

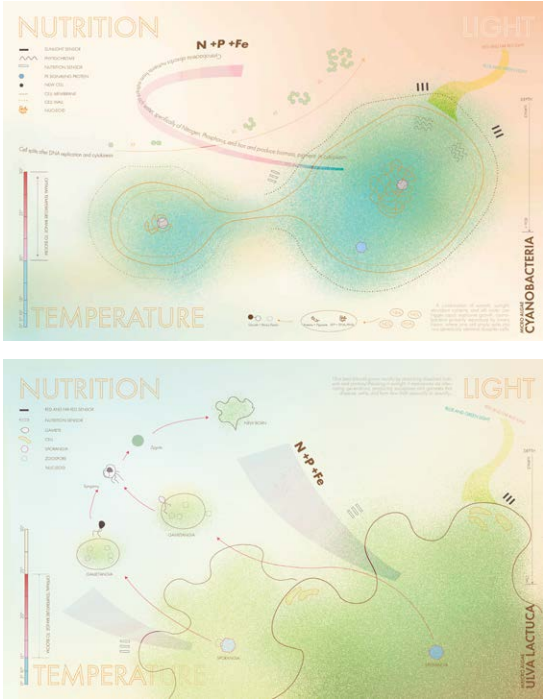
ALGAE—CULTURE

Advanced Architecture V
Project Type: Multi Scale
Architectural Experience
Design
Team Work With: Jessie Pan
Time: Fall 2025
Site: Central Park, New York
City, Ny



The Conflict

The immediate problem is HAB-driven ecological collapse: algae overgrowth increases turbidity, blocks light for benthic vegetation, and drives oxygen depletion (hypoxia) that kills fish, shellfish, and marsh grasses. The deeper challenge is that the bloom is not an isolated “water quality event.” It is the visible surface of a systemic conflict between modern industrial agriculture (fertilizer-intensive mass food production) and aquatic ecosystem equilibrium.

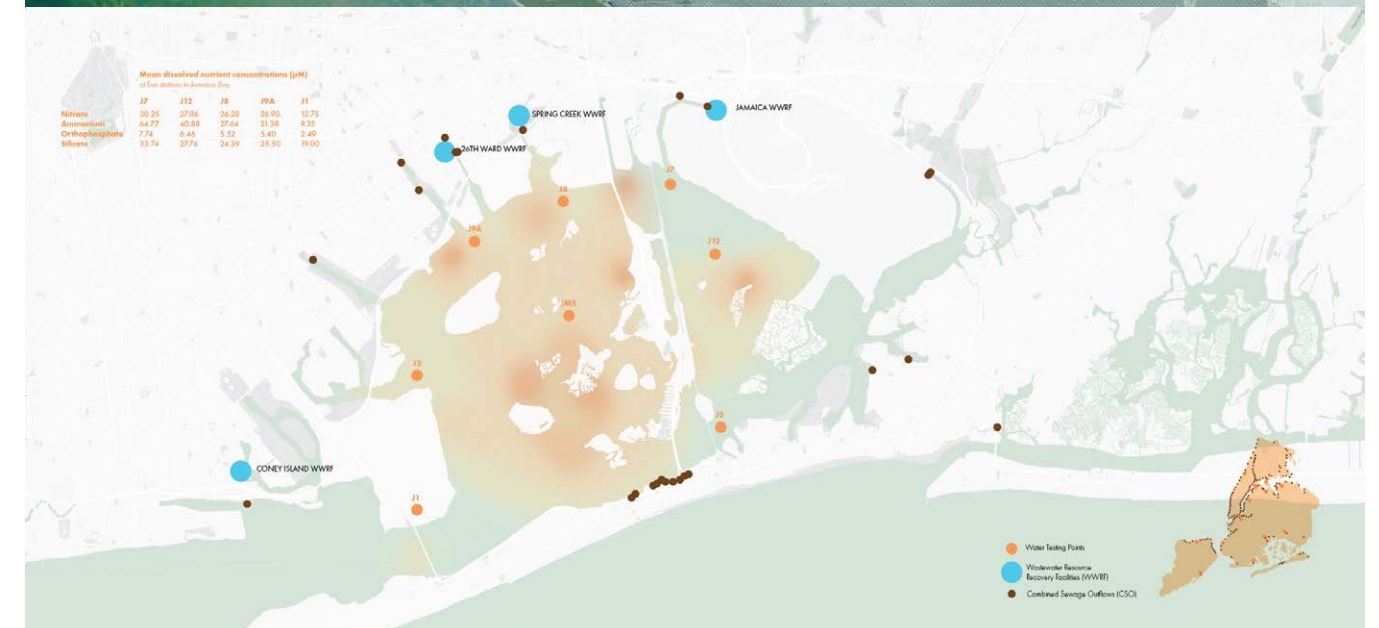
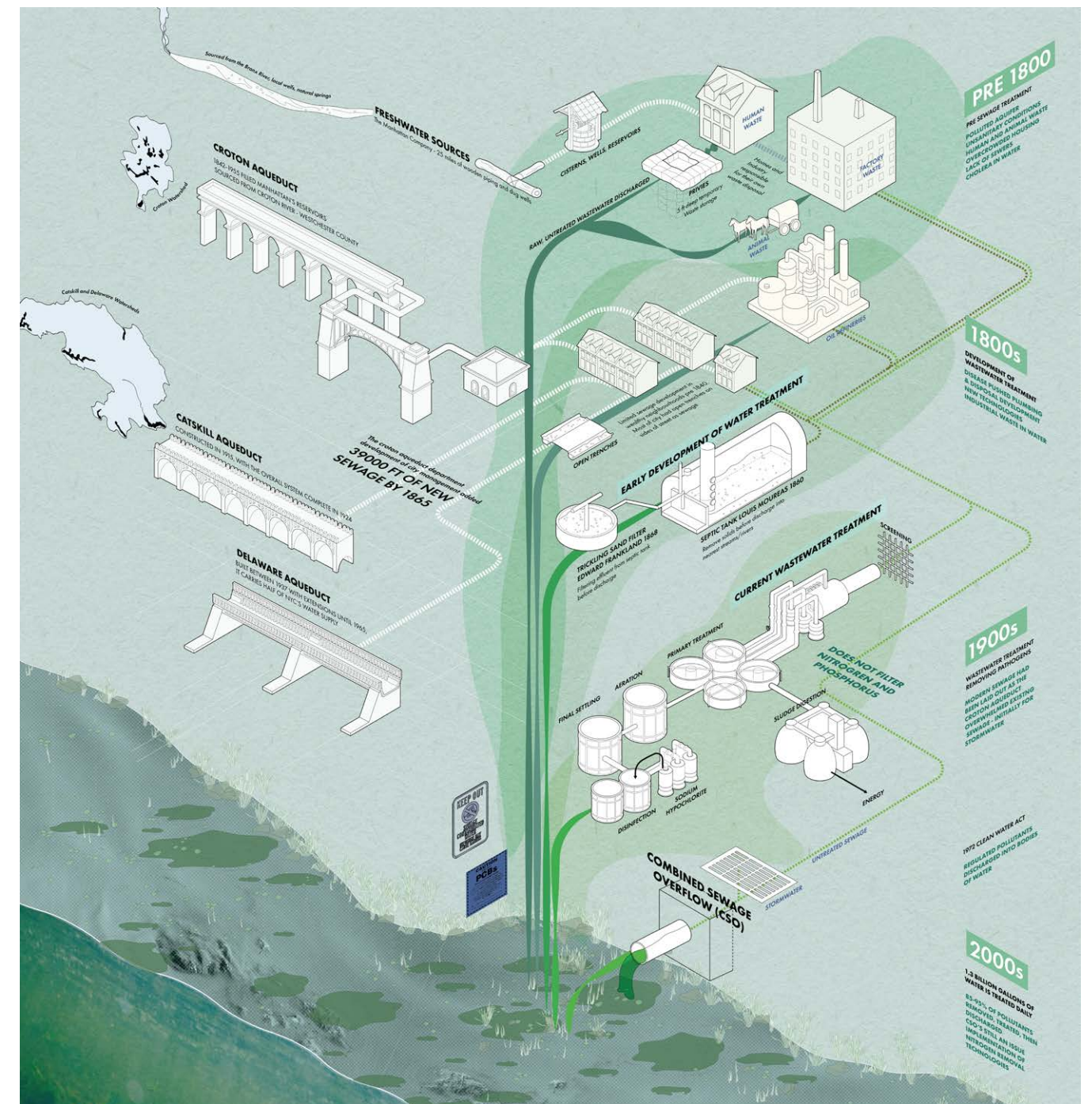


This conflict becomes hard to address because the causality is spatially and institutionally fragmented. Nitrogen and phosphorus enter waters through multiple pathways, and NYC’s wastewater treatment is calibrated primarily for human health risks (pathogens), not for removing nutrient loads at the scale needed to prevent eutrophication—especially under stress conditions like combined sewer overflows (CSOs). The result is a loop: nutrient surplus moves through consumption, sewage, and discharge, returning as bloom toxicity.

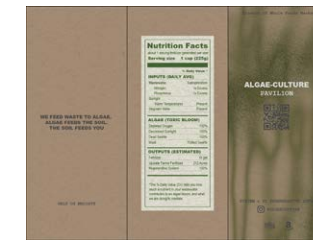
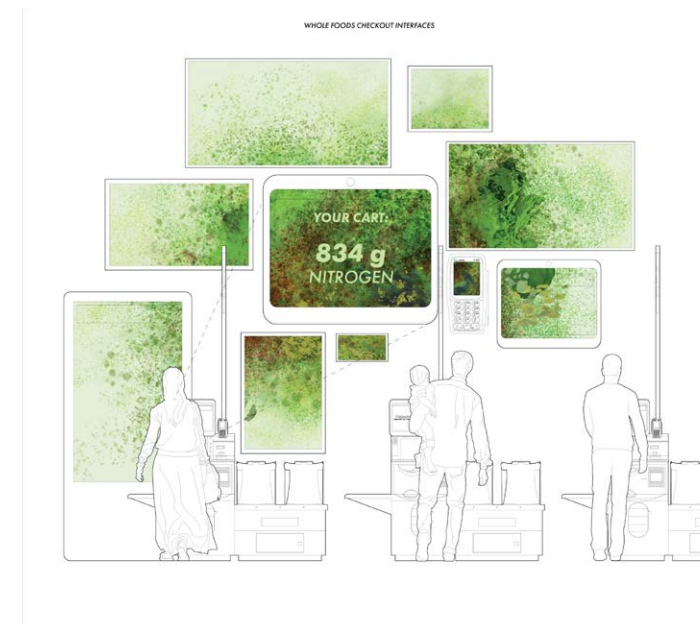
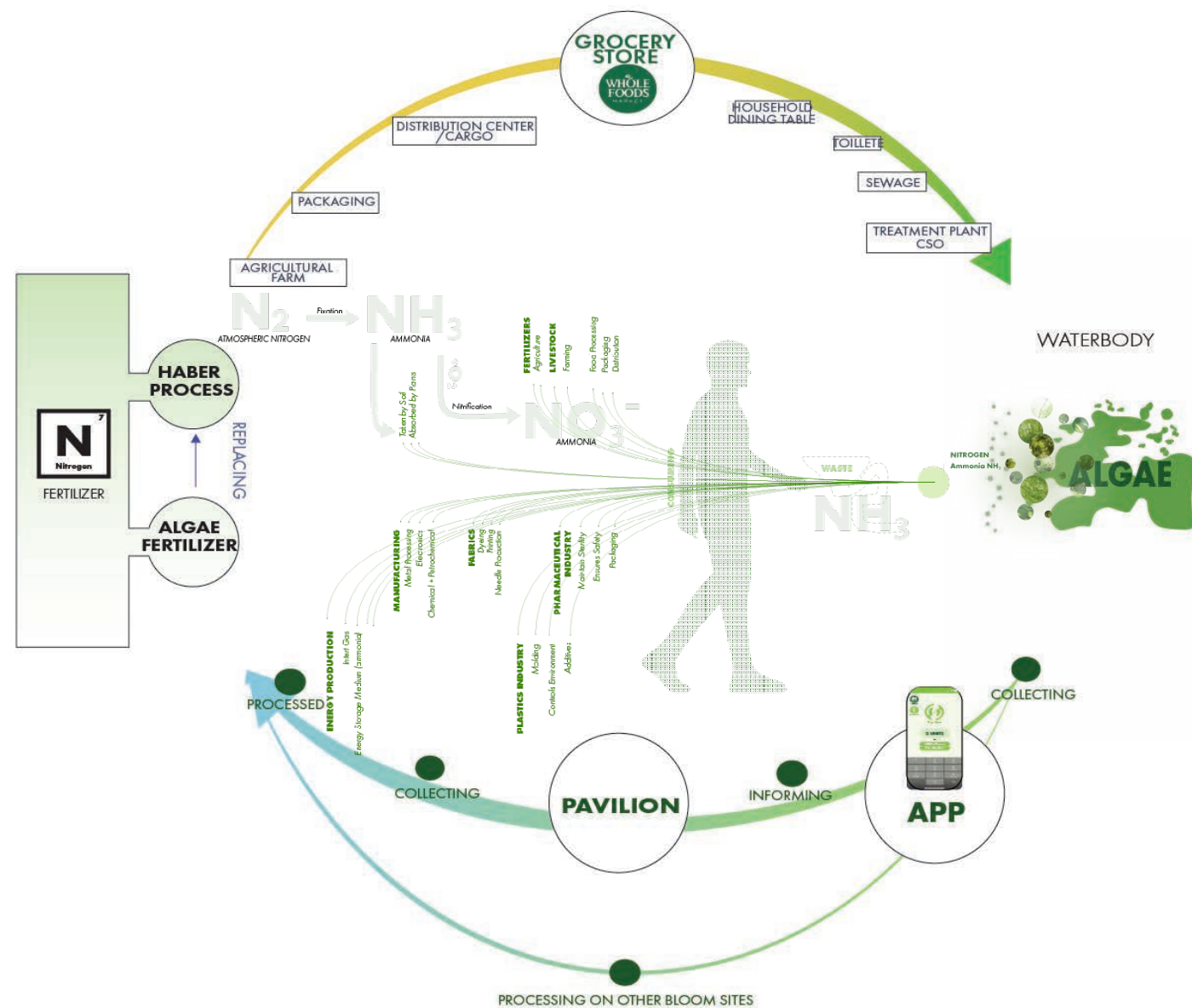
Methodology And Research

The methodology is built around a deliberate shift in scale and evidence type. It begins with biological specificity—field collection of macroalgae in NYC, home cultivation of microalgae, and close study of bloom-dominant organisms (notably cyanobacteria and *Ulva lactuca*) and their reproductive dynamics under conditions of sunlight, temperature, stable water, and nutrient availability. It then expands to systems tracing: mapping nutrient distribution, bloom recurrence, and shoreline infrastructure to identify where the city's metabolism becomes legible.

Historically, the research frames Jamaica Bay as an ecosystem that moved from filtration-rich clarity (seagrass, reefs, shellfish) toward chronic nutrient enrichment through urbanization, industrial waste, and the development of sewage regimes that improved hygiene but did not resolve nutrient loading. The research asks: if HABs are a symptom, what is the upstream driver that keeps reintroducing excess nitrogen at scale?



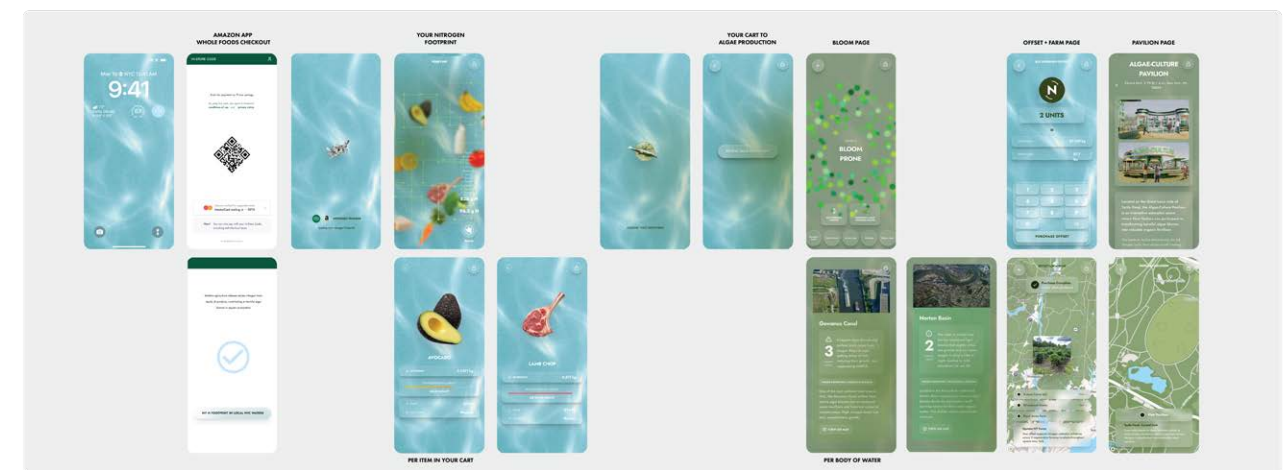
SYNTHESIS: The City Is Already A Fertilizer Factory

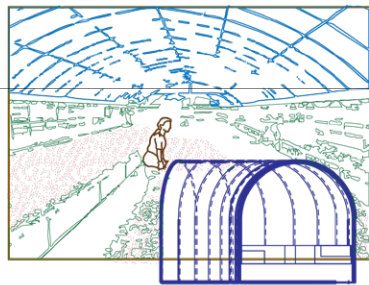
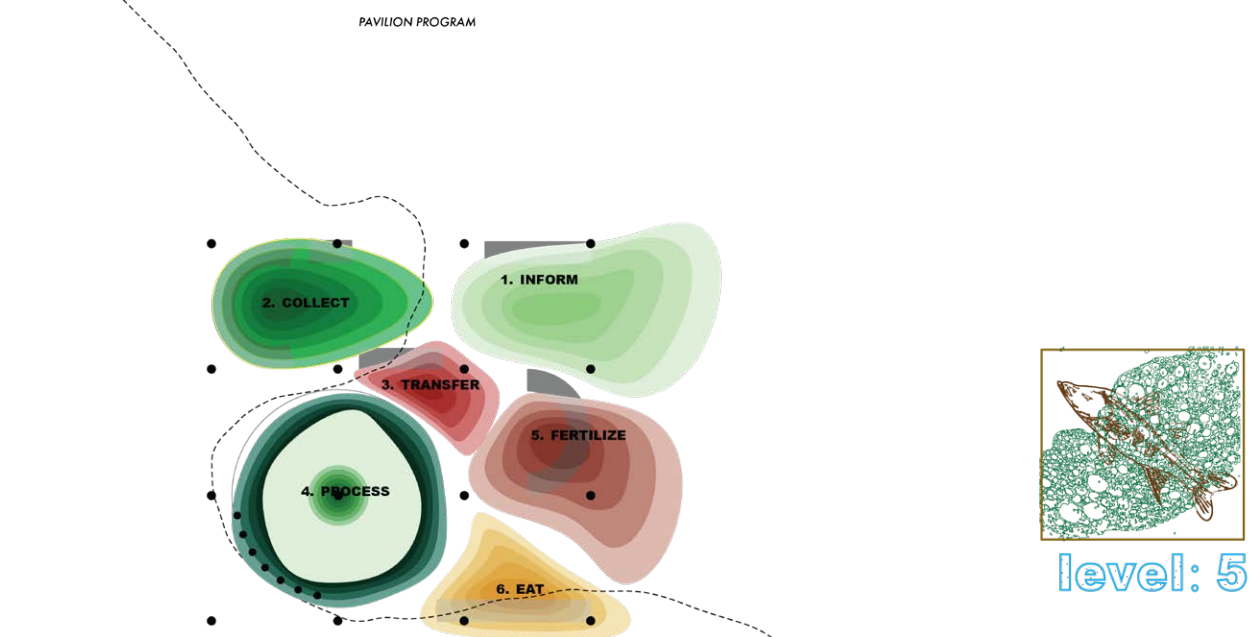


Inside Whole Foods/Amazon's ecosystem, the project proposes a nitrogen-footprint interface integrated into the shopping/checkout flow. As items are scanned, the interface calculates a shopper's associated nitrogen output and offers nitrogen offsets that directly finance algae harvesting, processing, and fertilizer redistribution. In parallel, the physical public interface is an annual branded pavilion (sited at Central Park's Turtle Pond in your concept) that spatializes the invisible infrastructure as digestive architecture: nutrient



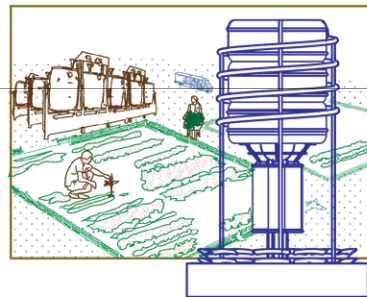
not because it has farms, but because it concentrates nitrogen throughput via dense consumption and the sewage network. HABs become an “adaptive buffer” in the sense that algae are absorbing surplus nutrients, attempting to re-balance chemistry, but doing so in a way that creates new toxicity and hypoxia. This reframes the bloom from a purely environmental “accident” into a metabolic consequence of how the contemporary food system fixes, distributes, consumes, and disposes nitrogen.





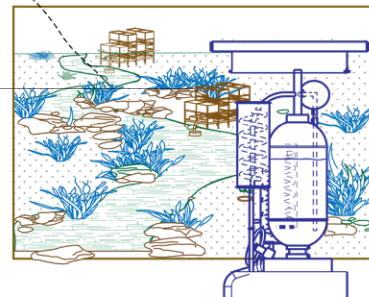
BIOMASS RECYCLED

Processed Fertilizer Is Transported To Farms With Amazon's Delivery System.



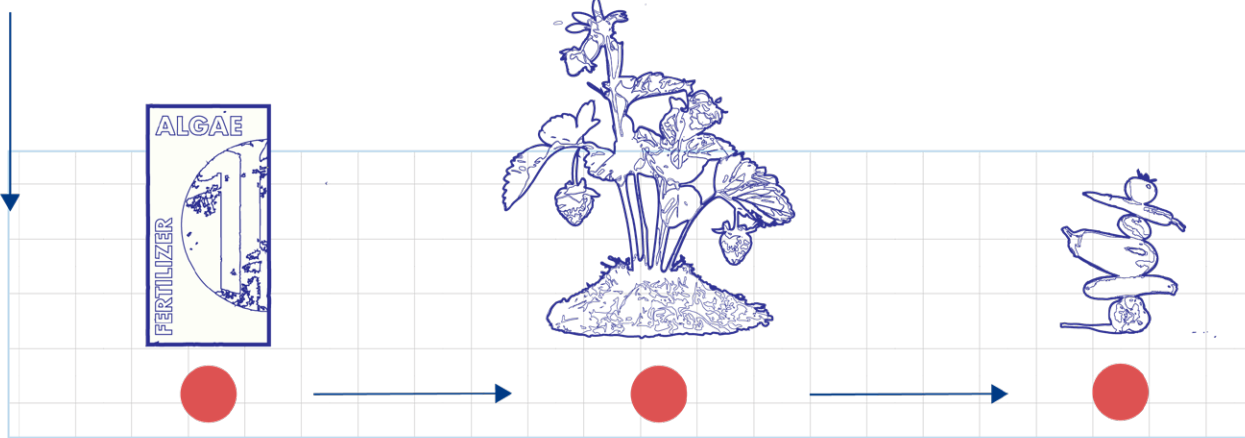
PROCESSING BIOMASS

At Processors Upstate, Biomass Extracted From The Water Will Be Composted, Detoxed, And Transformed Into Fertilizer.



ALGAE REMOVAL

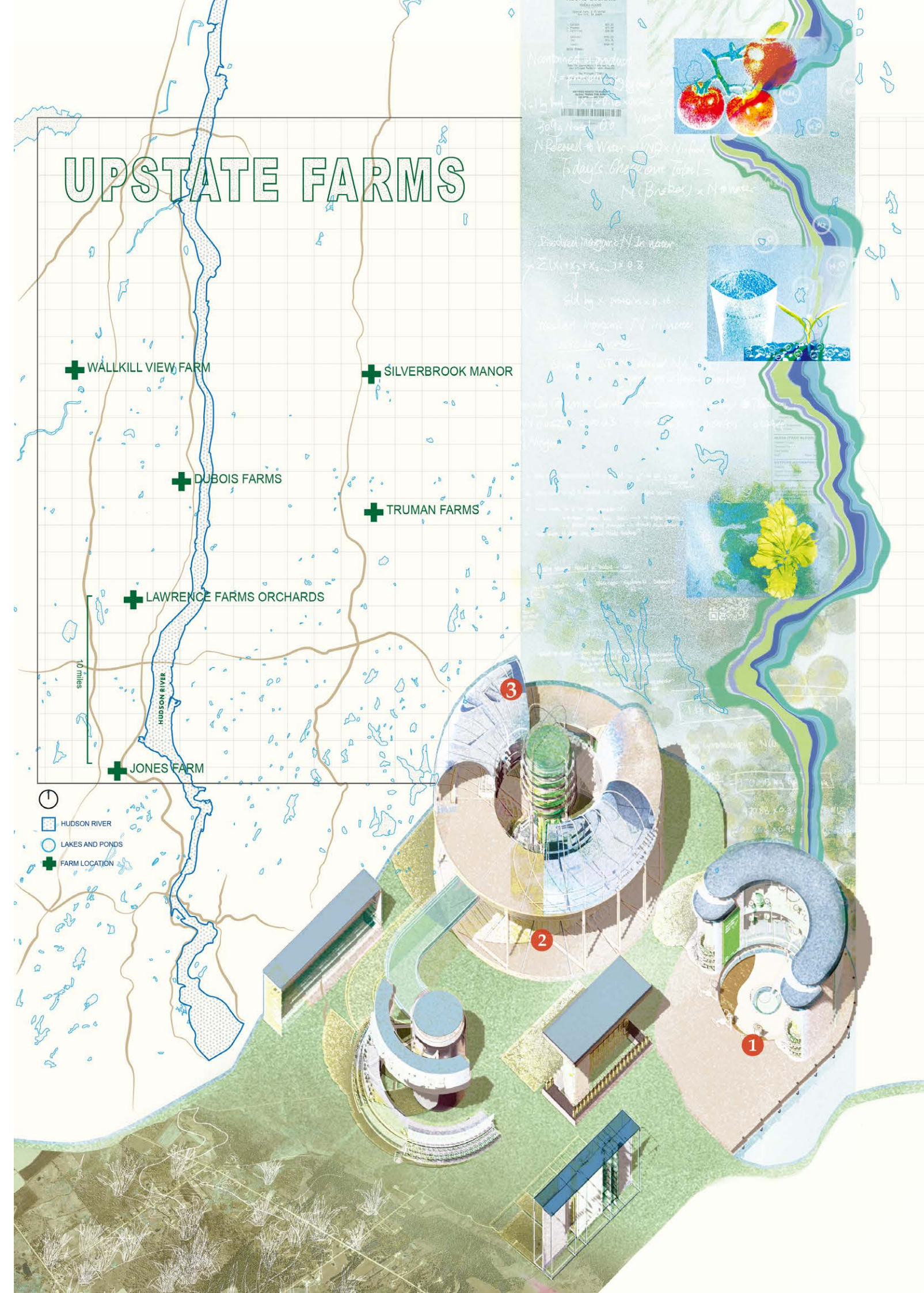
Algae Is Collected At Sites Upstate Along The Hudson River, Up To Kingston, And Adjacent To Farm Locations.



Processed Fertilizer Is Transported To Farms With Amazon's Delivery System.

At Processors Upstate, Biomass Extracted From The Water Will Be Composted, Detoxed, And Transformed Into Fertilizer.

Algae Is Collected At Sites Upstate Along The Hudson River, Up To Kingston, And Adjacent To Farm Locations.



discharge → bloom biomass → harvesting/processing → fertilizer → return to regional farms.

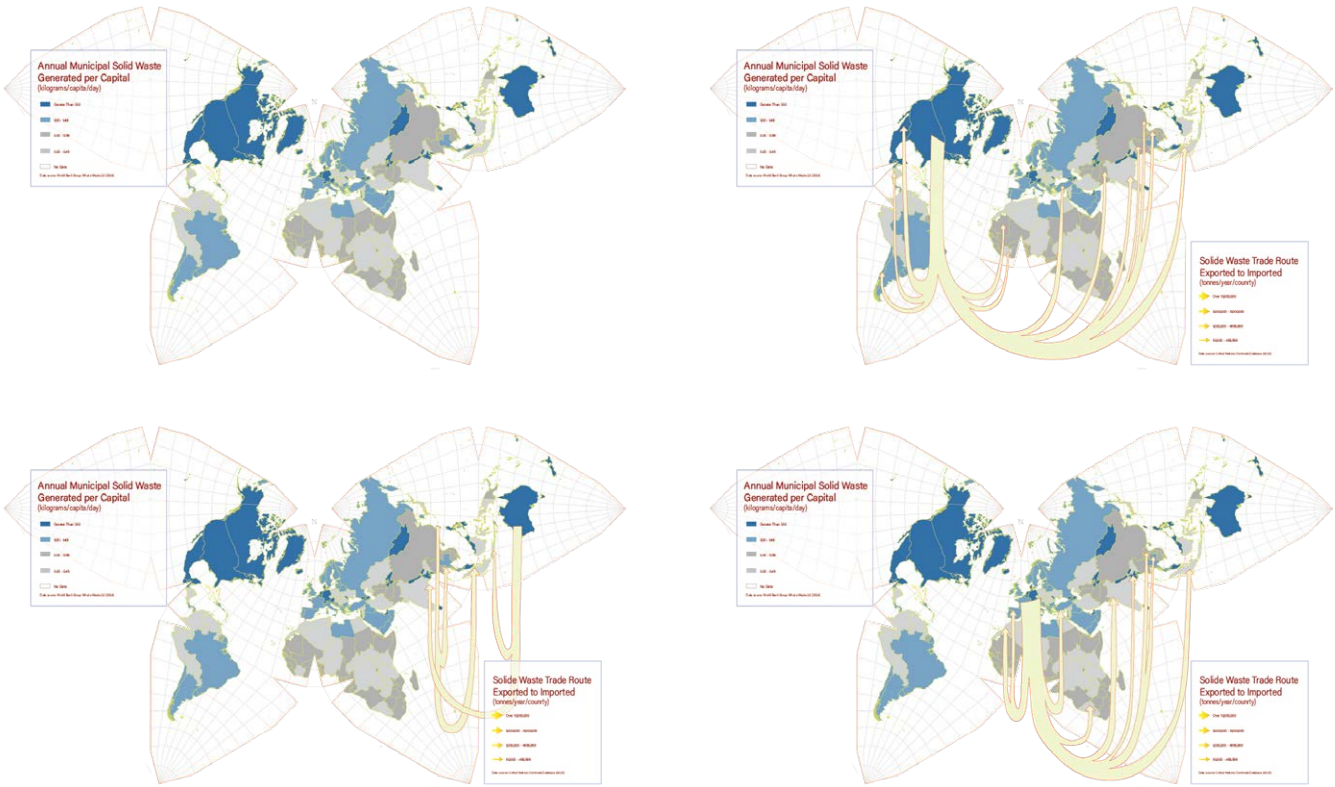
MIGRATING BIRDS MIGRATING WASTE

Advanced Architecture IV
Project Type: PAVILLION
Experience Design
Individule work
Time:Summer 2025
Site: Turkey

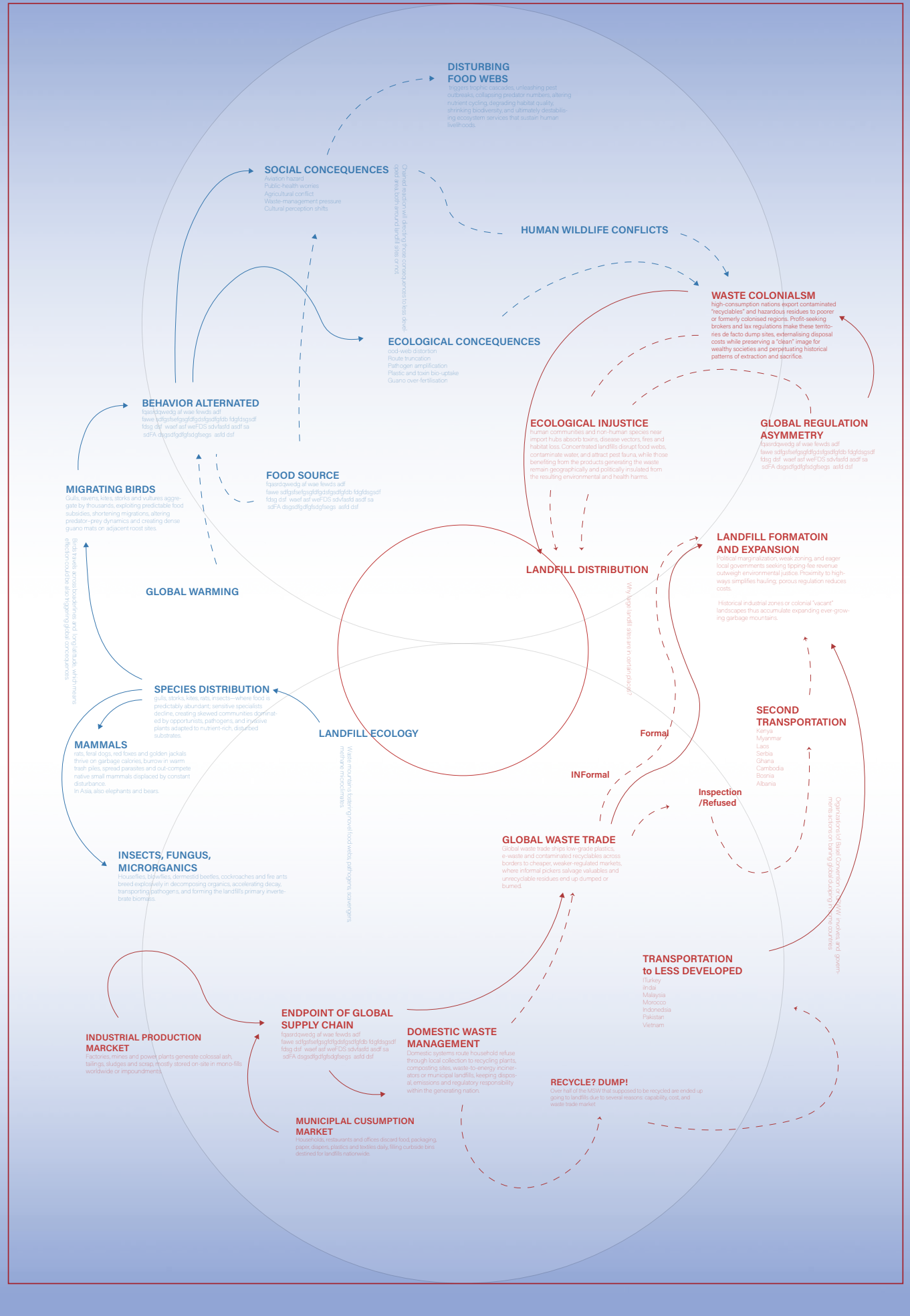


This project investigates the relationship between global waste migration and migratory bird displacement through the spatial condition of the landfill. My research traces two overlapping systems of movement across planetary scales: the transnational circulation of waste exported from wealthier countries to peripheral regions, and the altered migration routes of birds increasingly drawn toward landfill sites as new sources of heat, shelter, and food. Rather than treating the landfill as a terminal space of disposal, the project understands it as an active Anthropocene territory — a human-engineered landscape where ecological behavior, logistics infrastructure, and environmental inequality continuously reshape one another.

RESEARCH: GLOBAL TRADE



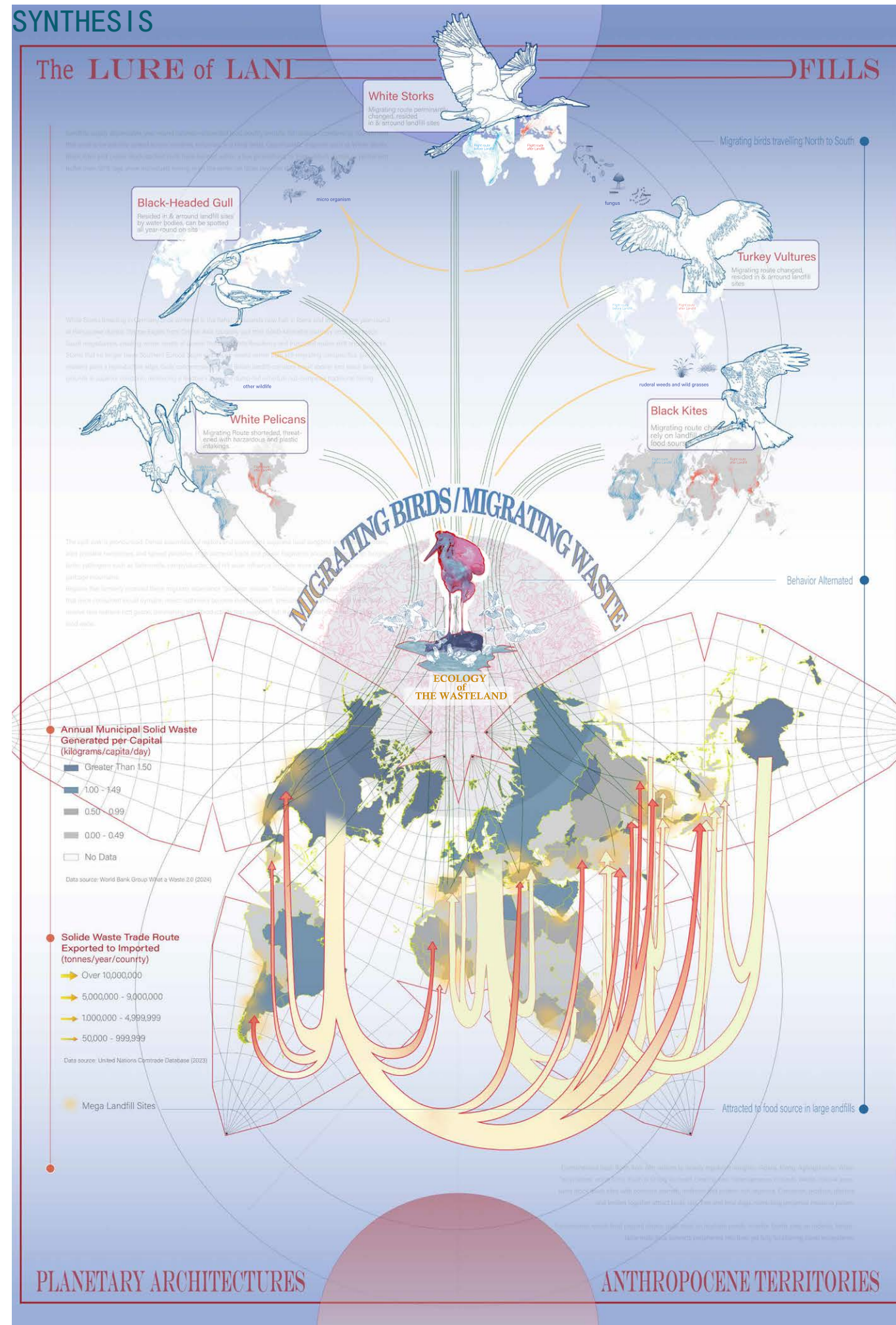
NETWORK



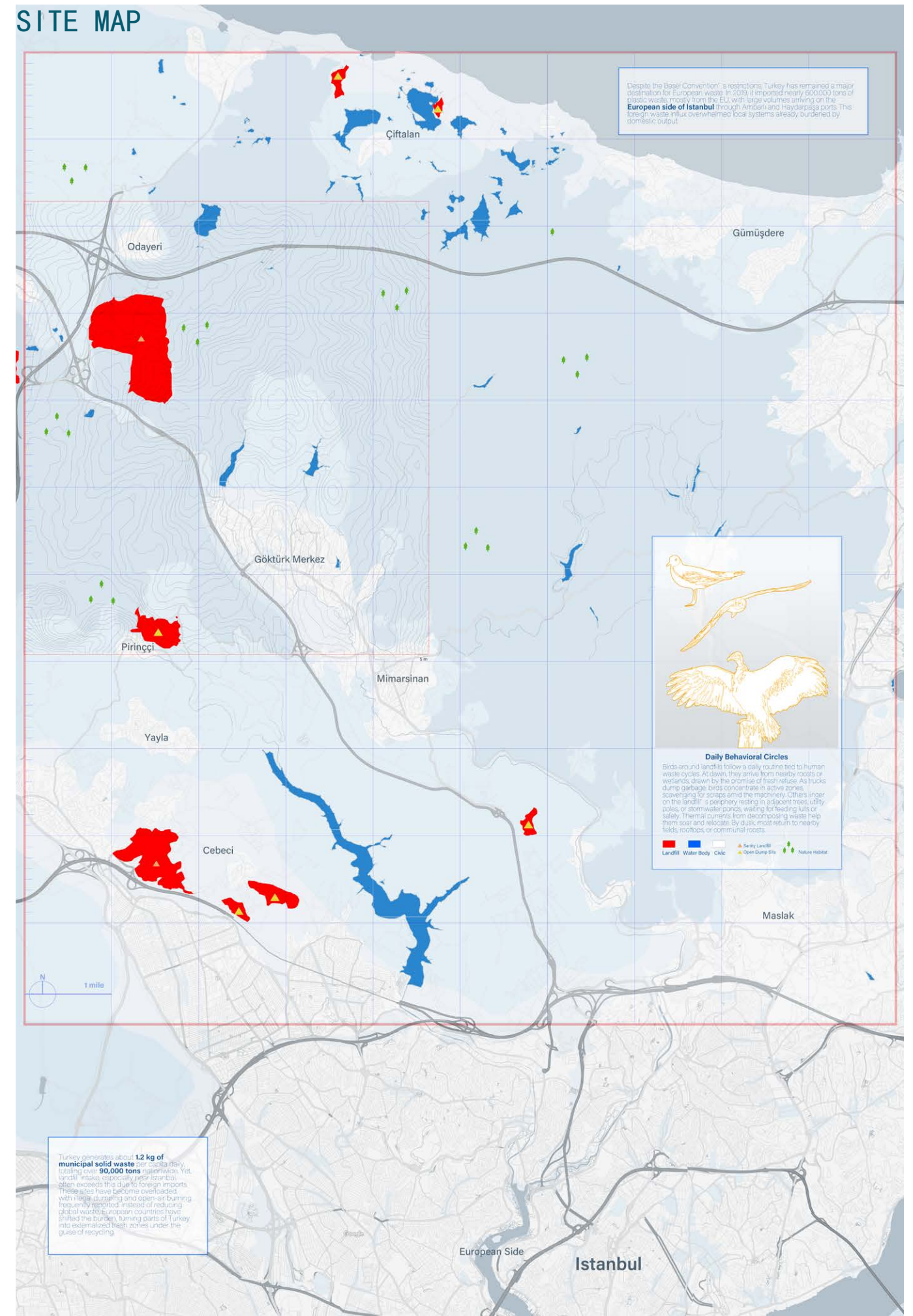
SYNTHESIS

The LURE of LAND

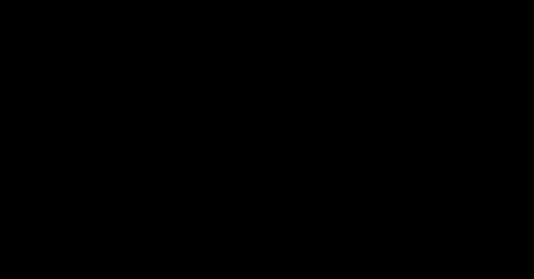
DFILLS



SITE MAP

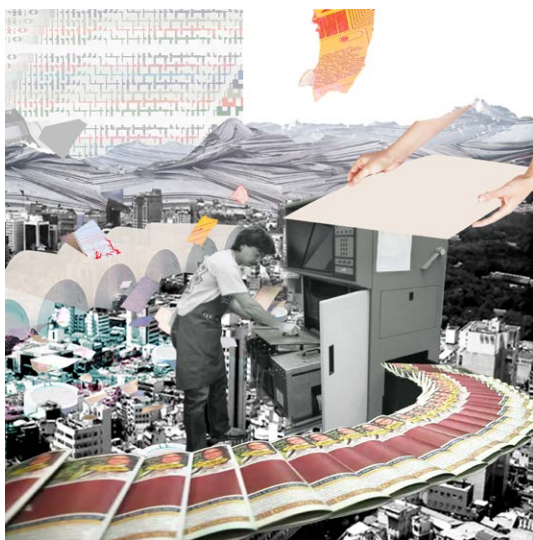
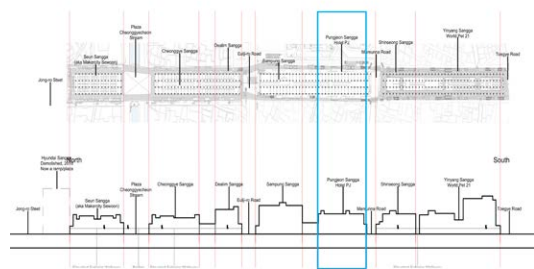
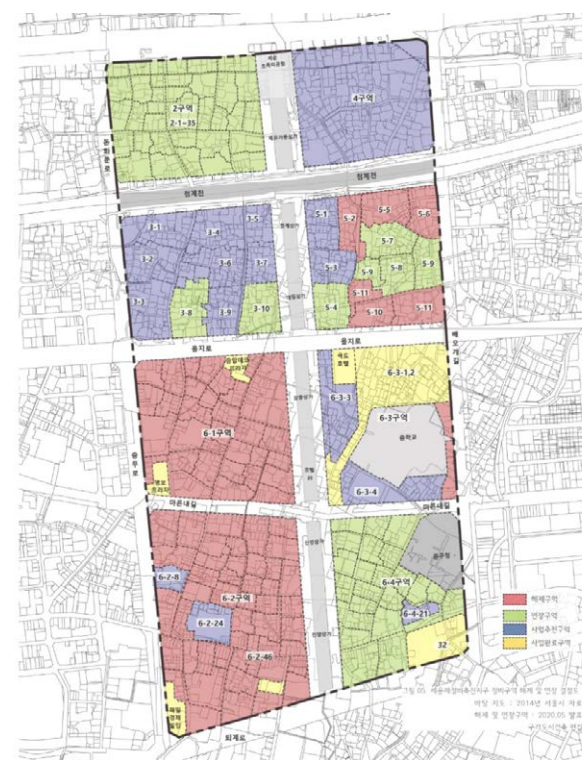


SHORT FILM: TRAILOR TO WASTELAND



HOTEL PJ

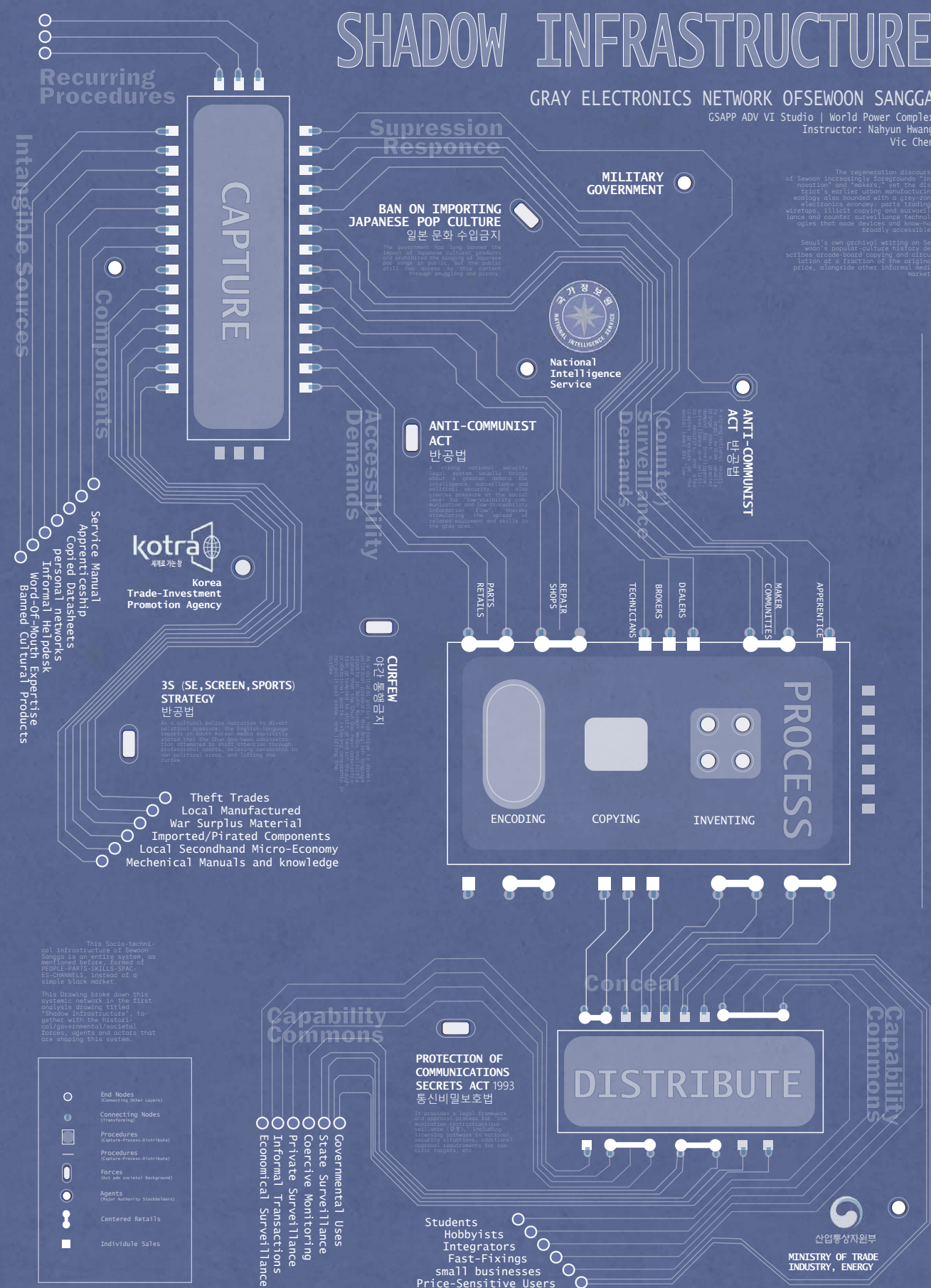
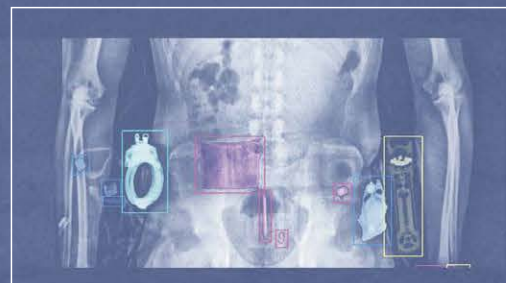
Advanced Architecture VI
Project Type: RENOVATION
Architectural Experience
Design
Team Work With: Jessie Pan
Time: Fall 2025
Site: Centrua Park, New York
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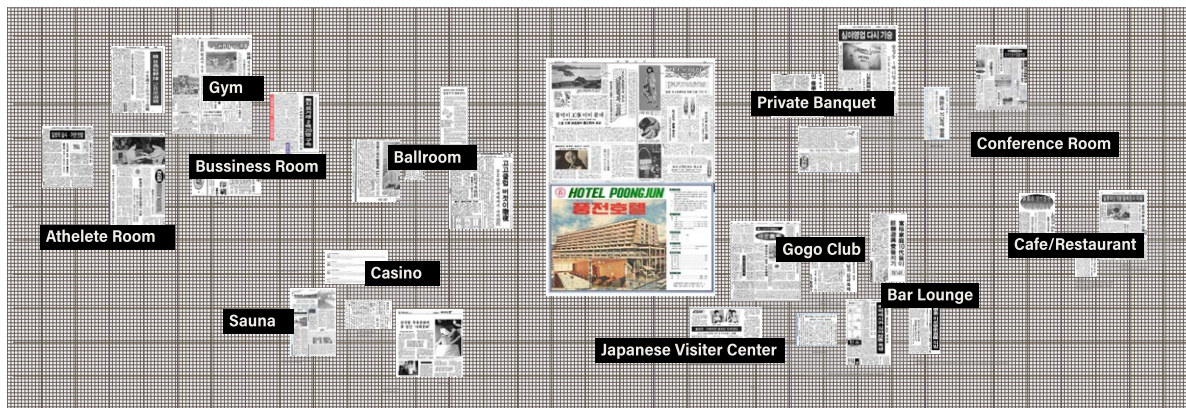
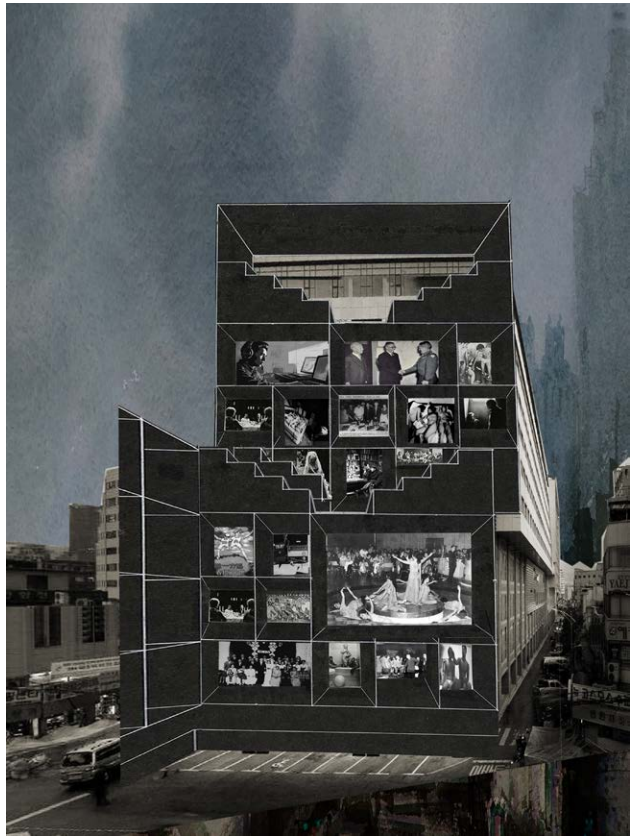


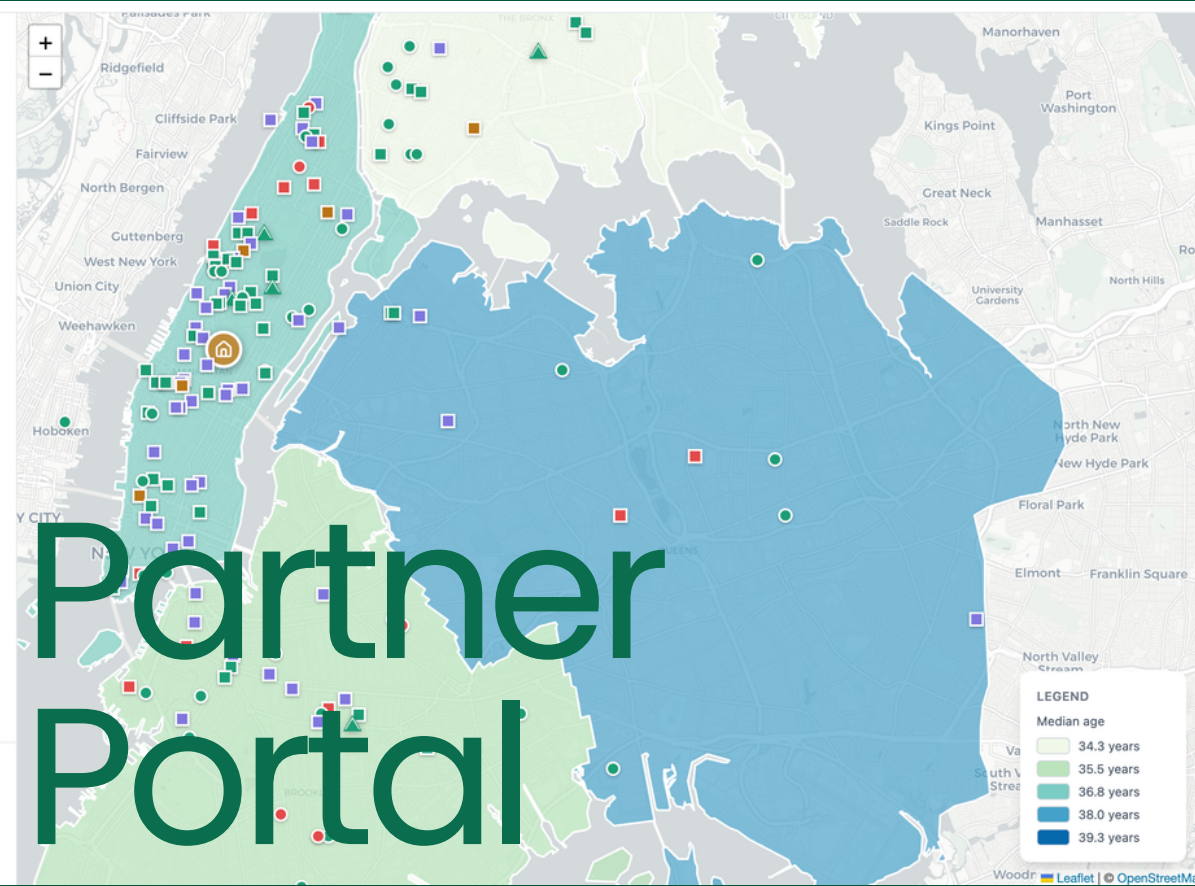
SHADOW MORPHOLOGY

DUAL-USE ELECTRONICS OF SEWOON: X-RAY ATLAS

GSAPP ADV VI Studio | World Power Complex
Instructor: Nahyun Hwang
Vic Chen





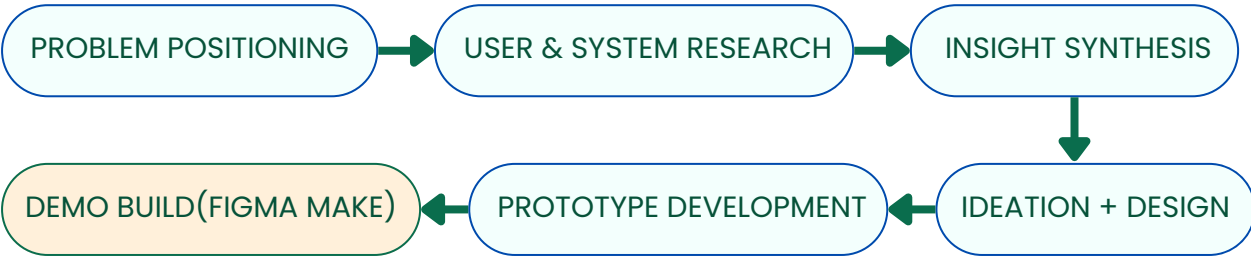


A mapping dashboard for cultural organizations

- PARTNERSHIPS
- AUDIENCE REACH
- COMMUNITY GAPS

Partner Reach is a dashboard prototype for local cultural organizations to better understand their community partnerships, audience reach, and engagement gaps. Starting from research with New York City Center, the project translates fragmented partner, demographic, and programming data into a visual tool for outreach planning and cultural access strategy.

PROJECT WORKFLOW



I. ROBLEM POSITIONING

NYC funds 900+ cultural organizations and 39 city-owned institutions, yet residents’ cultural attention concentrates on major venues. Partner Reach addresses weak local theater–community connections by making outreach gaps visible.



BUSINESS MODELS AND COLLABORATION | THEATRE FUTURES

Crisis or Evolution?

After years of wrenching change, the nonprofit theatre sector can forge ahead by staying connected to its core values of artistic expression, community engagement, and lasting impact.

By Kelvin Dinkins Jr.

6 Reasons Your Community Theatre is Failing

Chris Peterson

OnStage Founder & Editor-in-Chief

Report for the National Endowment for the Arts by the National Arts Statistics and Evidence-based Reporting Centre

? How can nonprofit arts organizations turn fragmented community engagement data into actionable partnership intelligence?

II. PROBLEM VALIDATION

Through an initial client meeting and research around New York City Center, the project identified a more specific operational challenge



Case Interview: New York City Center

Even well-established cultural institutions struggle to understand who they are reaching.

New York City Center offers low-cost tickets, school programs, workshops, and community partnerships, but its engagement data is spread across ticketing platforms, partner lists, demographic files, surveys, and internal notes.

III. RESEARCH FRAMEWORK

To understand where cultural engagement breaks down, the research focused on both users and organizational workflows, to examine:

- How staff manage partnership data?
- How partner organizations connect institutions to communities?
- How teachers, artists, and participants experience cultural access ?

Research Methods

INTERVIEWS

CLIENT MEETING

DESK RESEARCH

SURVEY

DATA REVIEW

BENCHMARKING

PROTOTYPE TESTING

CASE STUDY

User Identification

User Groups	Who they are?	Questions	Representative users
 User Group 1 NYCC Internal Staff	Education, Community Engagement, and Planning staff at New York City Center. They manage partner relationships, track outreach, and need to explain why City Center is reaching and where the gaps are. Need A clearer way to see partner networks, audience patterns, and demographic coverage in one place. Vic Chen	Where are our strongest partnerships? Which communities are we not reaching well? What do I need to show leadership, donors, or internal teams? Vic Chen	Seth Laidlaw Tia Powell Harris Jordan Powell Vic Chen
 User Group 2 Partner Organizations	Schools, education programs, and community organizations that bring people into City Center programs They are the bridge between City Center and the public. They shape whether access actually happens. Need Simple coordination, affordable access, clear communication, and programs that fit their own capacity. Vic Chen	How easy is it to partner with City Center? What makes this relationship worth continuing? What makes participation hard for our students or community members? Vic Chen	Dori / Exploring the Arts Charles Markham / DOROT Stephanie Hand Gabby Vic Chen
 User Group 2 Teachers/hosts	Teaching artists, dancers, audience members, workshop users, and other people who experience City Center from the outside. They reveal how City Center is perceived, how people find it, and what makes them return or stay away. Need clear entry points, lower friction, welcoming spaces, and stronger connection between programs and people. Vic Chen	How do I hear about City Center? What makes the space feel welcoming or not? What keeps me coming back? Vic Chen	Tony Taite Pierson Ria Lalwani Nelida William Winifred Vic Chen

IV. INTERVIEWS

User Group interviews



Seth Laidlaw



Tia Powell Harris



Tony



Taite Pierson



Nelida



William



Dori



Charles Markham



Stephanie Hand



Gabby

Role / relationship to NYC Local Art Organization ?

Director of Planning & Operations, Education, Internal staff user

VP of Education & Community Engagement at New York City Center, Internal leadership user

Teaching artist working with City Center's Education & Community team

Working artist and community engagement at NYC and other institutions

Donor and internships. Has also taught a workshop at City Center

Audiovisual specialist for events at NYC and photography student

Role: Exploring the Arts partner representation

DOROT representative for a senior serving community partner

Teacher, School side user with limited field trip experience

Intern teacher

What do you care about of ATTENDING/MANAGING/CO-OPERATING A Local Art Organization ?

Seth is one of the closest internal users for the program because he is responsible for planning the program in an abstract way. He is responsible for the program's success and for the program's reputation. He is responsible for the program's success and for the program's reputation. He is responsible for the program's success and for the program's reputation.

The speaker is the research phase as a research phase. The speaker is the research phase as a research phase. The speaker is the research phase as a research phase. The speaker is the research phase as a research phase. The speaker is the research phase as a research phase.

Tony's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

Taite's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

Nelida's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

William's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

Dori's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

Charles's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

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Gabby's interview is useful because it shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way. It shows how the program works in a practical way.

What's the key barrier or need?

What makes this important is that for the staff at the program, the program is not just a program. It is a program that is important to the staff. It is a program that is important to the staff. It is a program that is important to the staff.

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Interview Highlights

“If we are going to grow, we should be connected to people who aren’t being served.”

– Tia Powell Harris, VP, Education & Community Engagement

“The kids who need access to free things the most often have parents who don’t have the time or the ability to go.”

– Teaching Artist

“For some of these children, this may be their only entry point into a museum.”

– TFamily Community Operator

“It would be powerful if a student could earn the chance to take a parent to a performance.”

– Teache ofScholl in Partnerships

Research showed that the access problem was not caused by a lack of cultural programs. Many organizations already provide affordable tickets, school partnerships, workshops, and community events. The deeper issue is that participation depends on partner capacity, trust, logistics, and whether staff can clearly see who their programs are reaching.

III. INSIGHTS TO DESIGN

The deeper issue is that participation depends on partner capacity, trust, logistics, and whether staff can clearly see who their programs are reaching.

Case Study Insights

EXISTING RESOURCES

Affordable tickets, workshops, school programs, community nights

OPERATIONAL GAPS

Fragmented data, manual reporting, unclear audience reach

DESIGN OPPORTUNITY

A visual dashboard for partnership mapping and outreach planning

Synthesis Insights

PARTNERS ARE THE GATEWAY.

Schools, teachers, senior centers, and community organizations often decide whether residents encounter a cultural institution at all.

ACCESS DEPENDS ON LOGISTICS.

For teachers and partner organizations, attendance is shaped by scheduling, transportation, safety, paperwork, communication, and preparation.

ENGAGEMENT DATA IS FRAGMENTED.

Partner lists, ticketing records, demographic files, surveys, maps, and staff knowledge often exist in separate systems, making outreach gaps hard to identify.

EXISTING PROGRAMS NEED BETTER ROUTING.

The opportunity is not simply to create more programs, but to help the right programs reach the right communities more consistently.

Key Ideas to Address the Challenge

INFORM
(Growth Focused)

Develop outreach, marketing, and storytelling strategies to raise awareness among teachers and potential partners.

INTAKE
(Recruitment Workflow)

Improve the experience for teachers who discovered the City Center (i.e. the website), streamlining how they get involved.

ANALYZE
(Demographic Data)

Visualize demographic data (i.e. a map of current schools) to identify audience gaps and inform future strategic next steps.

IV. PROTOTYPING DRAFT

Initial solution: Map & Partner Dashboard

A mapping and data dashboard will give the organization a clearer, more informed view of their partnerships, including demographic data that reveals both whom they're reaching and whom they're missing.

User Journey

Navigate

User opens Partnership Map reviews current school districts and demographics City Center is targetting

Search

User filters target district and applies demographic filter to search districts that lack engagement

Identify

User identifies school that lack engagement and informs marketing and education department

Report

User generates report to present information to internal and external stakeholders to support growth business case

Early Lo-fi Sketch

Organization Log in

Synthesis Dashboard - Primary

Organization Name

Map Partnership Demographics

Filter

schools Arts Community Libraries

list

map

Initial Prototyping

NYC Center Partnerships

Map Partnership list Demographics

Search all partners

Map

Partnership list

Demographics

Engagement status

NYC Center Partnerships

Map Partnership list Demographics

Search all partners

Map

Partnership list

Demographics

Engagement status

NYC Center Partnerships

Map Partnership list Demographics

Search all partners

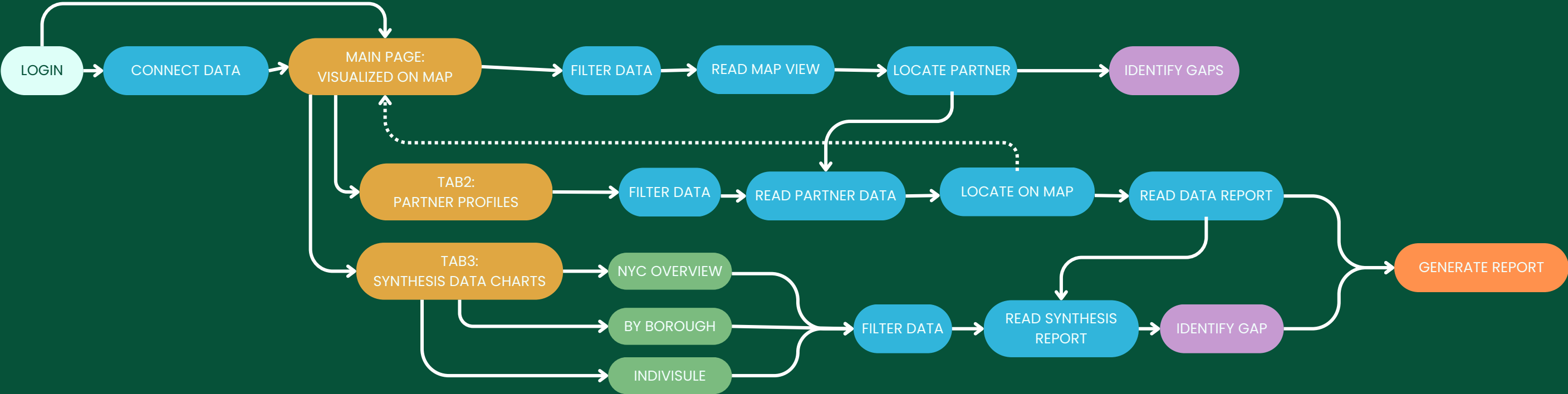
Map

Partnership list

Demographics

Engagement status

V. USER FLOW



USER JOURNEY: SETH (BEFORE)



"I have to sift through multiple Excel sheets, Google Maps files, and constantly look up individual demographic data just to share updates with donors, leadership, and internal teams—it's overwhelming."

Seth is a New York City Center employee in the Community and Education department. He helps organize data on who New York City Center serves. He is tech-savvy but has limited bandwidth to manually gather and update data.

USER JOURNEY: SETH (AFTER)



"We want to **grow** but we don't have a clear database on the **current partnerships** and **demographics** to target our gaps effectively"

Navigate

-User opens Partnership Map reviews current school districts and demographics City Center is targetting



"What if we have an **interactive visual map** that allows me to **collect, track** and see the gaps"

Search

- User filters target district and applies demographic filter to search districts that lack engagement



"We want a tool that **clearly tracks growth and demographic gaps** and present a **evidence based** approach to targeting new partnerships and developing key areas of improvement for growth"

Identify

-User identifies school that lack engagement and informs marketing and education department

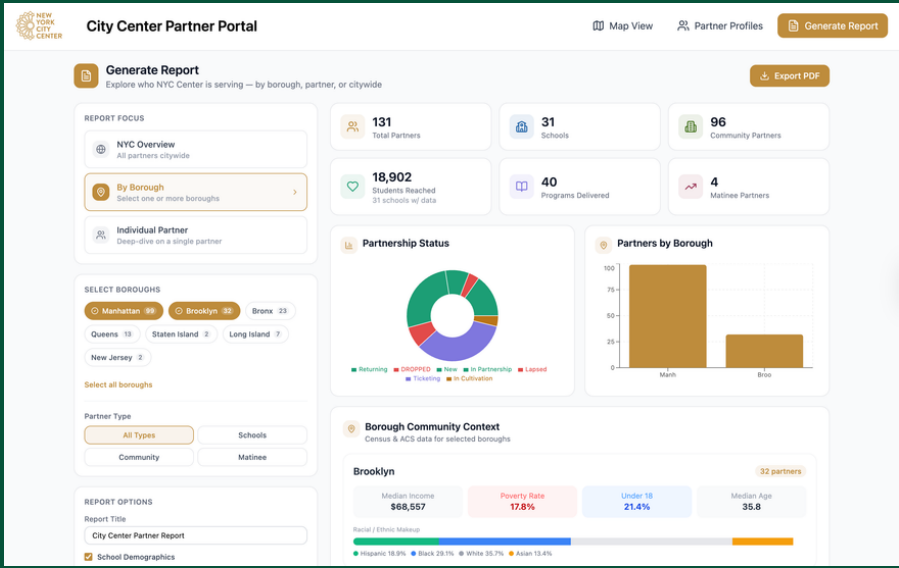
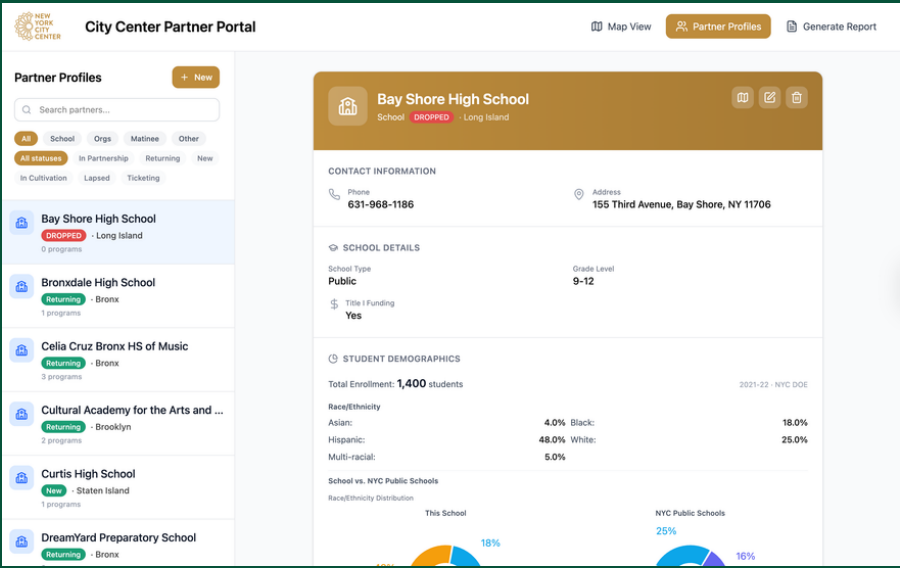
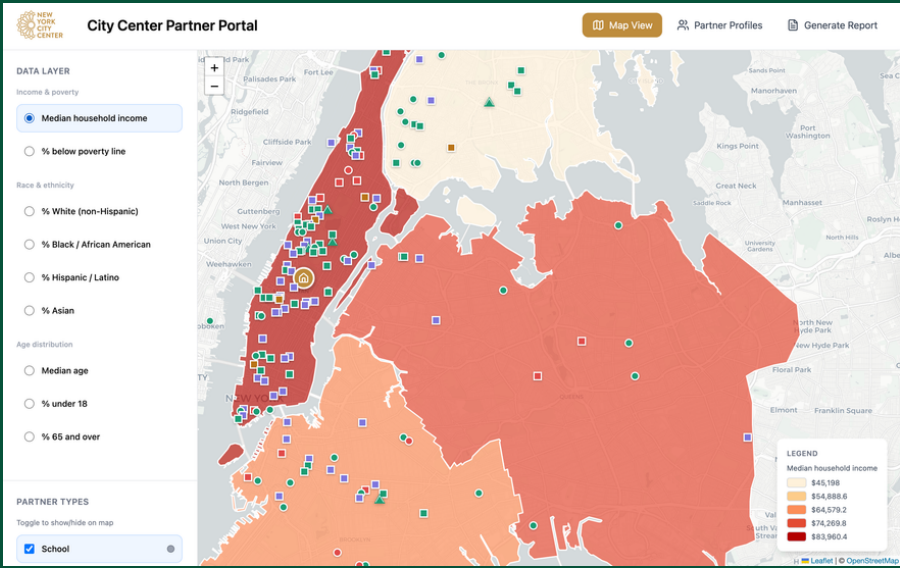


"We want to be more **confident** in communicating to **multiple stakeholders** and provide business case to target growth areas so that City Centre can **focus its efforts effectively**"

Report

-User generates report to present information to internal and external stakeholders to support growth business case

KEY FEATURES



PARTNER TYPES

Toggle to show/hide on map

☒ School

☒ Community Partner

☒ Matinee Partner

PARTNER STATUS

Toggle to show/hide on map

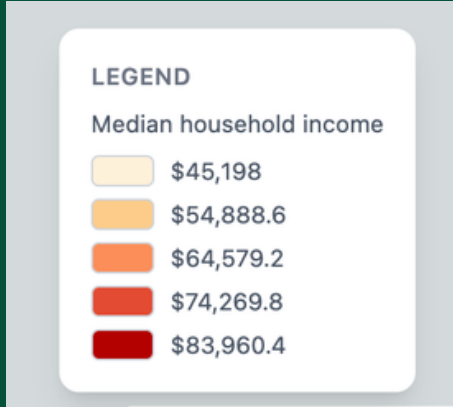
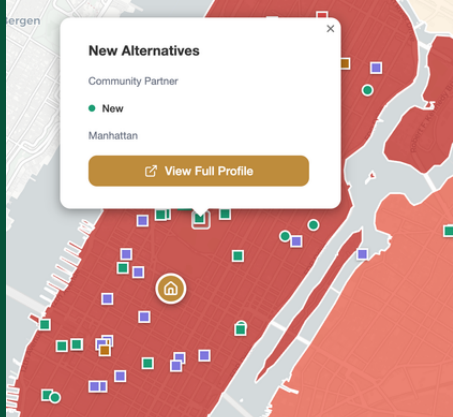
☒ Active Partnership

☒ In Cultivation

☒ Ticketing

☒ Lapsed/Dropped

☐ Not Partner

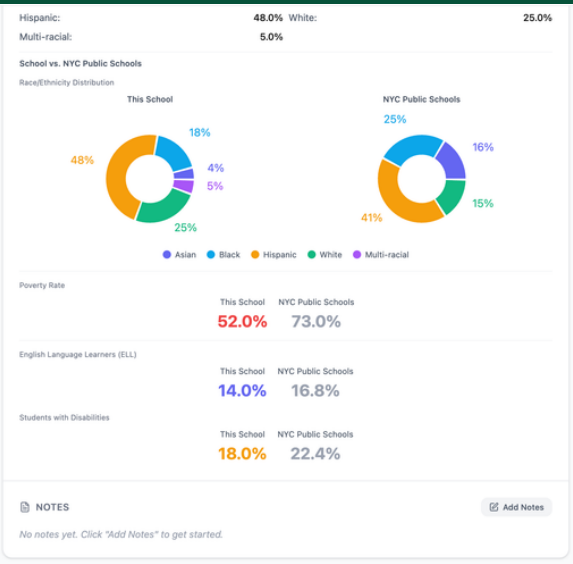
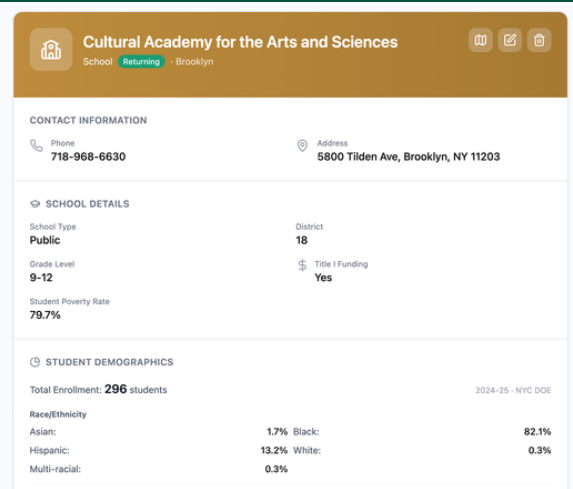
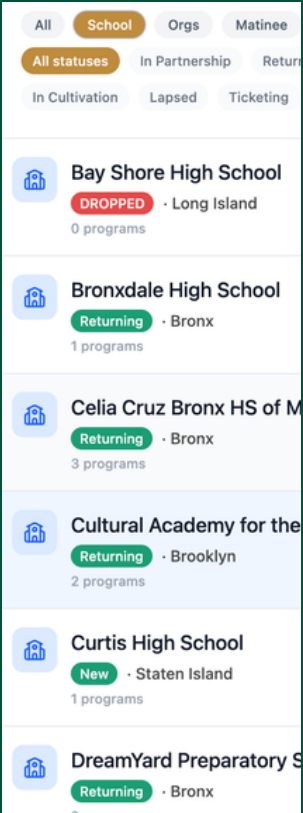


Search partners...

All School Orgs Matinee

All statuses In Partnership Returning

In Cultivation Lapsed Ticketing



REPORT OPTIONS

Report Title: City Center Partner Report

School Demographics

Borough Community Context

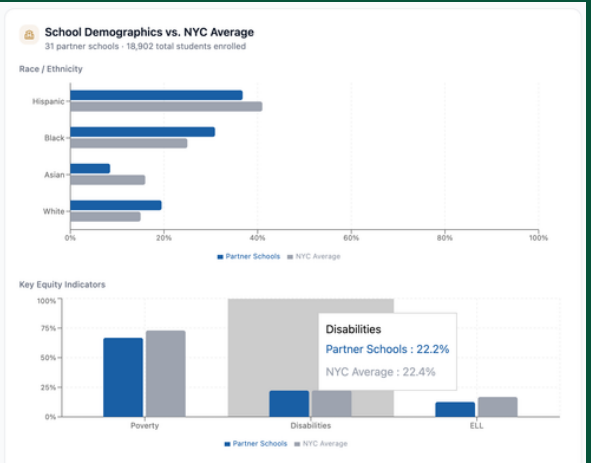
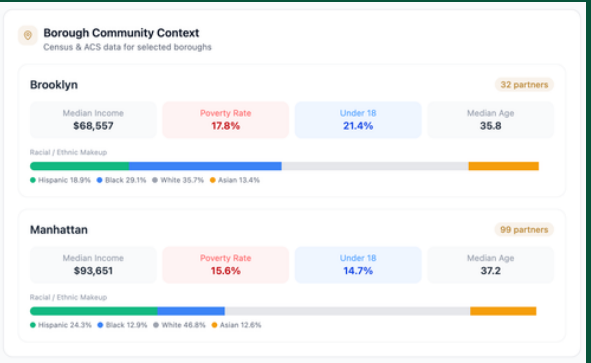
Program History

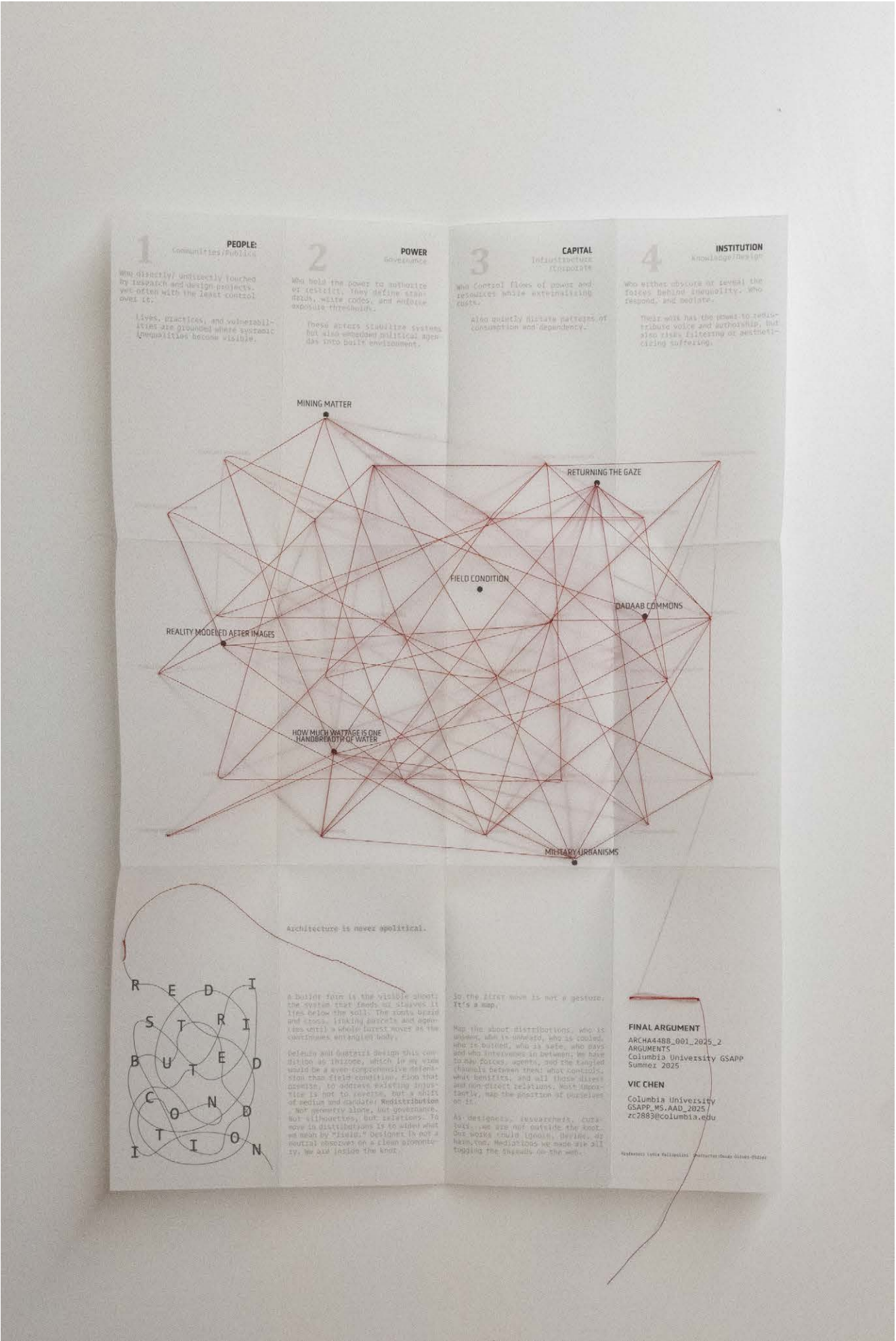
SNAPSHOT

Total Partners	131
Schools	31
Community Partners	96
Matinee Partners	4
Programs Delivered	40
Students Enrolled	18,902

Partner Directory (131)

Partner Name	Type
Cultural Academy for the Arts and Sci...	School
Harlem Village Academy North	School
Harlem Village Academy West	School
High School for Fashion Industries	School
I.S. 285 - Meyer Levin School for the ...	School
I.S. 349 School of Math, Science, and ...	School
John Jay School for Law	School
Kurt Hahn Expeditionary Learning Sch...	School
New York City Charter School of the A...	School
P.S. 3 John Melser Charrette School	School
P.S. 56 The Lewis H. Latimer School	School
P.S. 59 - Beekman Hill International S...	School
P.S. 194 The Raoul Wallenberg School	School
P.S. 197 Kings Highway Academy	School
P.S. 372 The Children's School	School
PAVE Academy Charter School	School
Poly Prep Country Day School	School
Renaissance School of the Arts	School
School For Classics High School	School

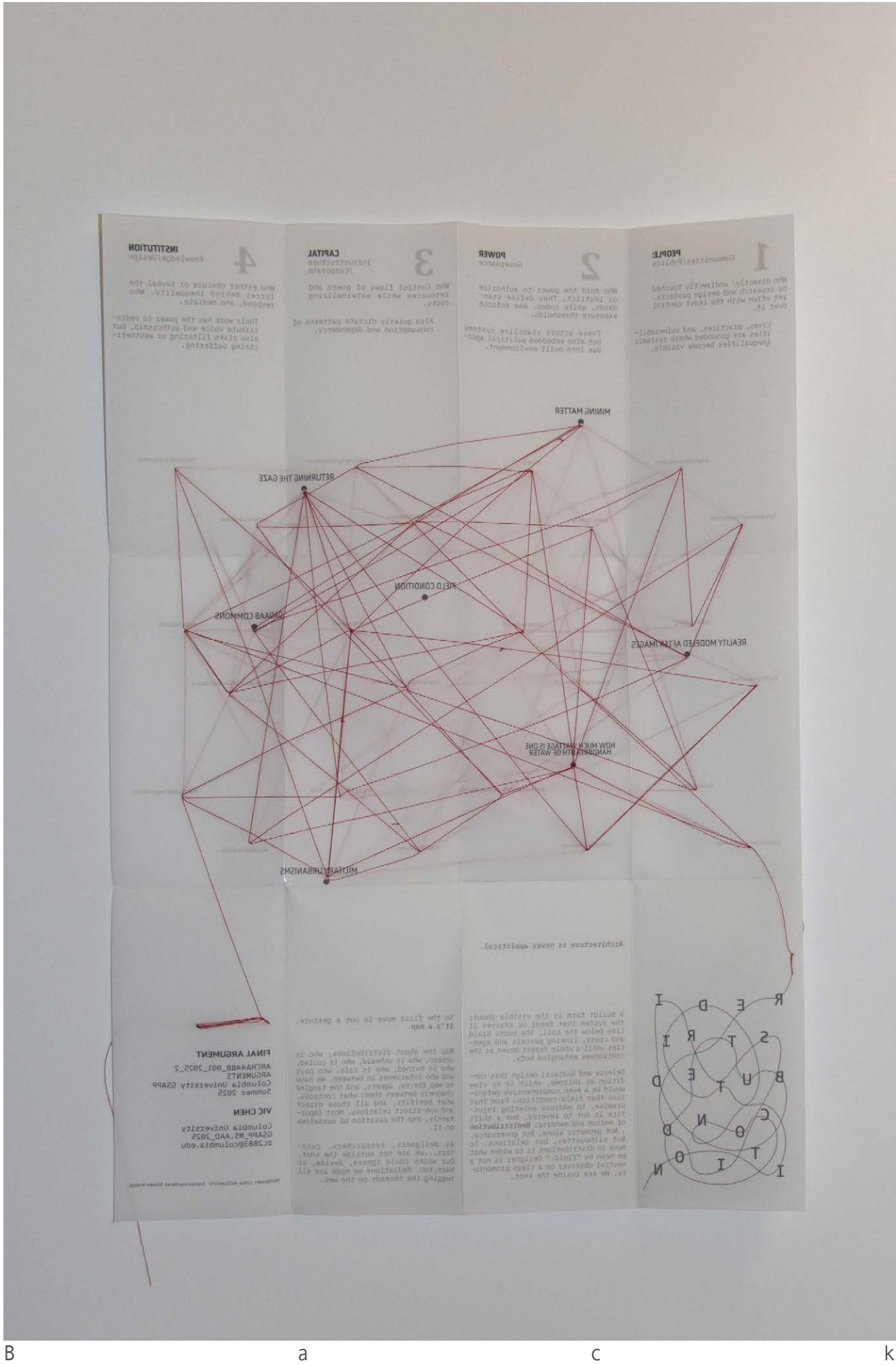




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B a c k



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