# GIULIA CHAGAS

M.S. ARCHITECTURE AND URBAN DESIGN ‘22
COLUMBIA UNIVERSITY GSAPP

PORTFOLIO

giuliachagas@gmail.com
gf2463@columbia.edu
+1 347.654.6150

# CONTENT

# CURRICULUM


**ARCHITECT AND URBAN DESIGNER**
Professional Registration (Brazil): CAU 232166-1
Birthday: June 30th, 1993 - Rio de Janeiro, Brazil
Languages: English (fluent), Portuguese (native), Spanish (basic)
Address: 182 Claremont Ave #22, New York, NY, 10027
Email: gf2463@columbia.edu
Phone: +1 347.654.6150


## EDUCATION

05.2022 – 06.2021 **Columbia University In The City of New York**
- Graduate School of Architecture, Planning, and Preservation (GSAPP)
- Master of Science in Architecture and Urban Design
- Lemann Foundation Fellowship (Merit-Based Full Tuition Scholarship)

07.2019 **PUC Rio - Pontifícia Universidade Católica do Rio de Janeiro**
- Bachelor of Architecture and Urbanism (Professional degree)
- Graduation Thesis: "Over the Rail Line: Urban Seam in Madureira - RJ" (Grade: 100/100)
- Ranked among 5% best students of the Department of Architecture (2016)
- GPA. 85 / 100

06.2016 – 07.2015 **Illinois Institute of Technology, Chicago USA**
- College of Architecture (Two Semesters Academic Exchange)
- Dean's Honor Award for Academic Excellence (2015, 2016)
- Full Scholarship Science Without Borders
- GPA. 96 / 100

## WORK EXPERIENCE

01.2019 – 02.2018 **BIG . Bjarke Ingels Group**
Position: Design Assistant | Location: New York, USA
Projects: Kentucky Owl Master Plan (Competition), Veracruz Museum (Concept), King St Toronto (Interiors), Beatty St Vancouver (Rezoning Study), Harlem Development (Massing Study), Google Sunnyvale (Landscape Study), Confidential Master Plan (Concept).
Contribution: Site Analysis, Design Studies, Maps, Diagrams, Physical Model, Technical Drawings, Renders.

02.2018 – 10.2017 **Bernardes Arquitetura**
Position: Interior Design Intern | Location: Rio de Janeiro, Brazil
Projects: Residential and Interior Design (Concept, Design Dev., Construction Documentation).
Contribution: Design and Layout Studies, Materials Research, Technical Drawings and Construction Details.

08.2016 – 04.2016 **CAZA . Carlos Arnaiz Architects**
Position: Urban Design Intern | Location: New York, USA
Projects: Corferias Conference Center, Bogota (Design Development).
Contribution: Site Analysis, Massing Studies, Maps, Diagrams, Physical Models, Presentation and Book.

06.2015 – 07.2014 **EMDAU . Model Office of Architecture PUC-Rio**
Position: Architecture Intern | Location: Rio de Janeiro, Brazil
Projects: PUC-Rio University Theater and Museum Extension (Design Development).
Contribution: Tech. Research, Massing studies, Technical Drawings, Physical Models, Diagrams, Renders.

## ACADEMIC INVOLVEMENT

12.2017 – 08.2017 **Teaching Assistant: Experimental Site (PUC-Rio)**
Class description: Hands-on experimentation of construction materials and its design potential
Professor: Luciano Alvares (PhD PUC-Rio)

12.2016 – 08.2016 **Teaching Assistant: Thesis Project / Research Proposal (PUC-Rio)**
Class description: Introduction classes and assistance to graduation thesis and research proposals
Professor: Vera Hazan (PhD UFRJ)





## HONORS AND AWARDS

16.2021 **Lemann Foundation Fellowship - Columbia University**
Description: Merit-based full tuition scholarship for Master of Science in Arch. and Urban Design

11.2020 **Archiprix International 2021 (Addis Ababa) - Selected project to represent PUC-Rio**
Description: Selected graduation thesis: "Over the Railway Line: An Urban Sewing in Madureira (RJ-Brazil)"

11.2019 **Invited Speaker - "Ser Urbano" (10th Week of Architecture and Urbanism PUC-Rio)**
Description: Selected student to present the thesis "Over the Railway Line: An Urban Sewing in Madureira"

12.2017 **Honorable Mention - Architect of Tomorrow (IAB RJ - Institute of Architects of Brazil)**
Description: Award for the project "Weaved Surfaces" developed with Gabriel Gomes at PUC-Rio

12.2017 **Best Project - Studio VII: Residential Building (PUC-Rio)**
Description: Selected Best Project by Studio VII students and professors, for the project "Mass Timber"

05.2016 **Honor Award - Dean's List for Academic Excellence (Illinois Tech)**
Description: Award for students with outstanding academic achievement, by Illinois Institute of Technology

12.2015 **1st Prize - Best Urban Furniture (IAB RJ - Institute of Architects of Brazil)**
Description: Award for the project "From Parking to Parklet", developed during a workshop at PUC-Rio

12.2015 **Exhibition at Chicago Design Fair - (SOFA - Sculpture, Objects, and Functional Arts)**
Description: Design and Construction of Illinois Tech Interactive Pavilion, developed by a group of students

08.2015 **Full Scholarship - Science Without Borders**
Description: Full scholarship sponsored by the Brazilian Ministry of Education for Studying Abroad

## WORKSHOPS AND COURSES

08.2016 – 07.2016 **Design Workshop: Parametric Facade for the Consulate of Portugal**
Description: Parametric design, and digital fabrication of facade shading elements. By 30 students.
Instructors: Pedro C. Costa, Veronica Natividade | Award: Honorable Mention, IAB-RJ 2017

03.2015 – 12.2014 **Construction Workshop: From Parking to Parklet (PUC-Rio)**
Description: Design and construction of a Parklet inside the university campus. By 15 students.
Instructors: Luciano Alvares, Vera Hazan | Award: Best Urban Furniture, IAB-RJ 2015

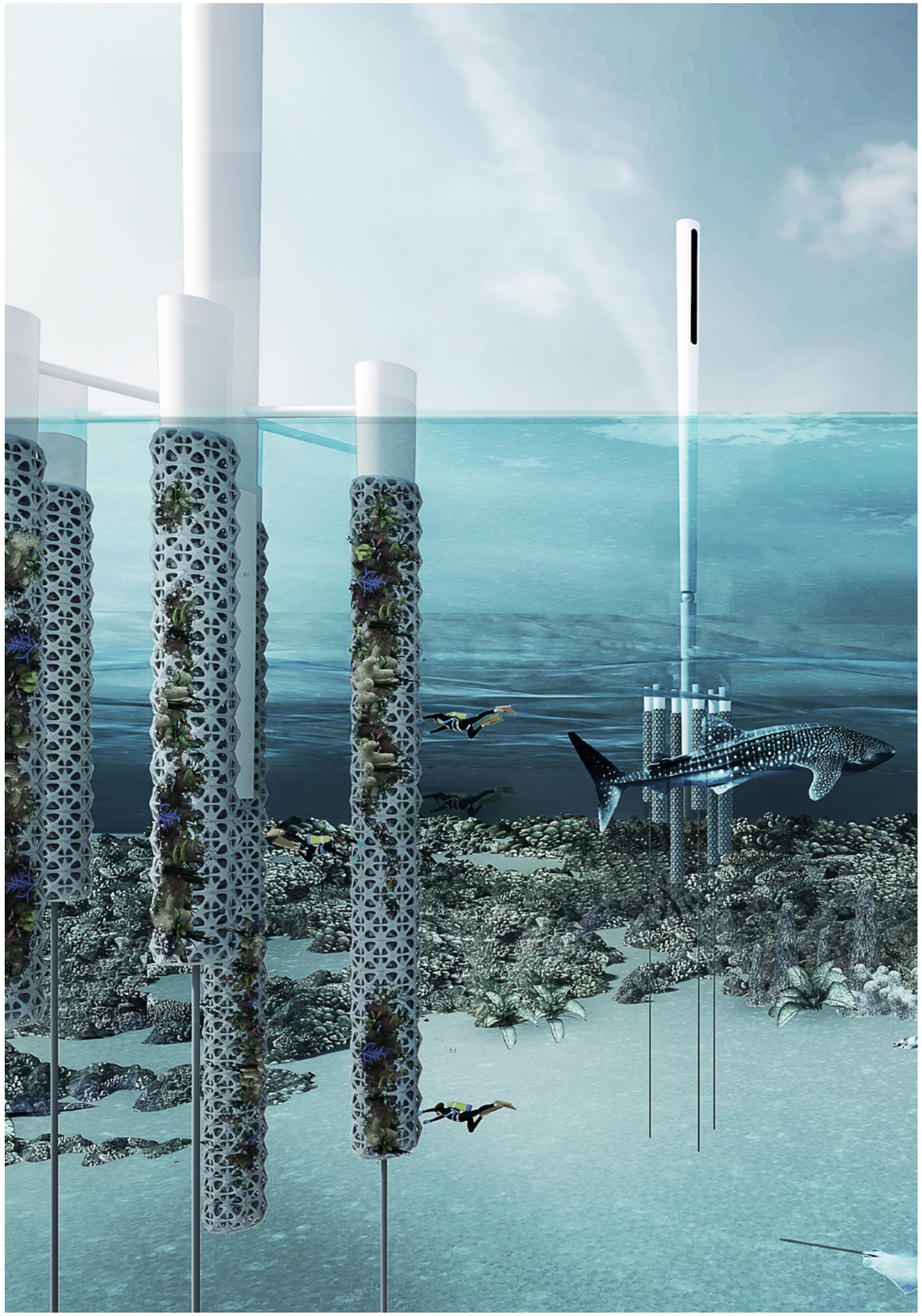
08.2012 – 03.2012 **UCF University of Central Florida: English as a Second Language**
Description: Diploma in Advanced English as Second Language from UCF, in Orlando FL.
Institution: UCF Center for Multilingual and Multicultural Studies | Instructors: UCF CMMS Faculty

## ONLINE PUBLICATIONS

11.2020 **Graduation thesis: "Over the Railway line: An Urban Sewing in Madureira"** - Archiprix
10.2019 **Ser Urbano: 10th Week of Architecture and Urbanism PUC Rio** - ArchDaily BR
01.2019 **Bjarke Ingels Group: Beatty Street Vancouver** - Urban YVR / City of Vancouver
12.2018 **Bjarke Ingels Group: King Street Toronto** - ArchDaily / Dezeen
08.2017 **Workshop: Parametric Facade for the Consulate of Portugal** - ArchDaily BR
10.2016 **Carlos Arnaiz Architects: Corferias Conference Center** - E-Architect UK
01.2016 **IAB Awards for Workshop "From Parking to Parklet" at PUC Rio** - Vitruvius BR

## SOFTWARE KNOWLEDGE

**Proficient level:** Rhinoceros 3D, Photoshop, Illustrator, InDesign, Vray 3.6, AutoCAD
**Intermediate level:** SketchUp Pro, Autodesk Revit, ArchiCAD, QGIS
**Beginner level:** Adobe After Effects, Arduino, Grasshopper





# LEARNING FROM SAN PEDRO

AN EXAMPLE OF CLIMATE RESILIENCE THROUGH CLEAN ENERGY AND INFRASTRUCTURE

**PROJECT TOPIC:** URBAN DESIGN AND ENERGY
**LOCATION:** SAN PEDRO, BELIZE
**SCHOOL:** COLUMBIA UNIVERSITY GSAPP
**PARTNERSHIP:** UNIVERSITY OF BELIZE
**STUDIO:** WATER URBANISM
**FACULTY:** KATE ORFF, LORENA BELLO, ADRIANA CHAVEZ, GEETA MEHTA, THAD POWLOWSKI, TORI VUONO
**TEAM:** GIULIA CHAGAS, LUCAS NETTO, SAM DYE, YASMINE KATKHUDA
**SEMESTER:** SPRING 2022

As a leading destination for tourism and development in Belize, we propose that San Pedro can be a new model for climate resilience and a testing ground for future habitats through clean energy and sustainable tourism infrastructure. By pairing ecological restoration and land-based strategies, energy is rendered visible within the urban fabric. Local and regional energy independence can be achieved through urban design towards decarbonization, economic diversification, and coastal resilience. Organizationally, we propose to create a public benefit corporation led by the Ministry of Public Utilities, Energy & Logistics that is in partnership with private investors and regional stakeholders through a Build Operate Transfer scheme with local incentives, policies, and taxing models. Our proposed plan has 3 key strategies. On the western lagoon side (which is the left side of the screen), the first strategy is to have softer shore edges and floodable public spaces. The second strategy is for the interior streets (which are in the middle of the screen), to have bioswales and retrofitted buildings. The third on the right is the waterfront strategy of protection and expansion of the public beach.


## FROM GHOST REEEFS

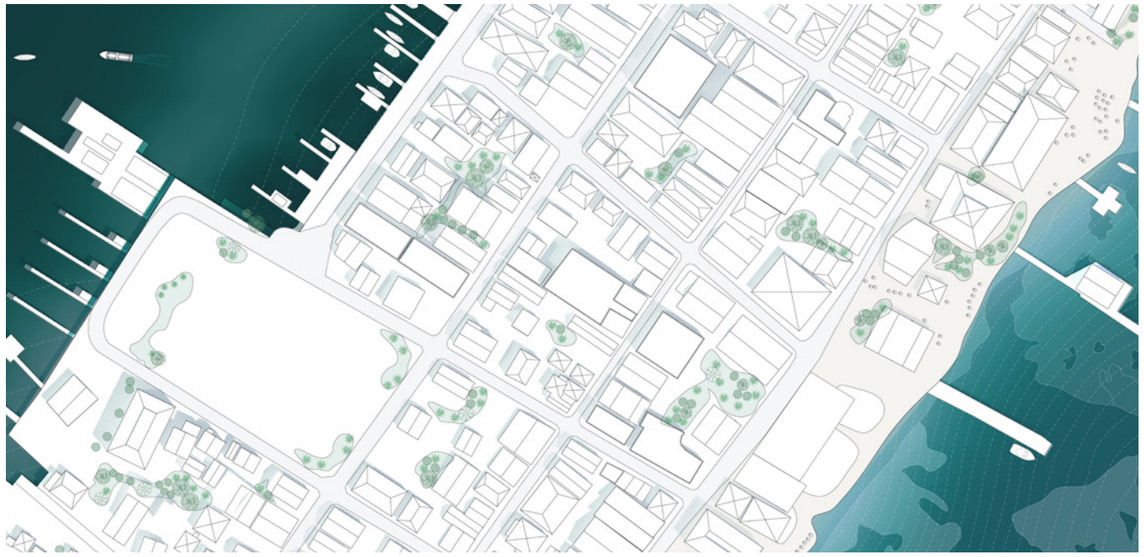
To situate ourselves within the larger context of Belize, San Pedro is a mid-point between Corozal Bay and Belize City, with proximity to attractive destinations nearby and untapped potential for harvesting energy. Unfortunately reef health is at a critical point, with coastal degradation due to the climate crisis.


## FROM FOSSIL FUEL DEPENDENCE

Energy is the invisible factor within the picture-perfect Belize postcard, and we see an opportunity to shift the conversation towards equitable and regenerative systems. First, we must understand the existing energy network. As of now, 49% of Belize's energy is generated from fossil fuel, with 43% imported from Mexico.


## FROM SEASONAL TOURISM

And there is a possible economy that can come out of this for the local community aside from tourism. Even though 80% of tourists fly to San Pedro, it is a seasonal and fragile industry that can no longer be the pillar of the Belizean economy.




## TO CORAL NURSERIES

We want to transition from ghost reefs to coral nurseries coupled with renewable energy sources, such as off-shore wind turbines. San Pedro should be a pilot site to rethink urban design with energy centrally integrated into our built environment and allow for such infrastructure to become a tourist destination.


## TO LOCAL RENEWABLE ENERGY

While solar and wind do not account for 1% of such. Getting to zero emissions and being independent means changing from fossil fuel towards clean energy that is nested within the urban fabric, while adapting and mitigating external factors.

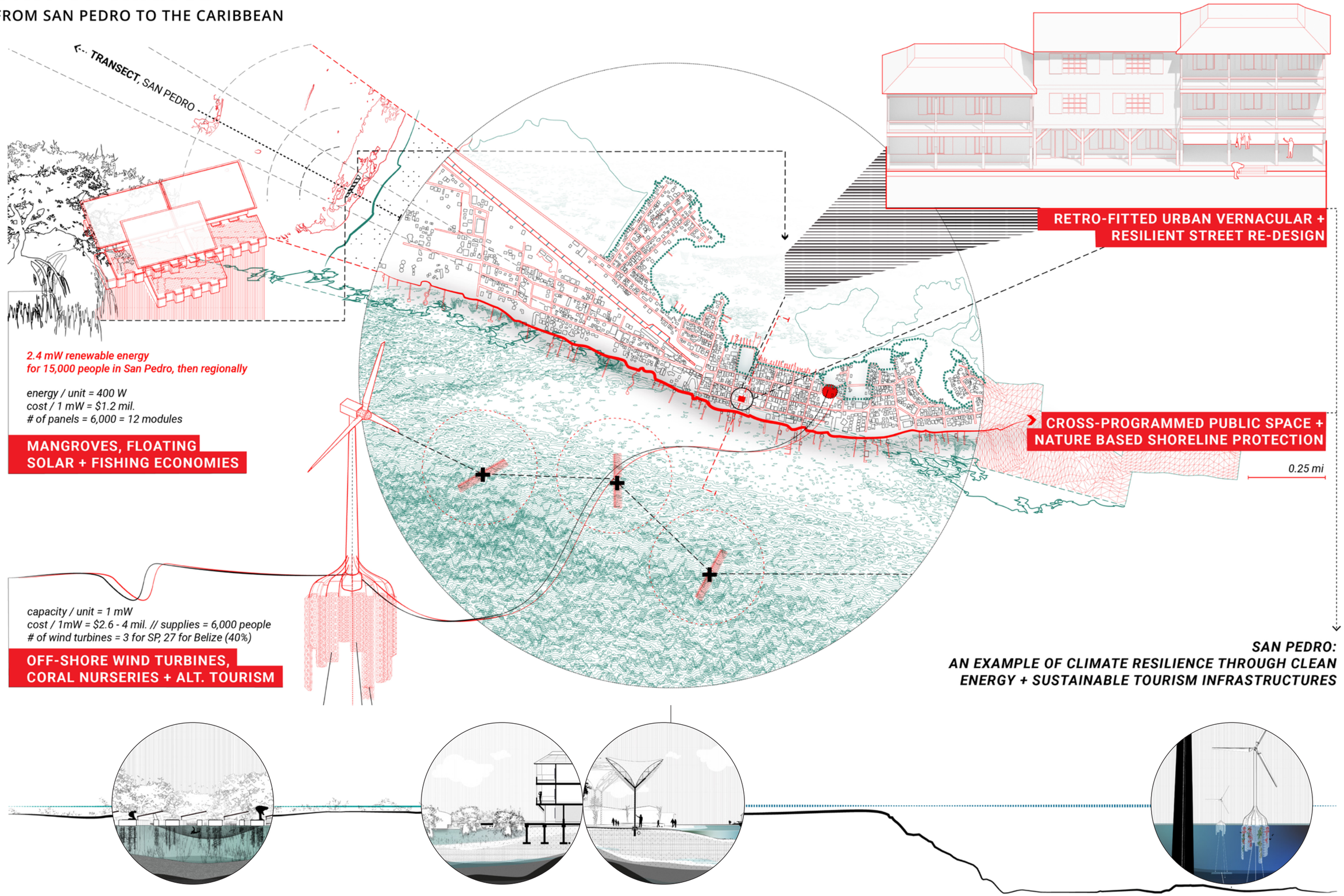

## TO ALTERNATIVE ECONOMIES

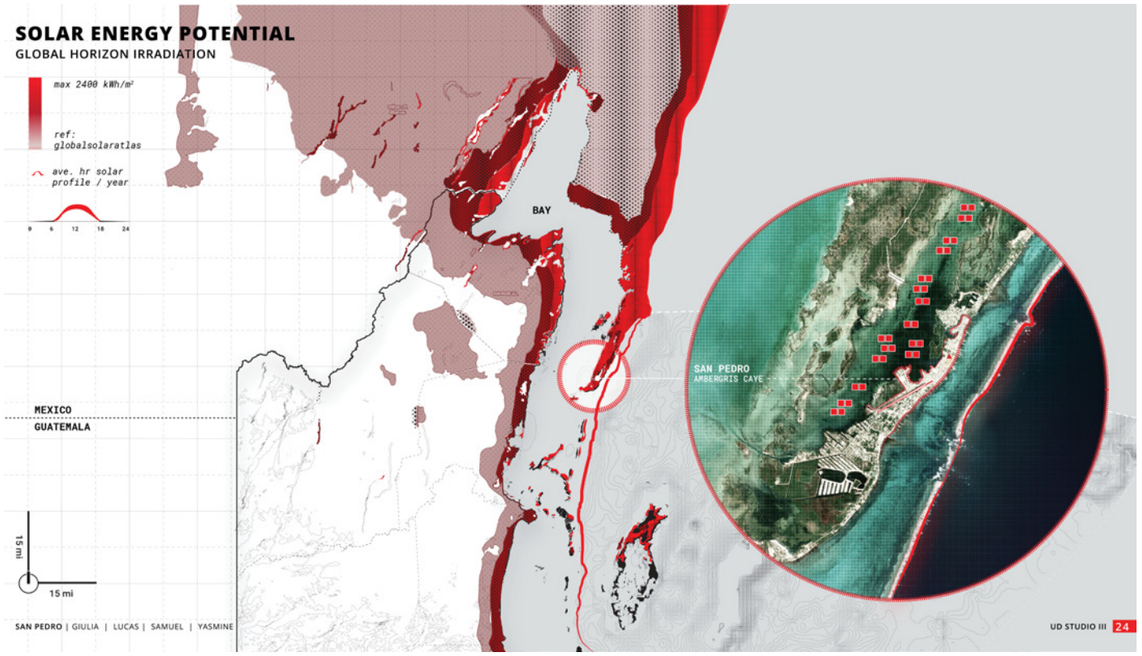
San Pedro's dense urban fabric sits awaiting for investments in alternative economies and a new public realm that support local needs. As a leading destination for tourism and development in Belize, we propose that San Pedro can be a new model for climate resilience and a testing ground for future habitats through clean energy and sustainable tourism infrastructure.

# UNIT OF CHANGE

## FROM SAN PEDRO TO THE CARIBBEAN

GIULIA FIGUEIREDO CHAGAS

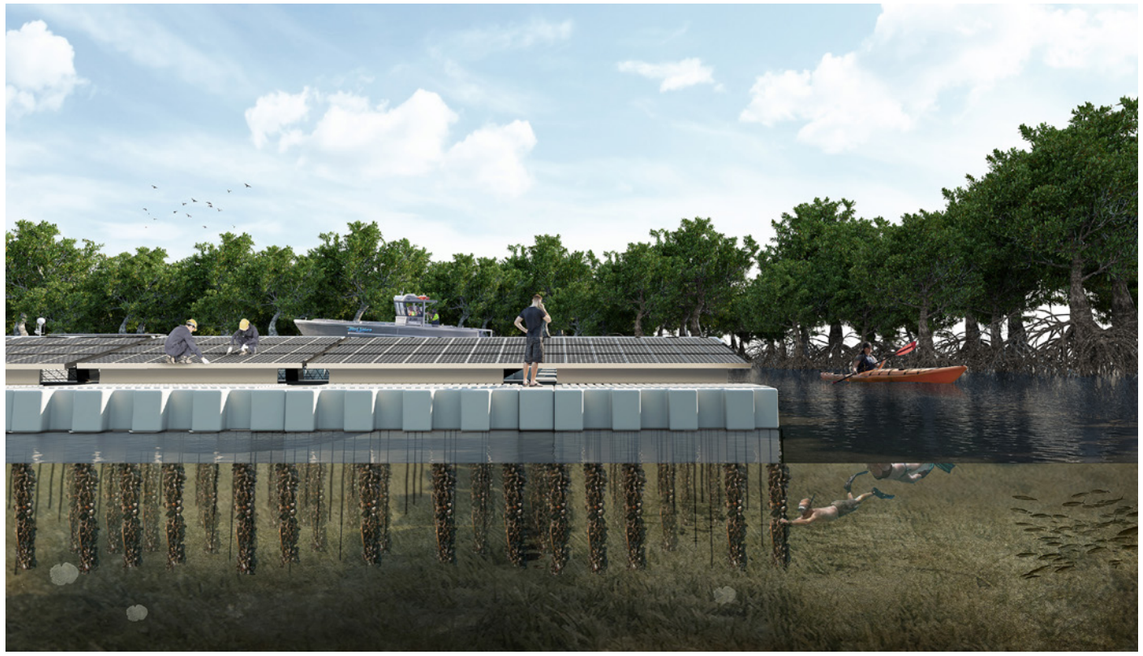





San Pedro is within the zones of Belize with highest constant solar irradiation throughout the year. The lagoon on the west side of the town is the most strategic point for such infrastructure implementation, taking advantage of its still waters outside of the Hol Chan Marine Reserve protected waters.

In phase two, we envision the expansion of this combined infrastructure. From our calculations, to power San Pedro we would need 14 modules, and 147 to supply the entire country to offset any energy imported from Mexico.

We first propose a combination of floating solar panel modules and ecological systems, with our calculations on the top left of the page. The strategy starts in phase one, where a few modules of solar panels are combined with aquaculture systems sitting in the lagoon surrounded by mangrove nurseries for ecosystems



Jobs will be generated for the local community from its implementation and operation stage to its maintenance, as well as a new vision for ecotourism. - Scan the QR code for virtual reality eperience over the Solar Farm surrounded by the angroe eossyste.

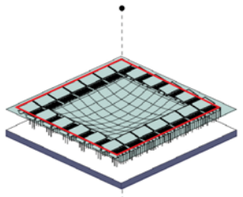
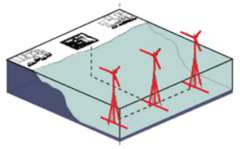
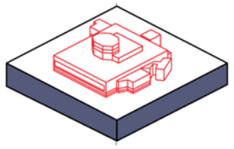
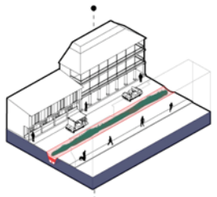
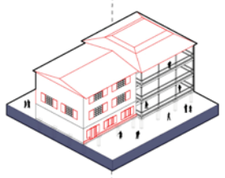
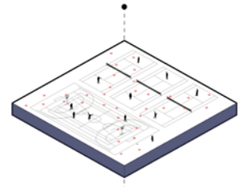
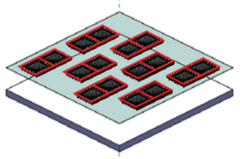
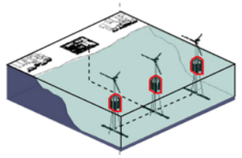
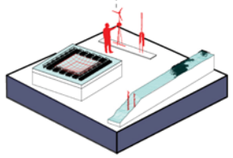
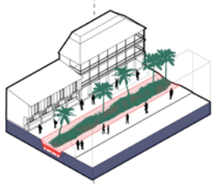
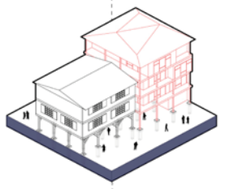
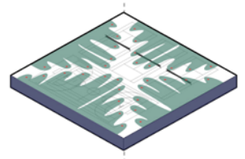
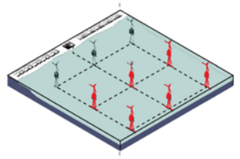
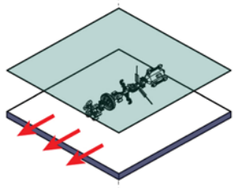
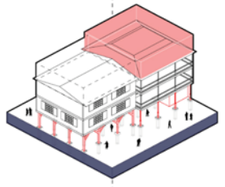
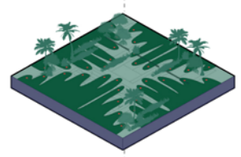

In future scenarios, parcel by parcel ground floor retreat might also be necessary depending on sea level rise. The tradeoff for a ground floor retreat would be zoning easements to allow for building an additional floor above, and compensation through the renewable energy utilities system. Building retrofits and new spaces also become an opportunity for educational fairs and community engagement. Moving to the east side of the town core, the waterfront is deprivatized and expanded, where property owners have let go of their groundfloor to allow for a new sand topography.

# DESIGN PHASING MATRIX

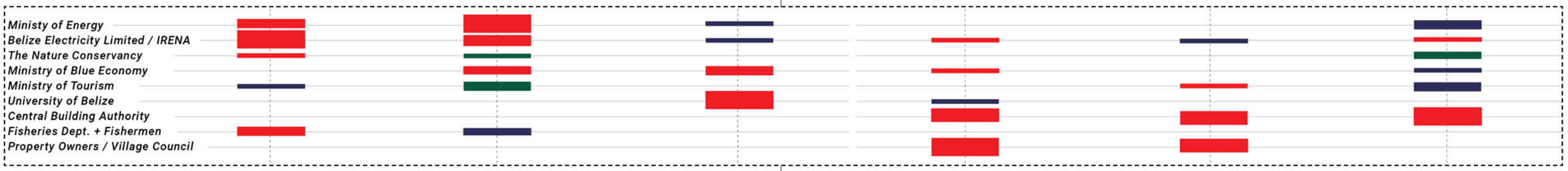
ADAPT, TRANSITION, INVENT

**IMPLEMENTATION TIMELINE**

**INFRASTRUCTURE** RETROFITS + RENEWABLE **ENERGY NETWORKS**

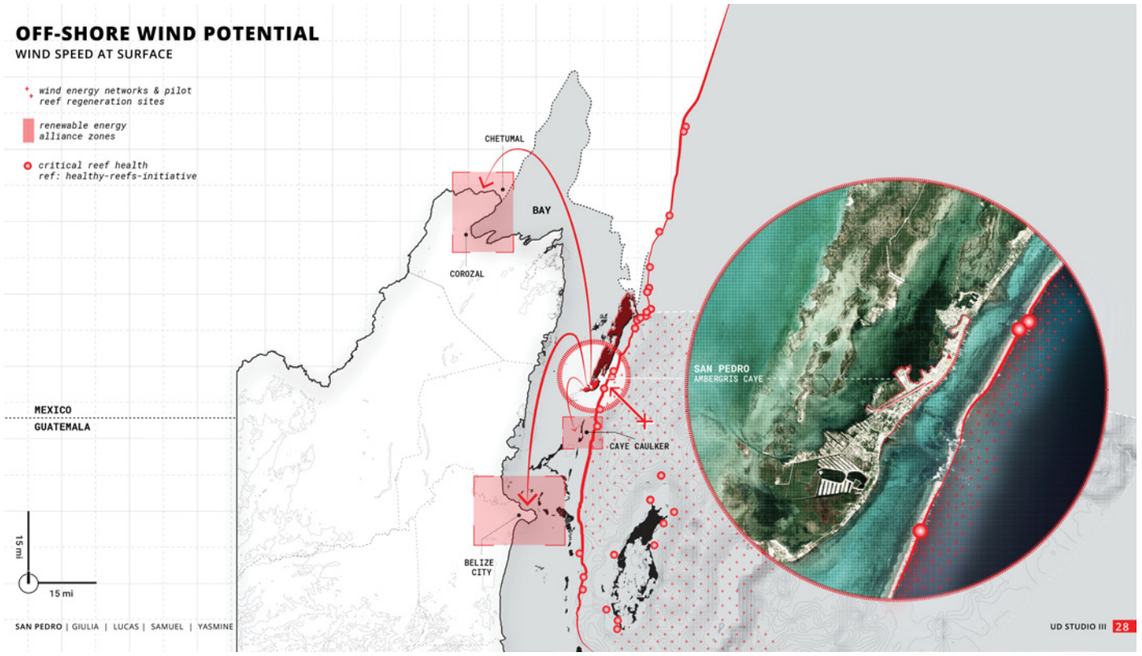
| | SOLAR ENERGY + AQUACULTURE | WIND ENERGY + REEF RESTORATION | ALT. STRATEGIES + ECONOMIES | STREET REDESIGN + ECO INFILL | GROUND FLOOR RETREAT + SHORE ADAPTATION | PUBLIC SPACES + WATER COLLECTION |
|---|---|---|---|---|---|---|
| ADAPT IN PLACE "2030" |  |  |  |  |  |  |
| TRANSITION "2050" |  |  |  |  |  |  |
| FUTURE HABITATS "2080" | *~30,000 Belizeans engaged in BOT solar and fishing activities* |  |  | *Collective urban-scape maintenence and continuous engagement* |  |  |

**STAKEHOLDERS**

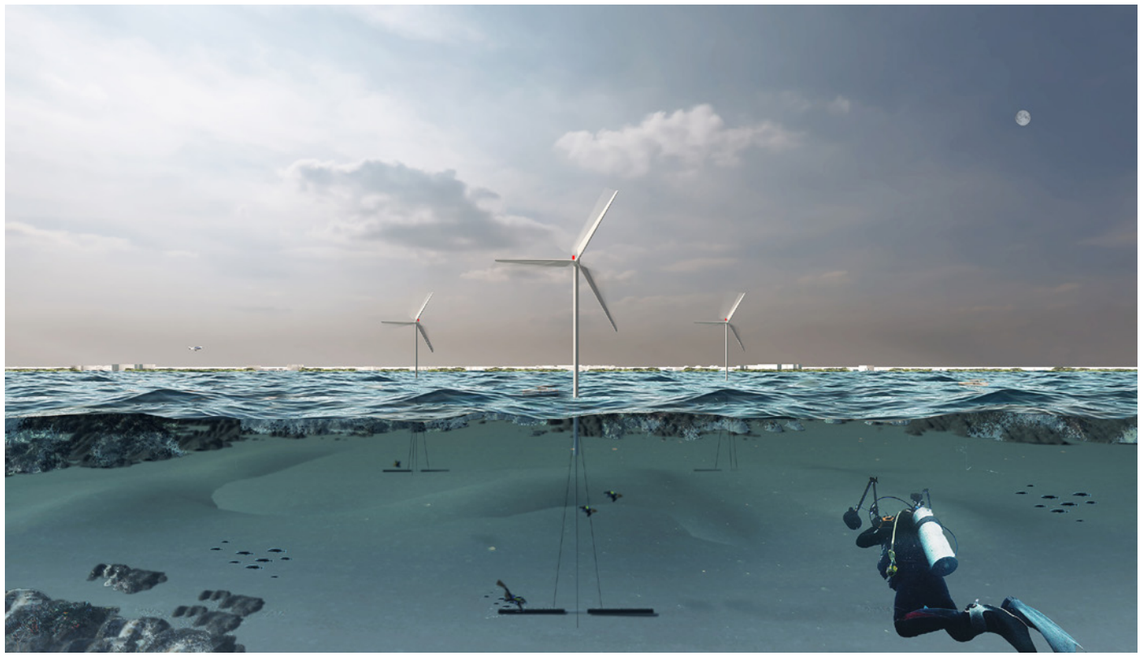



And since we can not talk about resilience without talking about energy, our strategies center water based energy and ecology units, and land based infrastructure and coastal resiliencemoves AS THEY INTEGRATE INTO THE URBAN FABRIC of future alternatives and habitats.

phased over three period, with an urgency to begin now - 6 key design interventions engage with multiple stakehoders such as the Ministry of Energy, the Central Building Authorities, and and local village councils at their differing stages, from adapting in place, to transitioning towards energy independence and thinking of future alternatives and habitats.



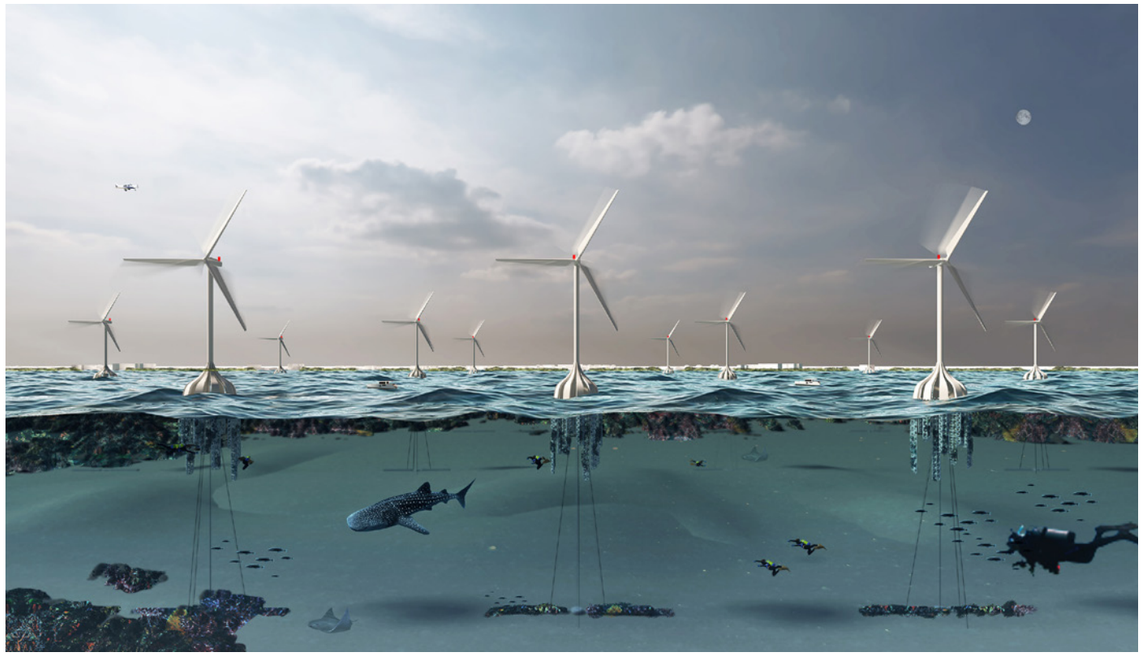

As a second alternative strategy for clean energy, we propose an offshore wind farm, taking advantage of the high and constant East winds. Wind Turbines would be located near the coral barrier which has already been devastated to help create an artificial reef system.



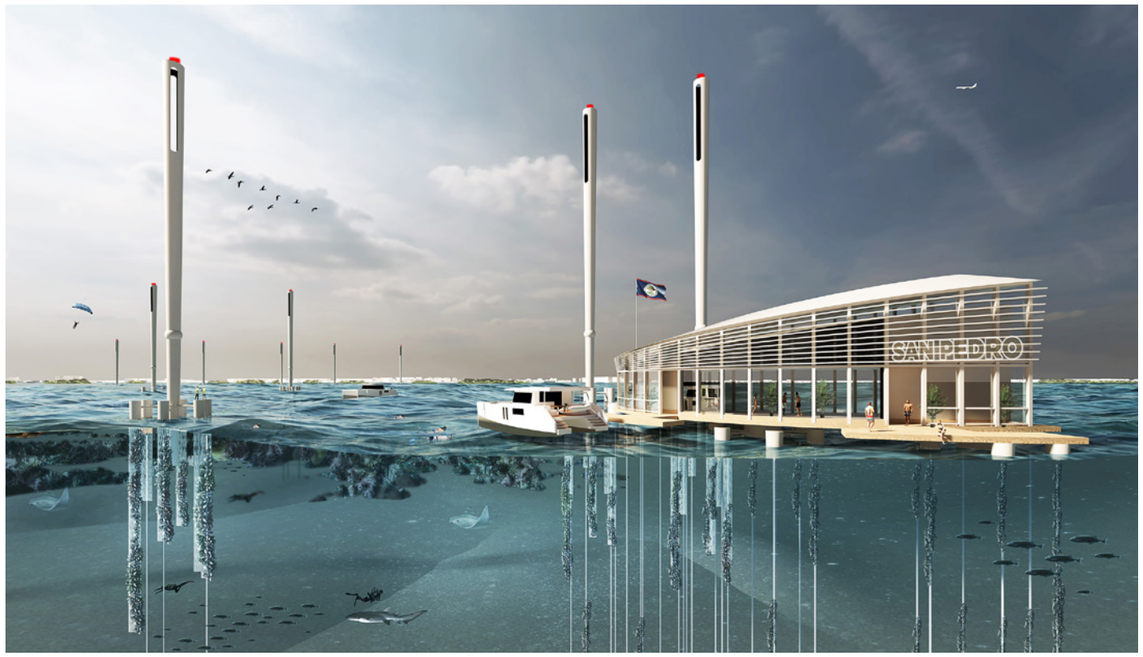
In the first phase, from our calculations, around 3 turbines will be sufficient to power san Pedro in ideal weather conditions, while more would be necessary to supply Belize based on today's population.



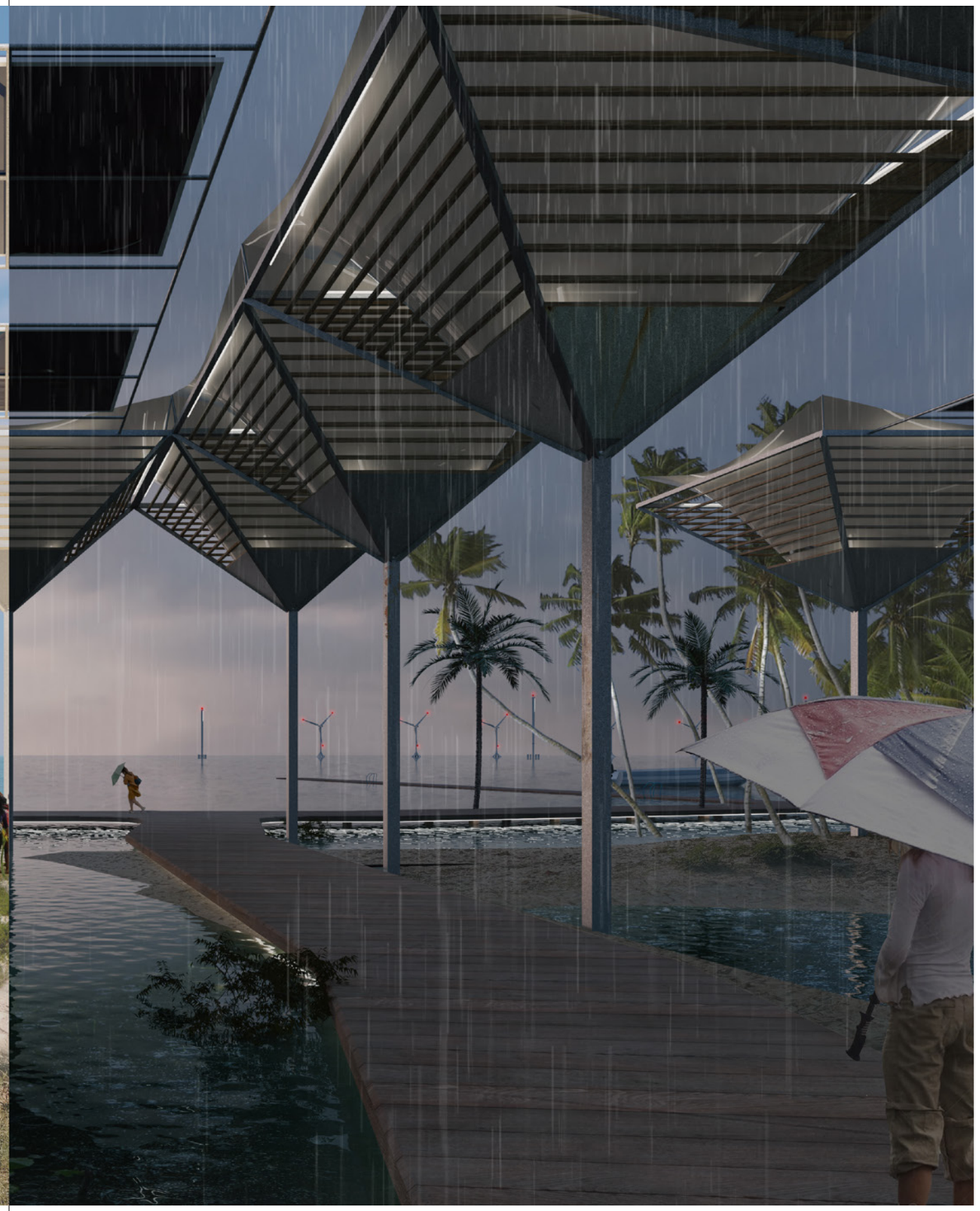




In the second phase, beyond the expansion of the wind turbine farm, 3D printed filament made of recycled materials and ceramics is attached to the bottom of the turbine structures. This allows for coral nurseries and new habitats for marine life, which can also become potential ecotourism and scuba diving locations.




In the future, when other technologies of wind turbines will be more efficient and cost-effective, bladeless turbines coupled with carbon capture technology on top, and 3d printed artificial reefs below also are implemented. Floating facilities become available as visitor centers for educational and research purposes.



The new enhanced shoreside is able to bring energy into the public eye with photovoltaic shading devices and electric boats, and water collection within the pavilion. Ground floor retreat and retrofitted buildings, and providing areas for cultural spaces as well.

A shored up beach, elevated boardwalks provide for protection against rising waters and chanelling water into proper drainage networks. So all in all, energy and infrastructure are forefronted in this new image of San Pedro, and this unit of change can be an example for Belize and the Caribbean.


EXPERIENCE ENERGY
POSTCARD
SAN PEDRO:
AN EXAMPLE OF CLEAN
ELGY + SUSTAINABLE
ISM INFRASTRUCTURES
San Pedro, Belize
GSAPP UD STUDIO II
San Pedro, Belize


San Pedro
BELIZE, CARIBE
POSTCARD
SAN PEDRO:
AN EXAMPLE OF CLEAN
SUSTAINABLE
Giulia Chagas, Lucas Coelho Netto,
Samuel Dye, Yasmine Hatkhuda
BIENVENIDO A SAN PEDRO
BELIZE, CARIBE

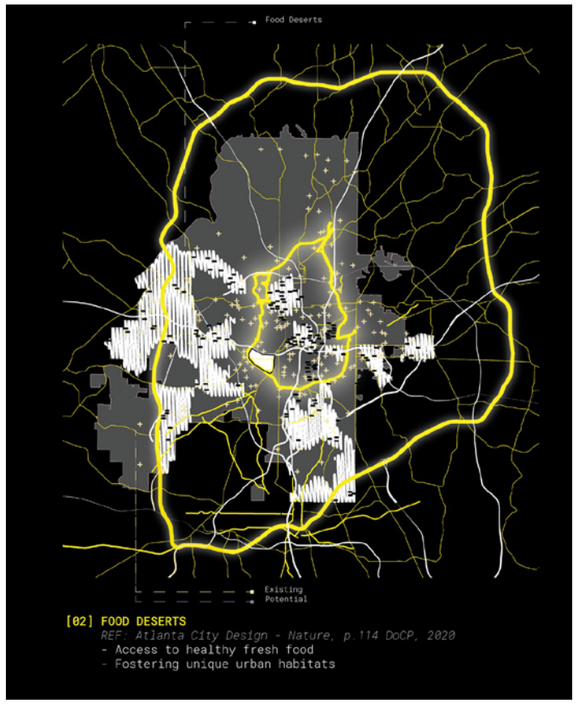
SOIL AND AGROINDUSTRY

# SOIL AND AGROINDUSTRTY

WEST END: UNBAN SOIL AND AN AGROINDUSTRIAL IMAGINARY

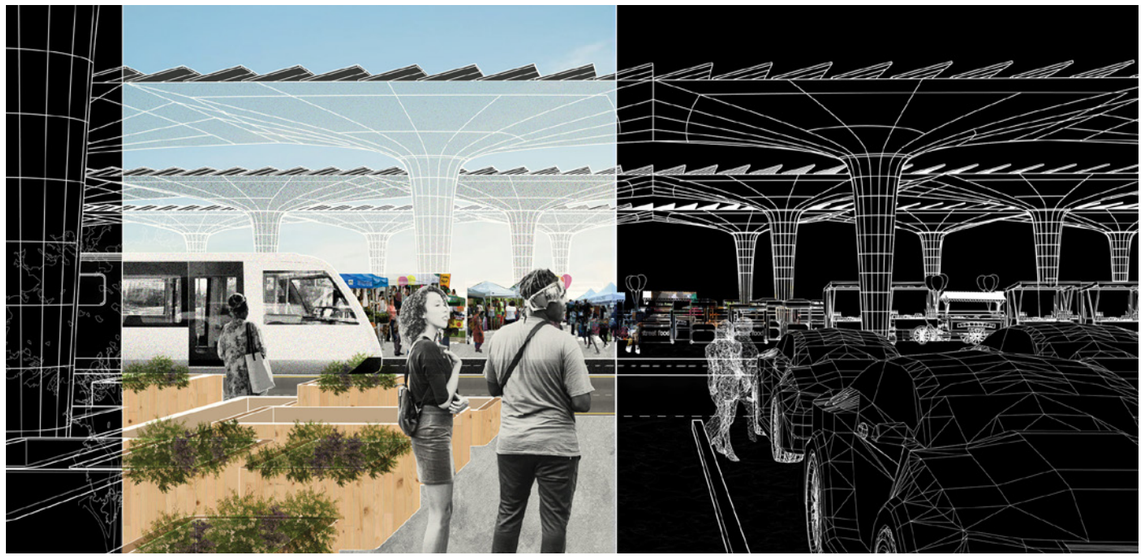
**PROJECT TOPIC:** AGROINDUSTRY AND SOIL
**LOCATION:** WEST END, ATLANTA, GA
**SCHOOL:** COLUMBIA UNIVERSITY GSAPP
**STUDIO:** ATLANTA AFTER PROPERTY
**FACULTY:** EMANNUEL ADMASSU, LEXI TSSIEN, NINA COOK JOHN, CHAT TRAVIESSO
**TEAM:** GIULIA CHAGAS, YASMINE KATKHUDA, TANUJA DHANASEKARAN, RHEA PAI
**SEMESTER:** FALL 2021

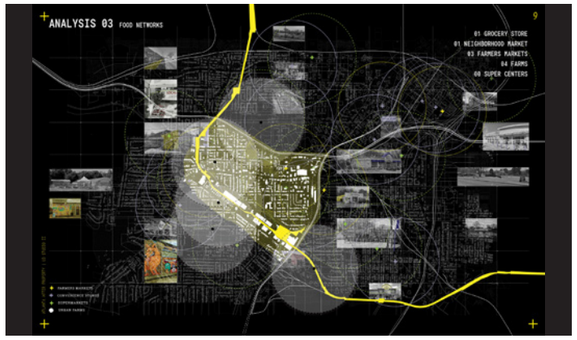
In the delimitation of territory that has historically borderized land ownership and cultivation, agency now extends beyond the human to encompass other than human actors. Processes that take place in this transitional landscape are of the Earth - reconnecting with nature against capitalist ways of existing. It imagines a new direction for regenerative development where there is duality and expansive potential reclaiming soil as resistance in this alternative entry to West End. From conception to realization, food production becomes simultaneous to cultural production within a landscape that is understood in its continuity - perpetually in flux, changing and adapting to the earth and its people. This exploration is positioned against industrial practices of land homogenization, extraction, and exploitation which echo into the Beltline's domestication of nature. It brings together the built or existing, and the potential or possible in reasserting an agency of nature in synthetic scenarios, towards reimagining agro-industry and food accessibility within and beyond systemically vulnerable communities. Weaving through social, ecological and infrastructural systems that reclaim the agency of soil and non-human entities over five short-and long-term foreseeable phases, agrarian culture that has grown contested in rural-urban discourses is re-injected into West End as a proxy site. Soil has a material organization with its own scales, contexts and behaviors. It has no reference as to which precedes it, seeping into and altering other earthly beings. In its otherness, soil offers a critical depth in understanding our disciplinary conventions, translating aggregate and organisms within the soil in their abstraction and extrapolation. Thus, extending the conversation to questions of ecology, of the environment and our constructions of nature within this discourse. In crossing scales and agencies of human and other-than-human actors, this world after property envisions a future of cultivation not entangled in land as value - but rather the revaluation of soil towards another agrarian path that is possible through the interconnectedness within and beyond territory.

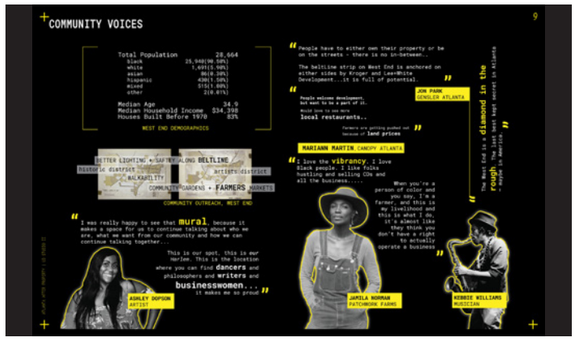




## FOOD INDUSTRIES AND DESERTS

Industry, especially the agriculture industry in its current scale of production and operation within a capitalist regime of property - continue to homogenize rural landscapes within an architecture of exploitation and extraction. Large scale production economies are seemingly detached from community involvement and engagement which perpetually lend to industrial scarring, deterioration of our earth and spatial practices. We think of digitized consumerism, empty store shelves, landfills and waste, pollution and production and need to rethink industry to bring people back into it.
The history of plantation and farming is only a shadow of the challenges faced by minority communities when it comes to food access today. The food industries map locates within the metro Atlanta region the voids that contrasts the brunt of food deserts foregrounding inaccess to fresh produce which highlights the blatant reality of inequity and disinvestments in historically marginalized communities.
So we take industry as a point of departure as it continues to homogenize both rural and urban landscapes, feeding into a sense of detachment from community practices, whilst lending to the scarring and deterioration of the soil and earth. The beltline is our second enemy so to say, more directly on site, as it has domesticated nature in asserting the agency of man over the land. This industry and the beltline comes at the consequence of of the hyper local and site specific practices of farming. Atlanta has a strong history of urban farming practices that have been integrated into the neighborhood's food systems. This issue here is most produce is exported outside the neighborhood as it is unsustainable for farmers to generate wealth locally, therefore not serving the immediate community. We trace the lineage of land acquisition and ownership of such farms that have faced a series of displacement due to gentrification. This becomes reflected in existing stores with barren parking lot landscapes and empty or unhealthy food stocks and selves heightening inaccess to fresh food and produce.







## STRATEGIC LOCATION

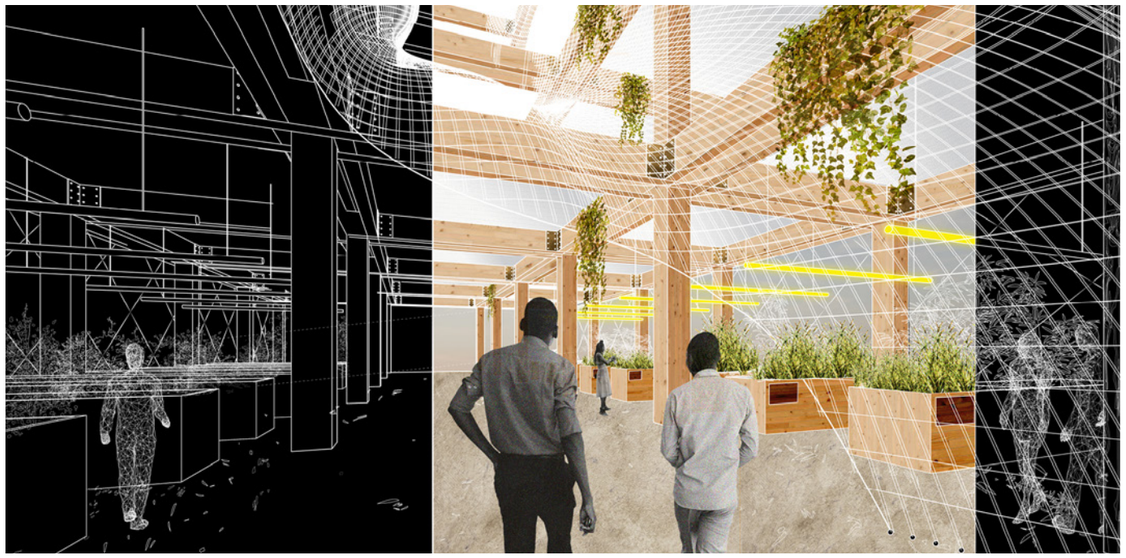
West end, is strategic within the geography of the Atlanta metro area and is physically bound by infrastructure that includes the i 20 highway, the MARTA rail line, and the newly developed beltline --- infrastructure that once devastated communities is re-envisioned as being productive to this future imaginary of an integrated agricultural proposal, with west end as a proxy / pilot site.

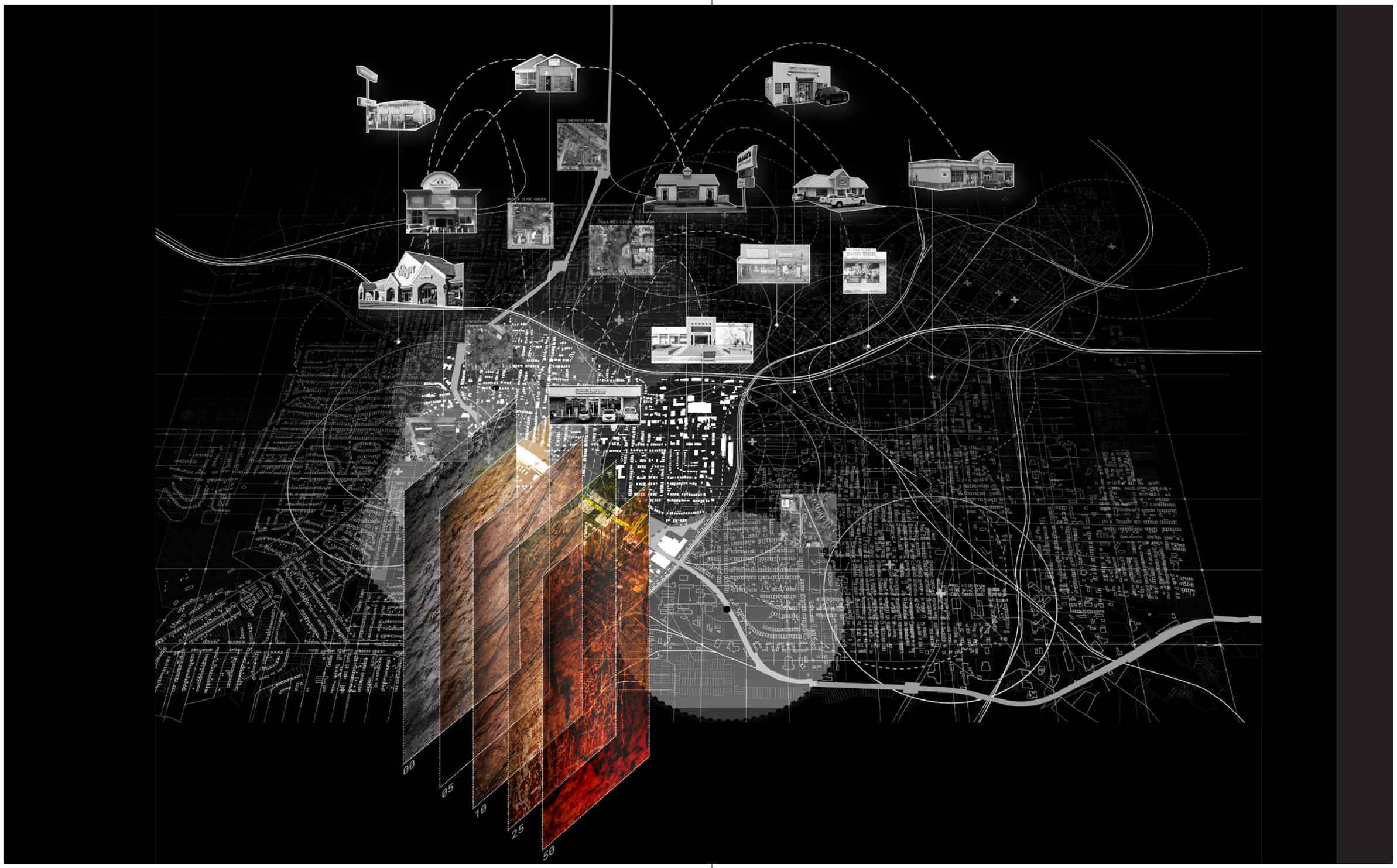
## COMMUNITY VOICES

West end has been historically marginalized and disinvested in, and hearing from the LOCAL community - A distinct juxtaposition is seen in relation to the infrastructural monotony of site. Interwoven there exists, a rich culture of knowledge and culivating thethe arts and foods industries. From these voices, one that stood out to us is of Jamila Norman, an urban farmer who has faced immense challenges in land ownership that has threatened her practice.

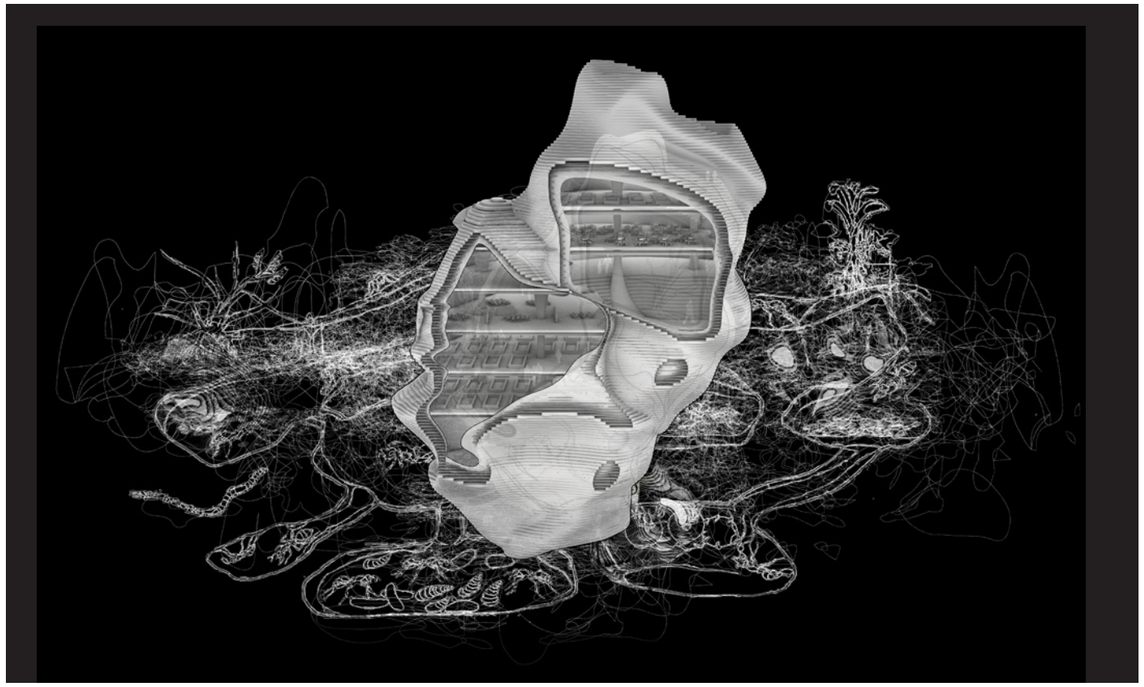
## LOCAL URBAN FARMS

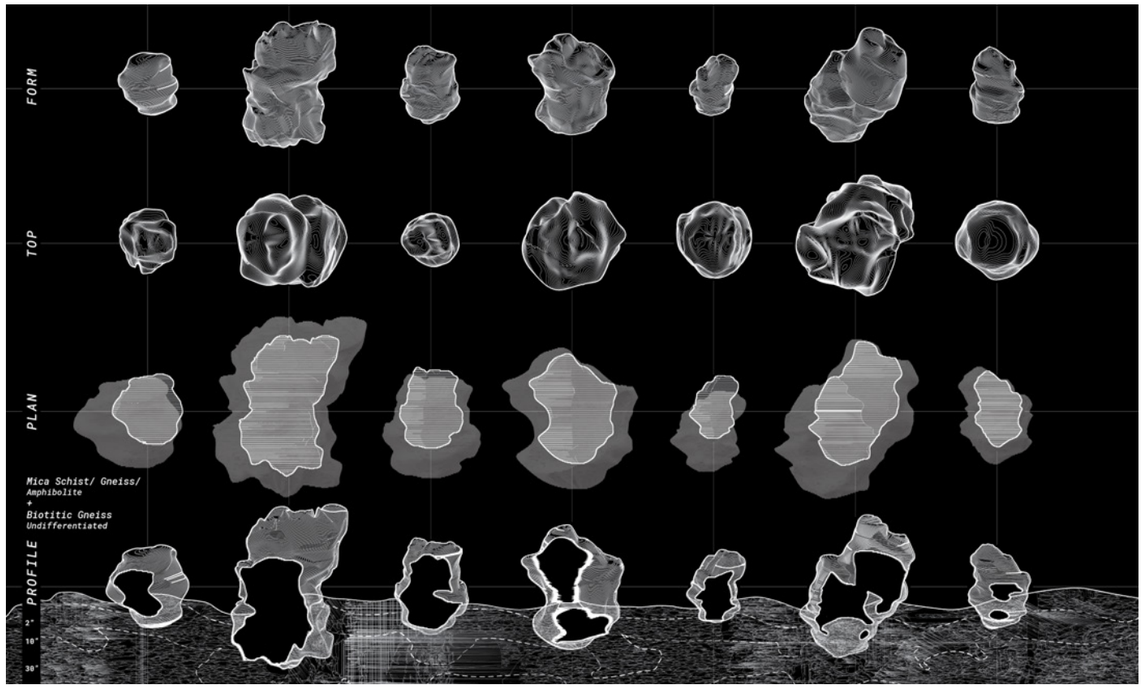
Atlanta has a strong history of urban farming practices that have been integrated into the neighborhood's food systems. This issue here is most produce is exported outside the neighborhood as it is unsustainable for farmers to generate wealth locally, therefore not serving the immediate community. We trace the lineage of land acquisition and ownership of such farms that have faced a series of displacement due to gentrification.






As the land is regenerated over phases constantly evolving, the soil becomes productive to both the existing neighborhood network of stores, farms, restaurants and businesses and the imaginary. Beyond stories of vulnerabilities and inequity that this community continues to endure, soil re-inserts the conversation around food and its prioirities. Beyond west end, the logic of soil as resistance in reclaiming sites of vulnerability along the beltline is echoed phyically and metaphysically - giving agency back to people and indigenous practices against gentrifying measures devoid of community roots.

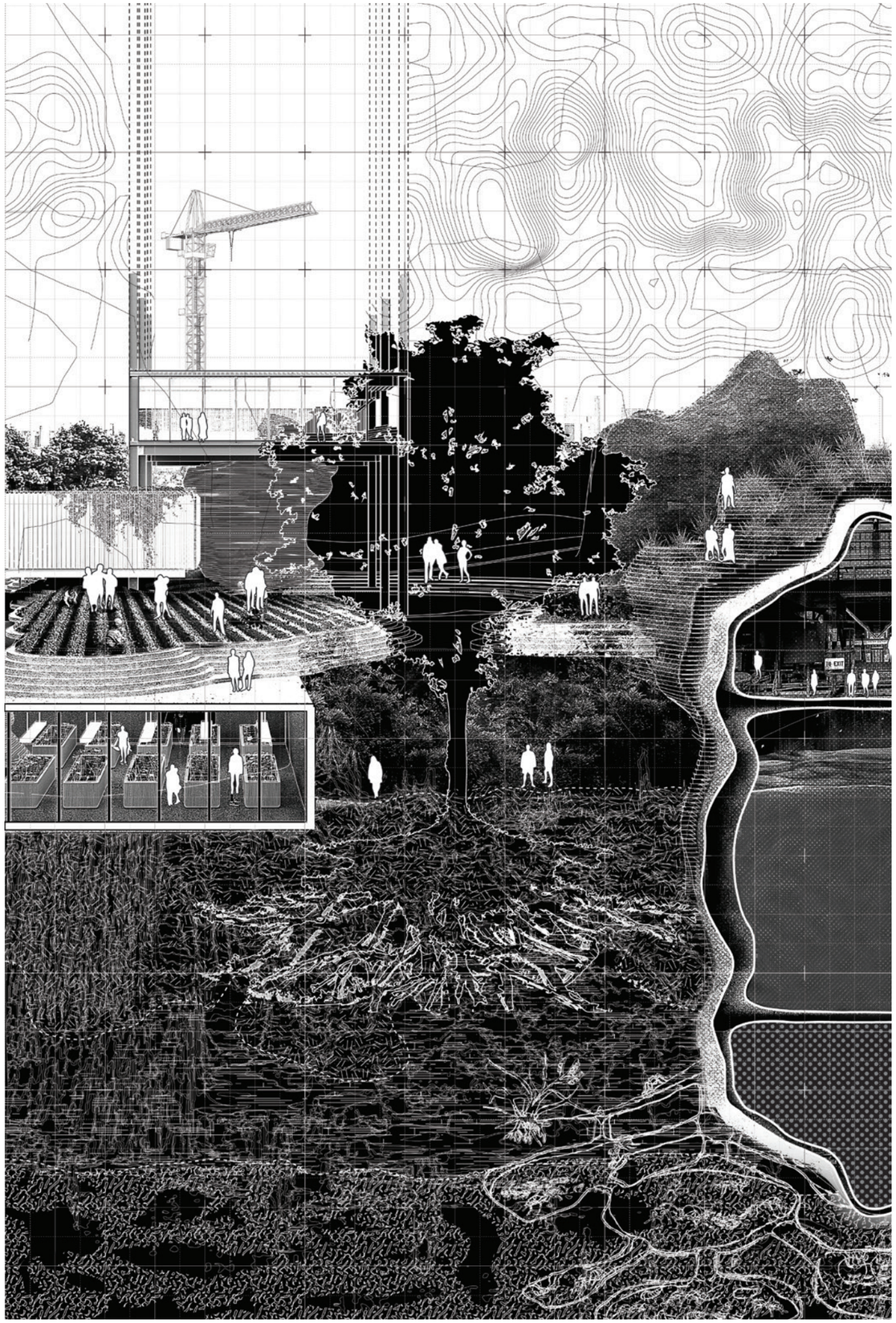


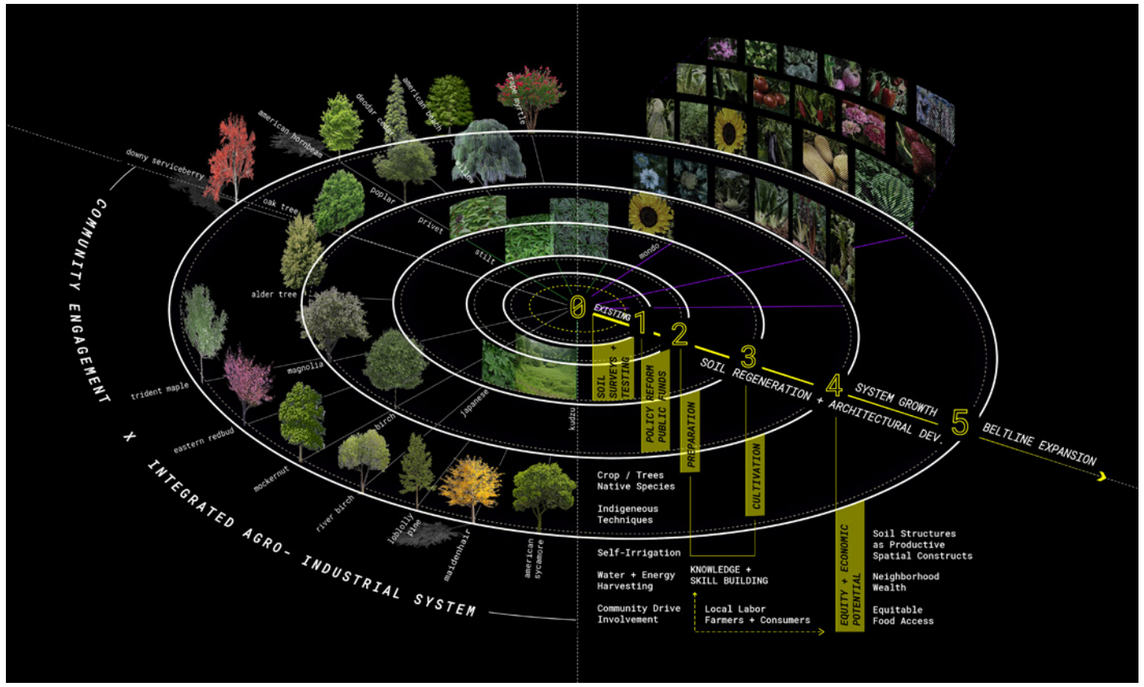


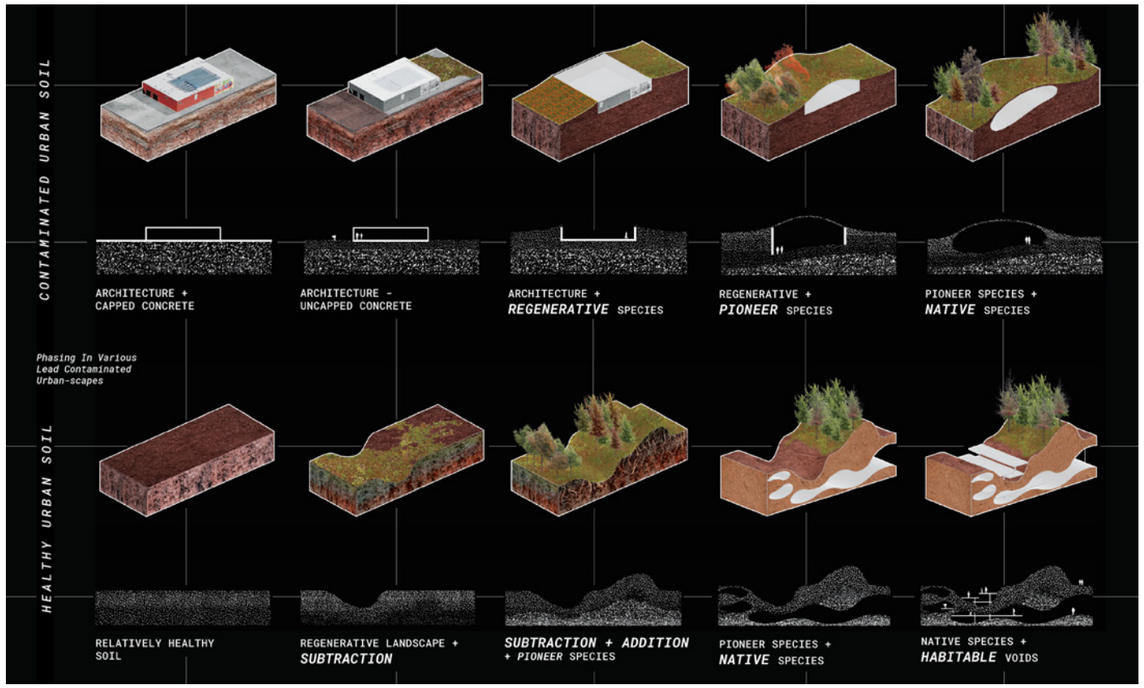

## PARTICLE CONCEPT

West End lies in the Piedmont eco-region that mounts fertile red soils. In zooming into aggregates, we draw inspiration to generate architectural forms that mimic properties such as soil fertility and porosity. We begin by zooming into the smallest aggregate to genearte porous forms that rethink the ‘earth’ and perforates the architectural structure / the lattice forms latches onto and gowth with the soil in which it is situated and made of.



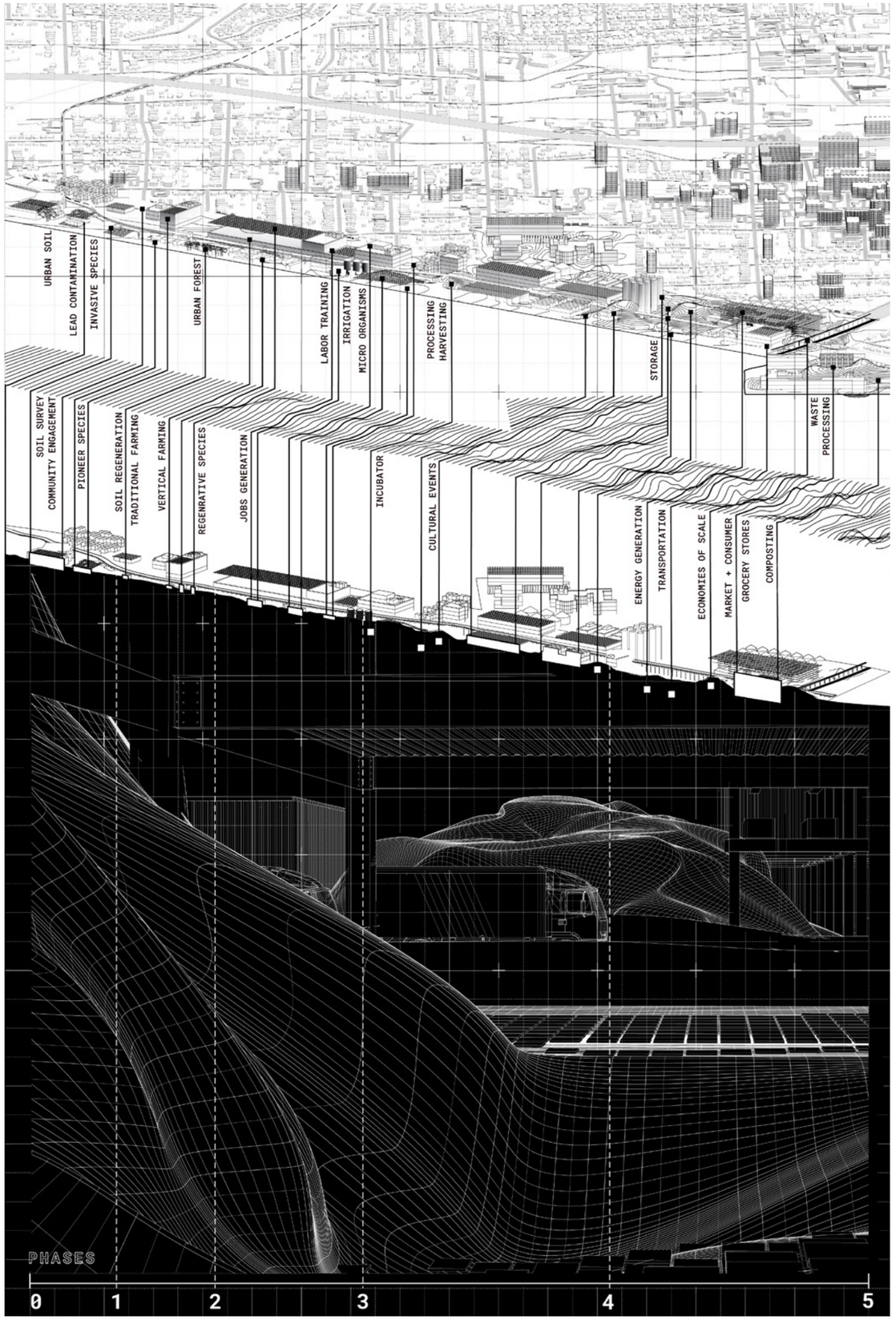





## SOIL RECOVERY

To revive the urban soil, facilitate and enrich this essential biological process, strategies for soil remediation are fundamental. Through systematic and gradual phases of temporality, soil gains agency by taking over architectural elements and impenetrable surfaces in instances of contaminated urban soil. By processes of subtraction and addition, cut and fill, the topography of the site surface is altered to allow better aeration and breathable conditions for urban soil that has systemically been compacted beneath hardened concrete.




## PHASING

In this process, soil is ecologically revived to support plant life and eventually, turns into a productive agricultural system that eases food access within the urban context. Phase 1 comprises soil testing, survey and policy changes - such as a just redistribution of tax and incentives to relocated funding to territorial interventions that directly corrolate to vulnerable communities. Phase 2 eliminates invasive species and preliminary remediation ensues in the use of sunflowers and similar species that absorb toxic lead contamination

## PHASING

on site. Phase 3 covers the planting of pioneer species, followed by Native species that help in soil stratification. This process would eventually culminate in a fertile land that is productive for urban agriculture. As we trace the development through various stages, incremental changes in the soil and land are witnessed as it begins to heal and build off of itself. The remediation process weaves through social, ecological and infrastructural logics that reclaim the agency of soil and non-human entities.


## METROPOLITAN GROWTH

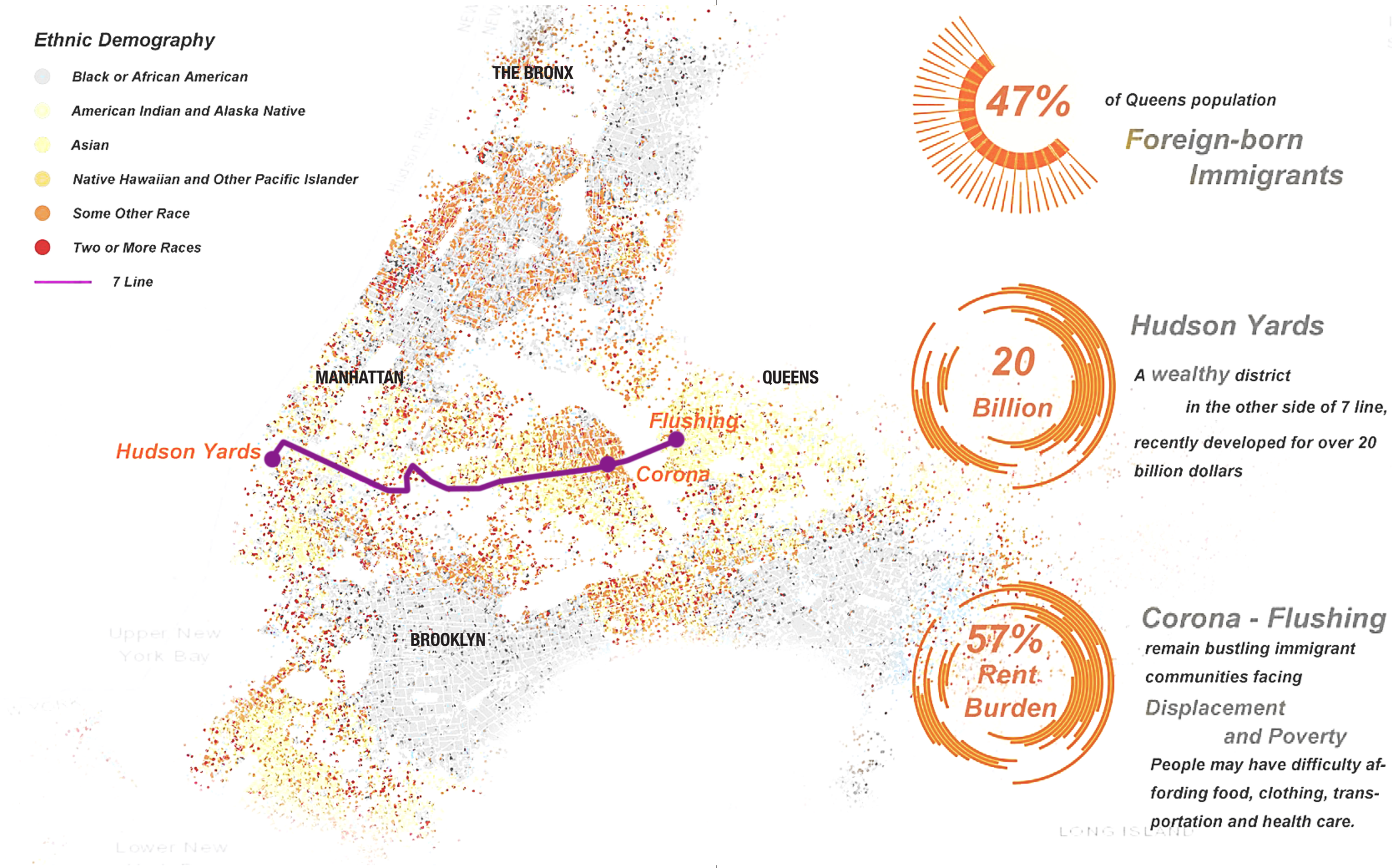
Beyond west end, the logic of soil as resistance in reclaiming sites of vulnerability along the beltline is echoed phyically and metaphysically - giving agency back to people and indigenous practices against gentrifying measures devoid of community roots. Where the West End is in its more regenerated phases,  the 141 brownfield sites along the beltline are reclaimed for their contaminated soils in begining processes of their own.


# SPATIAL AGENCY AND THE 7 LINE

GIULIA FIGUEIREDO CHAGAS

**PROJECT TOPIC:** URBAN DESIGN AND ENERGY
**LOCATION:** FLUSHING, NEW YORK, NY
**SCHOOL:** COLUMBIA UNIVERSITY GSAPP
**STUDIO:** URBAN DESIGN I
**FACULTY:** NANS VORON, SAGI GOLAN, GALEN PARDEN, AUSTIN, JAY, CANDELARIA, TAMI
**TEAM:** GIULIA CHAGAS, SHIRLEY CHEN, JIE KONG, GALINA NOVIKOVA
**SEMESTER:** SUMMER 2022

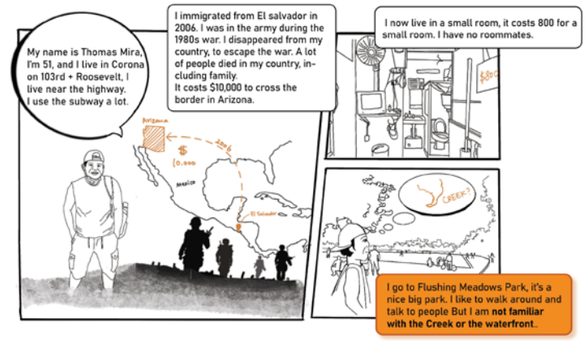
The Seven Line subway connects the most ethnically diverse neighborhoods in the world. 47% of Queens population is Foreign-born immigrants. While the seven line is a large connector of different cultures, it also reveals the city's inequitable income patterns along neighborhoods. The controversy starts with both ends of the line. On one end is Hudson Yards, a recently developed wealthy district, while on the other end is Flushing and Corona, a diverse immigrant enclave that faces poverty and displacement. Inequitable new developments are beginning to threaten these lower-income neighborhoods. More specifically, immigrant-owned small businesses are grappling with rent increase, eviction, and permit control. To protect this vulnerable community, we aim to create a new public authority to redistribute wealth along the line. The funding will be extracted from tax revenues to better serve this community. This support includes expanding the commercial corridor and public realm under the right of way, anchored by housing and community resources. With the redistribution of wealth, we propose a new infrastructural framework along the seven to support and celebrate the local economy and these culturally diverse communities of Flushing and Corona.




We started investigating the 7 subway line that goes from flushing to manhattan and we noticed the density of ethnic clusters within queens, and especially along the 7 line. The line goes from flushing to hudson yards across 22 stations. The Seven Line subway connects the most ethnically diverse neighborhoods in the world. 47% of Queens population is Foreign-born immigrants. While the seven line is a large connector of different cultures, it also reveals the inequitable income patterns along neighborhoods within the city. The neighborhoods along the line is the most culturally diverse in the world, where most of the population are immigrants; However,they face a huge income inequality across the line, where flushing, for example, makes less than 50% of the median income of NYC.



GIULIA FIGUEIREDO CHAGAS

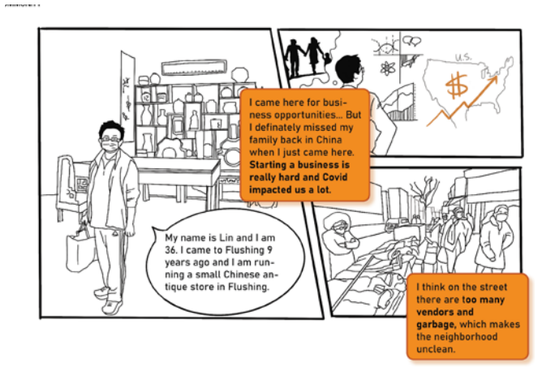



## THOMAS, 51

“I immigrated from El Savador in 2006. I was in the army during the 1980s war I disappeared fro y ountry to esape the war. A lot of people died in my country, including family. It costs $10,000 to cross the border in Arizona. I now live in a small room in Flushing, it costs 800, and I have no roommates.” - Thomas, immigrant resident of flushing interiewed by the team.

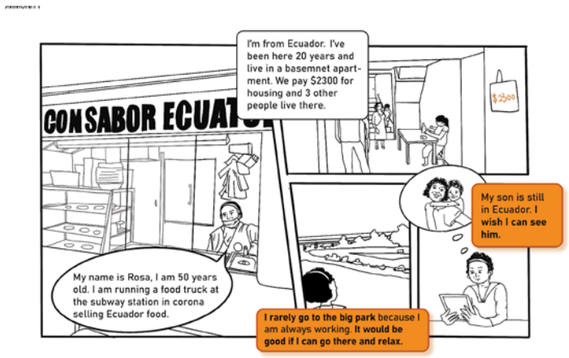

## CHEN, 20

“I am Chen, I have been here (Flushing) for three years. I’m from northeast China. I work in Flushing because there are many Chinese people and good restaurants here. My english is not good when I am working, there are some difficulties in communication. I miss China.” - Chen, immigrant resident of flushing interiewed by the team.




## LIN, 36

“My name is Lin and I am 36. I came to Flushing 9 years ago and I am running a small Chinese antique store. I came here for business opportunities, but I definitelly miss my family back in China. Starting business is really hard and Covid impacted us a lot. I think on the streets there are too many vendors and garbage, which makes the neighborhood unlean.”

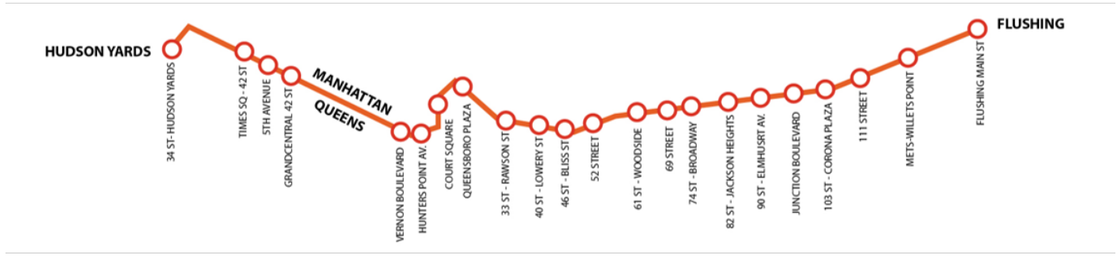



## ROSA, 50

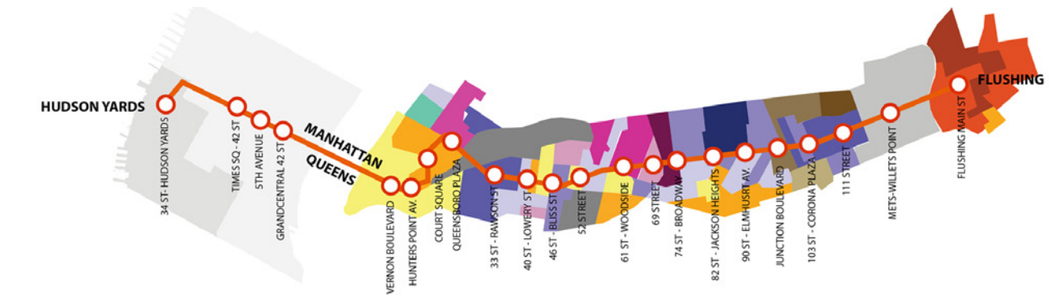
“My name is Rosa, I am 50 years old. I am running a food truck at the subway station in Corona selling Ecuador food. I’m from Ecuador, I’ve been here for 20 years and live in a basement apartment. My son is still in Ecuador. I wish I could see him.” Rosa, immigrant resident of Corona interiewed by the team.



## 7 LINE TRAIN

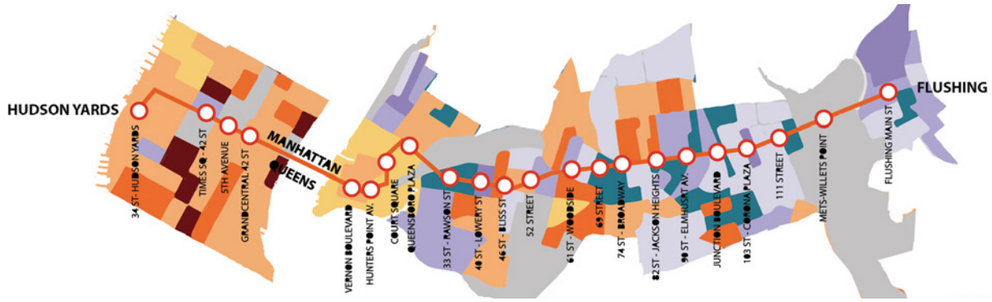



## DIVERSITY




## INCOME

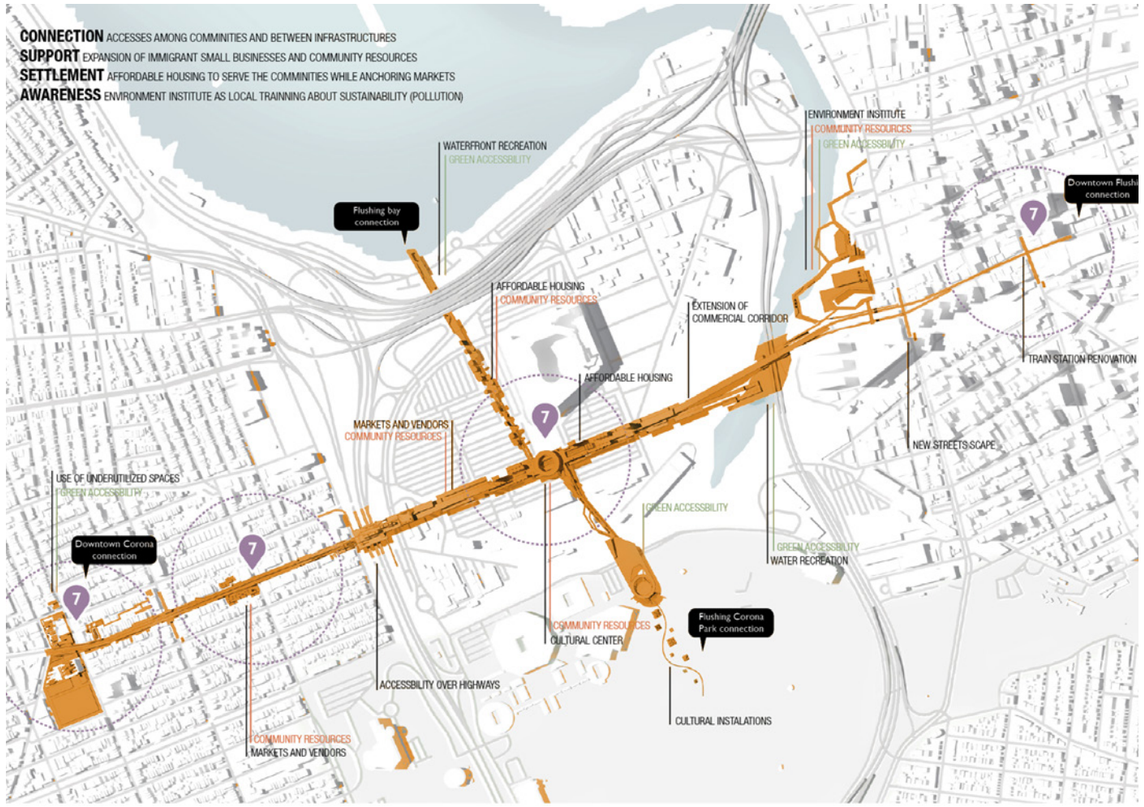

## GENTRIFICATION

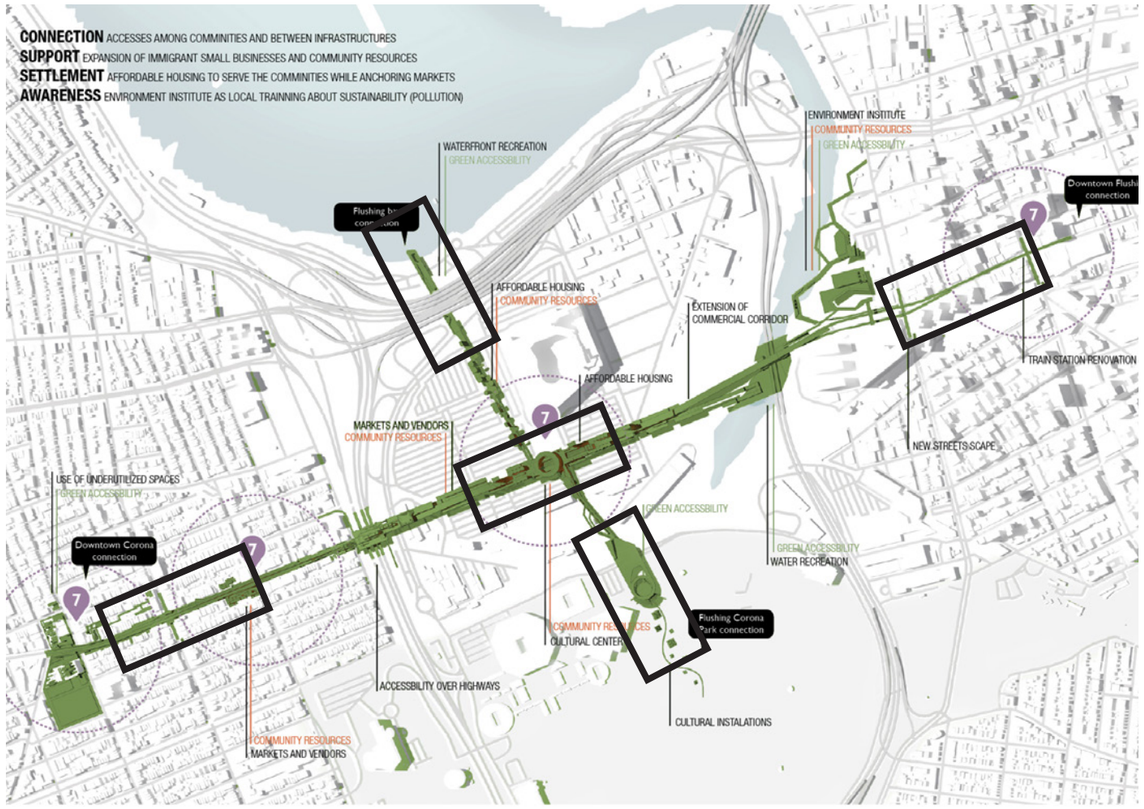



111 Street Station
7
$$$$
HUDSON YARDS
$
FLUSHING
34 ST- HUDSON YARDS
TIMES SQ - 42 ST
5TH AVENUE
GRANDCENTRAL 42 ST
MANHATTAN
QUEENS
VERNON BOULEVARD
HUNTERS POINT AV.
COURT SQUARE
QUEENSBORO PLAZA
33 ST - RAWSON ST
40 ST - LOWERY ST
46 ST - BLISS ST
52 STREET
61 ST - WOODSIDE
69 STREET
74 ST - BROADWAY
90 ST - ELMHUSRT AV.
JUNCTION BOULEVARD
103 ST - CORONA PLAZA
111 STREET
METS - WILLETS POINT
FLUSHING MAIN ST
THE 7 LINE
COALITION FOR ACCOUNTABILITY
Redistributing wealth to low-income neighborhoods to balance inequities along the line, shifting infrastructure policies to expand the public realm.
HUDSON YARDS
NMI : $101,368
INCOME TO RATIO: 50%
CORONA
NMI : $44,026
INCOME TO RATIO: 64.2%
FLUSHING
NMI : $39,840
INCOME TO RATIO: 75.7%

GIULIA FIGUEIREDO CHAGAS

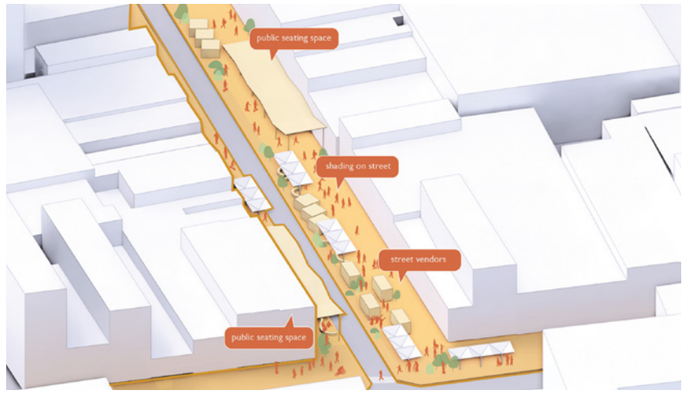
Along the 7 line, our concept is to create a social-economic system using the underdeveloped spaces as well as the existing infrastructural system. We reclaim the R.O.W. underneath the 7 line. This new framework expands and contracts by having temporary programs and seasonal activities to provide specific resources for the community. Met-Willets station is central to the axis that connects the existing promenade and Flushing Meadows Corona Park and the community. Smaller-scaled interventions are dispersed along the 7 line, both inside and outside the moving train.



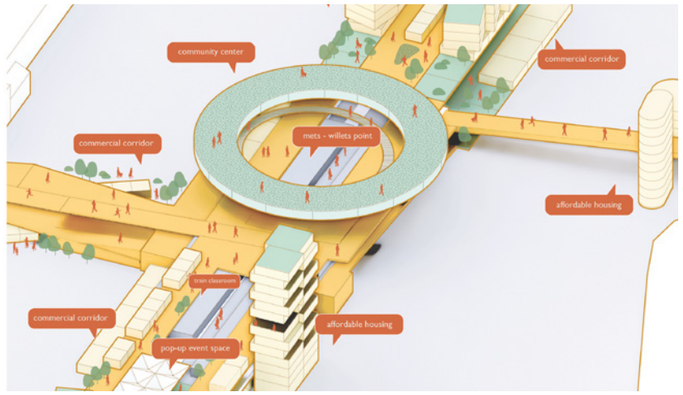

## STEET LEVEL IN FLUSHING

This section of the project happens on the Flushing side of the axis, where the trains are passing fully underground. In this case, the project stratedy is to redesign the streetscape, widening public spaces of the sidewalks, allowing more cultural and commercial activities to happen.



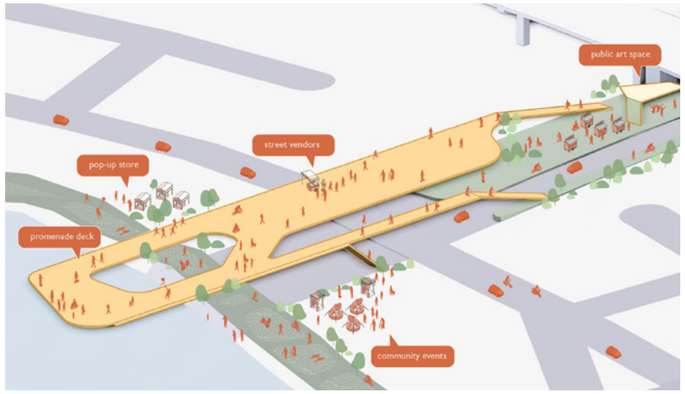

## WILLETS POINT NODE

This section of the project is the node of the axis located in the neighborhood of willets point, where more activities, both social and economical are needed. As a node, the movements from Corona and Flushing encounter there. public programas as well as residences are placed here.



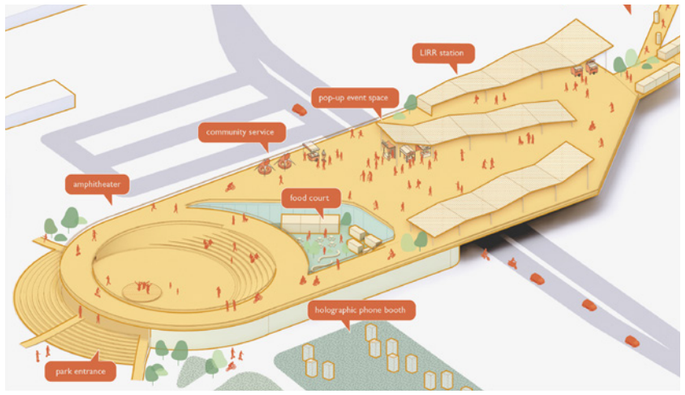

## WILLETS POINT WATER

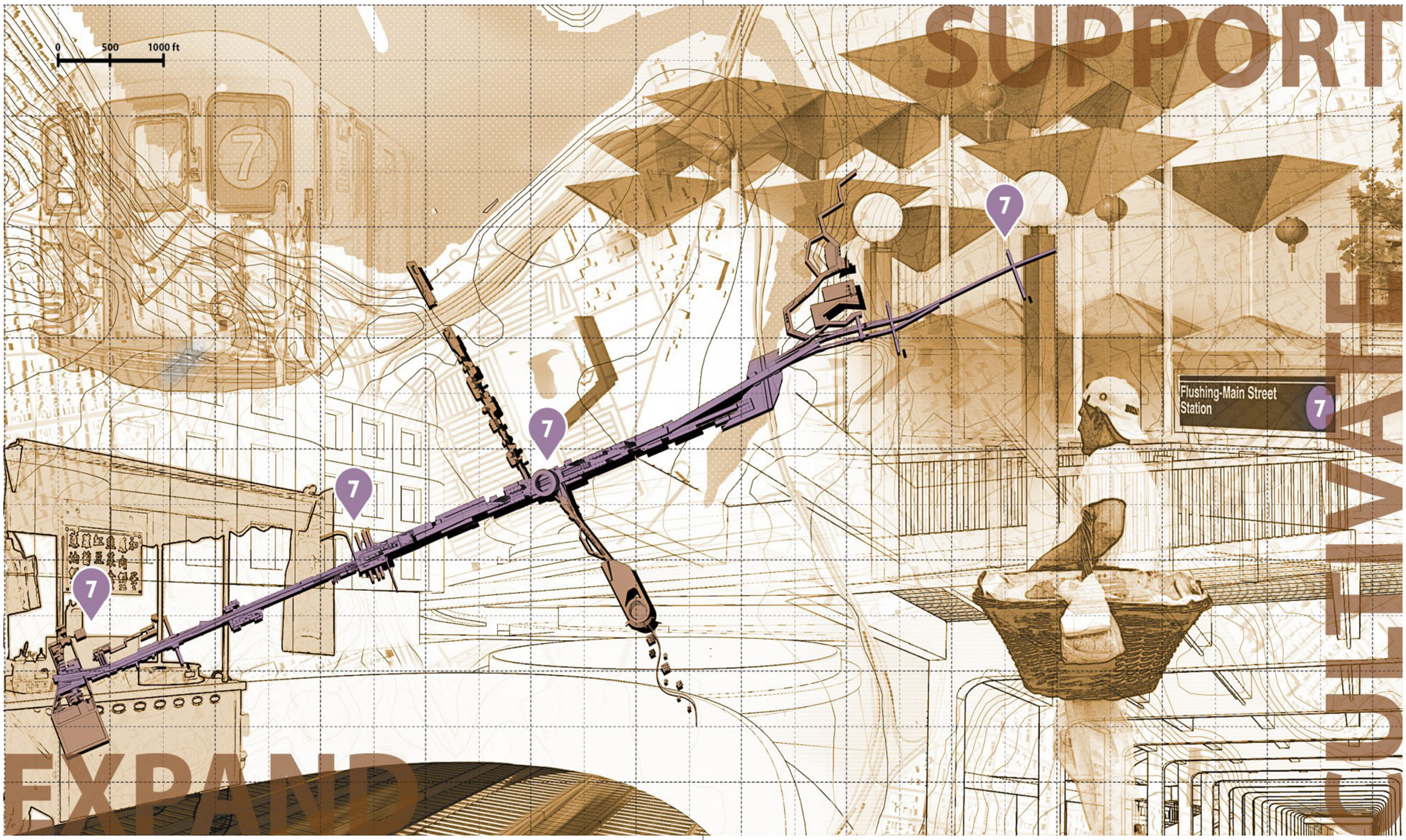
This point of the axis has mainly a recreational and educational perspective. This is where the axis encounters the bay, and merge with existing and now improved boardwalk. Sports such as kayakying and others will serve the community as well as atract people from other neighborhoods.




## FLUSING-CORONA PARK

This point of the axis has mainly a recreational and educational perspective. This is where the axis encounters the flushing-corona meadows park, and merge with existing and now improved green spaces. Such open space will serve the community as well as atract people from other neighborhoods.



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Eligniendit aute natiore rionempeles et prestias dis exceped quam, as sitio que parciist laborerfero coneseq uiandi sum ipsum, tem inci ut lignient et fugit et lat. Cuscipsa porehendi nim faccus eveliquas audicid que plat es am, to te des quae necus restiorrum nostii



GIULIA FIGUEIREDO CHAGAS


INTERVENTION OVER THE SEVEN LINE ON
FLUSHING MAIN STREET


INTERVENTION OVER THE SEVEN LINE
IN THE CENTER OF WILLETS POINT


INTERVENTION UNDER THE SEVEN LINE IN
THE NEIGHBORHOOD OF CORONA

INTERVENTION UNDER THE SEVEN LINE IN
WILLETS POINT OPEN SPACES


咖哩菜
咖哩菜
Flushing-Main Street Station
7
TAXI

https://wwf.panda.org/wwf_news/?204438/Masdar-eco-city

# MASDAR CITY AS A SYMBOL OF POWER

**PROJECT TOPIC:** URBAN DESIGN ANALYSIS
**LOCATION:** MASDAR CITY, ABU DHABI, UAE
**PROJECT:** FOSTER AND PARTNERS
**SCHOOL:** COLUMBIA UNIVERSITY GSAPP
**CLASS:** URBAN HISTORY AND THEORY
**FACULTY:** NOAH CHASIN, JOE HUANEKINS
**TEAM:** GIULIA CHAGAS
**SEMESTER:** SUMMER 2021

In the middle of the United Arabic Emirates' desert sits Masdar City, an ambitious development that aims to create the most sustainable city in the world (The National News). The project was essentially funded by the government of Abu Dhabi that has hired the British architectural firm Foster and partners in 2006 to envision the planned city. Located in a desert condition in the south of the Persian Gulf, approximately 17 km from the downtown region of Abu Dhabi, the project had to deal with several challenges, starting from the design to its construction implementation. Such constraints related to the intense climate and its geographic location did not stop architects, researchers, and developers from seeking their goal to create a net-zero, highly modern city. "No water, a scorching sun, sand storms. If we can live ecologically in such a hostile environment, we can live anywhere in the world." (Building Green) It is possibly the ideal that the architects and engineers had in mind when they envisioned the city.

Foster and Partners were commissioned to design a city of approximately 640 hectares, a place utterly independent from a petrol-based economy in the harsh conditions of the Rub Al-Khali desert (Foster and Partners). A team of esteemed scientists was formed to make everything possible to develop emergent technologies that would involve city-scale cooling systems, autonomous electric transportation, and more. Nevertheless, while in that highly technological environment, the architects tried to ensure the project did not get detached from local culture and ancient tech-

niques. For example, the central cooling system of the city was inspired by the tower-like methods used in traditional Arabic houses, while the facade elements counted with the mashrabiya strategy of preventing direct sunlight incision in the interiors of the buildings.

The oasis of Masdar city was first planned to house dozens of thousands of people in the most sustainable and technological way; however, it does not seem to have accomplished most of its goal until the present day. In 2006, when the design started being developed, the ideal was that the completion would take eight years to achieve a population of 50 thousand people. Instead, it has passed fifteen years, and a very small portion of its total of 6 square kilometers was built, housing less than 500 people that essentially include scientists and students from the Masdar Institute of Science and Technology (Wikipedia). Even though the implementation of the project seems like a failure until the present day, and it still may take decades to be completed, the project has already developed a series of technologies quite successfully. The already developed innovation starts from the materiality, energy storage until leakage sensors, resulting in buildings using 56% less energy and a consumption of 54% less water (Patel). In summary, while the project's construction is not yet successful, the overall project seems to have the best intentions and promises.

Two Imposing squares emerge from the desert. At first sight, the project's strong gesture speaks louder than any other aspect that we will talk about below. On the top of figure 1, the first precise square is much smaller than the second square, possibly one-fourth of its size. Both squares compose the entire project; however, these two elements comprehend an immense amount of buildings within it, of various shapes and sizes. When looking at the "interior" buildings, there seem to exist sorts of small clusters of typologies, where similar structures stay beside one another. In general, the project is an act of a collection of building clusters within two square boundaries of two different shapes.

The second significant gesture is the axis that exists cutting through the squares. The strongest one is the sinuous curved orange line passing through both squares and hitting the highway on the top of figure 1. Possibly, it is the main avenue or highway of Masdar City that can take people from one corner to the opposite one in an almost diagonal direction. The second act of axis composing the project is what seems to be three green corridors. One of them is cutting through the smaller square, and two of them cut through the bigger square, from one side to another, in a curved shape. Finally, narrow streets compose the rest of the project.

The possible boundaries of the site can be identified by the greenery surrounding the two squares. These green spaces become an extremely high contrast compared to the desert environment that surrounds them. Such areas are designated for energy generation through solar farms and their technical buildings and leisure elements, such as soccer fields and gigantic pools. The pools are spread throughout the entire perimeter of the squares, possibly working as water mirrors to refresh the project located in a desert wheatear. In addition, an uncountable amount of trees and grass fields composes the surrounding of Masdar City, giving the squares even more emphasis.

In summary, the overall formal composition of Masdar City is two gigantic squares being cut through the main avenue (or highway), with three green corridors, and being surrounded by green spaces with solar energy power plants and leisure elements. The city seems to try to achieve a net-zero place by its green infrastructure, attempting to become an icon with its shape in the middle of the desert. Whether or not it is successful or not to achieve its goal is unknown.

Architecture has long been correlated to historical symbols. From the biblical age to recent projects, patterns of the symbolism of power emerge, ranging from religious meanings to technological potencies. But, how does this fact leads to one of the most sustainable cities in the world? Masdar City rises in the middle of the Rub Al-Khali desert in the highly wealthy country, the United Arab Emirates, and it seeks to become a sustainable reference1. But, what is actually behind all of the good intentions to remediate and preserve the mother earth? At first, it demonstrates to pursue becoming a sustainable power in the world; however, could political power also be behind it? This paper aims to expose and understand the facts being told by parties involved with the city's project, as well as correlate it with other historical circumstances that may or may not be directly speaking with the concept behind Masdar.

First, the concept of the project needs to be understood. The goal of Masdar City was to achieve an utterly net-zero city, counting with the most advanced solar energy generation, wasting recycling systems, electric transportation, and so on. To seek this goal, the government of Abu Dhabi in 2006 hired the Architecture firm Foster and Partners to design the new planned city from scratch2. A team of architects and esteemed experts and scientists were formed to innovate with new technologies to make everything possible. The innovation starts from materiality and energy storage until leakage sensors, resulting in buildings using 56% less energy and 54% less water3. The 640 hectares project was supposed to house over 50 thousand people and be the Masdar Institute of Science and Technology center. Whether or not it was achieved until today, this ambitious goal would make the new city a valid symbol of sustainability among the urban design field, like never achieved before.

What is, in fact, behind all of the sustainability goals? Could political power be correlated with such an achievement? Historically, architecture, in general, has been used as a demonstration of governments' strength and authority for millenniums. Form, shape, height, or even ornaments are a few elements historically used to represent power in a way or another. As an example, the Great Pyramids of Giza do not stay far from this concept. It was built over four thousand years ago in the middle of the desert. The challenging environmental and precarious technical conditions did not stop the pharaohs from making super tall heights and precise geometrical shapes. The pyramid thumb was all intentionally built to demonstrate the pharaoh's magnificent power that would be risen as a god in the afterlife4. From the religious reasons behind the pyramids to the demonstration of imperial power and historical brutality behind the Colosseum of Rome in AD 805, architecture has been long used as a political symbol. This fact does not only happen in ancient times, but it continues to proceed until modern days. Brasilia, as another example, was built in Brazil by the middle of the 1950s. Brazilian president Juscelino Kubitschek had a politic to demonstrate to the world the development and industrial strength of the country by its modernization. Hence, how do all of these examples tie back to Masdar City and its intention to become the most sustainable city globally?

The United Arab Emirates has long been trying to demonstrate its power to the world. Dubai, for example, a city completely developed in the middle of the desert in a few decades, has shown its constructability strength in many ways. Starting with the tower Burj Khalifa, designed by the esteemed architectural firm Skidmore Owings and Merril, it has broken the record of being the tallest building in the world6. Nations are constantly competing with one another, trying to demonstrate their power somehow. The Arab Emirates is not different. As mentioned in the previous paragraphs, since 2006, the Abu Dhabi government has been trying to achieve the most sustainable city in the world. Is it just purely for the purpose of saving the world? Probably not. The country has been trying to show its power in many ways by having its structures breaking "impossible" records such as Burj Khalifa and its height and Masdar with its sustainability purposes.

It is indeed curious why a petrol-based economy has been trying to show its sustainable power to the world. However, oil is not an inexhaustible energy source, and the country has to make plans for its future. As a symbol that the Arab Emirates can overcome the switch of economic resources, Masdar City emerges, a net-zero city. Such as the Pyramids of Giza and its empowered shape, Masdar grows in the middle of the desert with another strong geometrical shape of precise squares, making it easier to become another political symbol such as the pharaonic ones. The switch from religious to energy reasons is clear. Whereas the past civilizations were more religion-driven, today the society seems to be more cautious about the future of the earth and its resources. In summary, starting with its powerful shape to the declared intention of becoming a sustainable reference, Masdar does not seem to be just trying to save the world but also demonstrates its country's power.

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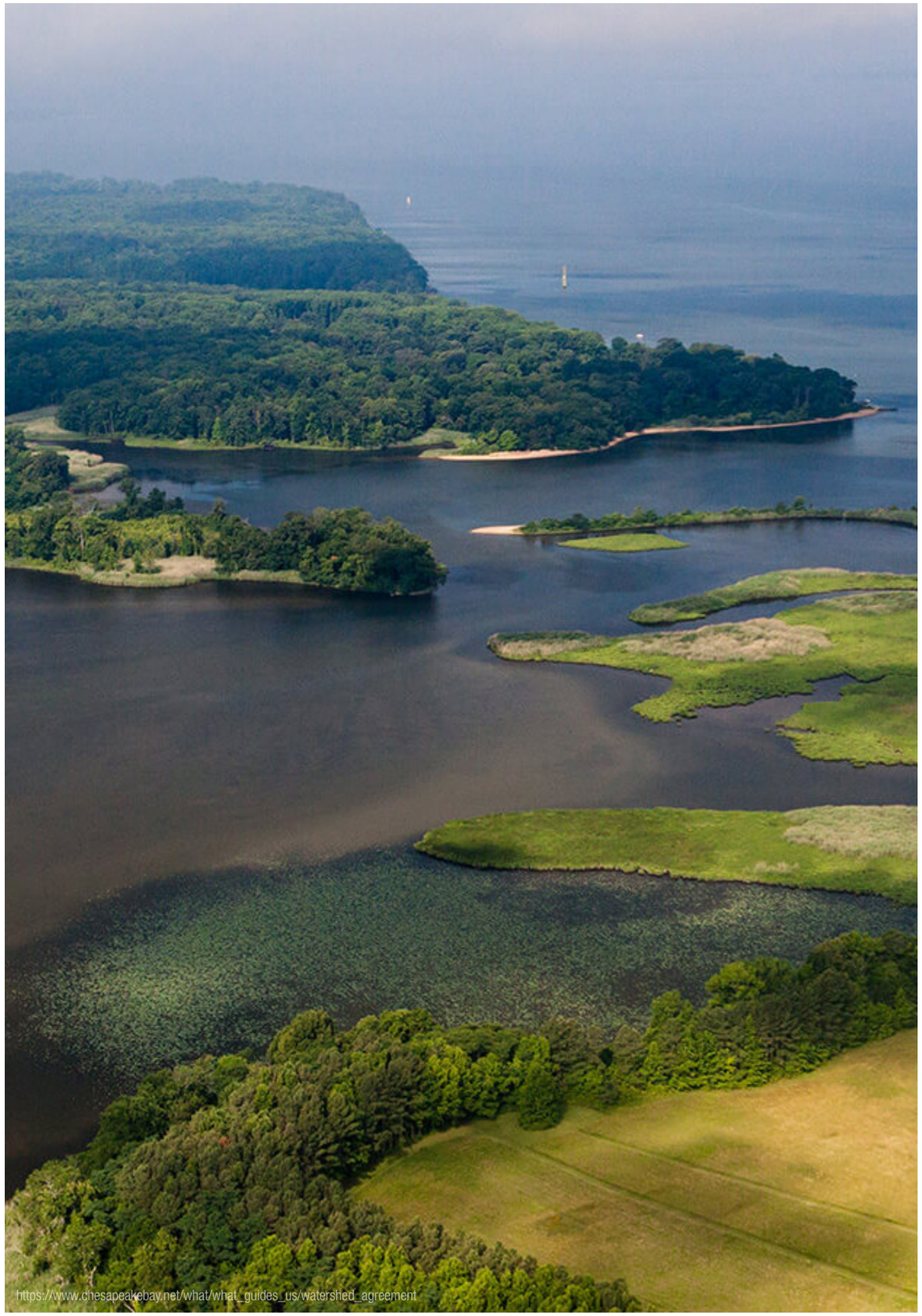

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# THE CHESAPEAKE BAY CASE STUDY

**PROJECT TOPIC:** LANDSCAPE ANALYSIS
**LOCATION:** CHESAPEAKE BAY, US
**SCHOOL:** COLUMBIA UNIVERSITY GSAPP
**CLASS:** COASTAL RESILIENCE
**FACULTY:** KATE ORFF
**TEAM:** GIULIA CHAGAS, SHIRLEY CHEN, CURRAN ZHANG
**SEMESTER:** SPRING 2022

As the largest estuary in the United States of America, the Chesapeake Bayland is a perfect case study for resilient coastlines. From a British colonial settlement to the nexus of major American cities, the Chesapeake Bay is an archive of coastal issues on various political, economical, and environmental scales. Our case study on this site hopes to dissect the various aspects of coastal issues that would allow for further interpretations of how we can move towards a more resilient coast. The Chesapeake Bayland is located within the northern portions of Maryland and the southern parts of Virginia. With a total shoreline of 11,684 miles and a surface area of 4,479 square mile, the Chesapeake Bay plays a major environmental and social role within the human settlements of the area. Intersecting this vast body of ecosystem, cities such as Washington D.C, Baltimore, Richmond, Norfolk, and Dover all contribute to the overall health of the coastline. It is also home to diverse regional ecosystems which includes forests, wetlands, marshlands, rivers, tributaries, beaches, and the bay. Such a combination of ecosystems contributes to various solutions of maintaining environmental health and stability. The vast forest acts as a pollution sponge and contributes to the retainage of soil and nutrients. The intricate network of rivers, streams, and wetlands provides shelter and breeding ground for local fishes and aquatic life. The beaches, marshes, aquatic reefs, and tidal flats contribute to the stabilization of coastal shoreline and ensure

shelters for other species to thrive. The bay itself is the core ecosystem that brings livelihood, water, food, and nutrients to all surrounding ecosystems and settlements. However, being sandwiched between major human settlements has caused the ecological footprint of the bay to shrink at an alarming rate. The deterioration of such an important body of water and environment has begun to give its inhabitants a newer perspective of how the coast affects human lives.

Before the existence of the United States of America, the Chesapeake Bay area was home Native Americans, predominantly the Powhatan Tribe. During their tenure as the stewards of the land, the Powhatan had developed multiple strategies of harnessing nature and living off the lands. By following the rhythm of the seasons and the health of the land, the natives were able to fish, hunt, plant, and gather their necessities in a sustainable manner1. Upon the establishment of Jamestown, the European settlers began to learn the importance of land stewardship and sustainable harvesting of the land. Contrary to the lessons taught by the natives, the settlers continued their European values of land ownership and resource extraction. Over the years, these extractive values have exacerbated the destruction of the Chesapeake Bay.

“I see them and remember that those who live on the margins of our society are the most vulnerable, and that the story of species vanishing is repeating itself in nearly every borderland.”- Elizabeth Rush (Rising)

Encapsulating the bubbling catastrophe of climate change, this quote by Elizabeth Rush summarizes the situation at the Chesapeake Bay, in which the current major risks are unregulated human activities, climate change, and lack of communal maintenance. Due to the growing population and developments, Chesapeake Bay has lost half of its forested shoreline and wetlands, in addition to losing nearly 80% of its underwater grasses. Development has continued across Pennsylvania, Maryland, and Virginia at a rate between 30,000 to 40,000 acres per year. Another major component of unregulated human activity is agriculture. As an essential regional industry, the agriculture industry produces more than 50 commodities, including corn, soybeans, wheat, fruits and vegetables. According to a study from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), there are more than 83,000 farms operating within the Chesapeake Bay watershed, which is approximately 30% of the 64,000-square-mile Chesapeake Bay region.2 Despite having such an important role within the Chesapeake Bay area, the current agriculture practice is one of the largest contributors to nutrients and sediment in the waterbody. Issues of over-irrigating farmland, over-tilling soil and over-applying fertilizers and pesticides impact the waterways in the Bay drastically. According to a nutrient study in 2015 by the Bay Program, agriculture contributes 42% of the nitrogen, 55% of the phosphorus and 60% of the sediment entering the Bay, which inhibits positive aquatic life such as the growth of rockfish and crabs. The lack of agricultural regulation has caused the abundance of nutrients to offset the natural balance within the ecosystem.

Additionally, the Chesapeake Bay is also one of the most vulnerable regions in the nation to the effects of climate change. The two main factors that contribute to sea level rise are thermal expansion caused by the warming of the oceans, and the melting of glaciers and ice sheets due to the rising temperature. The water level at the bay has already risen about one foot and is expected to rise another 1.3 to 5.2 feet over the next 100 years. Many islands where small fishing communities once thrived have been drowned by the rising sea level. The rate at which sea level rise is faster than the global average since Chesapeake Bay experiences the process of subsidence, sinking of an area of land.

The combination of climate change and over use of land has also resulted in greater economic issues. Excessive nitrogen and phosphate from farmers plus rising sea temperature have fueled the growth of algae. The sun exposure is blocked by the blooming of algae, thus leading to the death of beneficial submerged aquatic vegetation. At times, there are very low levels of dissolved oxygen, which creates areas of dead zones for fish and other types of aquatic life. Within these dead zones, fish, crabs, oysters, and other aquatic life suffocate due to the lack of oxygen.3 On average, the Chesapeake Bay dead zone covers between 0.7 and 1.6 cubic miles during the summer months, when the water is at its warmest and oxygen level is at its lowest.4 Together, with more frequent extreme weather events, warmer temperatures and ocean acidification, sea level rising encroaches the land within the Bay and endangers the whole ecosystem.

Opportunities “The time has come for a more systematic type of transformational adaptation to meet the growing threats facing our coastal communities. Doing so requires moving away from a design and development philosophy focused on individual structures and toward comprehensive and integrated projects.” - Carolyn Kouskym, Billy Flemming, Alan M.Berger (A Blueprint for Coastal Adaptation)

Aligning with the heavy emphasis of systematic change towards resilience strategies within “A Blueprint for Coastal Adaptation”, many projects and undertakings within the Chesapeake Bay have been made to ensure a brighter future for the ecosystem. One of which is a design proposal by Parsons Island Conservation and Regeneration Plan by Mahan Rykiel Associates. This design calls for adequate reconfiguration of local materials, including sticks, stones, and sediments, to implement strategies to create a series of rich textured and highly performing landscapes.

One of the most successful attempts to save the bay is the Chesapeake Bay Commission, a legislative commission that actively pushes fourth local initiatives to save the ecosystem. The Chesapeake Bay Commission was created in the early 1980s by the states of Maryland and Virginia, while Pennsylvania joined the commission in 1985. It was established after a series of studies by the EPA, the US Environmental Protection Agency, regarding the increasing

FIGURE: Chesapeake Bay Foundation

GIULIA FIGUEIREDO CHAGAS

FIGURE: Chesapeake Bay Foundation

pollution problems to the Bay. This seven-year research led to a conclusion, in 1983, that the Bay is an “ecosystem in decline”. The growing concern of the ecosystem at the Bay region prompted the legislatures of Maryland and Virginia to establish the Chesapeake Bay Commission, which consults with the state legislatures and the Congress about environmental, economic and social issues related to the bay.

Under the Commission, the Chesapeake Bay Agreement was developed with the EPA, which established the Chesapeake Bay Program and the Executive Council for the Bay. At the same time, EPA began to provide matching grants to the states within the Bay region for restoration and protection projects in Chesapeake Bay. From then on, more and more actions have been taken and more goals have been set to reduce pollution and protect the ecosystem in the Bay region. The Chesapeake Bay Commission became a catalyst for the coordination and leadership between the States legislatures and policy action to restore the Bay watershed. It serves as the legislative voice in the multi-jurisdictional Chesapeake Bay Program Partnership and as a coalition between the states and the Congress on policy and budgetary matters regarding the restoration of Chesapeake Bay. It is an effort of an interagency partnership of federal, state, local governments, academic institutions, citizen groups and nonprofit environmental groups to maintain and improve the water quality. Working together, the Chesapeake 2000 guided the restoration activities through 2010, targeting a series of upgrades to the sewage treatment plants throughout the watershed. According to EPA, the upgrades resulted in “steep reductions in nitrogen

and phosphorus pollution". The restoration efforts that began in the 1990s also showed a potential for growth of native oyster population. In 2021, scientists at the University of Maryland Center for Environmental Science reported slight improvements in bay water quality compared to that in 2020. Built on top of the framework created by the Chesapeake Bay Commission, other organizations have the opportunity to take action as a cohesive group.

One such organization is the Chesapeake Bay Foundation. "Founded in 1967, the Chesapeake Bay Foundation (CBF) is the largest independent conservation organization dedicated solely to saving the Bay." (CBF). The foundation works across different activities and operations, from bringing the community together for greater engagement, advocacy, education programs, projects supervision and implementations, participation in law processes and courtroom activities, and they seek other very ambitious goals to make sure of having a healthy bay for the community that lives across many cities.

One example of the Chesapeake work is when they filed a lawsuit against a local industry that takes place in the margins of the bay that was essentially not properly taking care of their pollution discharge that was ending up on the bay. This act is a common effort of the foundation to make sure the laws are being followed in order to guarantee the stop of pollution discharge on the bay. Regular meetings engage the community as part of the entire process led by the foundations, which also bring in the educational aspects of the process. The people who live in the margins of the bay should be aware of the current aggravating situation and what solutions could be done to mitigate the problem and enhance the health of the local environment.

Being one of the most successful foundations dedicated to the health of the bay and its surrounding environment (CBF), the organization also advocates for the development and implementation of actual landscape infrastructure projects. An example is restoring endangered mussels and oysters from the waters of the polluted bay. By bringing back these species, they can assist in a natural way of filtering pollution of the water. "Stormwater runoff from farmland and urban and suburban areas wash nutrients—often excessive amounts of them—into our streams and rivers eventually leading to the Bay." (CBF). To mitigate such a situation, projects along the shoreline are gaining force to be implemented, softening the edges of the water to create a sort of filter and a buffer zone between urban activities and the bay. Along with shoreline mitigation, the foundation also works closely with local farms to provide the knowledge they need to avoid releasing pollution that would immediately affect the waters.
The Chesapeake Bay Foundation is indeed an organization that serves as an example for other similar purposes groups that have to achieve ambitious goals to mitigate pollution of the environment and bring back a healthier habitat.
The opportunities brought forth through the collective efforts of the Chesapeake Bay Commission and the Chesapeake Bay Foundation allows for a centralized authority and increased reliance towards local involvement. Their actions have provided successful land stewardship and coastal management frameworks that ensure that the Chesapeake Bay flourishes.

In present conditions, the pollution activities exacerbate engagements pro saving the natural habitats. This scenario has to urgently be changed. By analyzing the Chesapeake Bay current situation, it is clear that even though the problem is there, there exist solutions and hope for a better and healthier future. For several decades the bay has been affected by urban activities close to the shore as well as the presence of massive industrial complexes not committed to doing any good for the environment, but instead to continuing releasing pollutant discharge into waterways. Nevertheless, successful organizations such as the Chesapeake Bay Foundation bring hope to this present scenario. Learning from the Chesapeake Bay, by strong organizational commitment, community engagement, educational programs, activism, participation in courtrooms and lawmaking, as well as setting ambitious goals for the development, implementations, and maintenance of infrastructural landscape projects. It is not possible to achieve a positive future with only one of these mentioned activities, but, instead, all of them have to come together at the same time in order to create a cycle of change. It all starts with the local people, passing through lawmakers, and going to the bigger partnership along with private and public sectors to make it all work.
The adaptation to climate change, pollution, and extinction of local fauna and flora starts with this process that has to take place across several decades, starting as soon as possible and maintaining its force and engagement throughout several years, and basically a forever loop. Bringing the local population to be part of the process is essential. Providing their awareness and education in the matter of environmental health will lead to fruitful outcomes, such as the examples mentioned on the previous page of the Chesapeake Bay Foundation work.

FIGURE: Chesapeake Bay Foundation

In summary, the adaptation and mitigation to an essential shift in today's logic of polluting waterways and habitats, has to start on the educational and knowledge production level, until it achieves lawmaking, and finally the development and implementation of successful projects that have already been implemented across the world that can serve as an example to present and future projects.

"Pre-determined models will not work on this contested ground. Planners and designers must recognize and negotiate the various values, motivations, and "resilience imaginaries" across the diverse cities in which they are needed." -Lizzie Yarina (Your Seawall Won't Save You)
Drawing from the issues that were discussed by Lizzie Yarina, our case study on the Chesapeake Bay depicts a scenario in which correct strategies for a resilient coastline and ecology are set in motion, yet success is still far away. Existing organizations such as the Chesapeake Bay Commission and the Chesapeake Bay Foundation require far more support and involvement to make more effective impacts to the environment. Successful strategies, including expansion of community led restoration projects, integration of education programs, restoration of local reliance on natural resources, and adjustment to greener infrastructures, are optimal methods that are worth expanding on to ensure that the Chesapeake Bay has the ability to continue its vital service to the local community, species, and ecosystem.

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# ABOUT

The living experiences that I have had made me eager and committed to making a difference in my country. I was born and raised in Rio de Janeiro in Brazil, and growing up, I experienced the several complexities presented by the cities today. Araruama, my hometown, is an example of a small town undergoing fast, disorganized growth due to its proximity to Rio de Janeiro's metropolitan region. When I moved to Rio de Janeiro's capital, I experienced a city's metropolitan scale and witnessed a more aggravating scenario. The city deals with favelas' growth in precarious conditions, social inequity, inadequate urban infrastructures, and geopolitical uncertainties, complicating its socio-economic development. To seek the expertise necessary to deal with such complications, I saw an opportunity to embrace this challenge through the lens of Architecture and Urbanism. Hence, I attended my bachelor's degree in the Department of Architecture and Urbanism at the Pontificia Universidade Catolica do Rio de Janeiro. During my studies, I had the opportunity to contrast my vision toward cities by attending an academic exchange program in Chicago when I was awarded a full scholarship sponsored by the Brazilian Ministry of Education. Later, I had another international experience by joining the esteemed Architecture and Urban Design firms. Now, graduating from the Masters's degree program in Urban Design offered by Columbia University has broadened my analytical and design skills and provided me with valuable tools necessary to succeed as a highly-skilled practitioner and a future educator. All this knowledge would be tremendously fruitful for my pursuit to make a difference in the current condition of the field in my country. In the future, I hope to be among professionals who are passionate and dedicated to advancing the field through research, teaching, and cutting-edge work. This way, being able to address the challenges that Brazil faces most efficiently, I believe this will be possible with all opportunities have had at Columbia University GSAPP. Thank you very much to my family, the Lemann Foundation, my classmates, and the incredible faculty team for all the learning and support. I will always be thankful for all the knowledge I have acquired in the past year.

GIULIA FIGUEIREDO CHAGAS
ARCHITECT AND URBAN DESIGNER

# GIULIA CHAGAS

giuliachagas@gmail.com
gf2463@columbia.edu
+1 347.654.6150