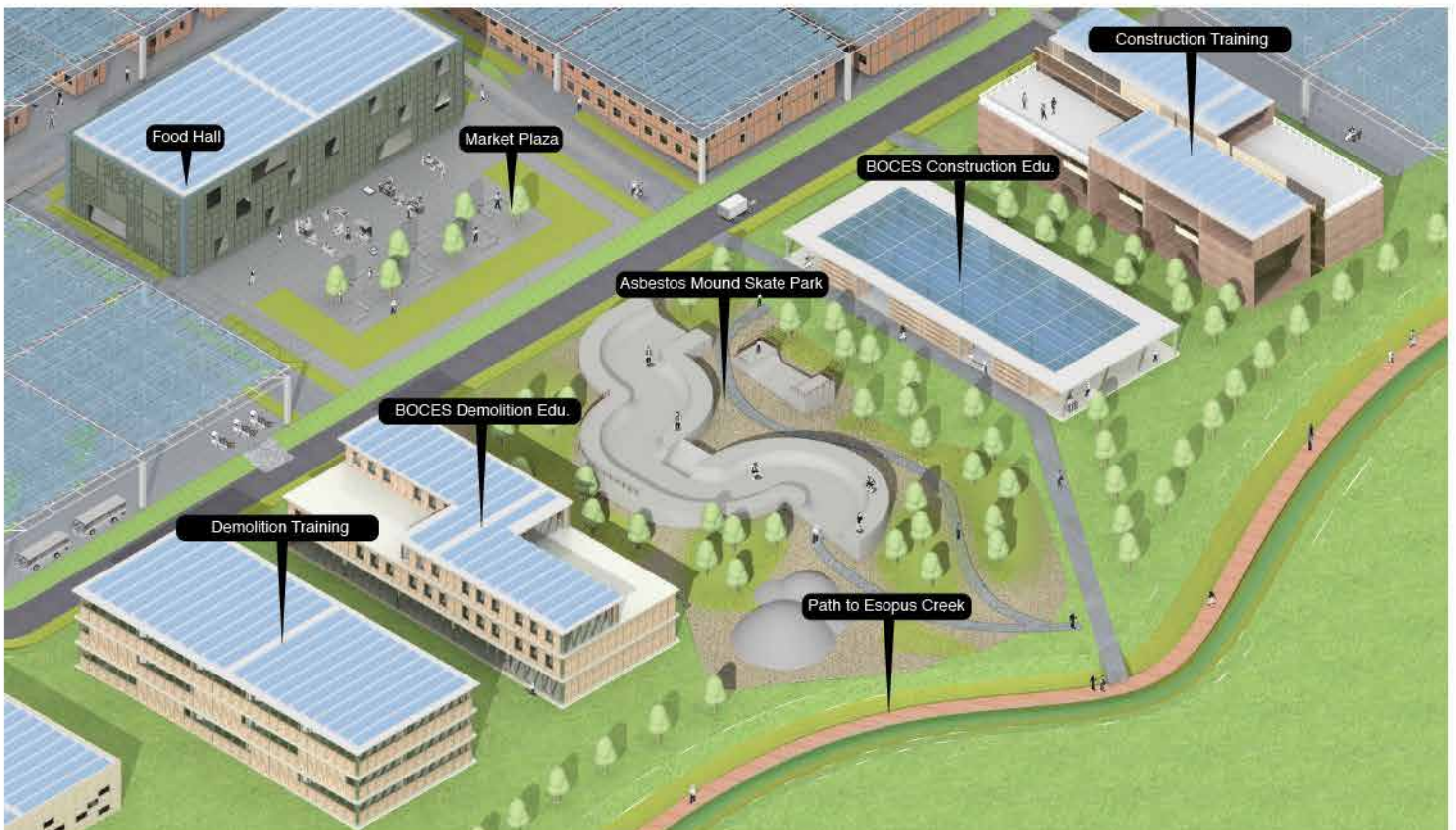
Shared Kiln



Material Recyclers and Manufacturing Zone Threshold



Up-cycled Debris to Public Space



Sustainable Construction and Demolition Training

Whitehall Plantation

Mechanization of Labor

Partner: Kunal Mokasdar

Inspired by a literary analysis of Olmsted's "Cotton Kingdom", these drawings visualize archival text of Whitehall Plantation, one of the many rice plantations in the Ogeechee river delta.

The plantation tells the story of slave labor and the capitalist mechanization developed in the mid 19th century. This story contextualizes the African American relationships with capitalism in the United States today.

The Ogeechee River delta marshlands became a field of investment where businessmen from the North used African labor and knowledge to mimic African rice and rubber landscapes.

When Europeans imposed the resource curse on the lands of West Africa they not only plundered their landscapes for material resources, but also extracted knowledge and labor. Meanwhile, industrialization led to exponential growth of agricultural businesses in America. Plantation owners relied on precise calculations to manage efficiency of output. These calculations created the framework within which enslaved people lived.

In 1831, Frederick Law Olmsted meets Mr. Richard James Arnold, a Northern industrialist turned plantation owner. Arnold's plantation grew rice, a method brought to Georgia after Dutch explorers published their accounts of West African rice fields. The slaves were tasked to mold the land as the book describes while subject to a regimented system of labor control.

In 1924, Henry Ford and his wife Clara took a boat tour down the Ogeechee. Clara is taken by the romantic landscape and the Ford family purchases the Richmond Hill Plantation, just down the road from where Whitehall plantation stood. The British monopoly on rubber production pushed Ford to invest in synthetic rubber experimentation. His research facilities spurred investment in the town. The African-American population is pushed out, unable to live in the town that was founded on their labor.

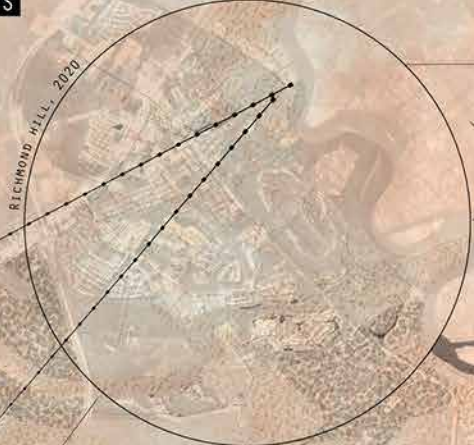
As synthetic rubber is pursued at Richmond Hill, a new landscape of West-African mimicry emerges. African knowledge is exploited for the gain of American businesses, while African-American bodies are pushed out.

SYNTHETIC LANDSCAPES

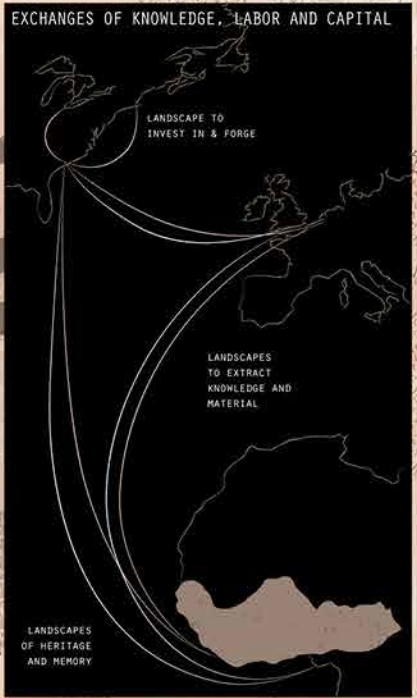
LEGEND

- RIVER
- FOREST
- WETLAND
- RAILROAD
- ROADS
- TOWN

SAVANNAH



WATERLILL PLANTATION



LIBERTY COUNTY

NEW MAJOR ECONOMY
RUBBER RESEARCH

1924
HENRY FORD ARRIVES

NEW MAJOR ECONOMY
MOONSHINE

1914
WHITEHALL PLANTATION BURNS DOWN

NEW INVESTMENTS

- ROADS
- HEALTH CARE
- EDUCATION

RISE OF SKILLED LABOR
UNSKILLED LABORERS

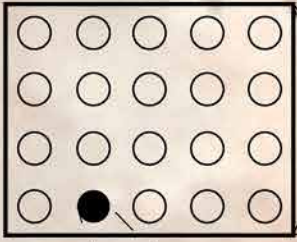
SUBURBIA
72% WHITE POPULATION

WHITE FLIGHT

URBAN NEGLECT

1 DAY OF WORK

1 GANG



DAILY TASK SCALES

CLEAN MEADOWLAND



SHRUB SWAMP



CYPRESS TREE SWAMP



SOWING RICE



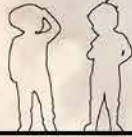
REAPING RICE



1 SLAVE



12 YEARS OLD



BORN ENSLAVED

LEGEND

1 SLAVE ○

1 ACRE □

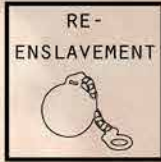
200 CUBIC FEET DUG ⬡



1 UNIT OF CREDIT

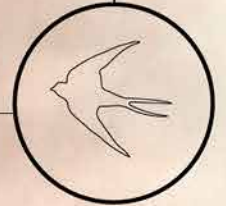
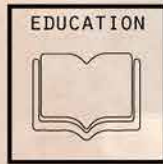
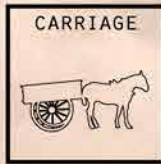
1 LIFE

DAILY TASK COMPLETED

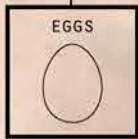


EXTERNAL THREATS

INTERNAL CREDIT EARNED



BUYING ONES SELF



ALTERNATIVE CURRENCY



Accessing Opportunity

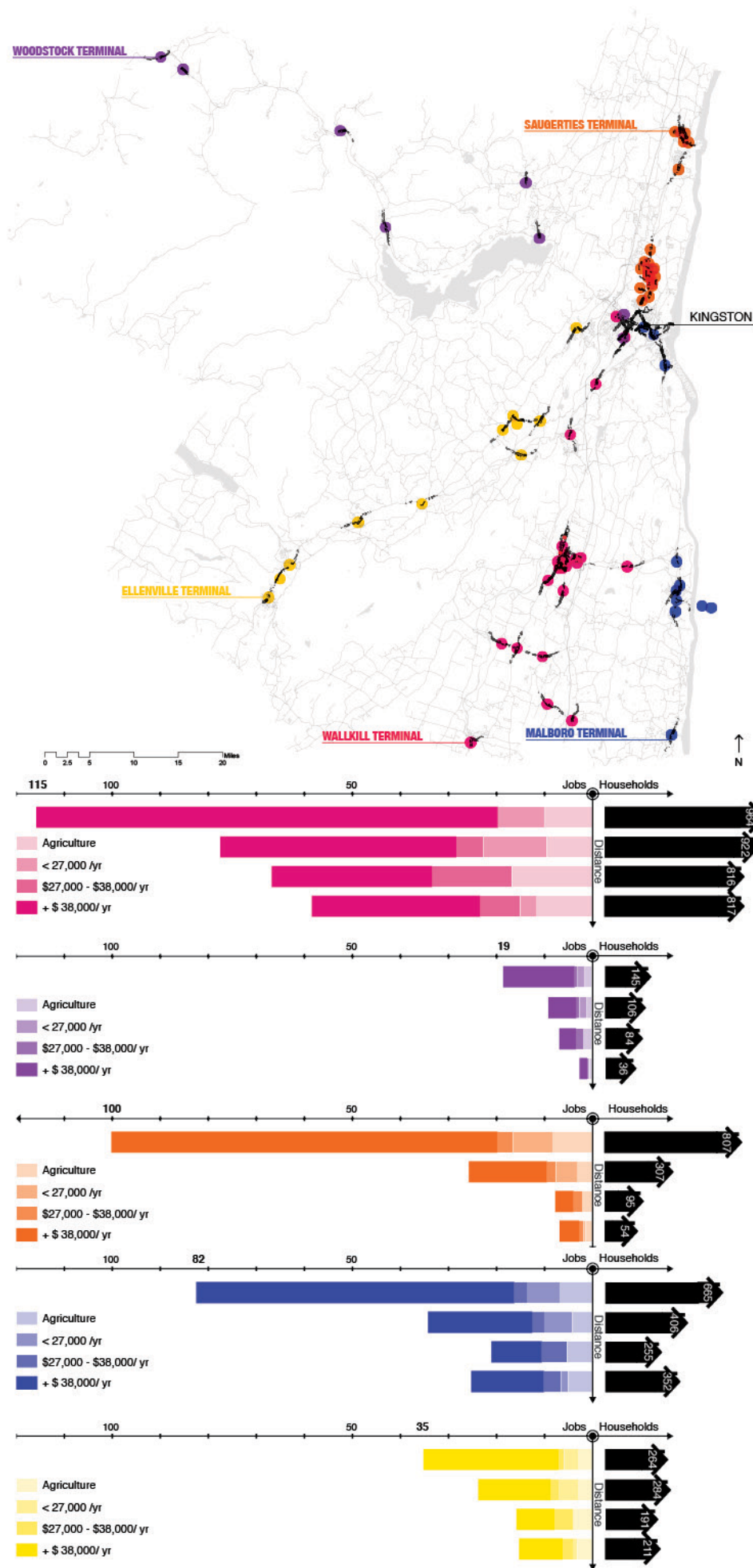
Public Transit Evaluation

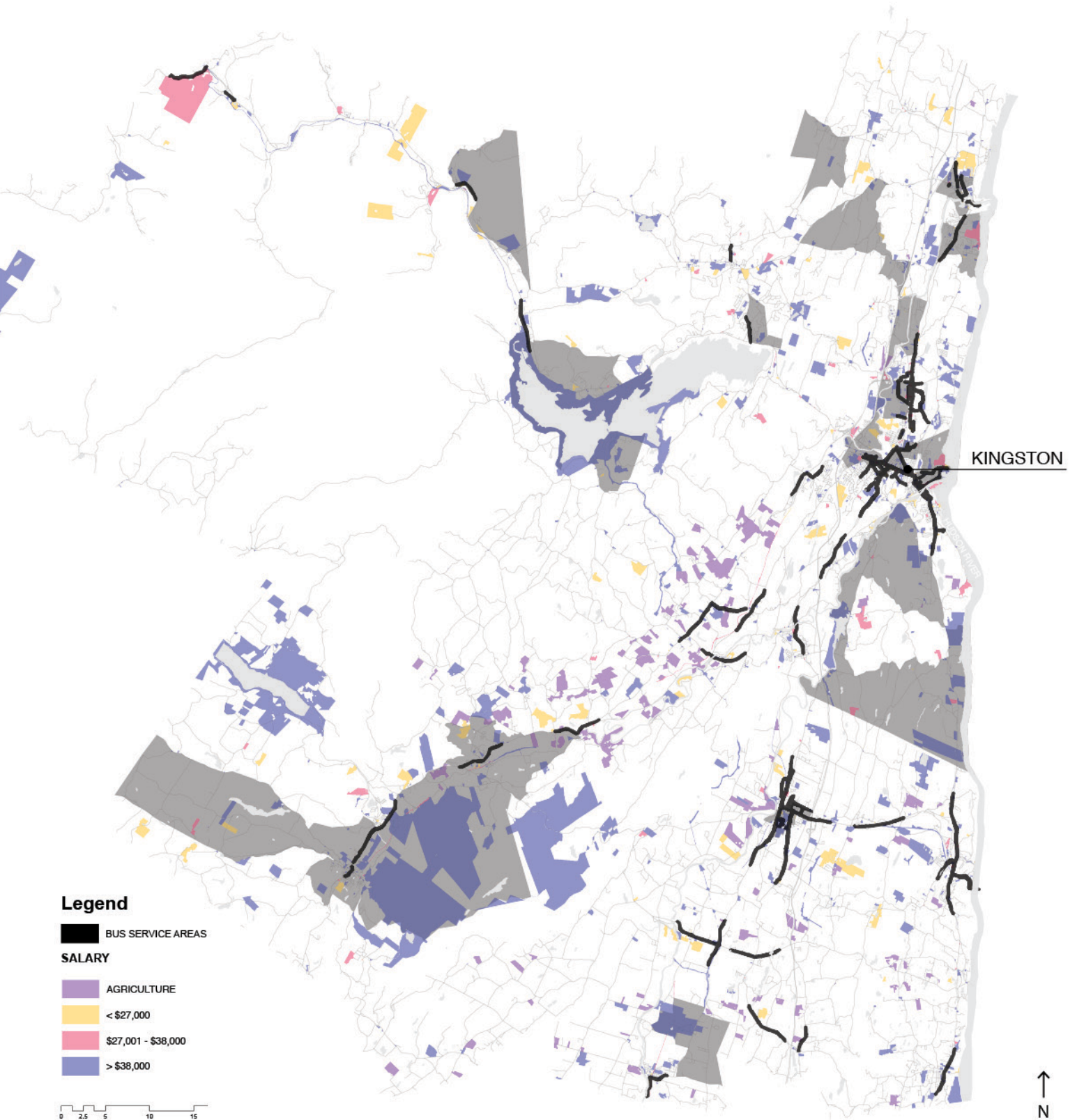
Partner: Laszlo Kovacs

Using Ulster County, NY as a case study, we look to evaluate the county public bus network, connecting rural communities to each other and the main city of Kingston.

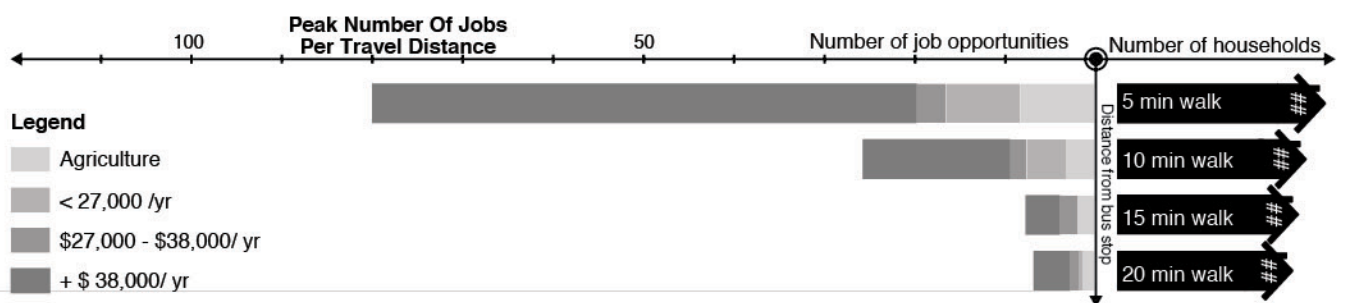
These communities can become more inclusive and equitable by providing adequate public transit for non-car owning people.

By mapping NYS labor data, we can see where employment opportunities are and what their average wage is. Are the buses connecting people to a potential livable wage?





Info-graphic Key



Traversing the Rift *Street meets the river*

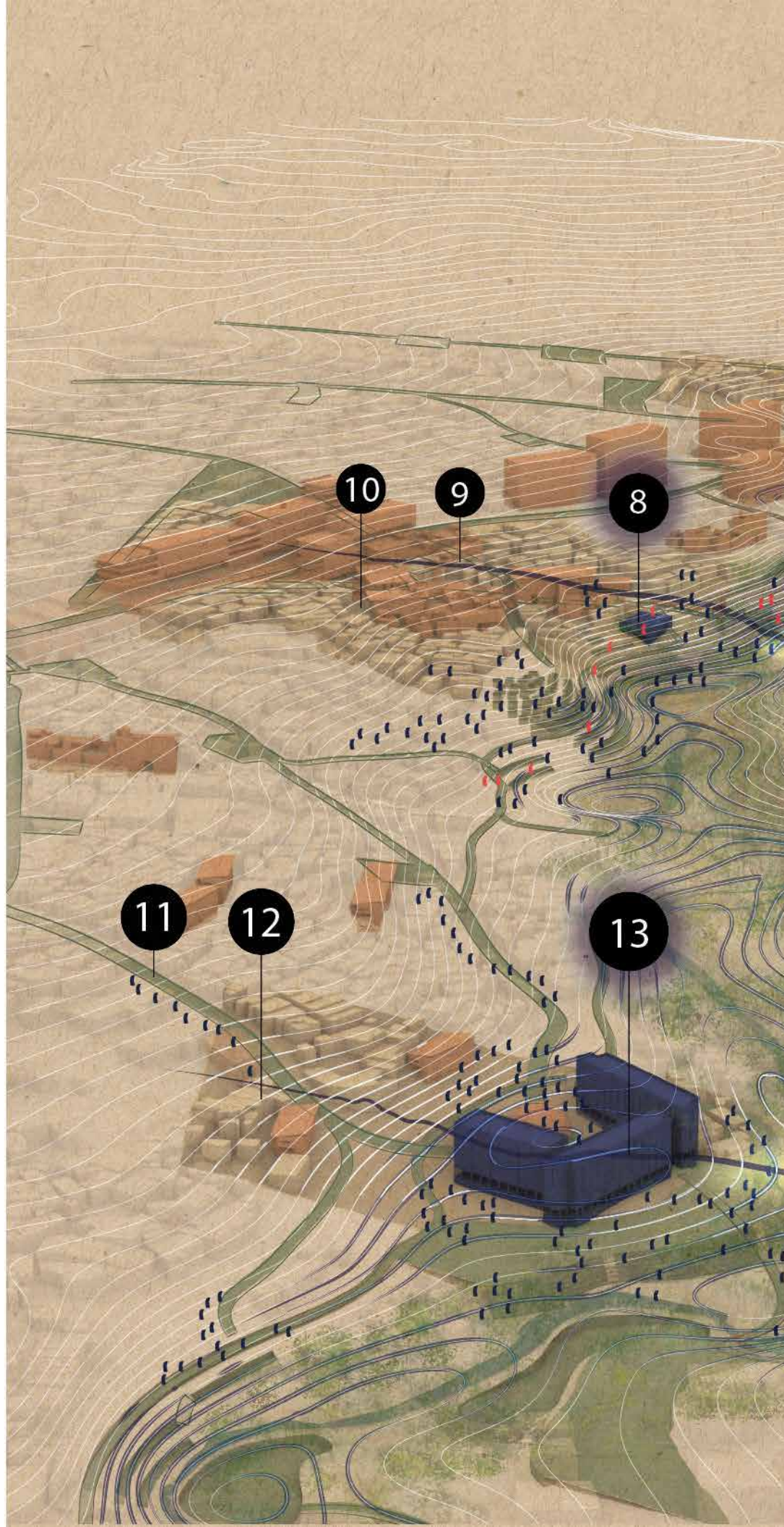
Team Members:

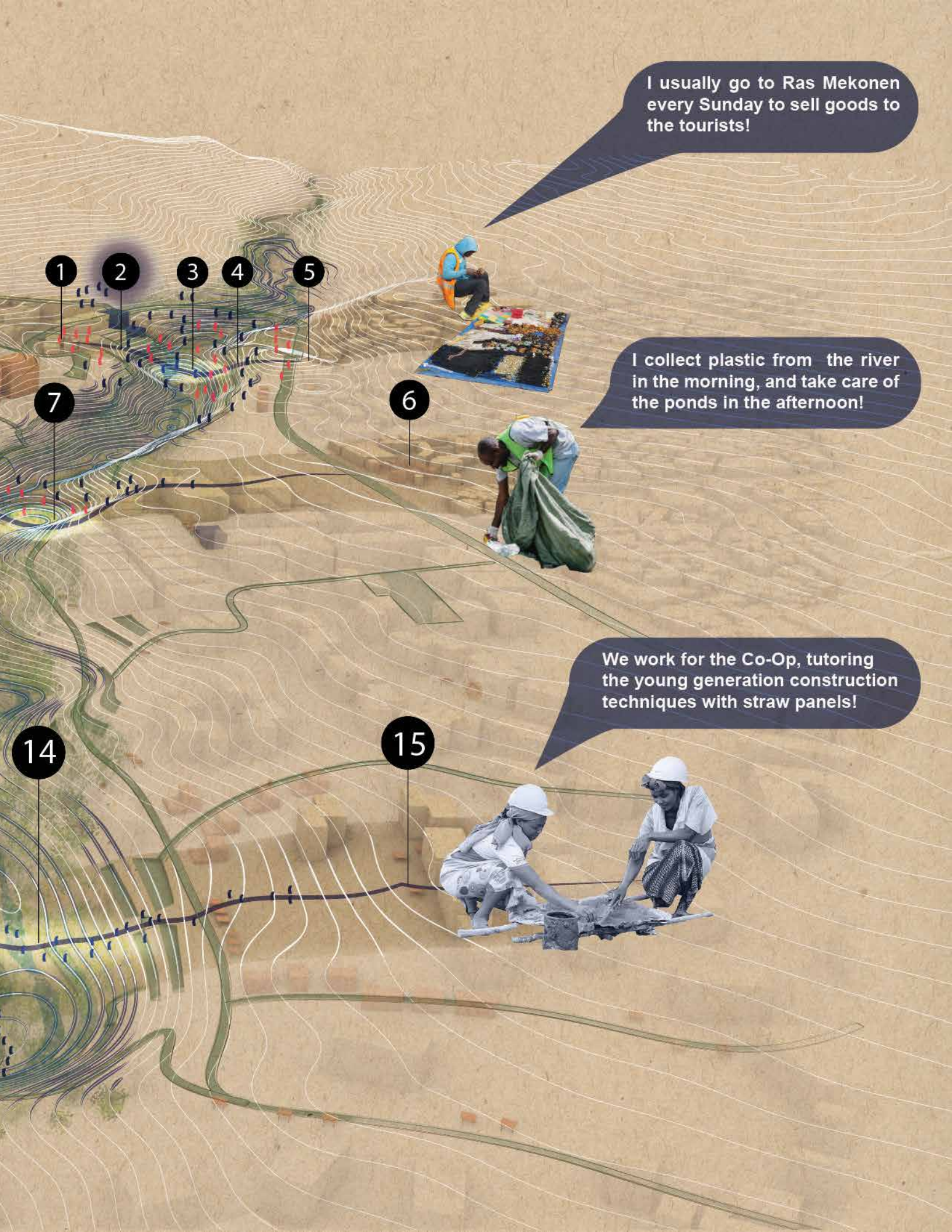
Laszlo Kovacs, Tal Fuerst,
Claudia Klauffman

Addis Ababa's historic city center, Piazza, is known for its vibrant street life but just beyond its dense self-built housing flows a forgotten river. This community and rich ecology does not fit in the city's vision for the city and is in threat of being removed. The eastern part of the neighborhood and river ecology has been cleared to make space for crude condo blocks.

To counteract this plan, we have developed a plan that stitches the condos, the river, and the remaining historic city center through co-operative self-built street improvements.

The project explores how cooperatives can be formed utilizing the communities existing skills and providing government support to create a more resilient Piazza.





I usually go to Ras Mekonen every Sunday to sell goods to the tourists!

I collect plastic from the river in the morning, and take care of the ponds in the afternoon!

We work for the Co-Op, tutoring the young generation construction techniques with straw panels!



Piazza's Resiliency

Self Made Flexible Buisness



Community Built Shops



Manufacturing



Housing Insecurity

**Difficult
Emergency Access**

An Extension of a Home

ng

Making Goods

Water Insecurity

Erosion

Dumping Sewage

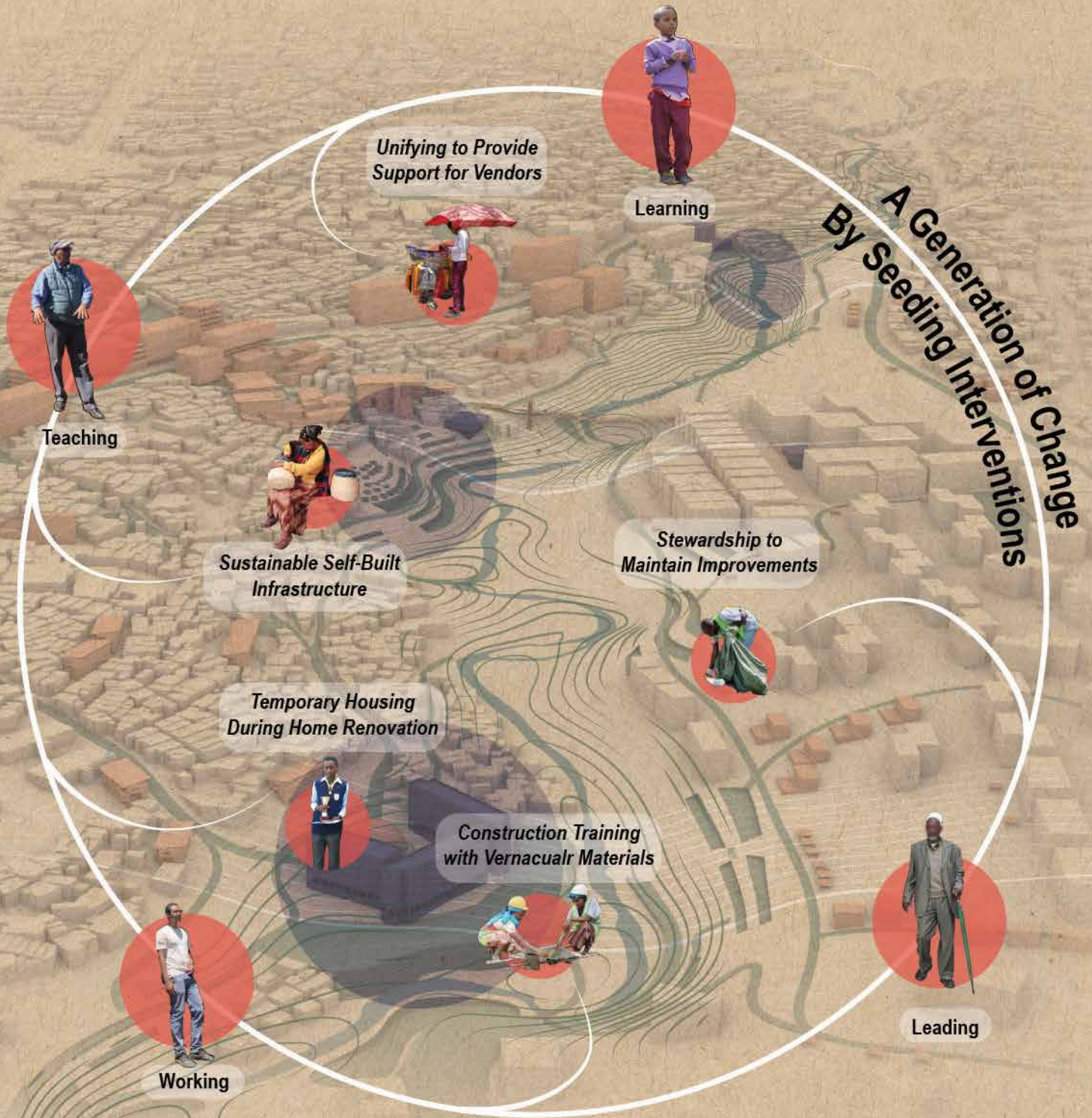


Seeding Change with Government and Community Symbiosis

Federal Co-Op Agency Grant + Water Infrastructure Funding

Co-Op
HUB

Vendors and Residents Organize For Agency





Light Commerce Infill Around Condos



Green Infrastructure Staging Street Commerce

**Traversing the Rift
with Street Commerce**



Northern Gorge Crossing



*Halie Selassie Street
Pedestrianized*

*Commerce
Opportunities Increase*

*Intimate Openings
into the Kebele*

*Up-Cycled Street Furniture
Under Tree Canopy*



**Traversing the Rift
with Water Filtration**



Central Gorge Crossing



*Utilizing Vernacular
Material and Plants*

*Neighborhood Scale
Waste Water Treatment*



Waste Water Bio-Filtration

*Filtered Water
Holding Pools*

**Traversing the Rift
with the Community**



Southern Gorge Crossing



Community Meeting Space



Construction Training



Rainy Season Pontoon Bridge

