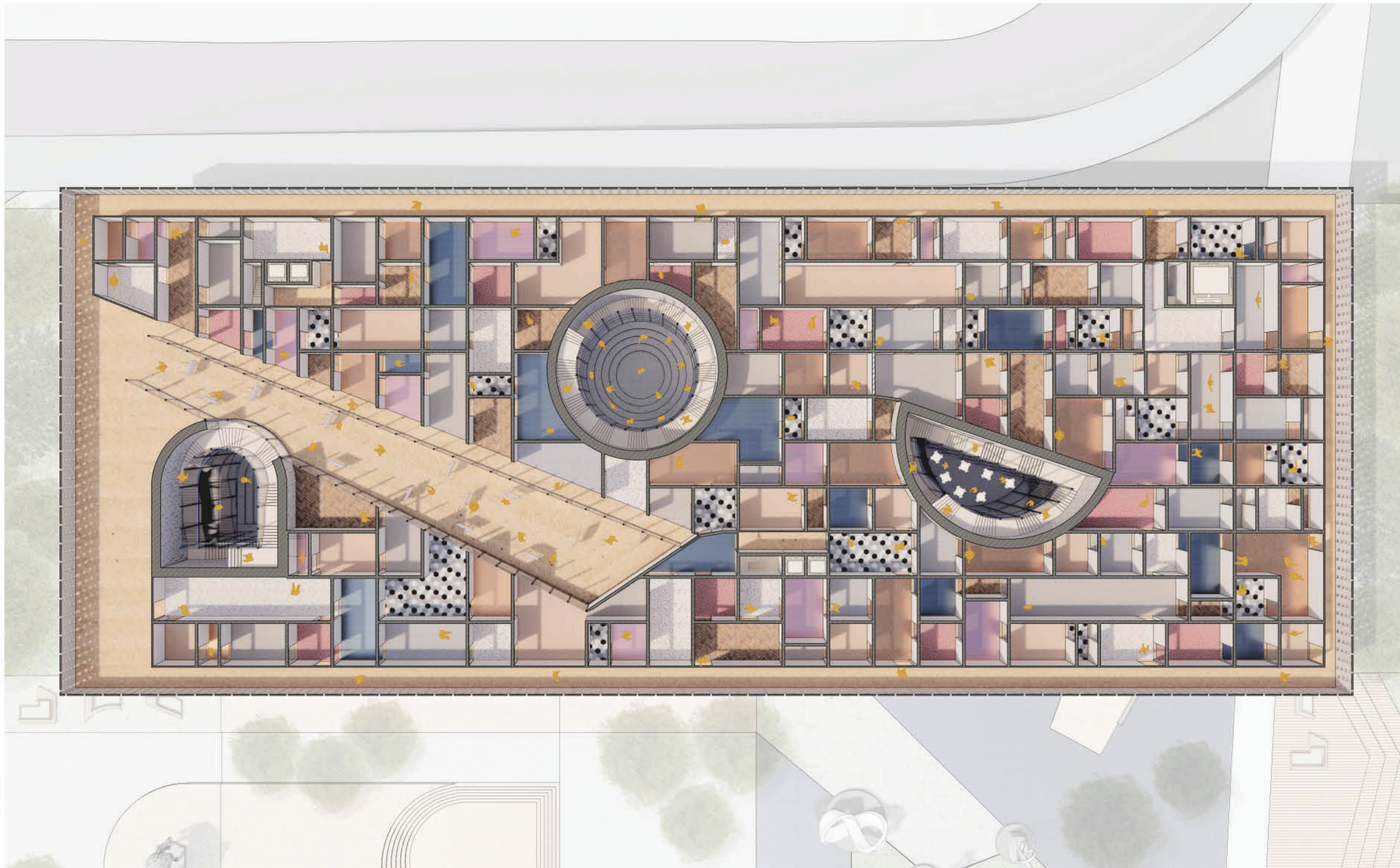


# Portfolio

Simon Galecki

Columbia University, GSAPP  
Master of Science in Advanced Architectural Design 2022 - 2023

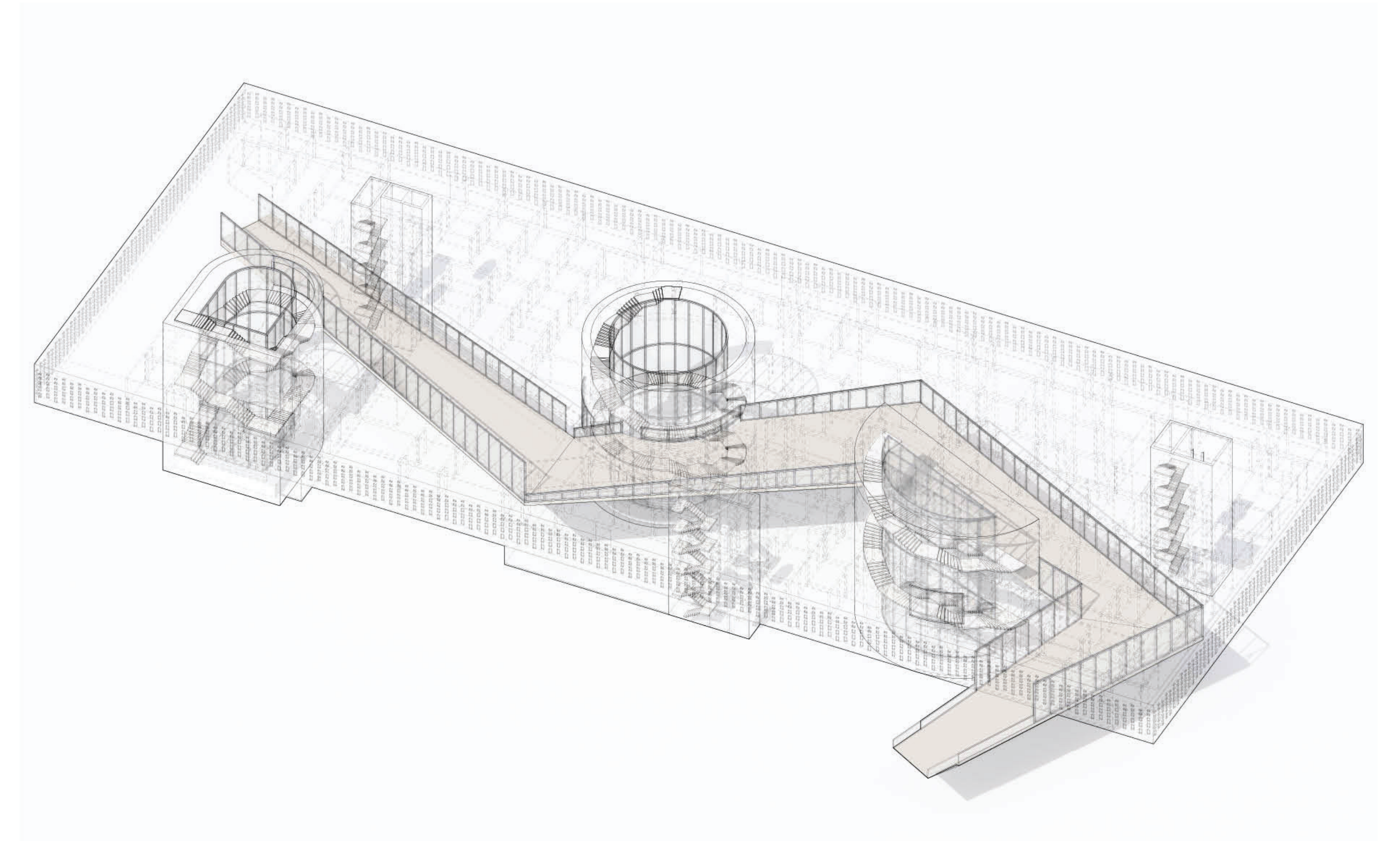
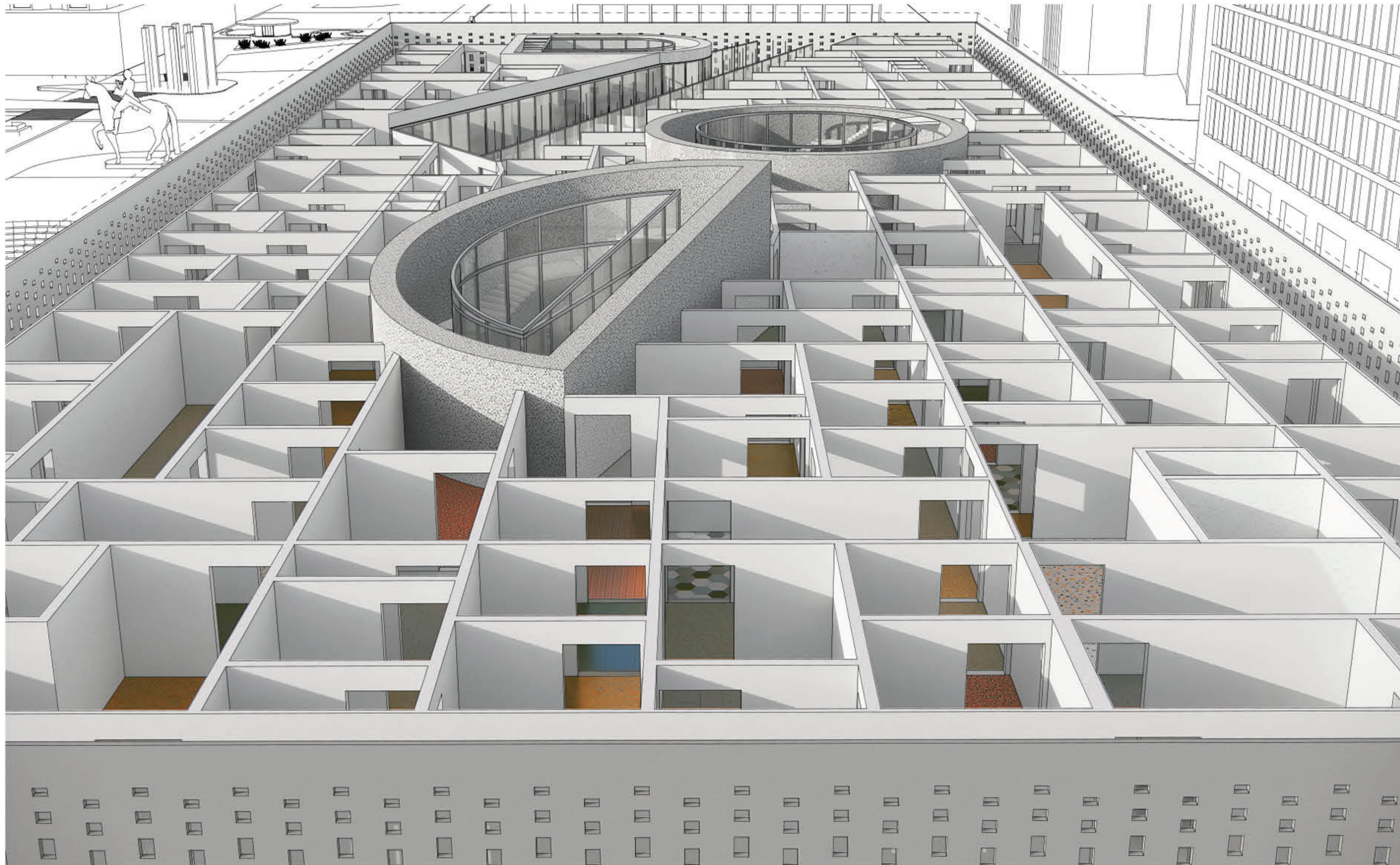


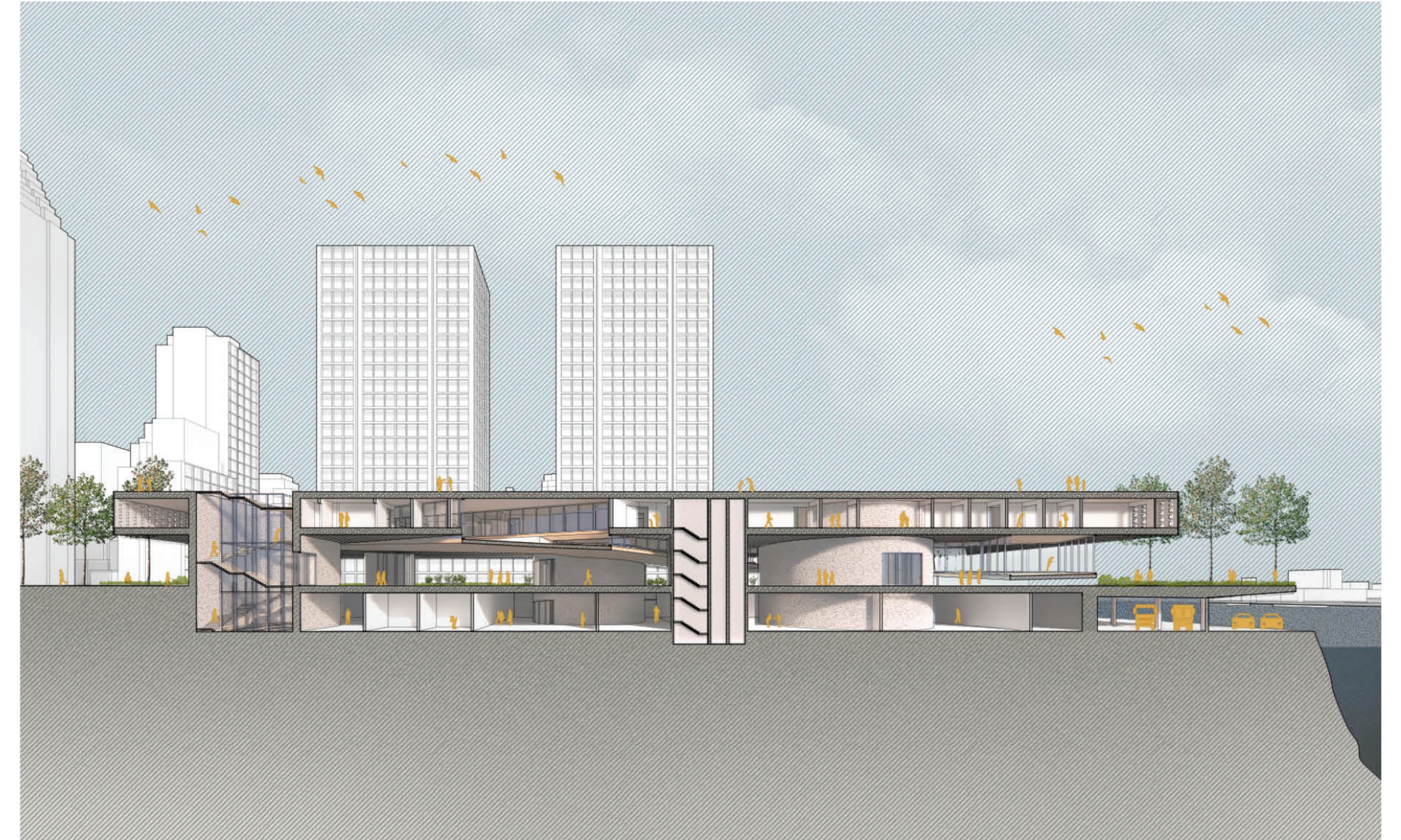
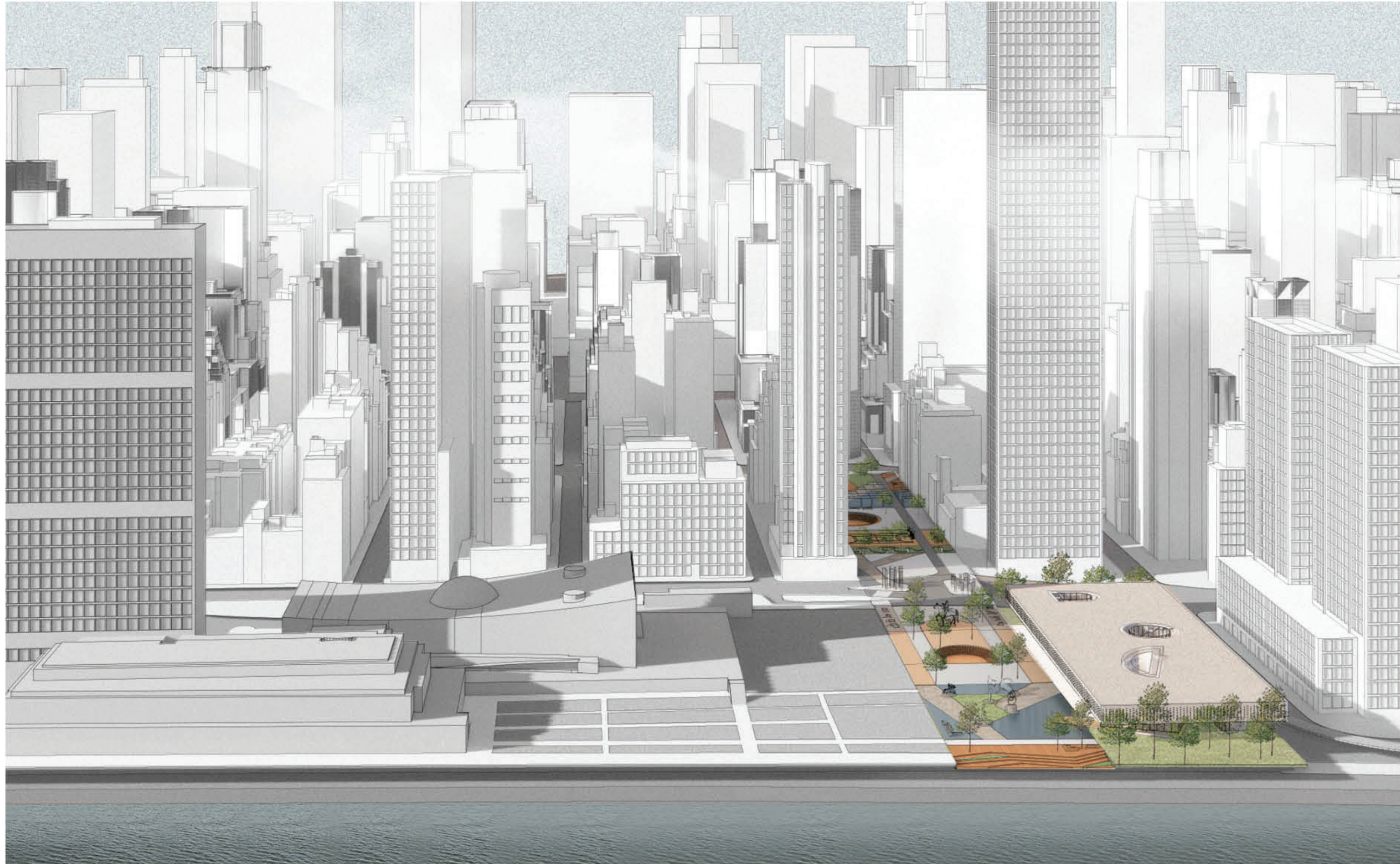
## Forum For Humanities Culture, Governance And Public Space

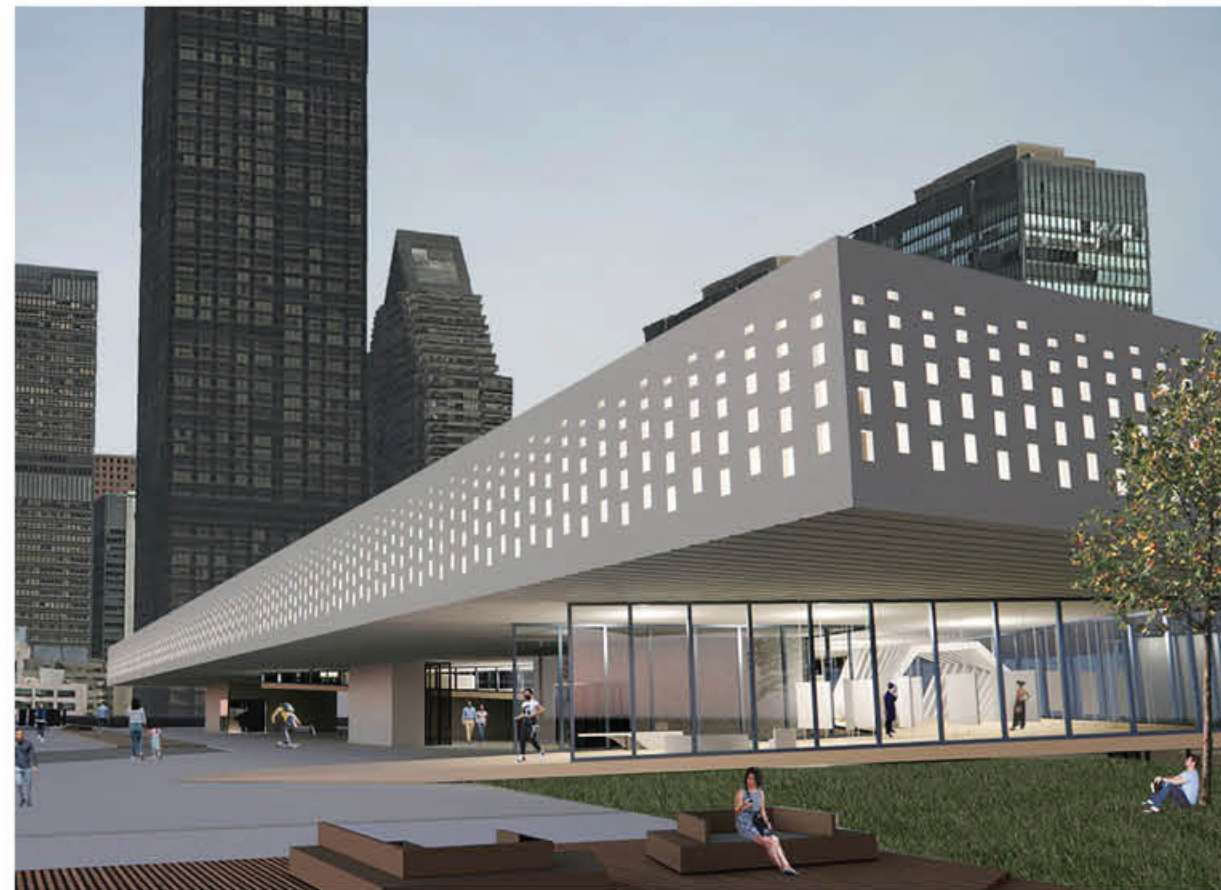
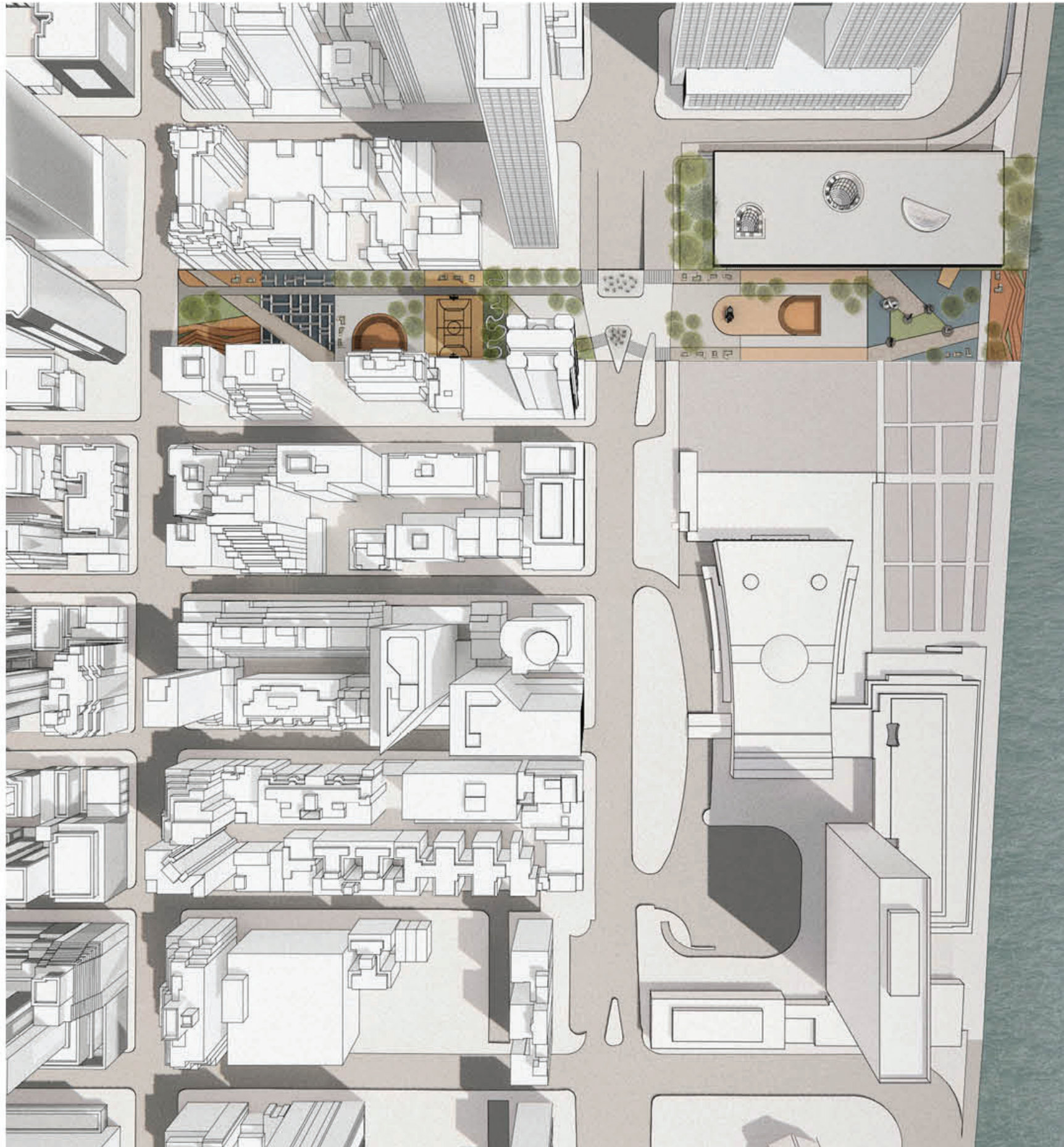
Forum for Humanities reimagines the United Nations Headquarters' potential for greater exposure and transparency. With a goal of making the UN more accessible to the general public, the project proposes a new hybrid of cultural, governance and public spaces. At the urban scale, Dag Hammarskjold Plaza is extended to the East River, introducing an enlarged space of debate into the UN complex. A new annex to the existing UNHQ will function as an exhibition center. The complex promotes cultural exchange through a series of exhibitions and spaces for gathering and debate, advancing political engagement with a wider set of actors.

The expanded plaza transforms the landscape across First Avenue and the UNHQ's North Lawn into a series of outdoor activity and exhibition spaces. Designed to create the impression of a floating volume, the exhibition center's open ground floor level reinforces its connection to the plaza. A gentle ramp to the upper floor hosts UN official exhibitions, also providing access to lecture and workshop spaces. The second floor provides space for national exhibitions. There, 193 rooms with varied layouts and yearly randomized allocation will host all the UN Member States to share their culture and pressing concerns.



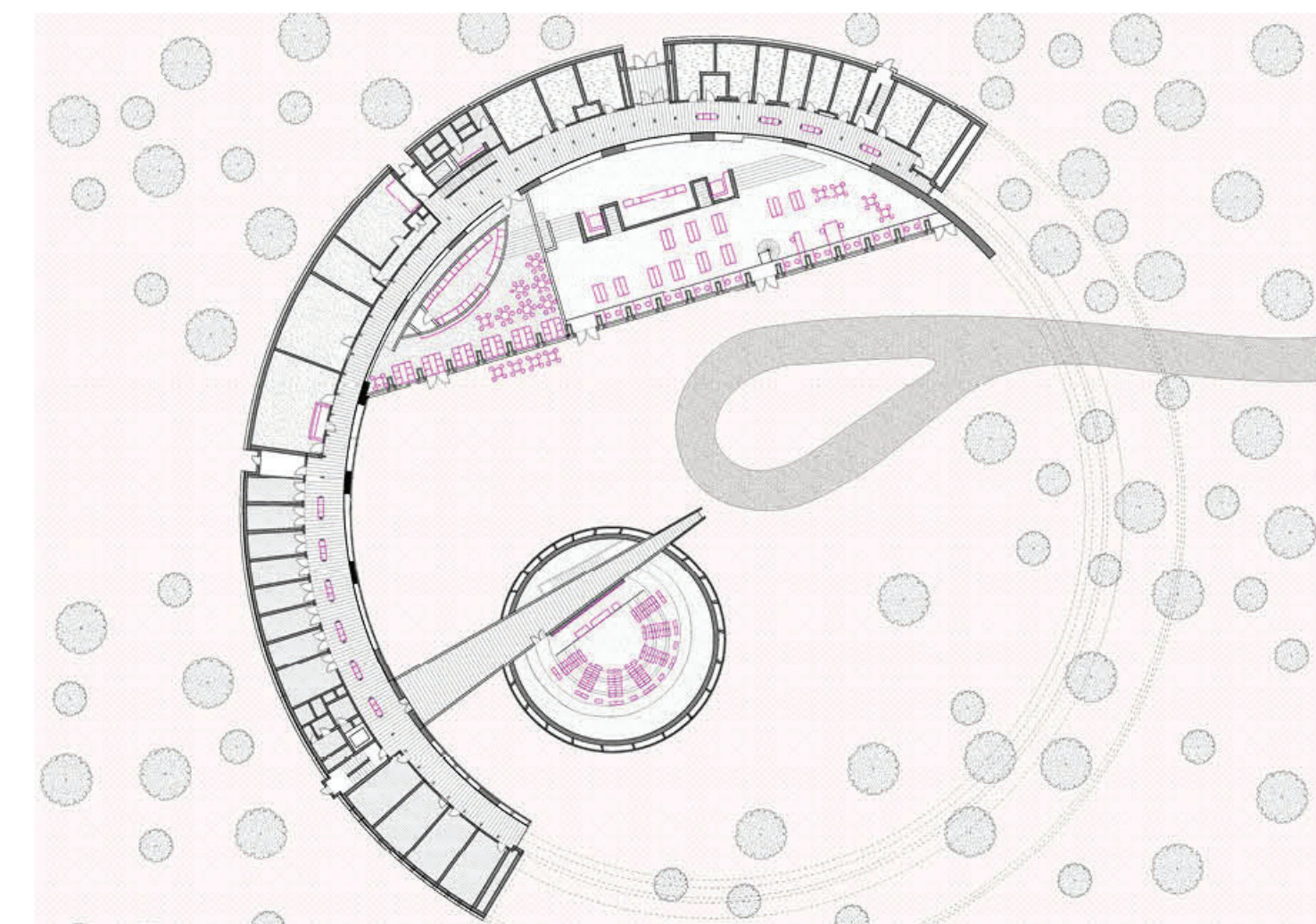
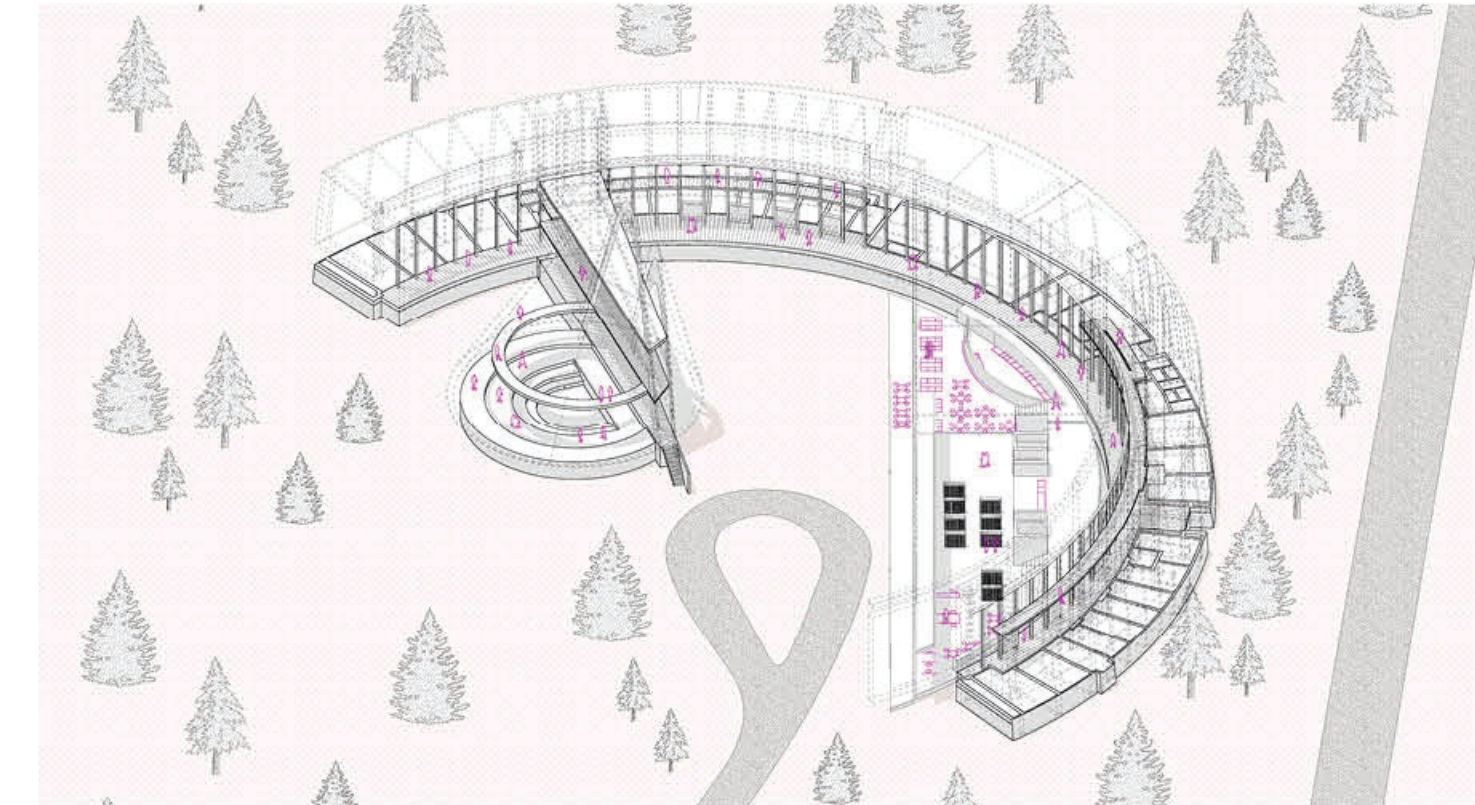


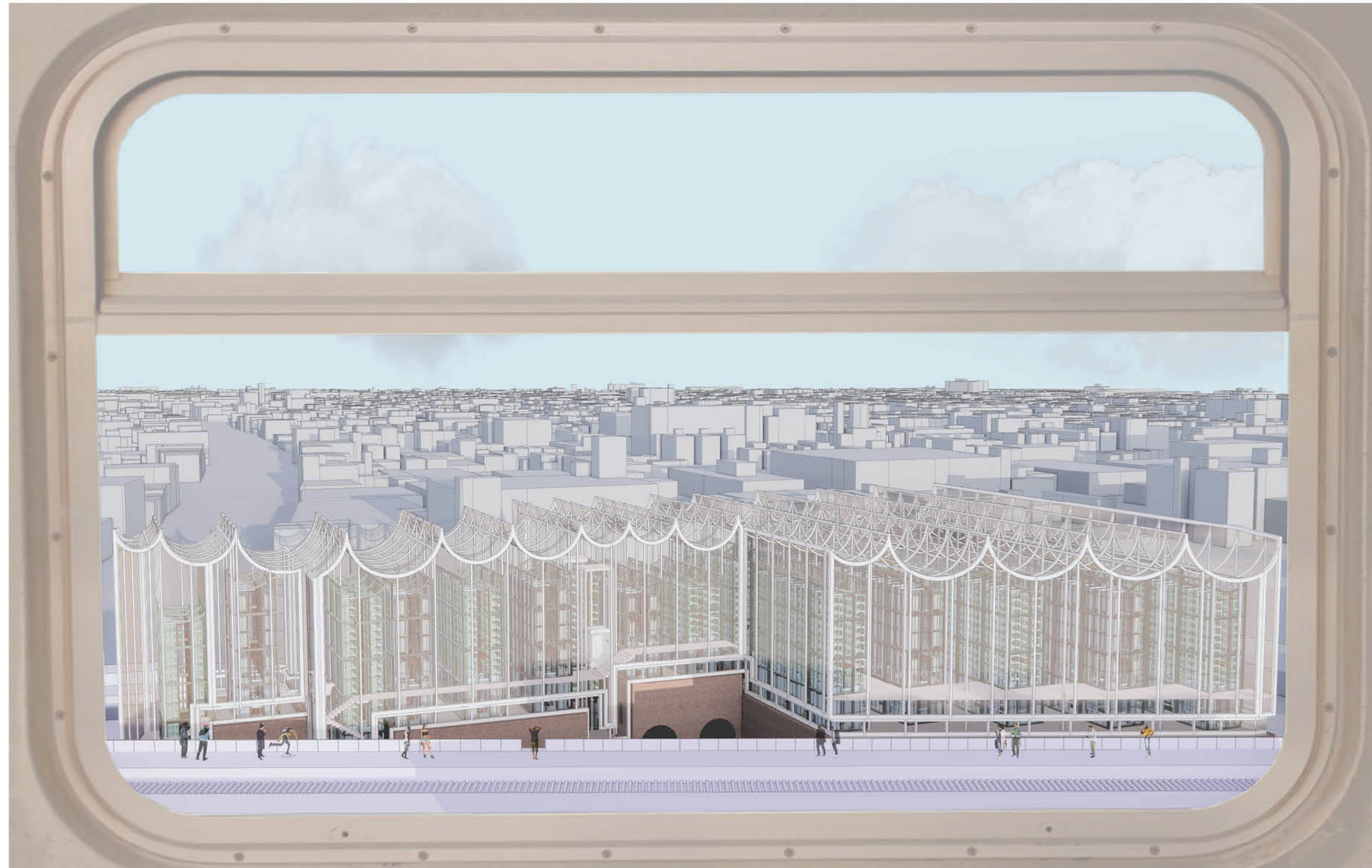




## Precedent Study: Parliament For The Sami People

The Sami people are indigenous people who live in Northernmost parts of Sweden, Finland, Norway and the Kola Peninsula of Russia. The Sami people are Finno-Ugric speaking people. The country of Norway allowed in 1989 for the Sami people to establish their own parliament. The parliament does not only deal with administrative issues but cultural issues as well. The cultural aspects that the Sami parliament deals with are social well being, land rights, traditional livelihoods, cultural preservation, language and self determination. The parliament has a voting chamber and offices for the representatives as well as a library where Traditional Sami writings are collected and presented to the public, an exhibition in the corridor presenting Sami people culture and an event space. From analysing this precedent I started asking myself what role can culture have in the UN. How would an exhibition space for 193 countries look like? How would the publics have access to these cultural spaces? How can the UN delegates and the public interact with each other?





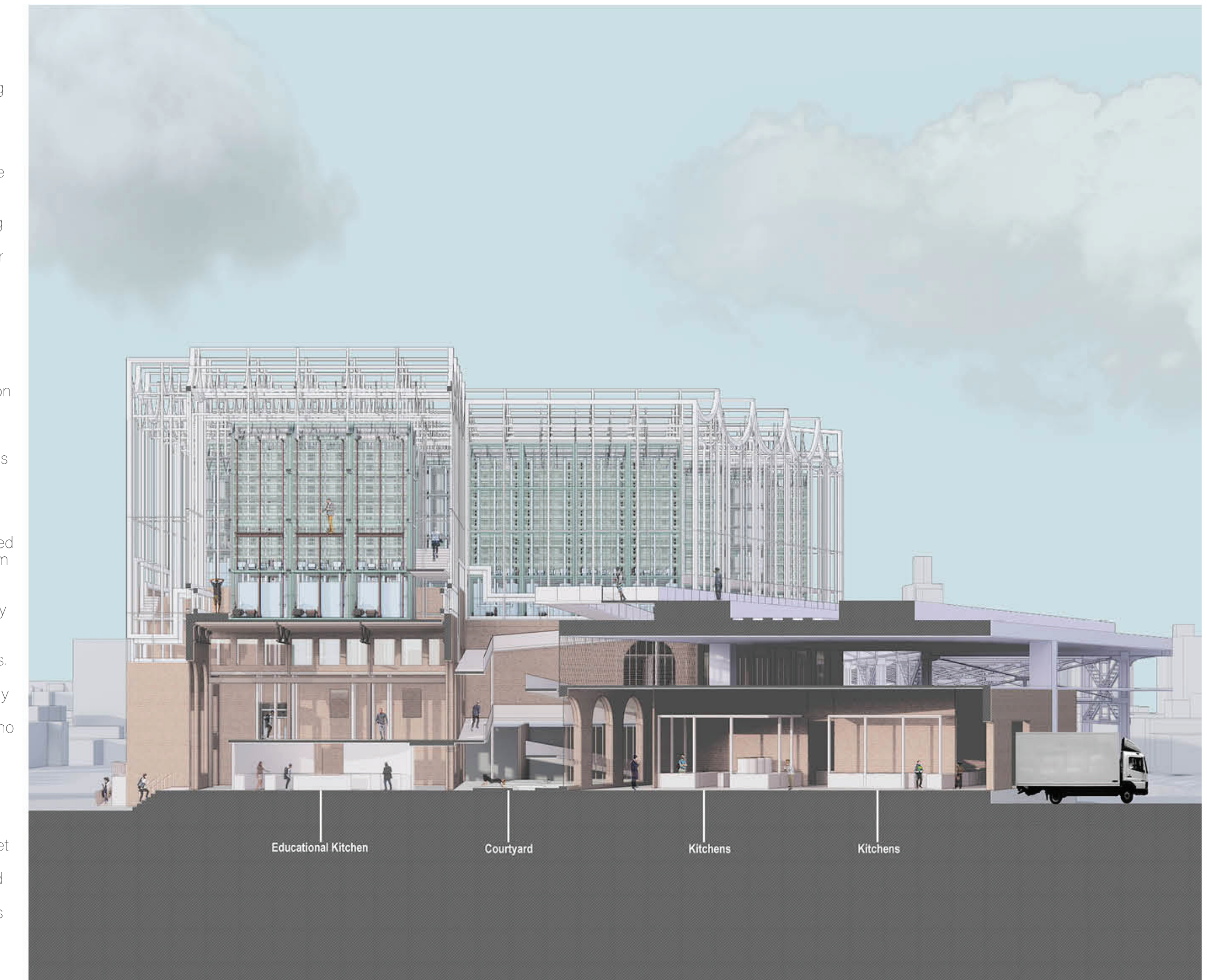
## LIRR Urban Food Network: Functionality

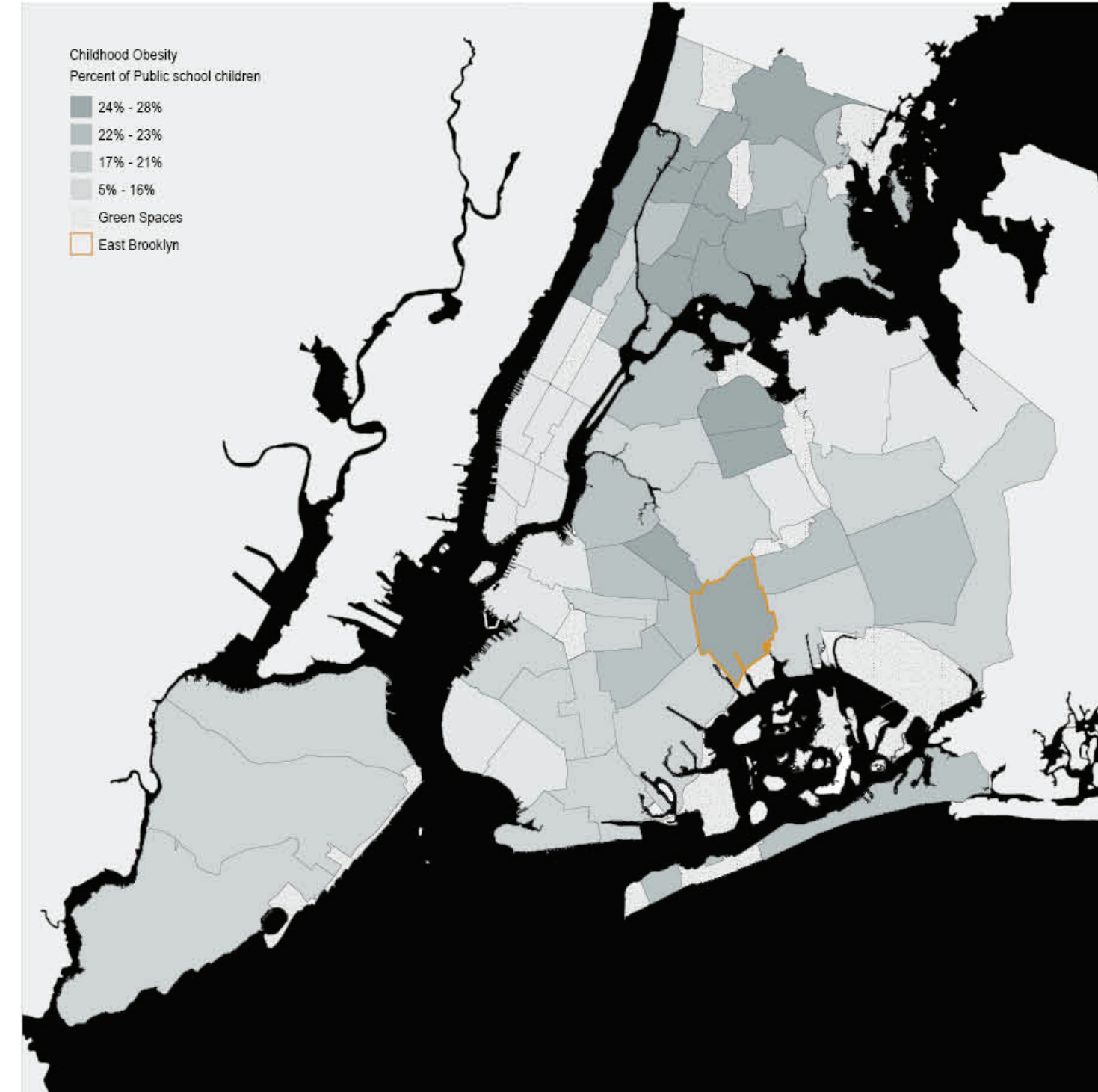
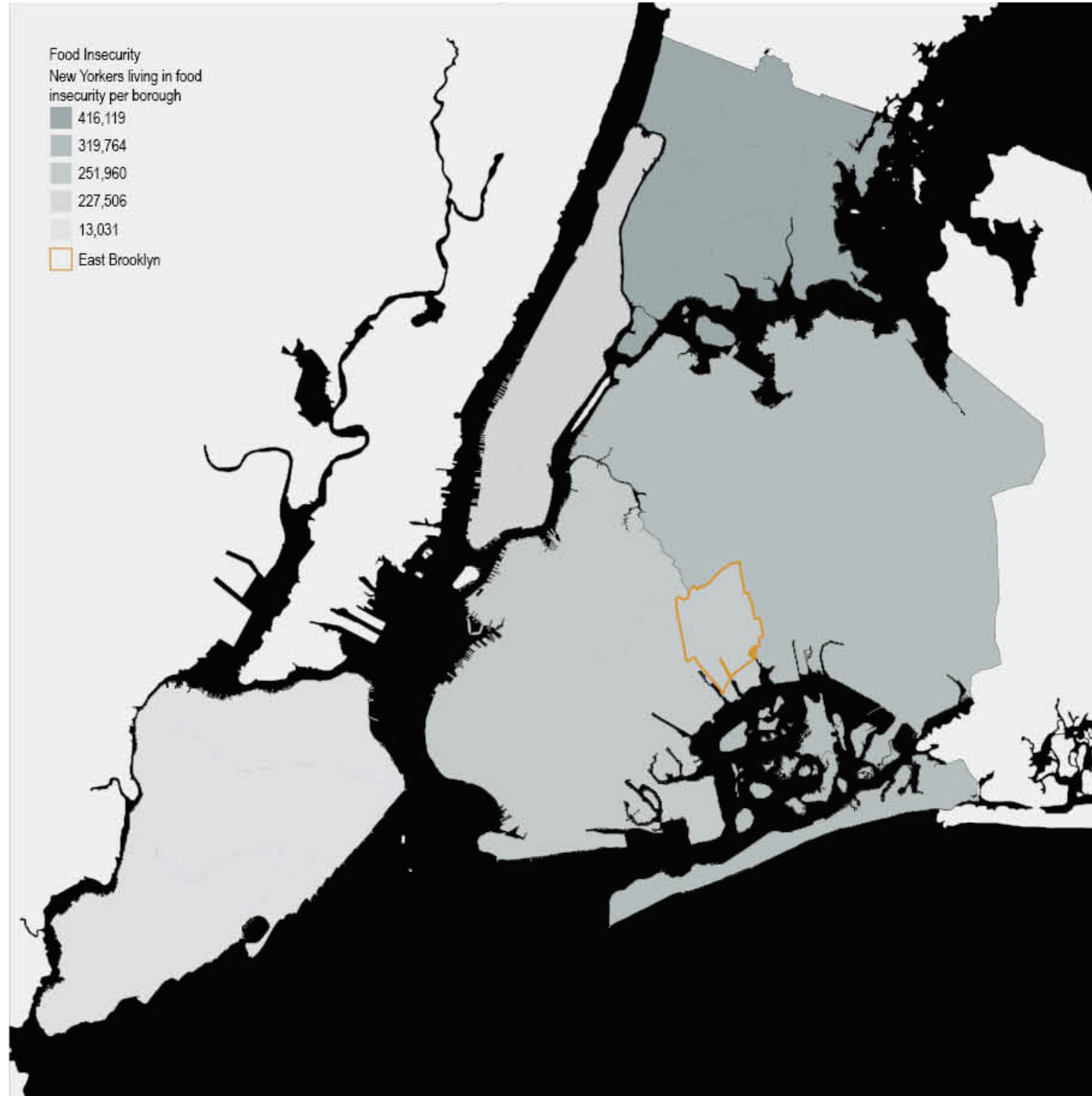
My project is a new food network that will rely on growing and processing food in an urban area. We will connect people with healthier food alternatives, create new job opportunities as well as educate people about healthier eating habits. One reason why people would consume more unhealthy food saturated in fat and sugar is because of their economic situation. We aim to uplift the local community by creating new job opportunities like picking and transporting produce from the vacant lots, processing the ingredients into meals, selling the meals at the market place and to educate the local community about healthier eating habits.

In the central space of the LIRR substation is a circular education kitchen that allows for the educator to stand in the center and prepare food while adults can stand in the outer ring and where they have food preparation stations. On the roof of the education kitchen is a mezenin where the public can dine. On the right side of the LIRR substation is the bakery where insect protein powder can be mixed with flour to produce a variety of breads and pastries. On the left side of the LIRR substation is a water collection space where water will be used to water insects and crops on the rooftop. The courtyard is where the ramp is that connects the L subway to the ground.

Underneath the subway track is the elevated food processing center. Trucks can unload the produce collected from the modules deployed in the site and then store them in the warehouse. We then have kitchens dedicated to processing the produce into different types of foods. After the meals are prepared they are then packaged and ready to be distributed to the marketplace. Above a bus parking lot is a marketplace where the local community can buy and consume more nutrient rich and healthier alternatives. Our food network aims to produce healthier locally produced food for a community that lacks access to healthy food, educate the local community inside our educational kitchens and create new work opportunities for people who are collecting the produce, processing it into meals and then redistributed to the local community.

We also have a ramp system that connects the LIRR substation with the subway and which is located in a triangular courtyard. While moving down the ramp you get access to the marketplace, food mezenin, and courtyard. The courtyard provides access to the LIRR substation and processing center. We also have two glass elevator cores that allows to see the substation and the farming modules while traveling upwards and an emergency stair.

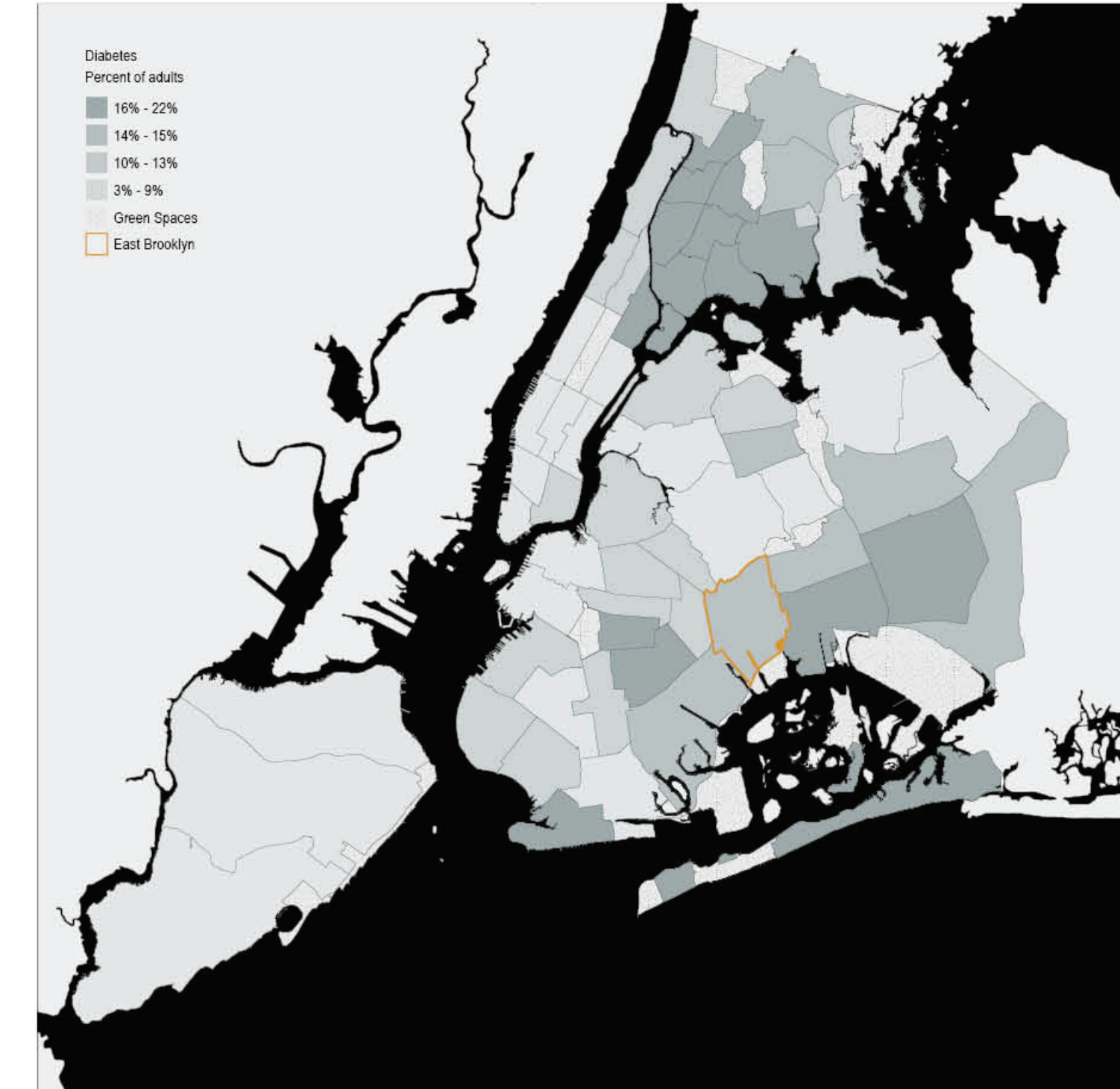


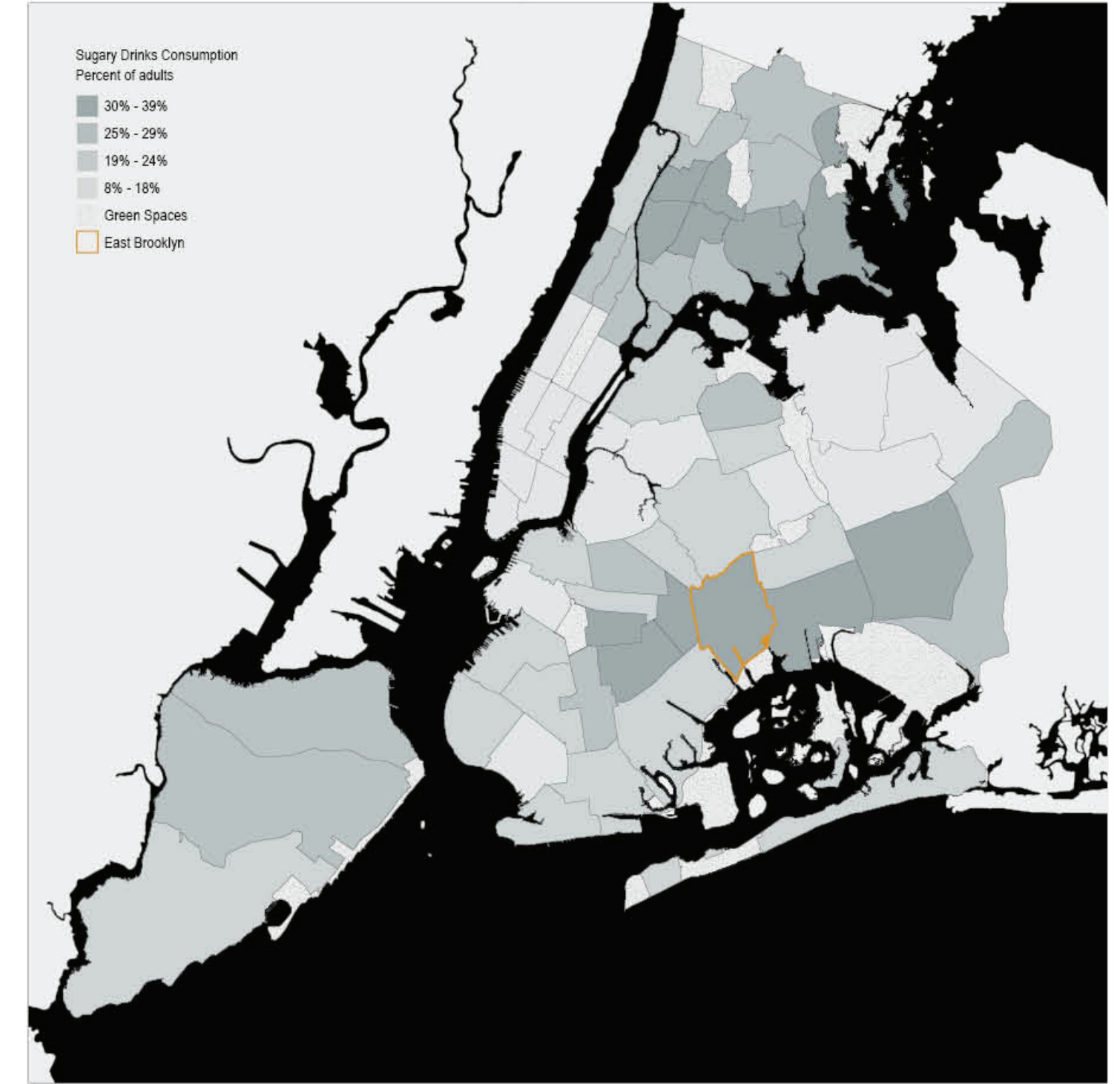
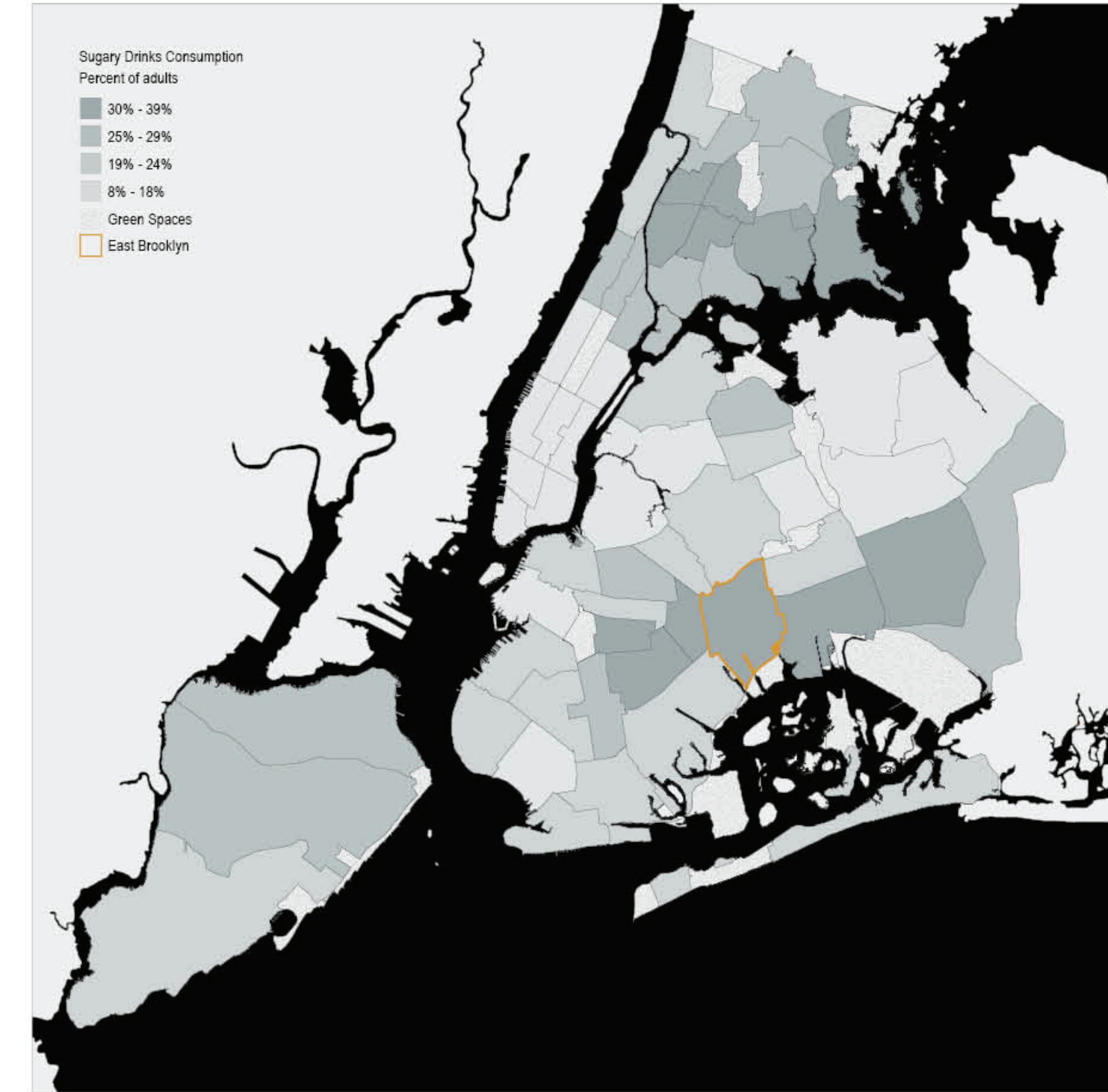
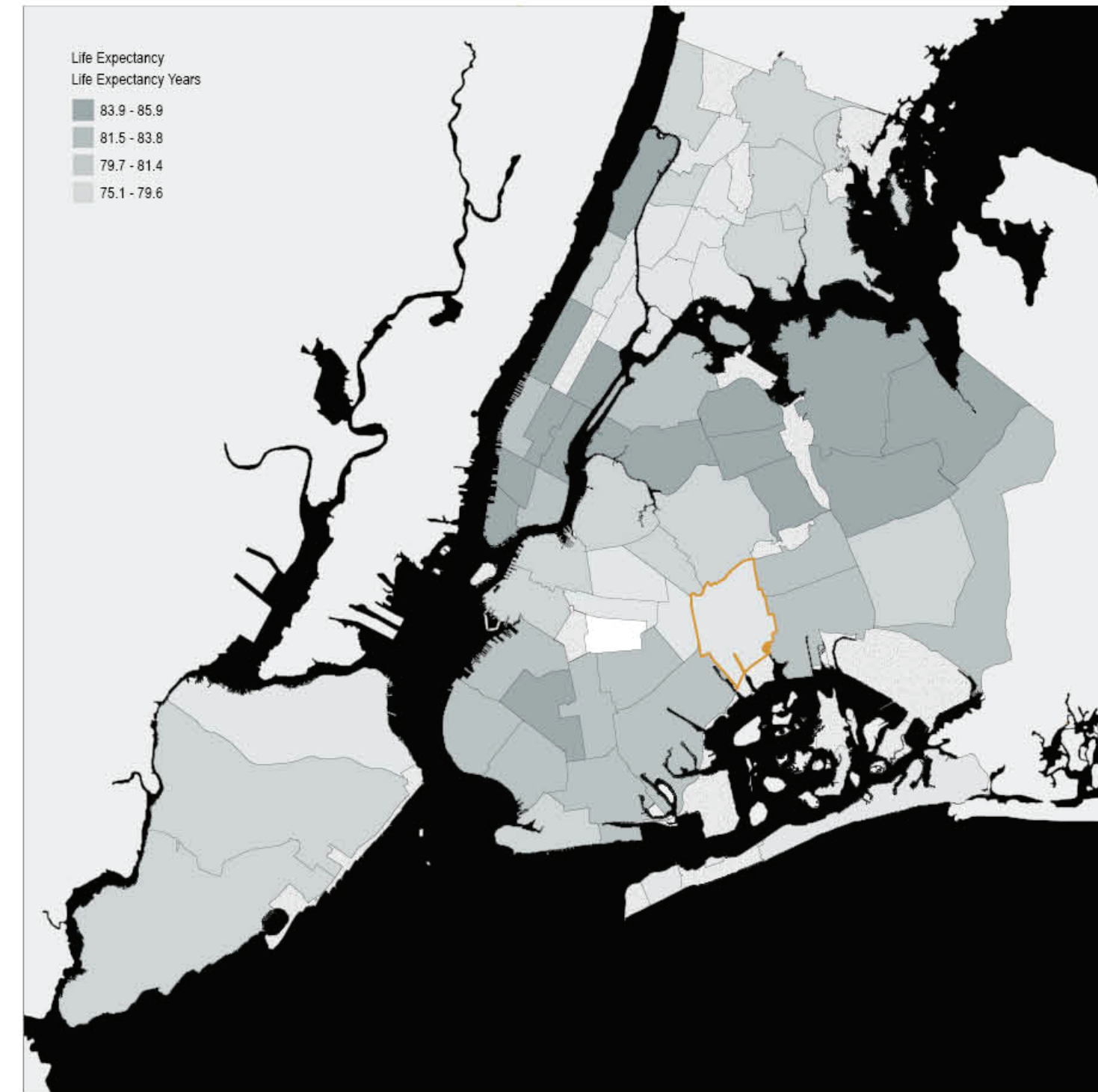
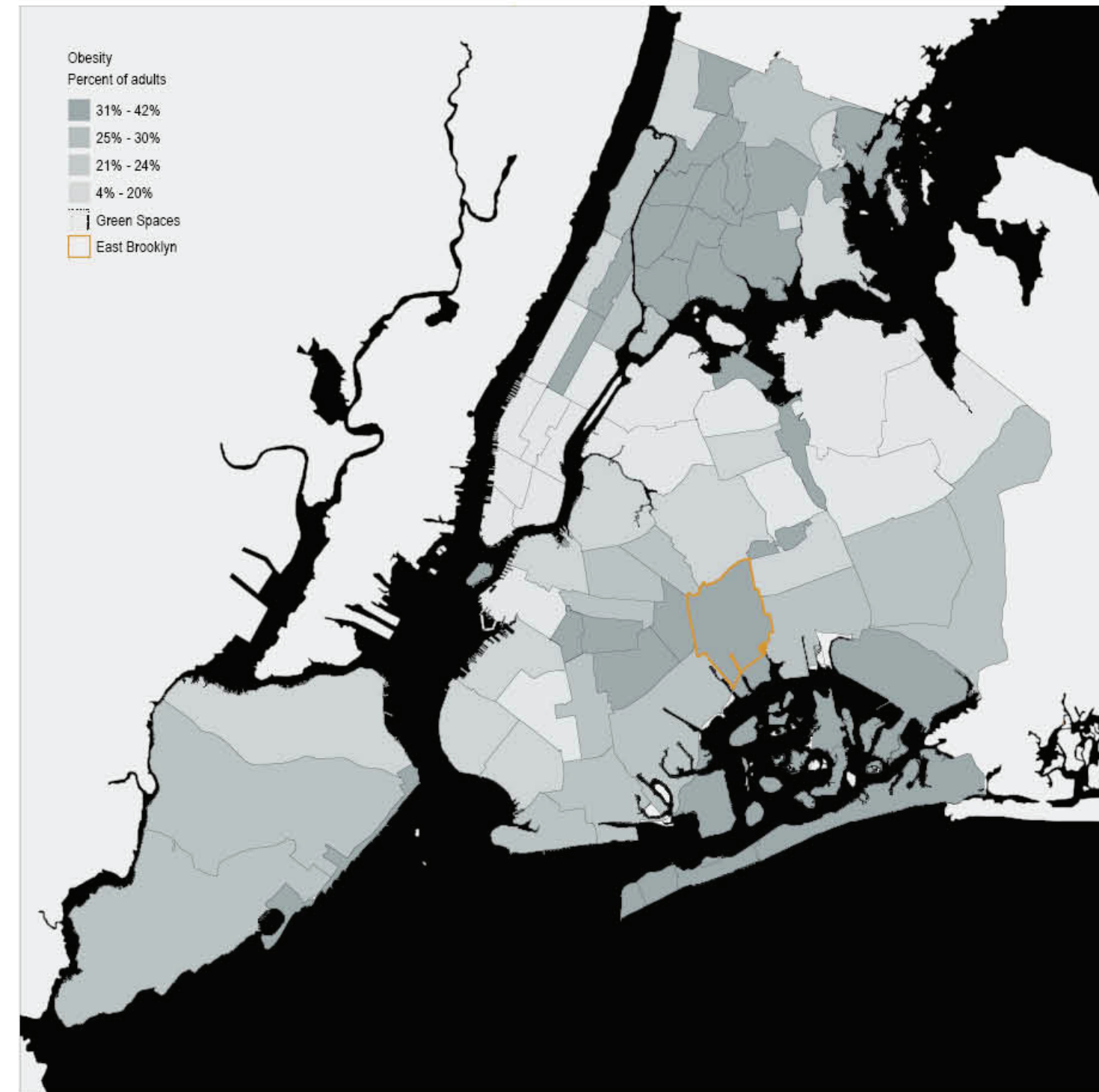


### LIRR Urban Food Network: Health Issues in East Brooklyn Vacant Lots

People who live in East Brooklyn experience a lot of health issues caused by unhealthy eating habits. An estimated 29 to 34 percent of adults experience hypertension due to high salt intake, 30 to 39 percent of adults consume at least one sugary drink a day and only 76 to 83 percent of adults eat one vegetable or fruit per day. These eating habits have caused an estimated 24 to 28 percent of children to be obese. 31 to 42 percent of adults are also obese and 14 to 15 percent of them have diabetes.

Additionally, around 1,226,000 New Yorkers live in food insecurity, including 251,960 located in brooklyn. The people living in food insecurity can often only afford to eat cheap industrial food saturated in salt, fat and sugar. Life expectancy in East New York is one of the lowest in New York City.





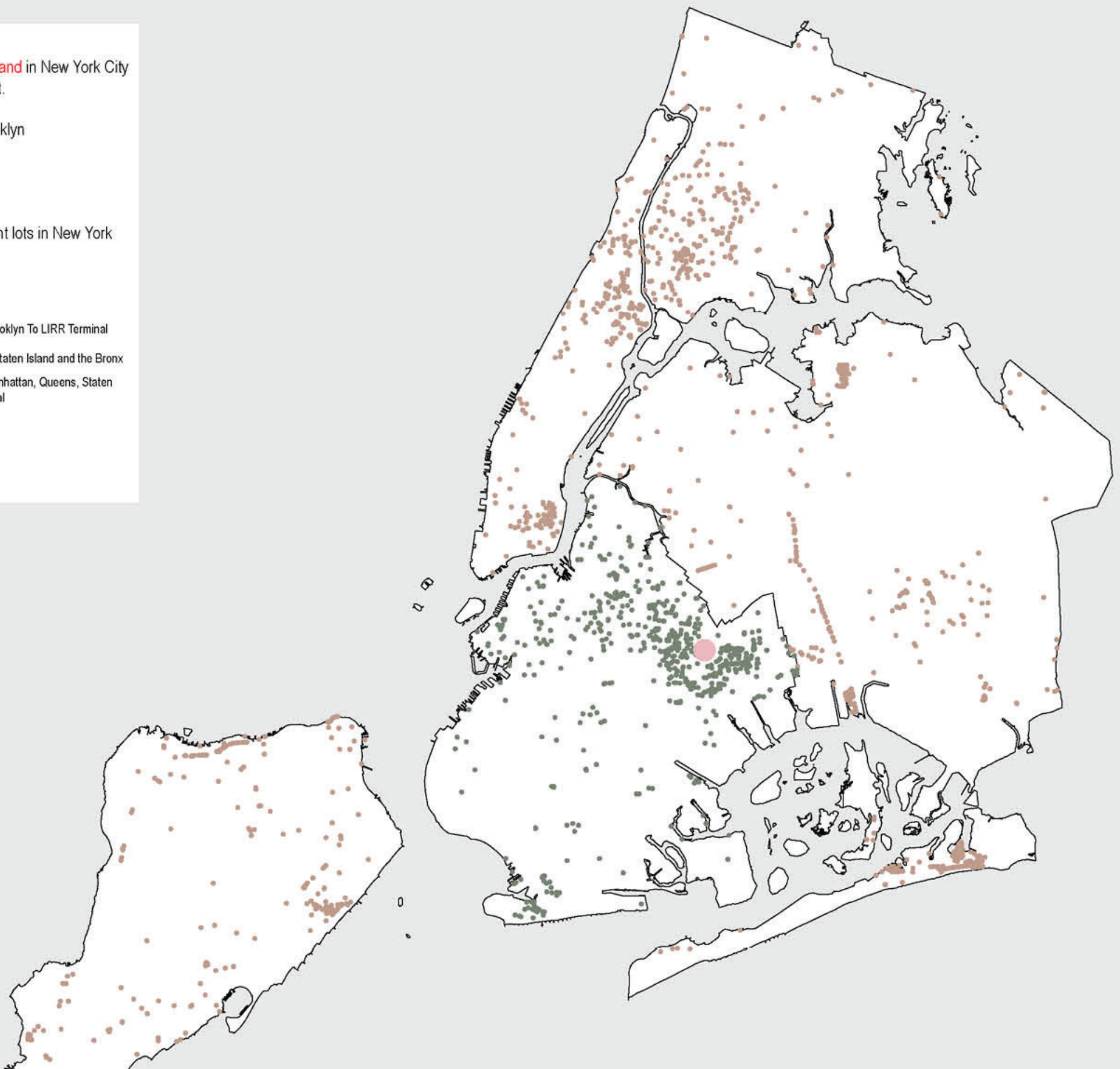


**Vacant Lots In New York**  
 There are **2535 acres of vacant land** in New York City which is 110,424,600 square feet.

There are 756 vacan lots in Brooklyn  
 518 vacant lots in Queens  
 258 vacant lots in Staten Island  
 256 vacant lots in Manhattan  
 238 vacant lots in the Bronx.  
 All together there are 2026 vacant lots in New York City.

- Vacant Lots In Brooklyn
- Connections From Vacant Lots In Brooklyn To LIRR Terminal
- Vacant Lots In Manhattan, Queens, Staten Island and the Bronx
- Connections From Vacant Lots In Manhattan, Queens, Staten Island and the Bronx To LIRR Terminal
- LIRR Substation
- New York City Boroughs

Source: Living Lots NYC by 596 Acres

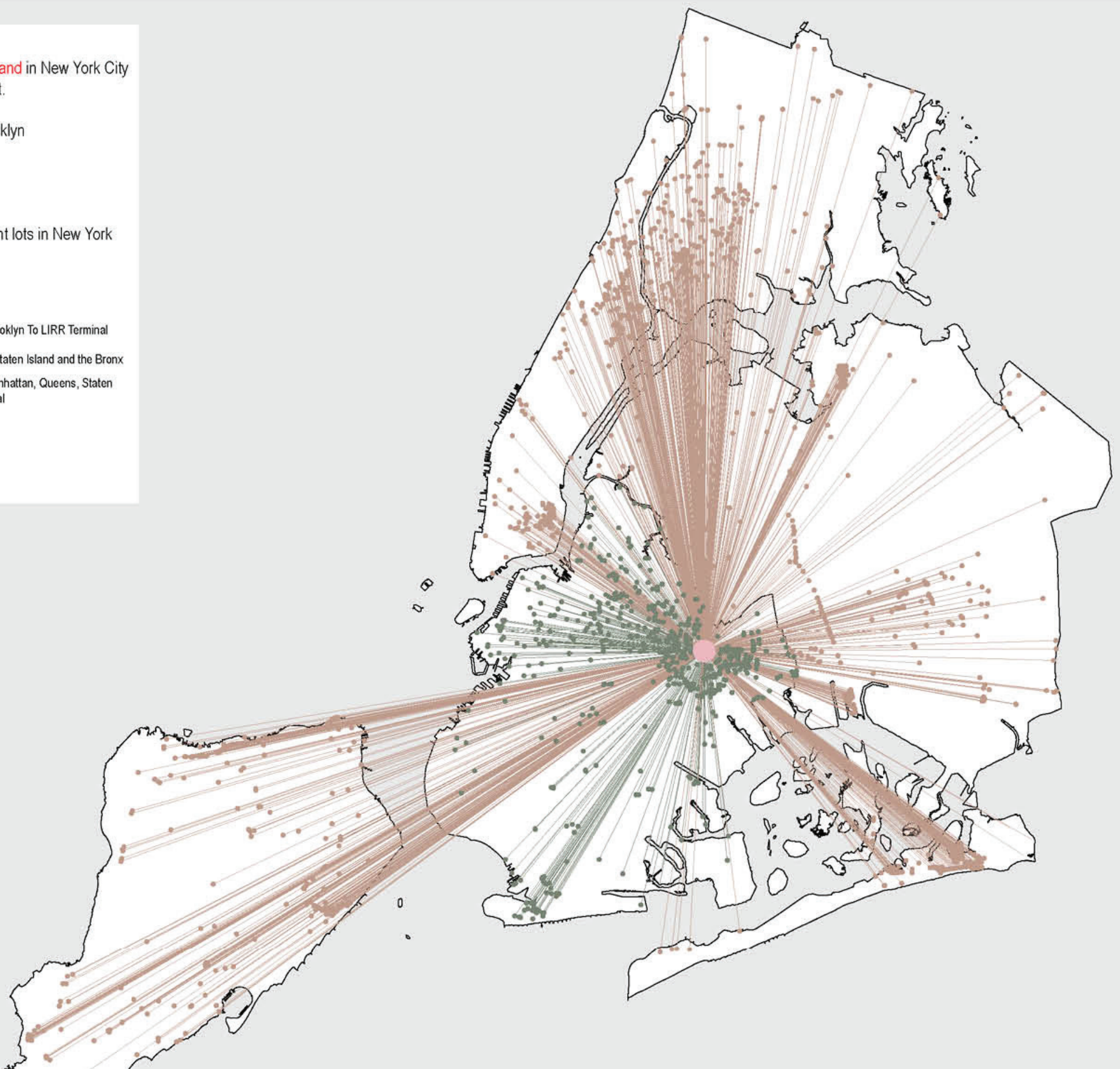


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## LIRR Urban Food Network: Farming Modules

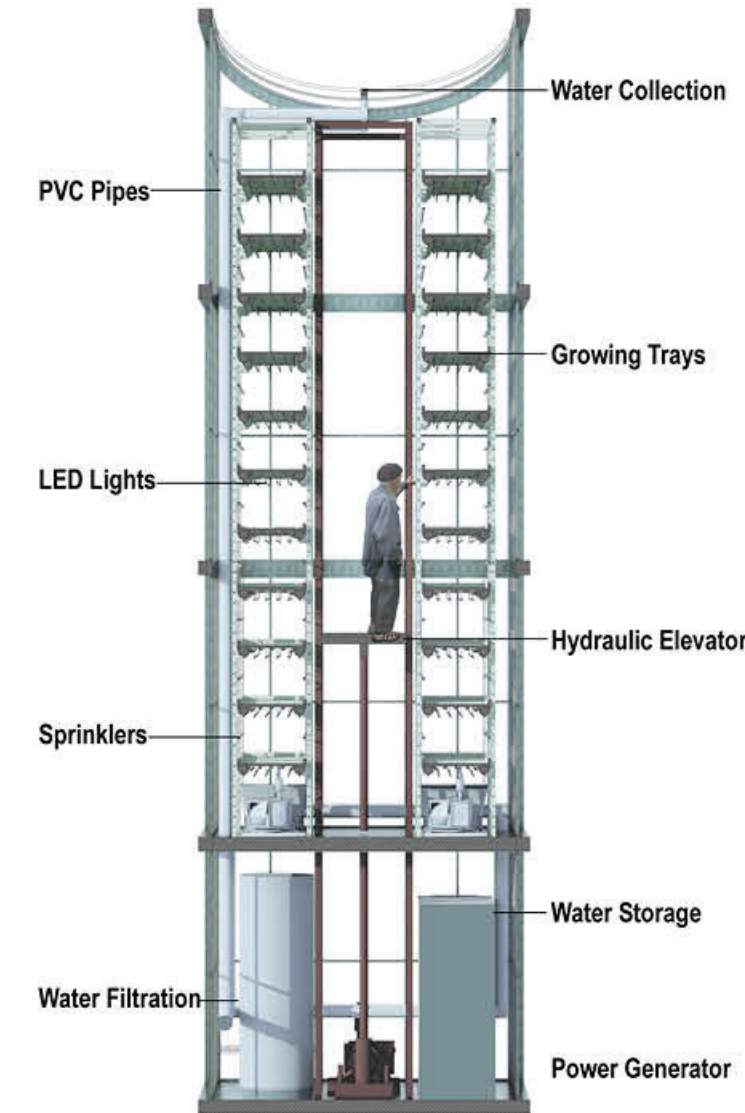
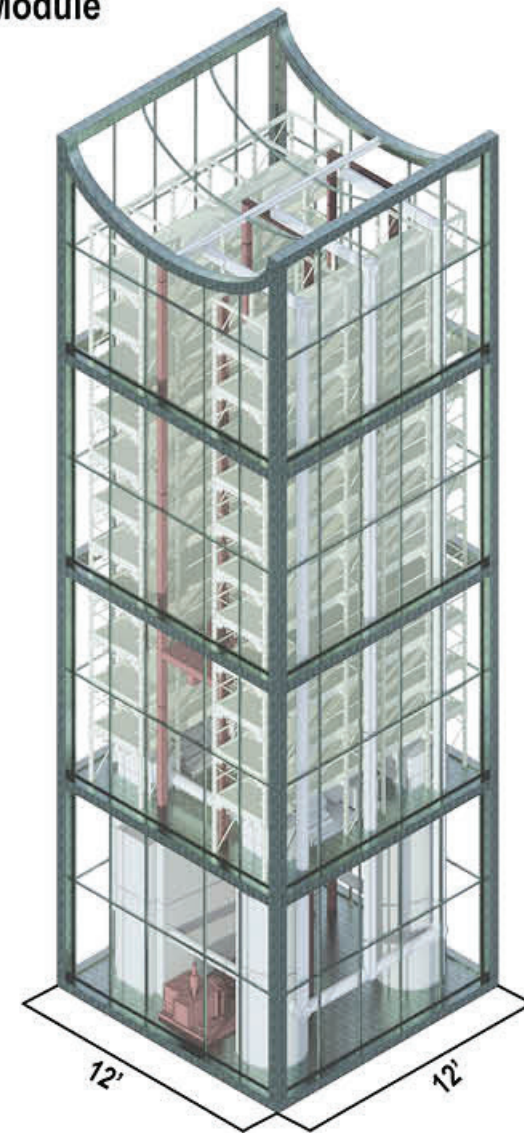
There are 2,535 acres of vacant land which is 110,424,600 square feet and which equates to 3346 football fields. We can deploy 766,837 modules if we use all the vacant lots in New York. Each module is 12x12 feet and comes in parts that are 10 feet tall so their height can be adjusted. In our site plan you can see all the different areas where the farming units will be deployed. All the food that will be harvested in those farms will be later transported to the LIRR substation where they will be processed into meals.

We will deploy three different types of farms focused on growing vegetables and insect protein. Each unit comes with a hydraulic elevator that allows for people to access higher elevations. The hydroponic and insect module have curved and angled roofs that allow for water to be gathered into a single point. Through PVC pipes rainwater flows to the basement of the modules where it is filtered and stored. The filtered rain water is then used to water crops and insects through a sprinkler system.

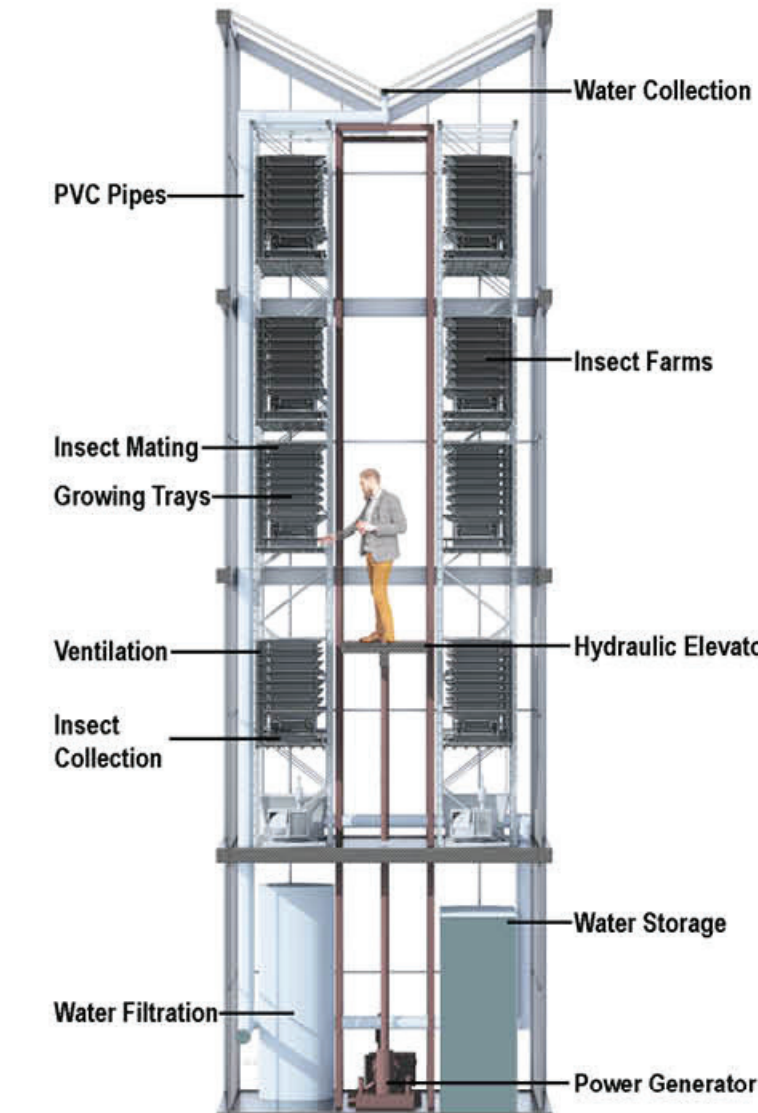
The hydroponic module is fitted with growing racks that have a built-in LED lighting as well as a sprinkler system. The insect module is fitted with insect growing farms called hives that have a mating chamber, growing racks, insect collecting chamber and ventilation system. A single hive unit produces 200-500 grams of insect protein a week and the insect module has 32 of those. In perfect conditions a single module can produce 16,000 grams of insect protein which is equivalent to 160 meals. The Hydroponic farm has growing trays that are 2.5 x 11 feet. The Hydroponic module has 22 growing racks that is equivalent to 605 square feet of growing space. We can produce 6.6 tons of food per year which is equivalent to 1550 meals which could feed a family of four for four months.

The third module is a food processing module. It has a kitchen in the lower part that allows for the farmed items to be cleaned and cooked. In the upper parts of the module there are shelves that allow us to store our grown food. Vegetables and fruits from the hydroponic farms can be turned into salads, turned into jams or fermented into kombucha or sauerkraut. Insects like crickets can be dried and ground up into protein powder that can be used to make burger patties, smoothies, pasta, protein shakes, protein bars, waffle mix or candy.

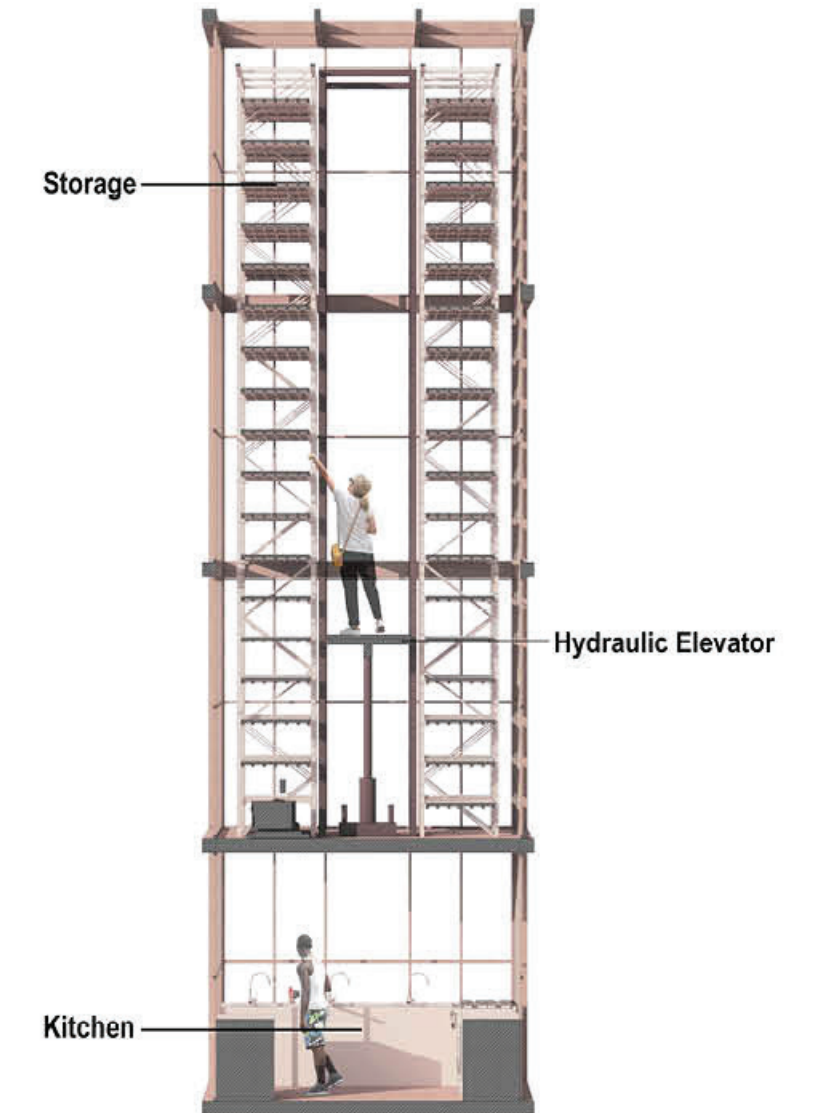
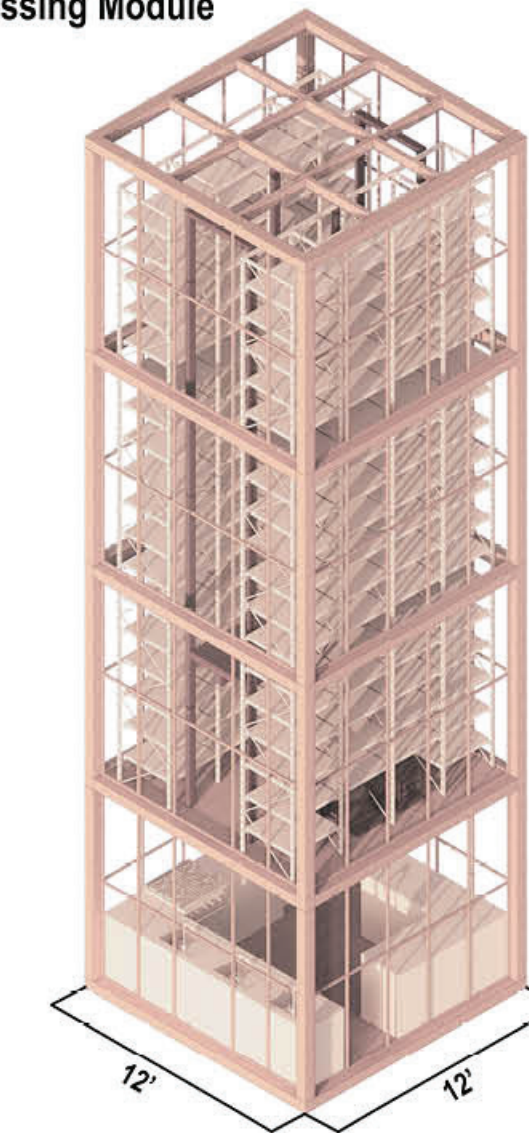
### 1 Hydroponic Module

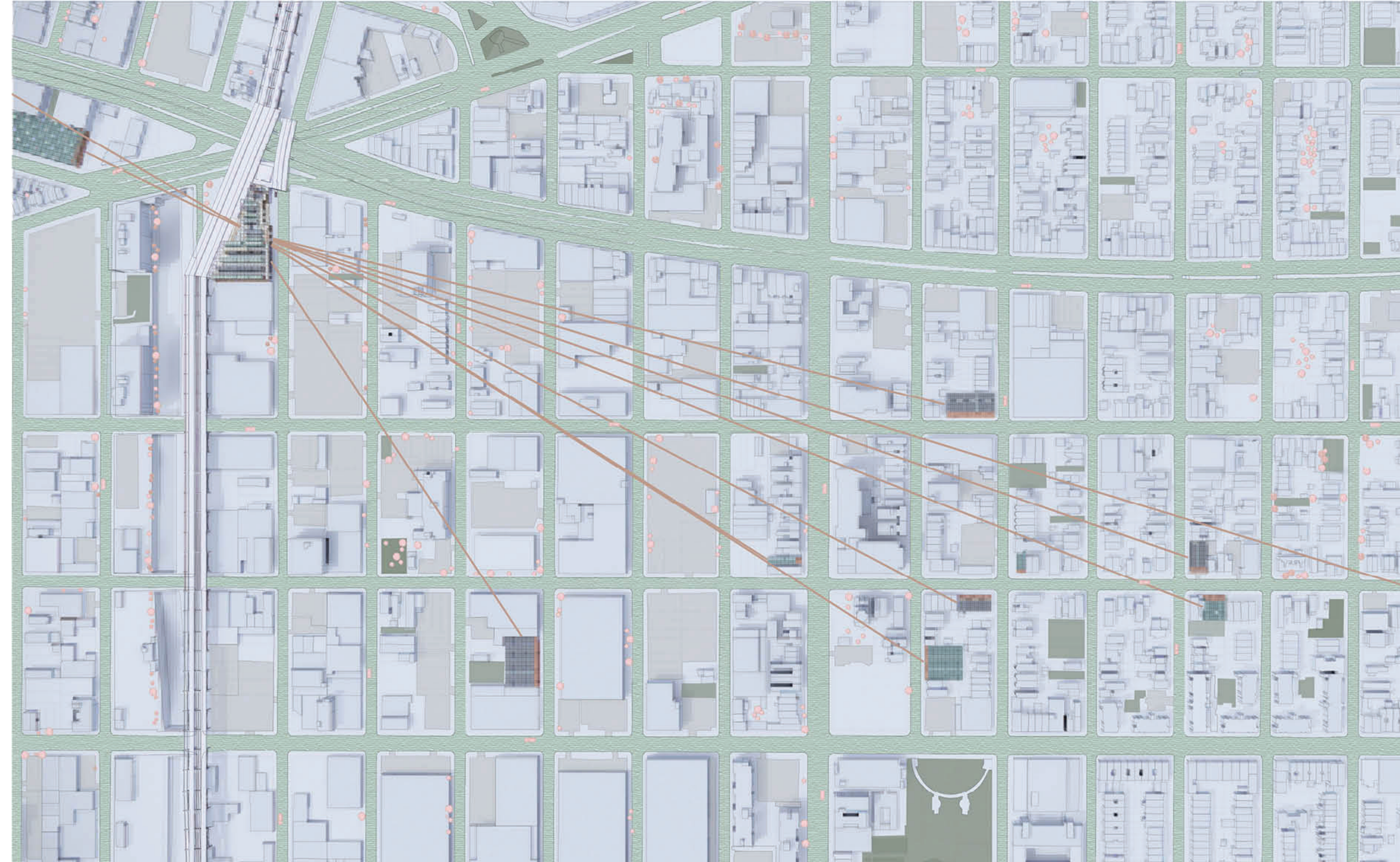


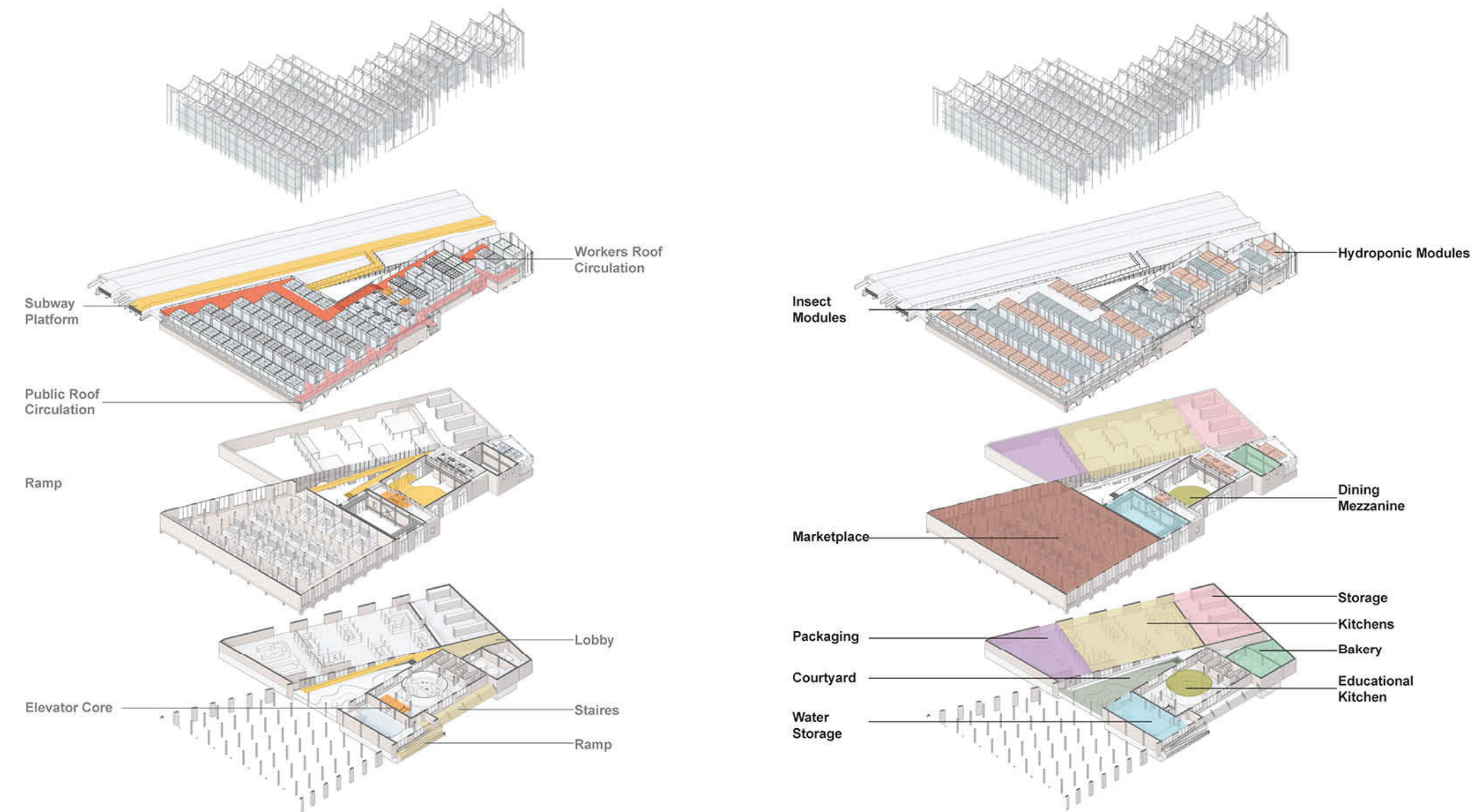
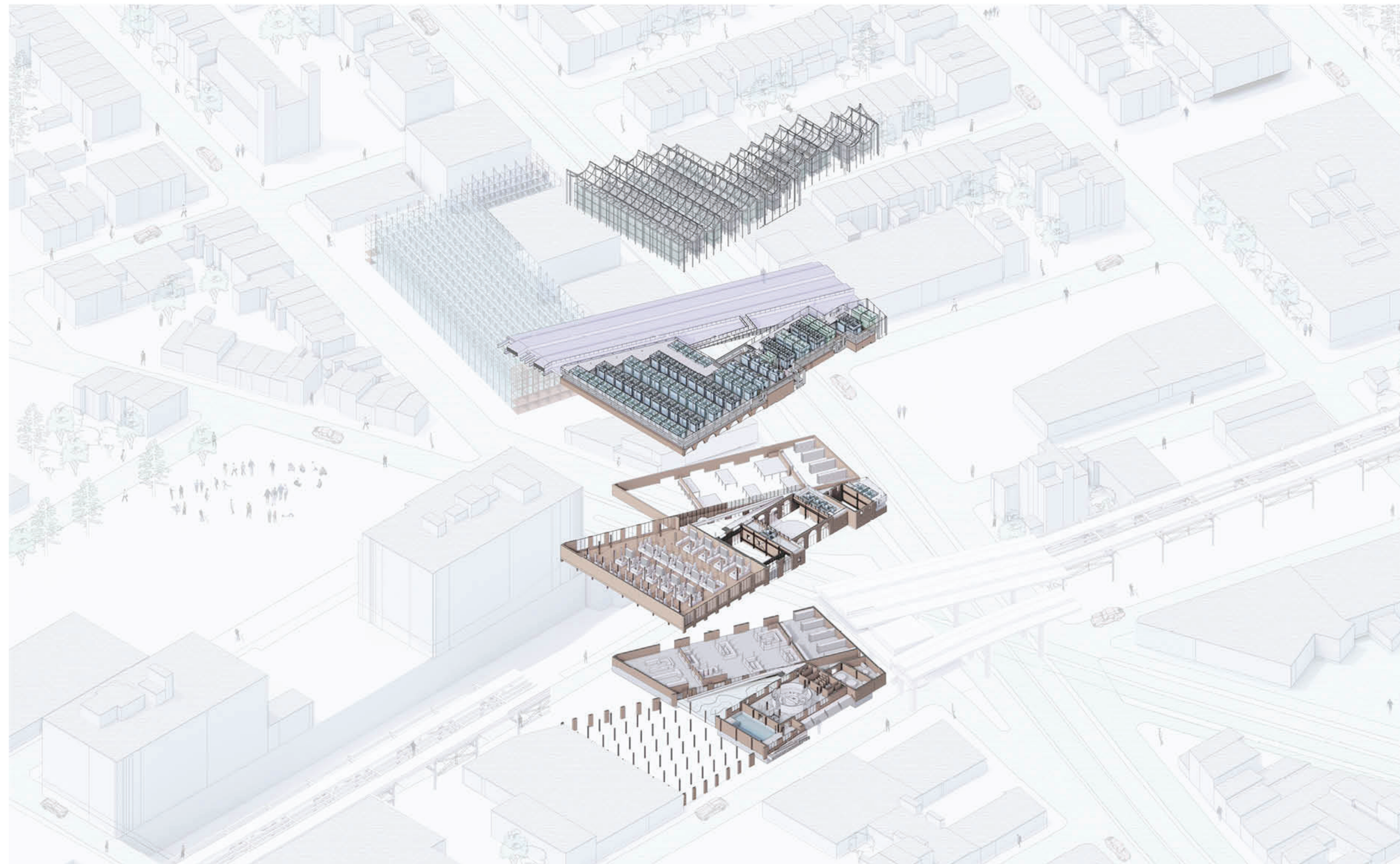
### 2 Insect Module

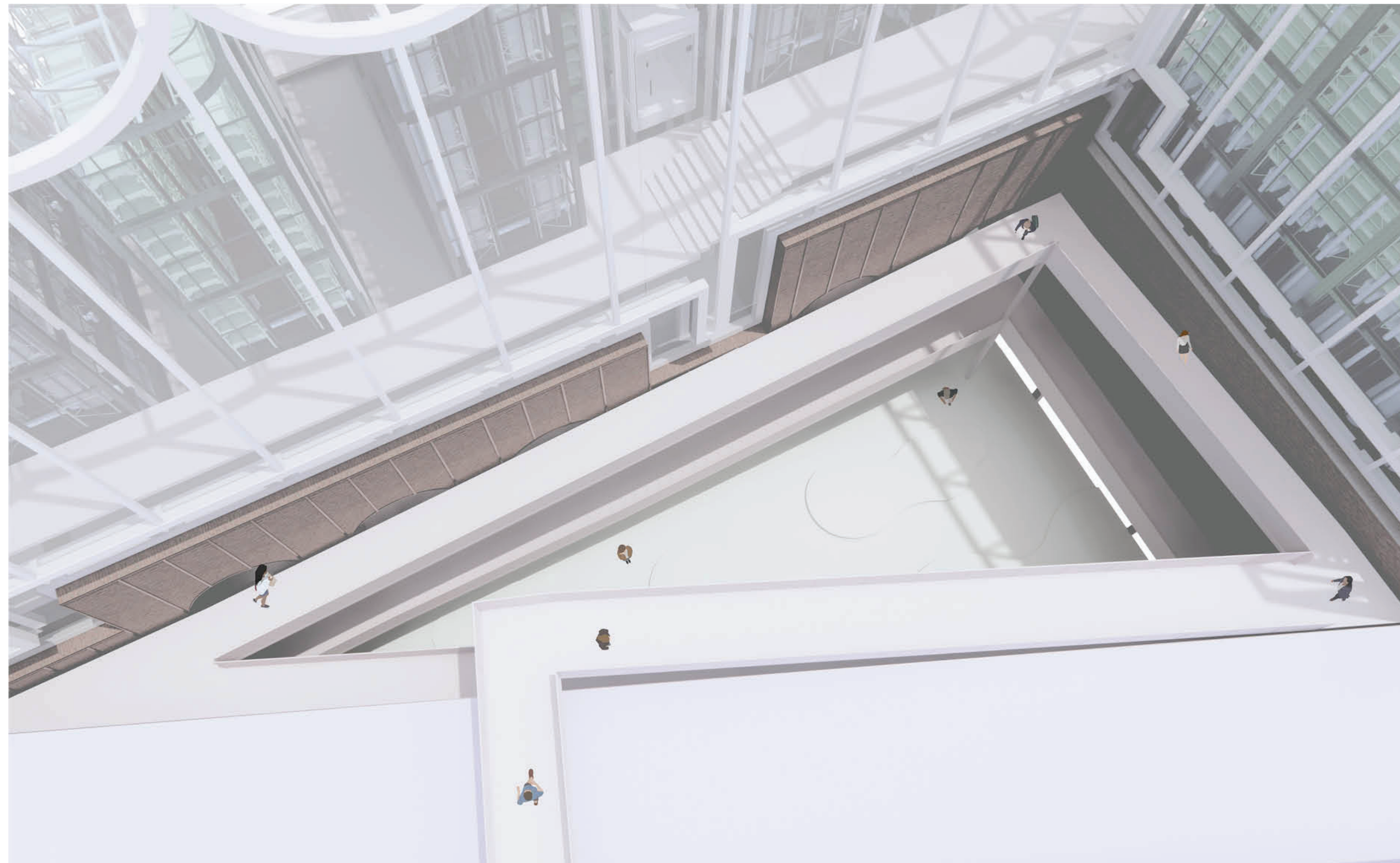


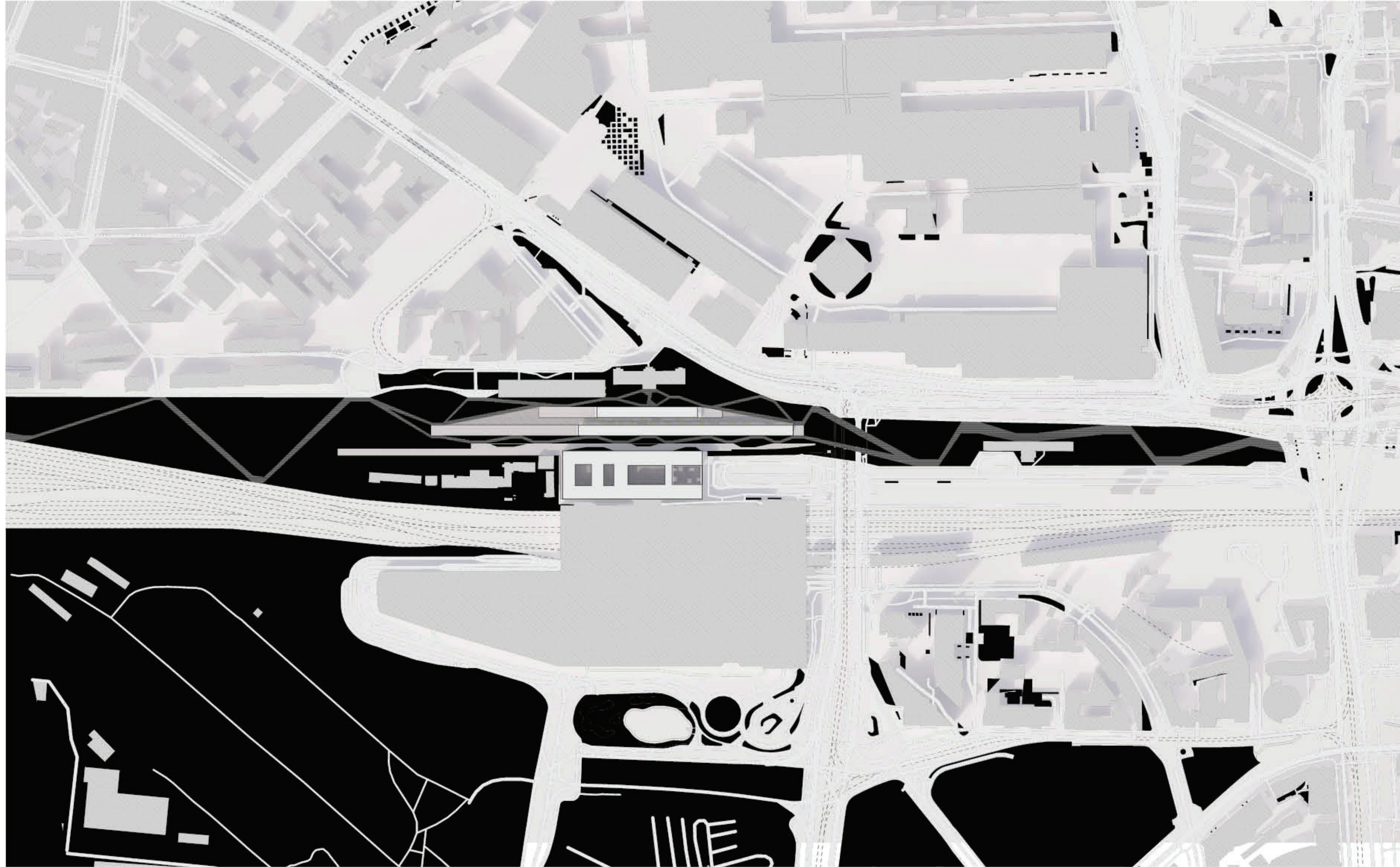
### 3 Food Processing Module











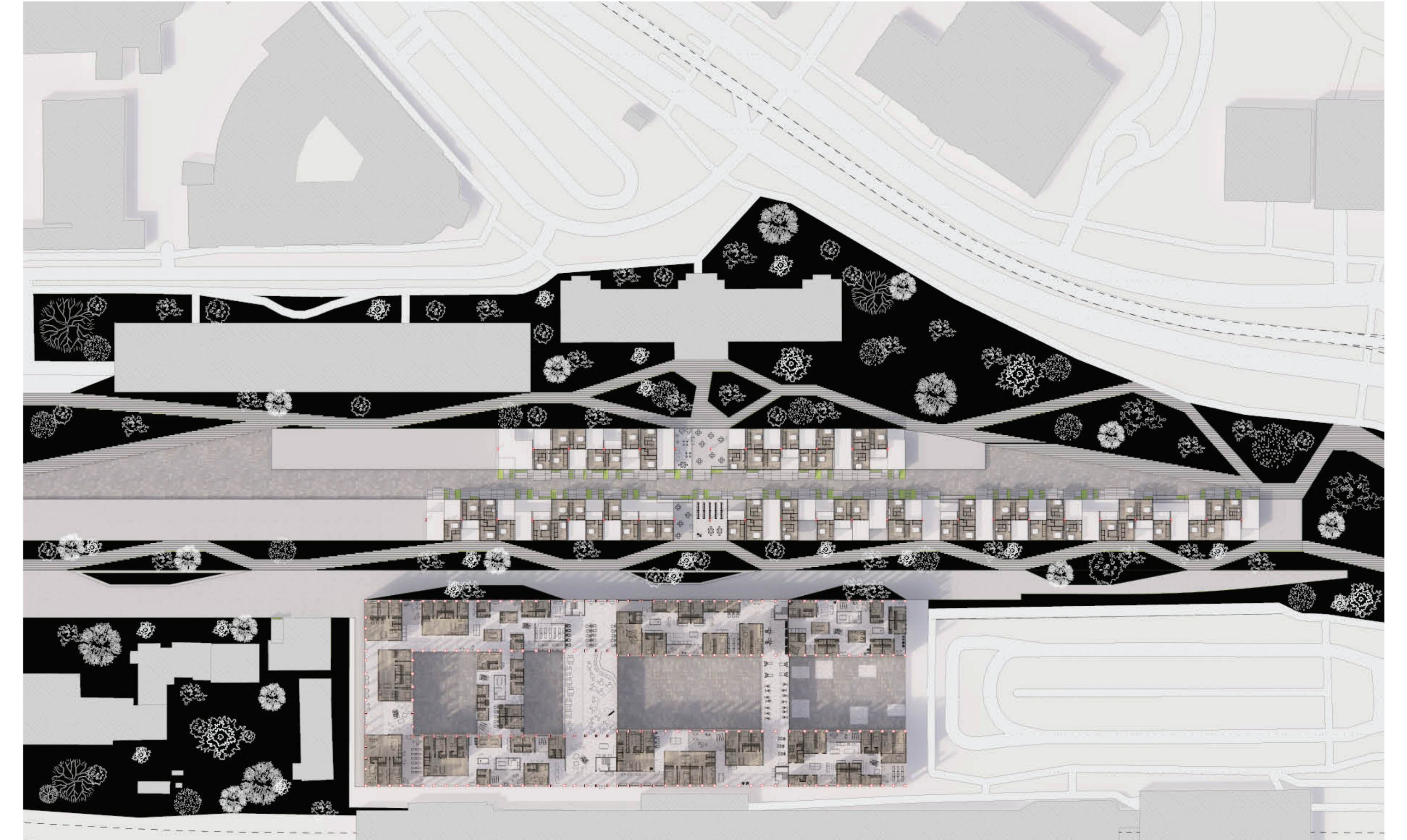
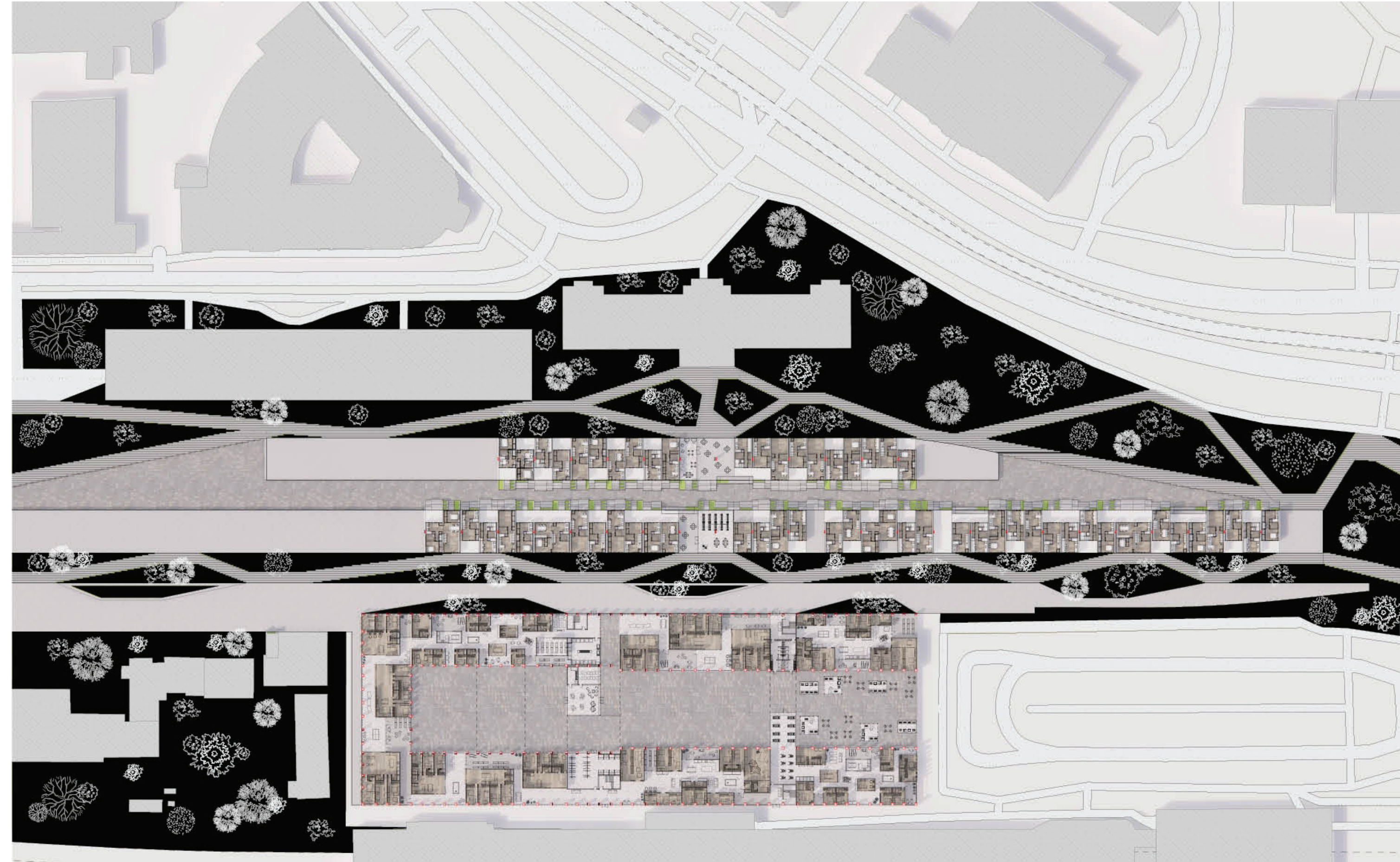
## Radical Poznan

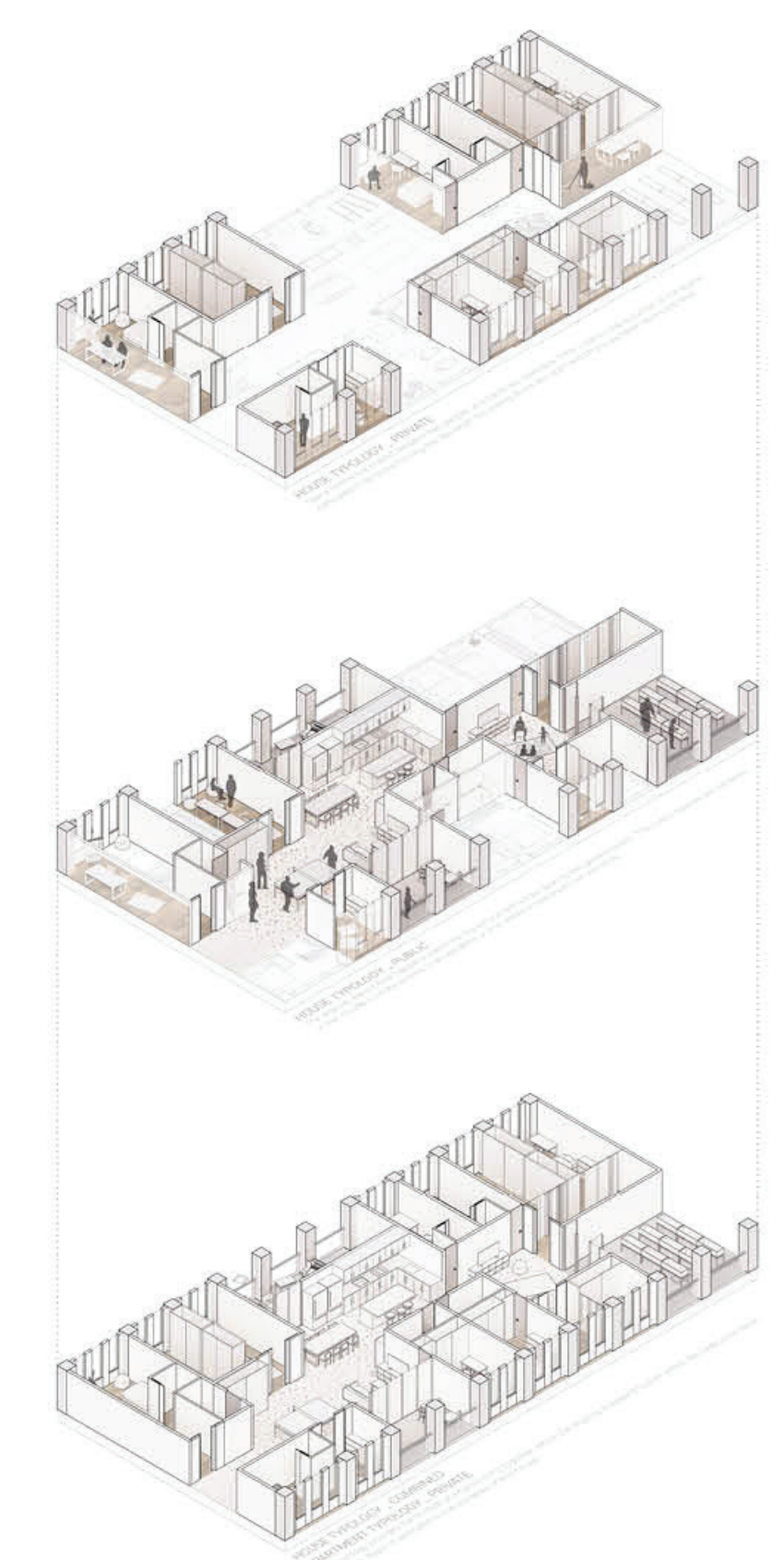
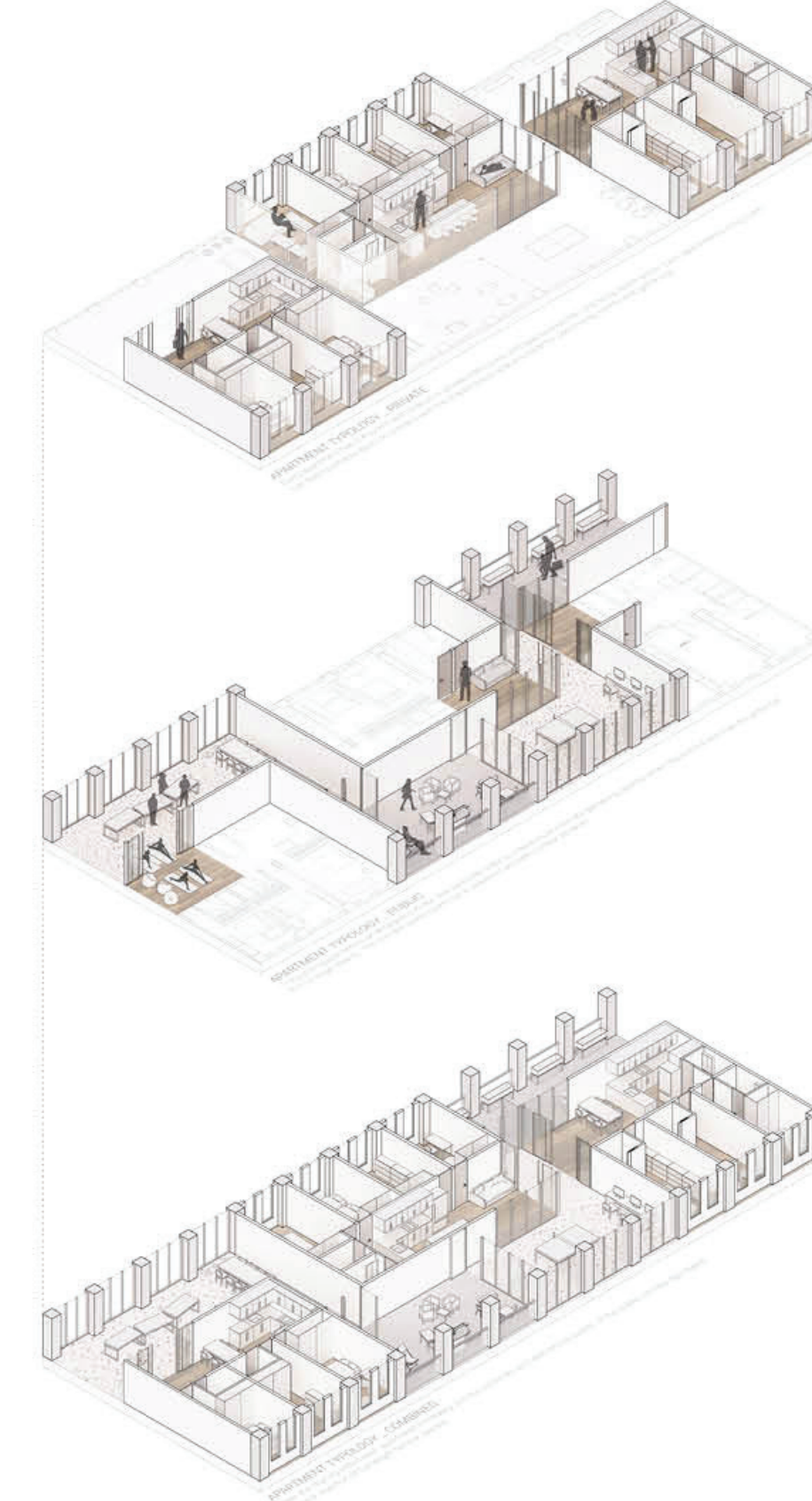
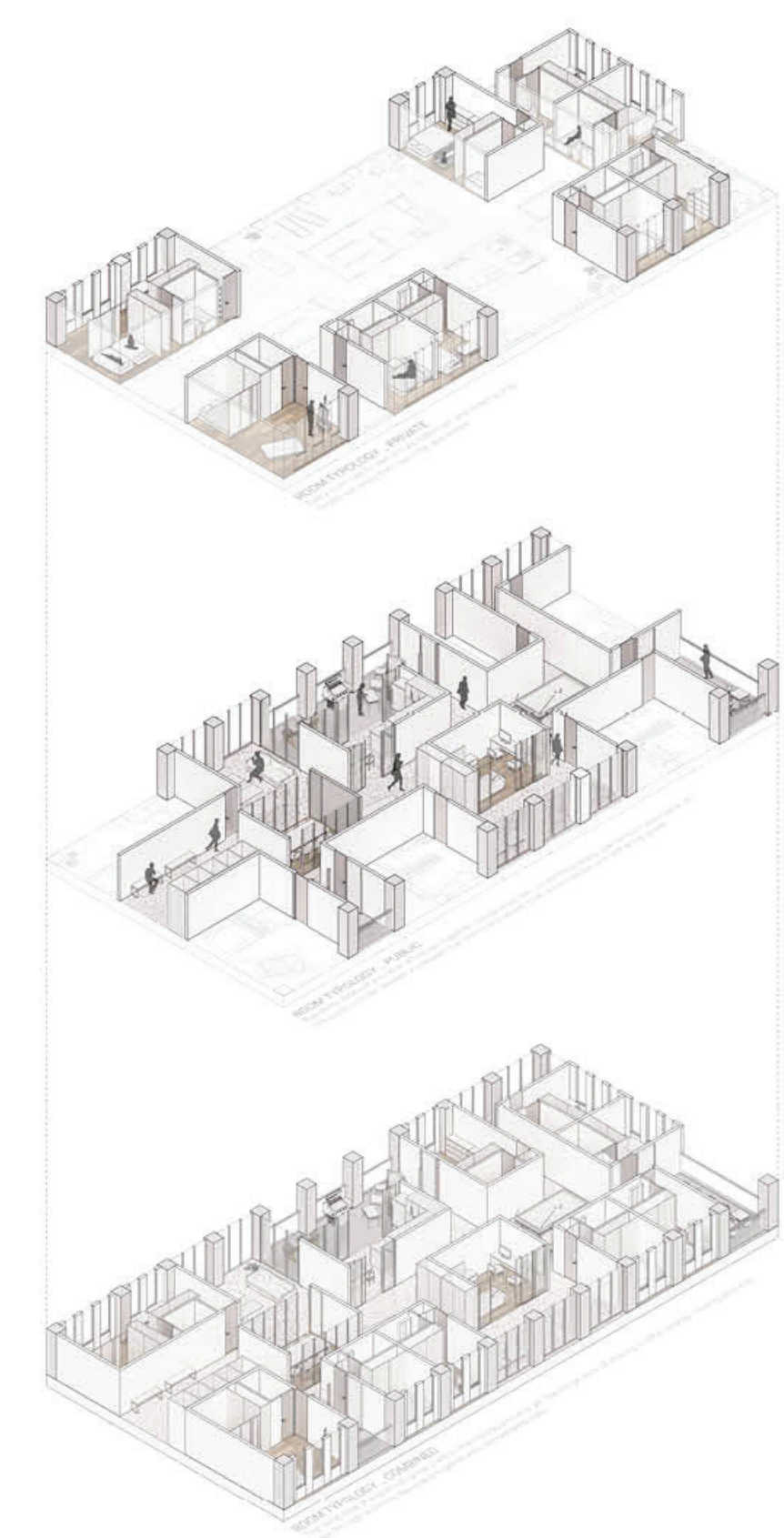
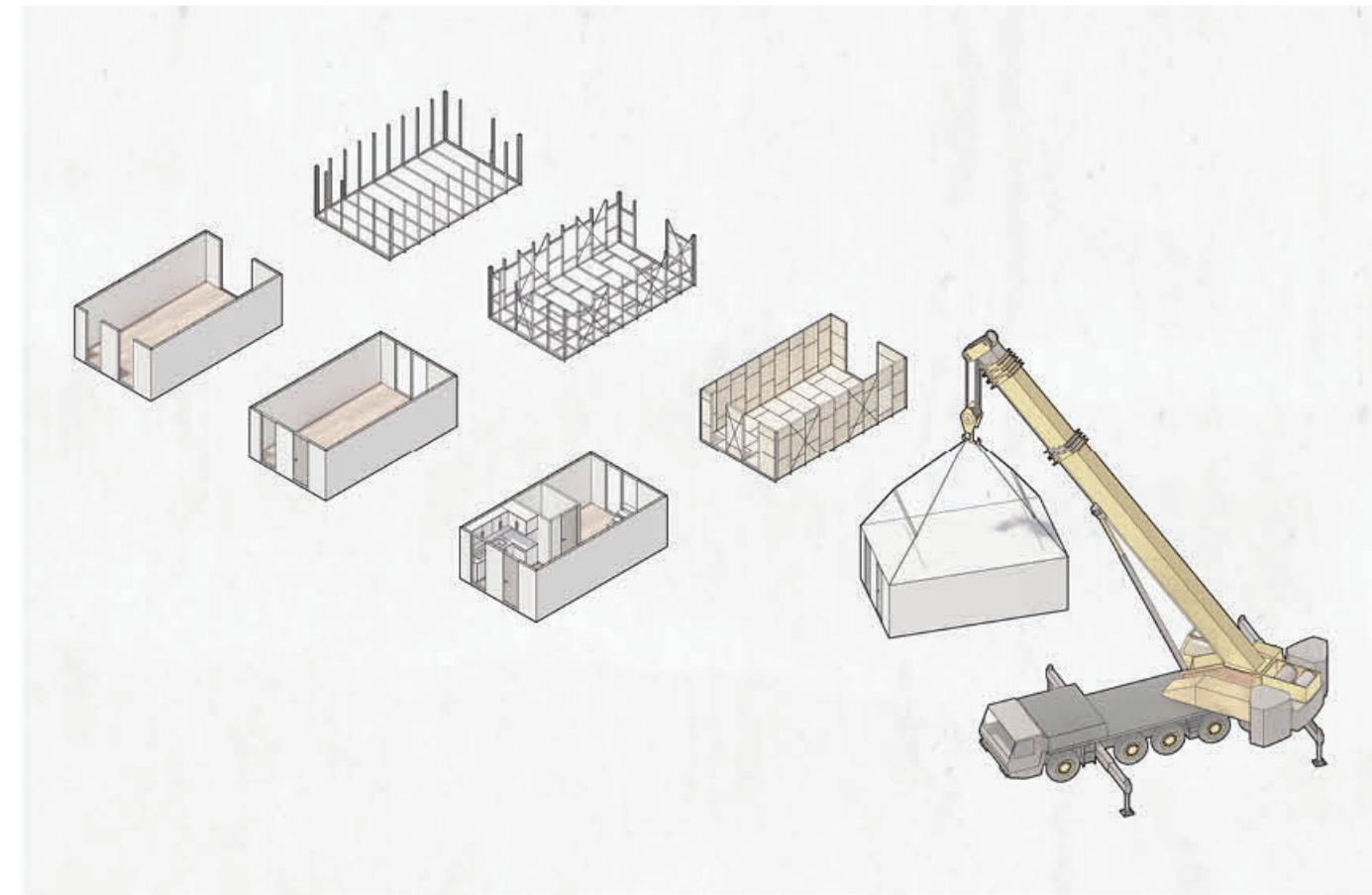
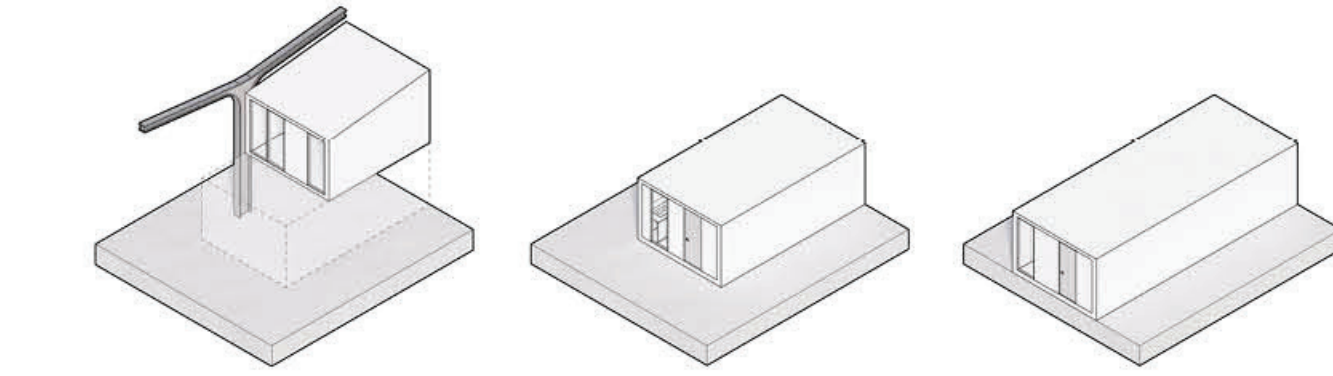
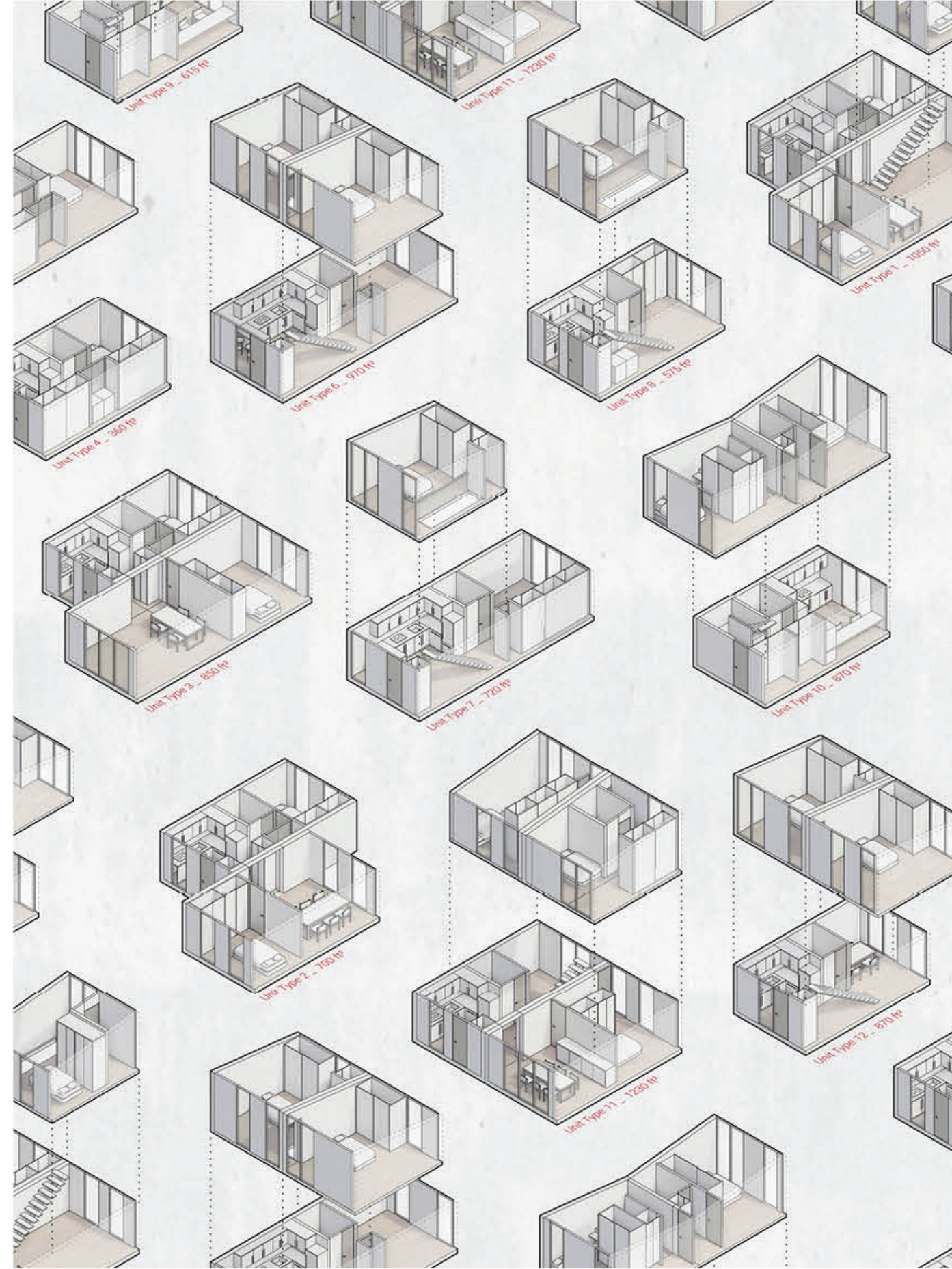
Railroads played a key part in transporting people across Poland. It is estimated that the Polish People's Republic had in total 26,000 km of rails in 1989. Currently, Poland has 103 closed rail lines and 3733 km of abandoned rails. If there's one station every 5km, that leaves Poland with 746 abandoned stations or railway related structures. Such a large network of abandoned buildings has a great potential to become adaptive reuse housing sites that require no new acquisition of land. Many of these stations are also located in urban areas where density of population are higher.

With 1.5 million Ukrainians flooding into Poland because of the war and rising inflation, the demand for housing drastically increased. With the expectation that many of these Ukrainians will stay in Poland in the future, the need to build more housing, especially affordable housing, is urgent.

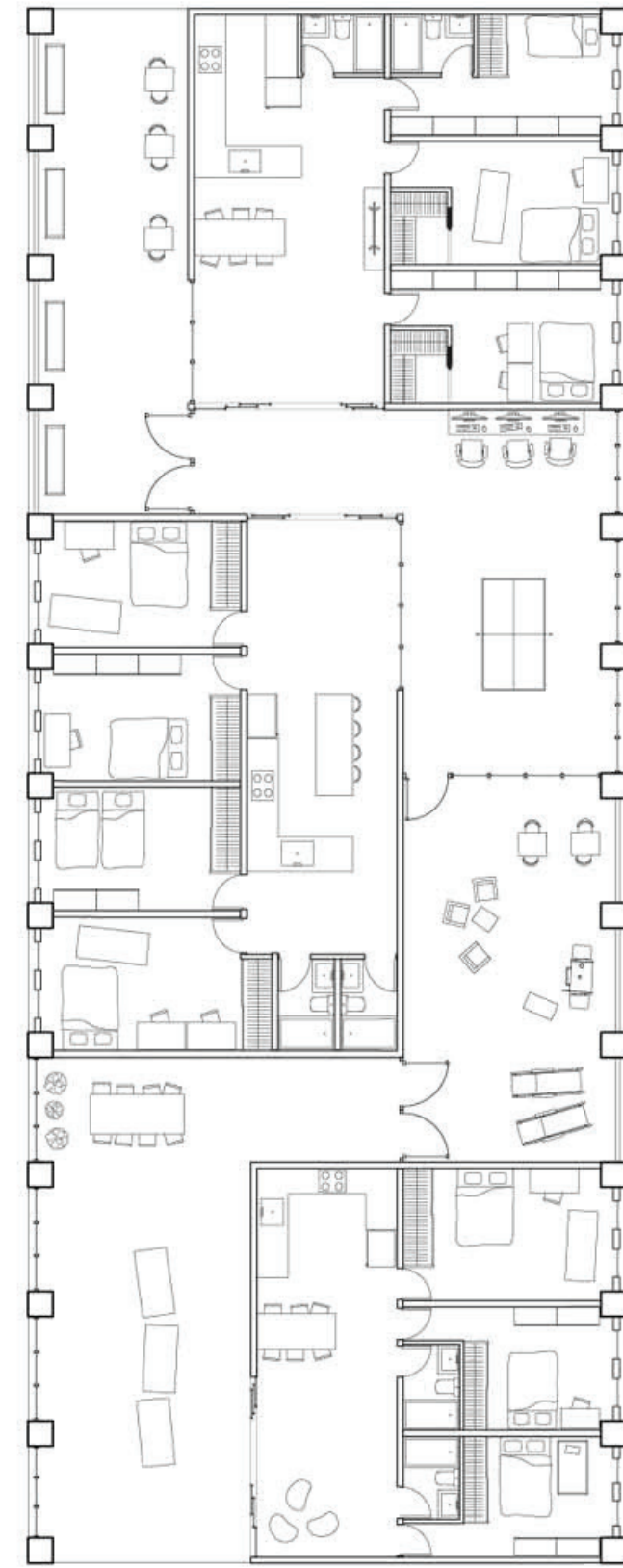
For our site we chose to reuse the abandoned train station Poznan Glowny, two train platforms and the nearby rail lines that are all located in Poznans city center. For the abandoned train platforms we developed three modular components that can be combined to form thirteen different housing unit types. When these units are combined they leave many empty spaces which are used as private terraces for the inhabitants of our platform housing. Because the train platforms are raised 4 feet above the railroads we developed a system of steps, platforms, and planters in front of the platform housing. Inside of the old train station we create three different housing layouts with different levels of privacy and co sharing. The old train station also includes many public programs like a library, gym, laundry, preschool, bike storage, work space and an adult lounge. The area that used to have the train railroads has been transformed into a new park scape with pedestrian sidewalks connecting to the city and our proposed housing.



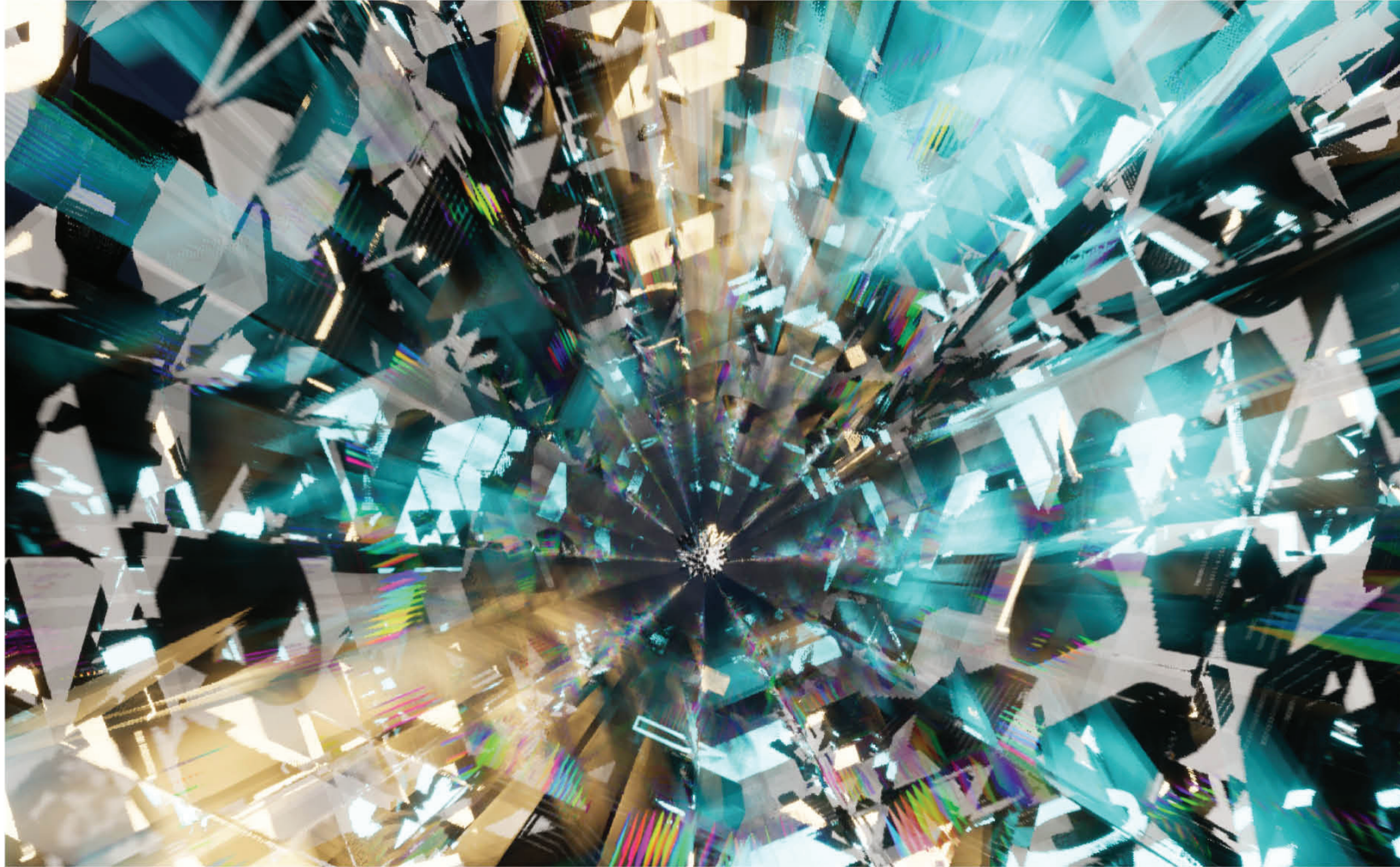








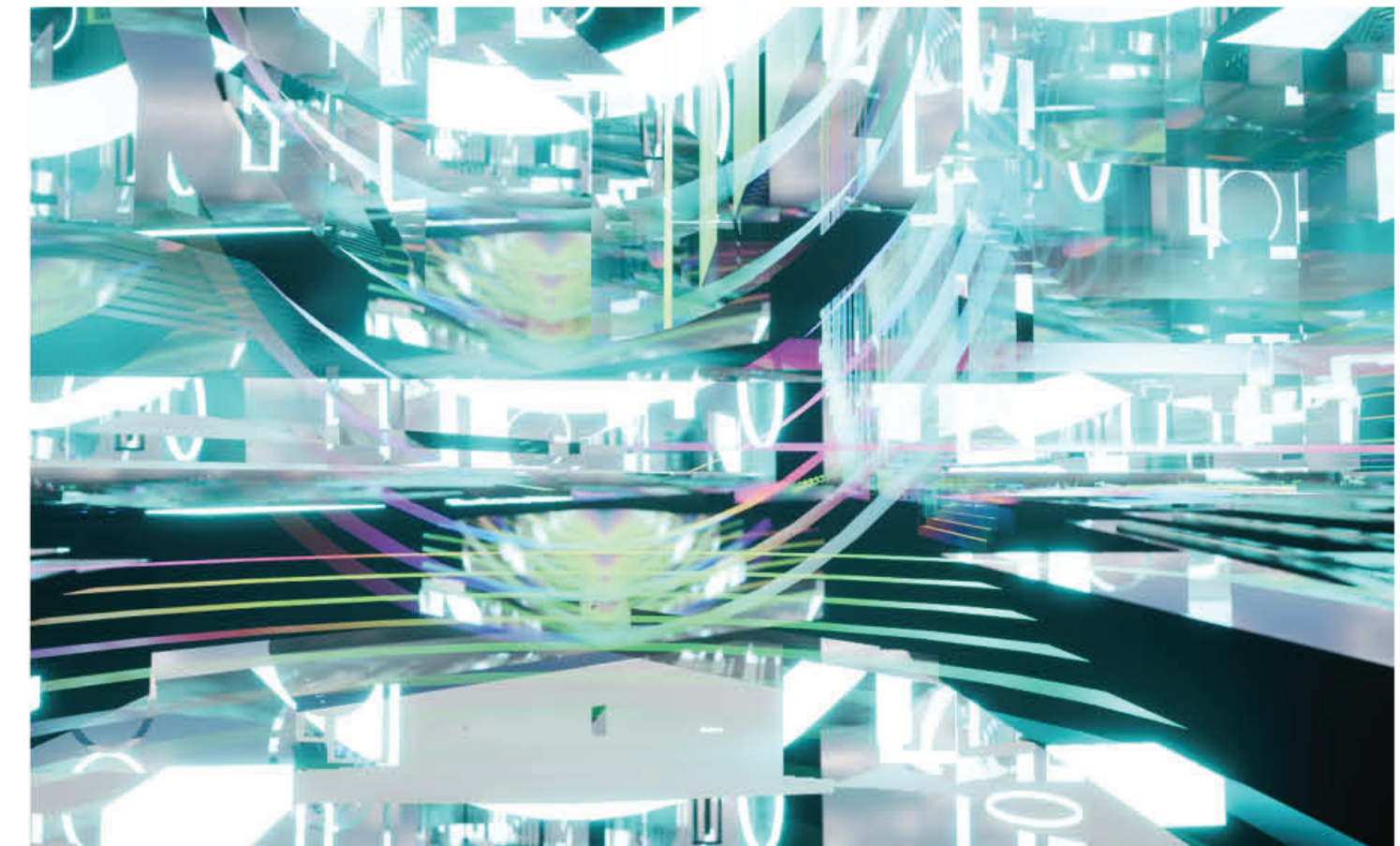
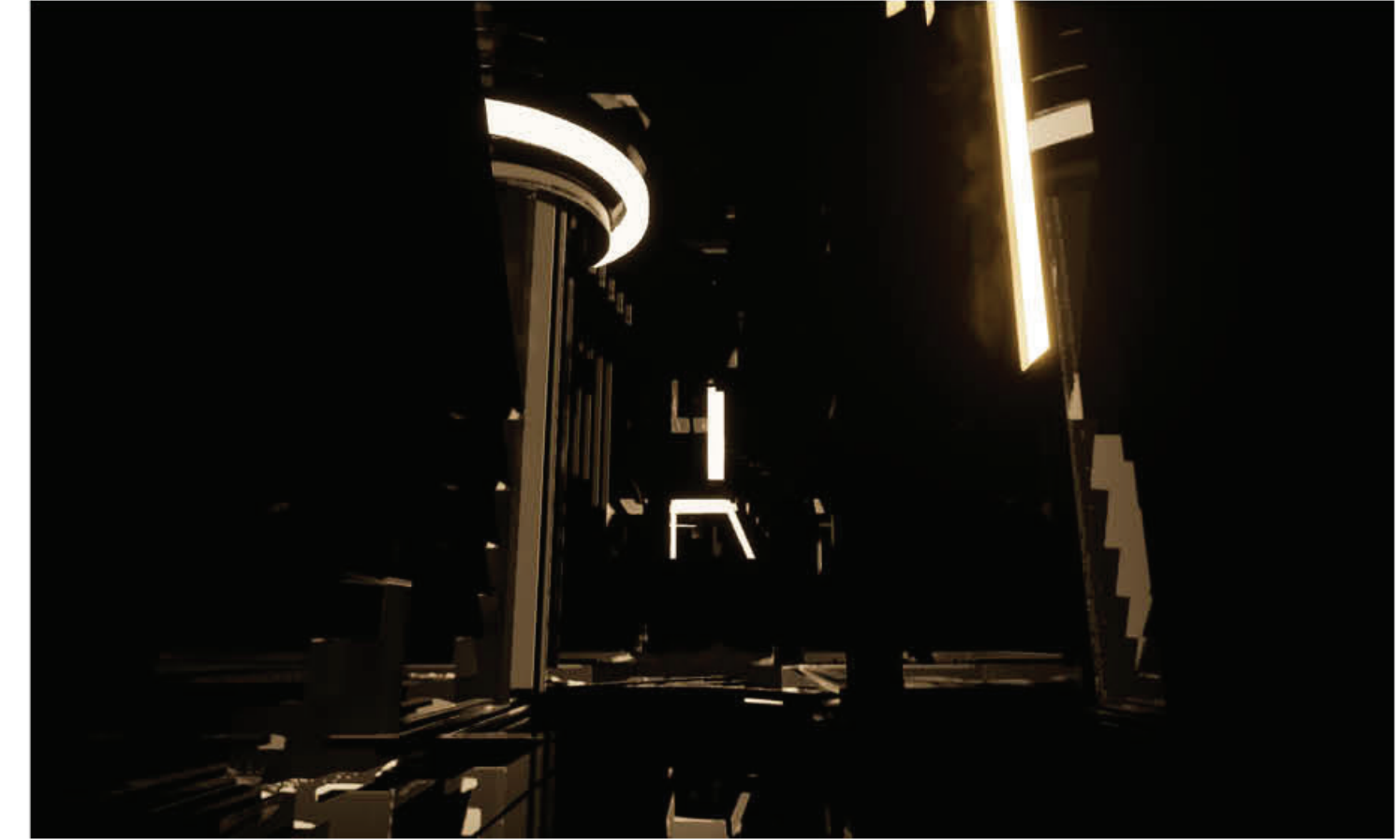


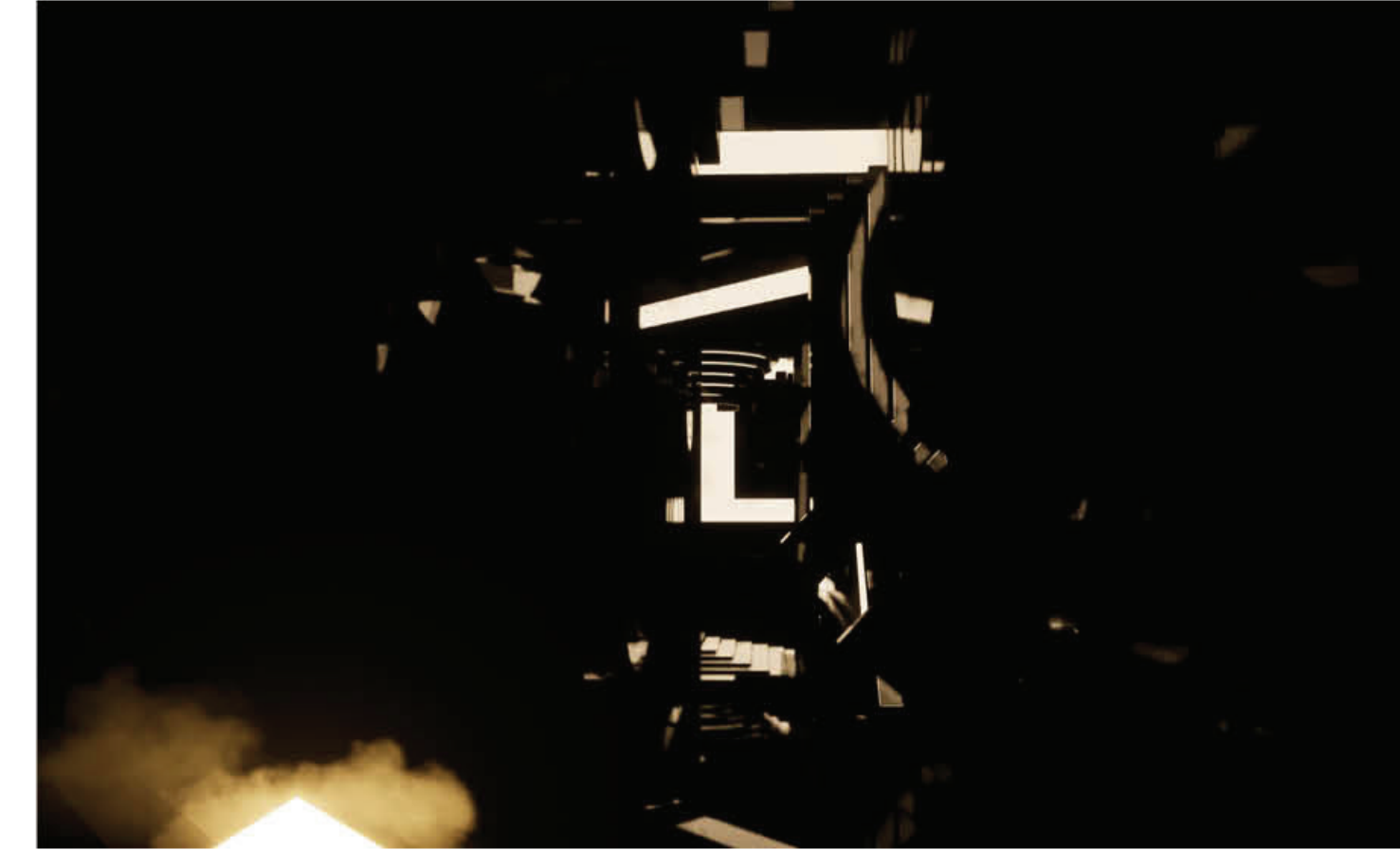
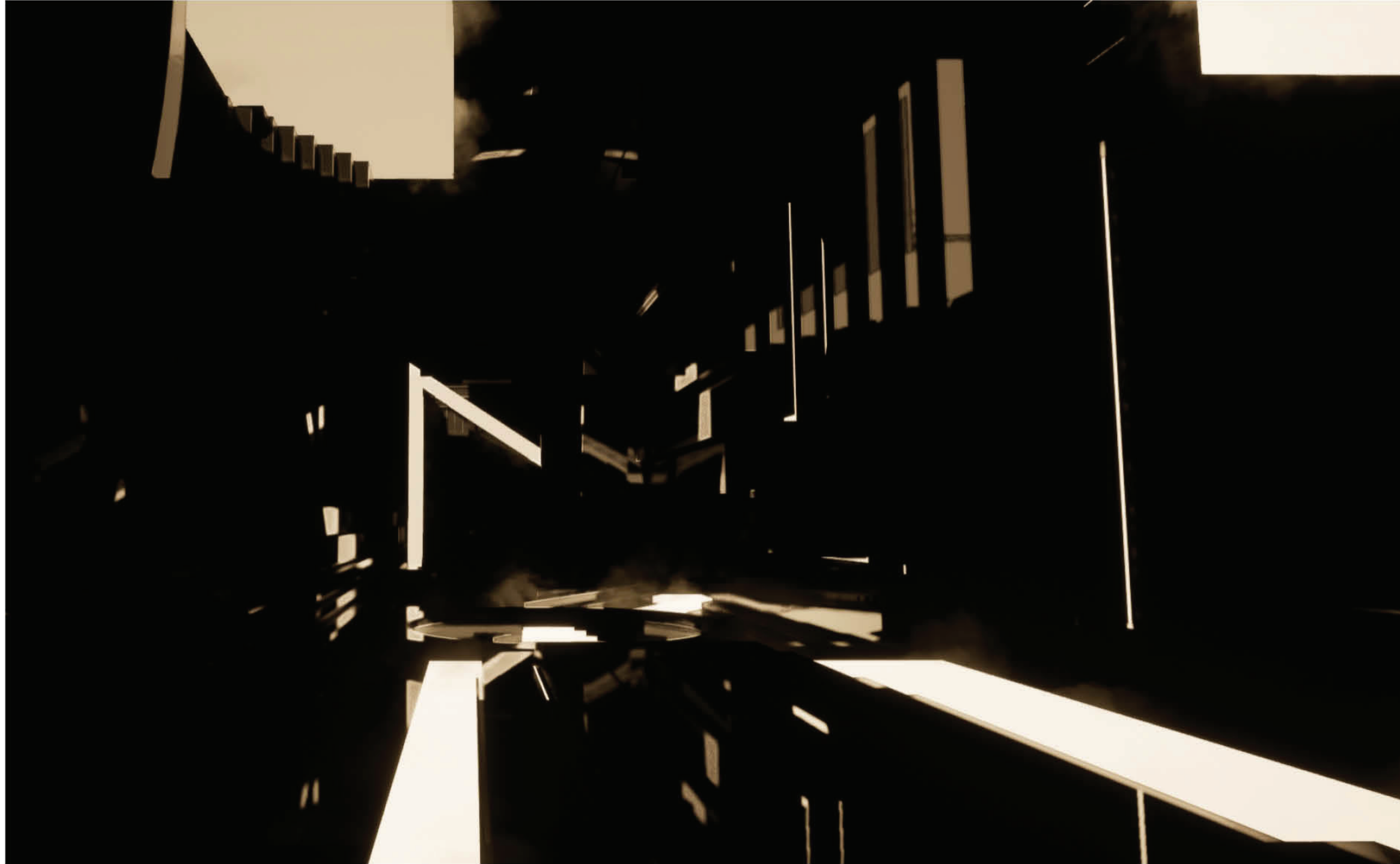


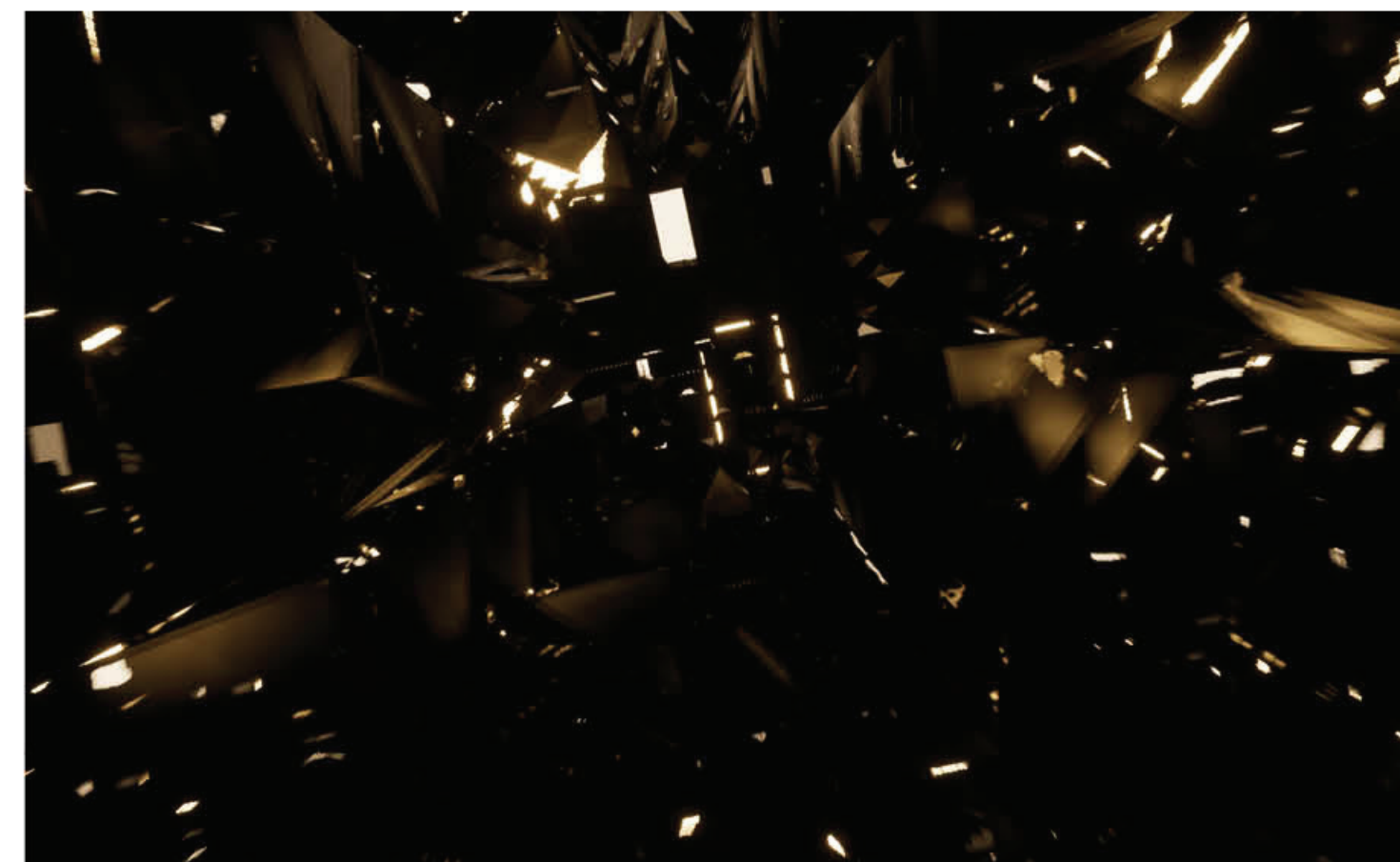
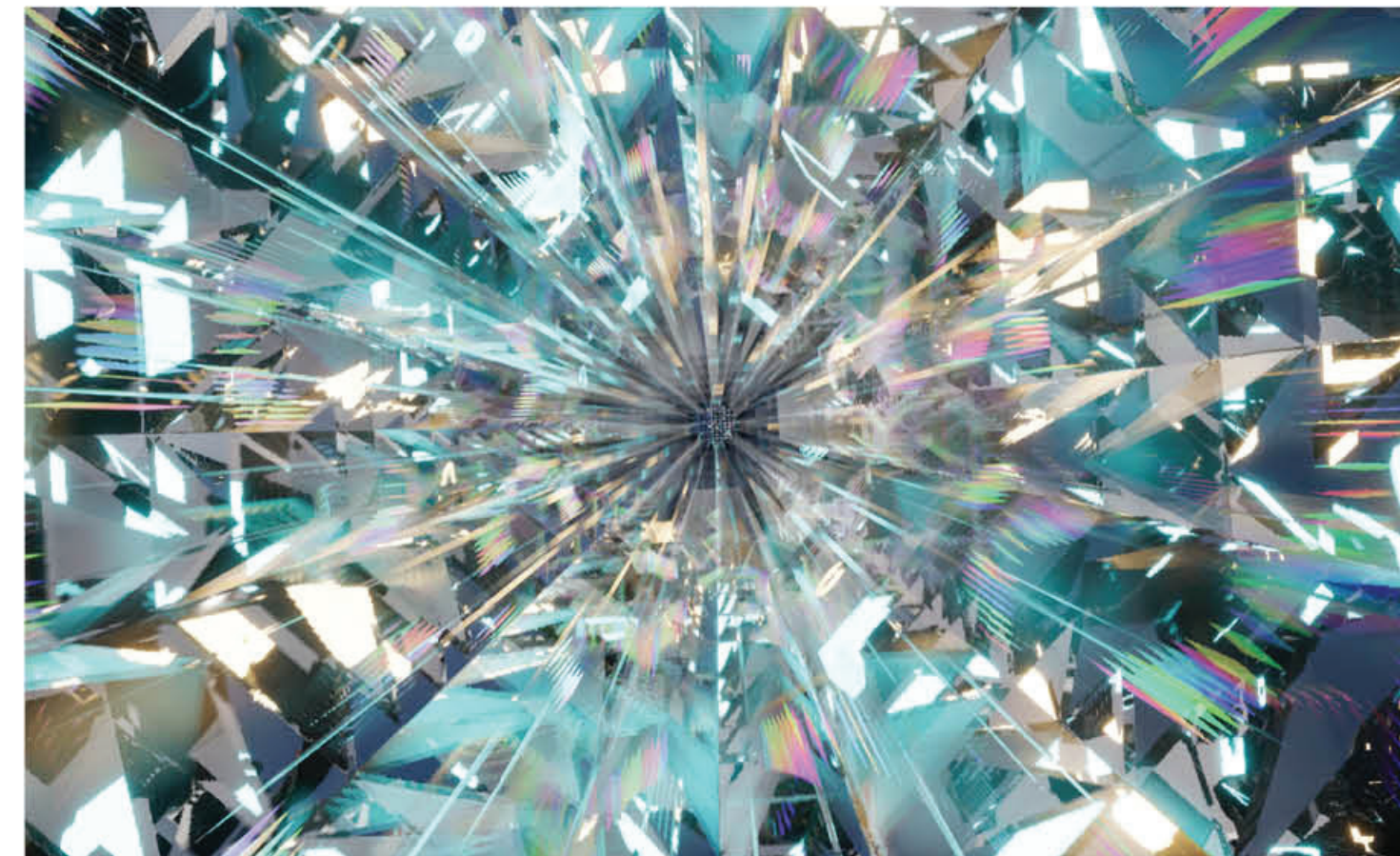
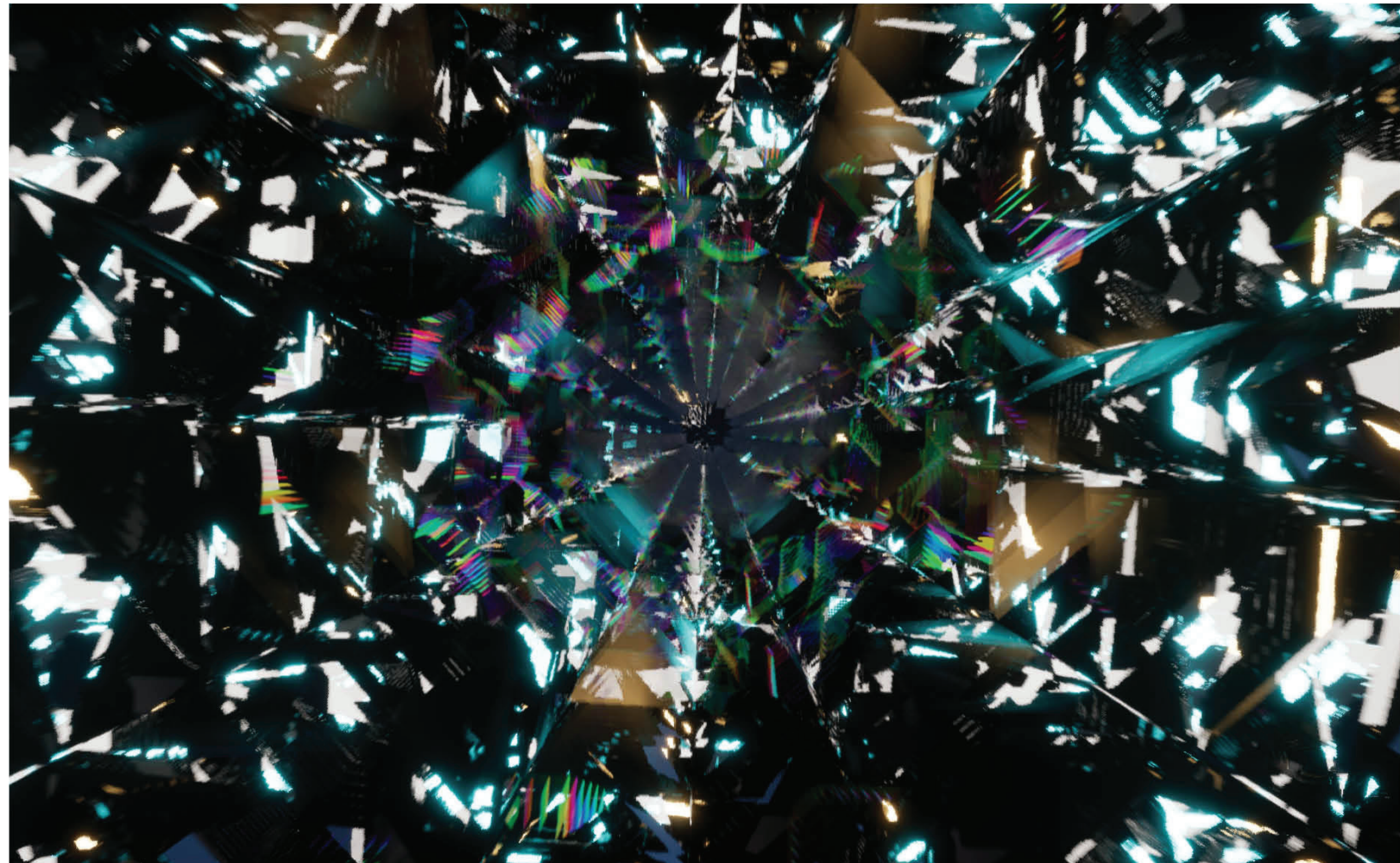
## Light And Shadow Distortion And Manipulation

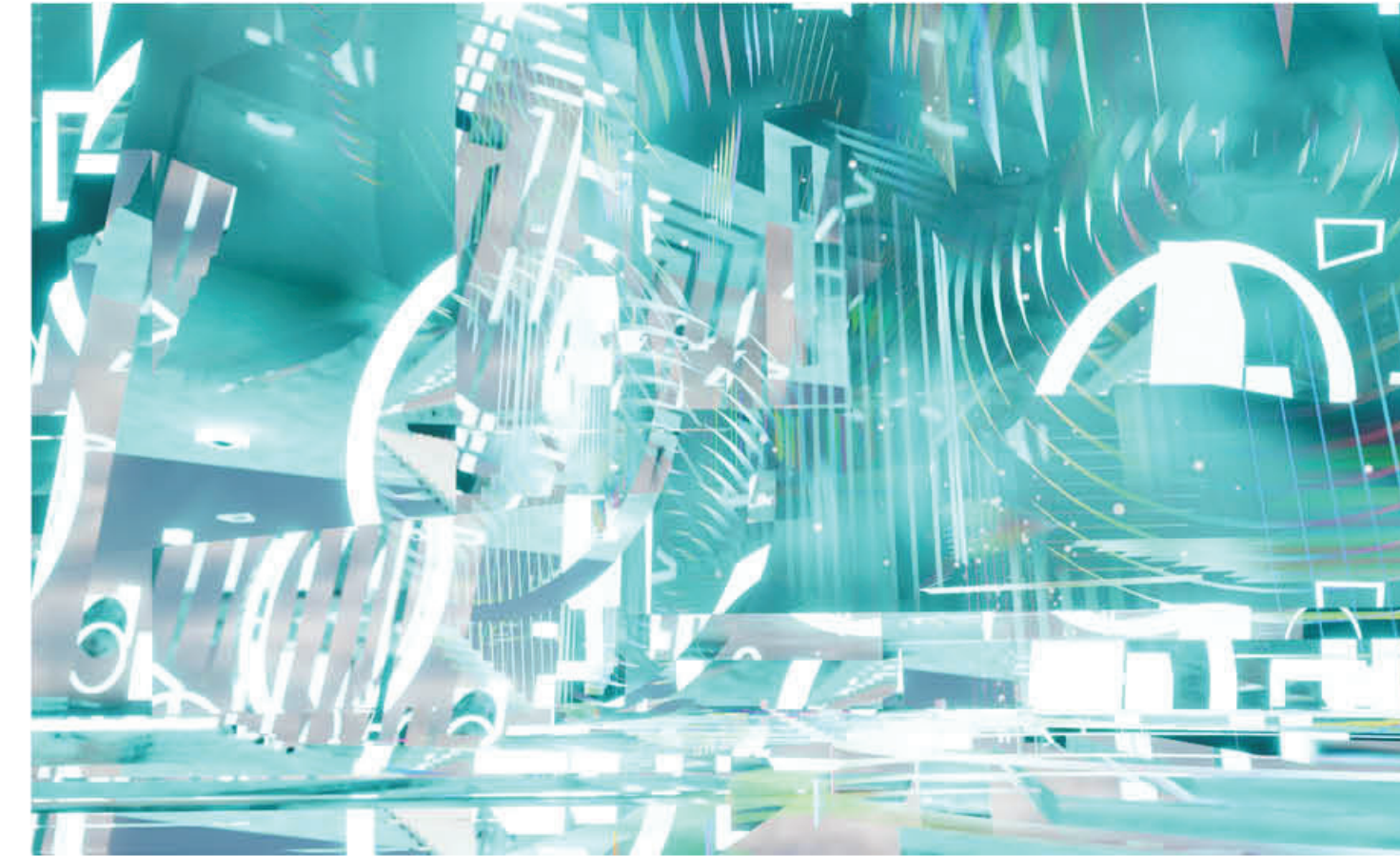
We were inspired by Carlo Scarpa's geometries and his play on light and shadows in his architecture. You begin your journey in shadow with light bouncing and fragmenting off the stepping geometries of the walls, floors and ceiling. You think the light will guide you through the maze but you are unsure of where to move next. You hit the surrounding walls and enter dead corridors. When you finally think you figured out the space the floors collapse and you fall through the kaleidoscope - a transition space between light and shadow. Here you will experience a change in perception - perception of light, perception of location, perception of being. At the end of the kaleidoscope you fall through the floor and your reality shatters into pieces. In the light maze the lights will disorient you - you must follow the colors forming at the edges of the object to understand where is what.

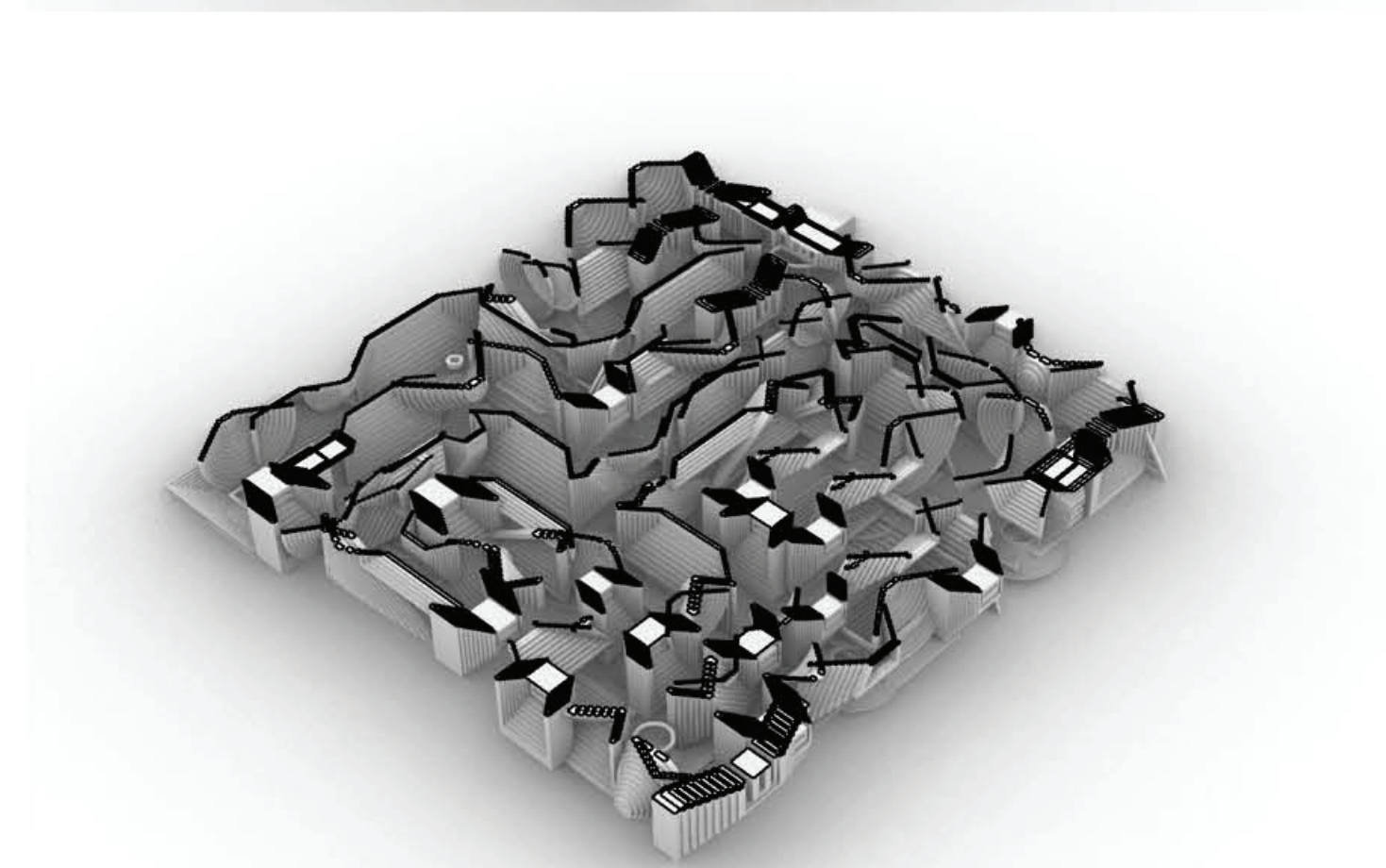
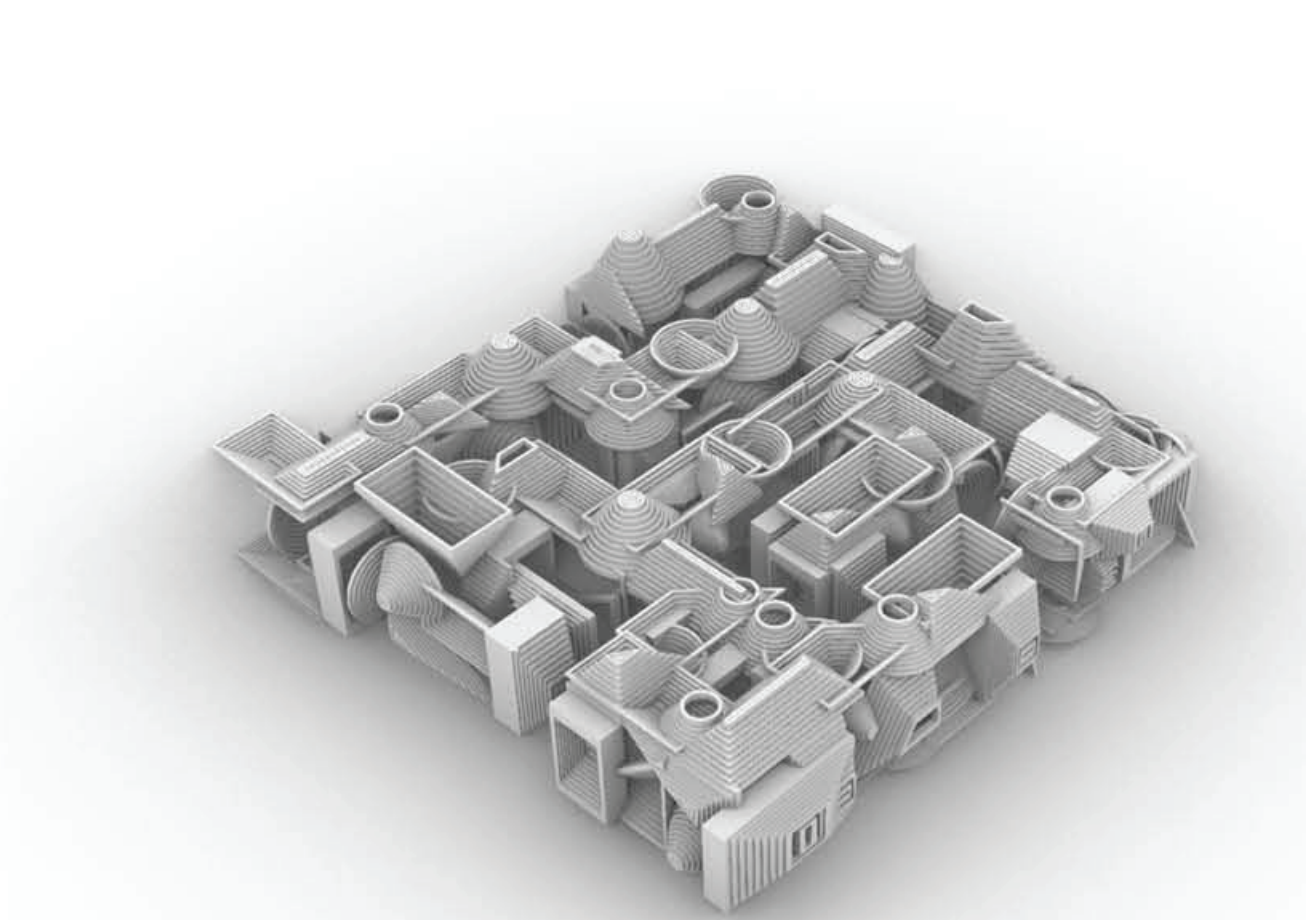
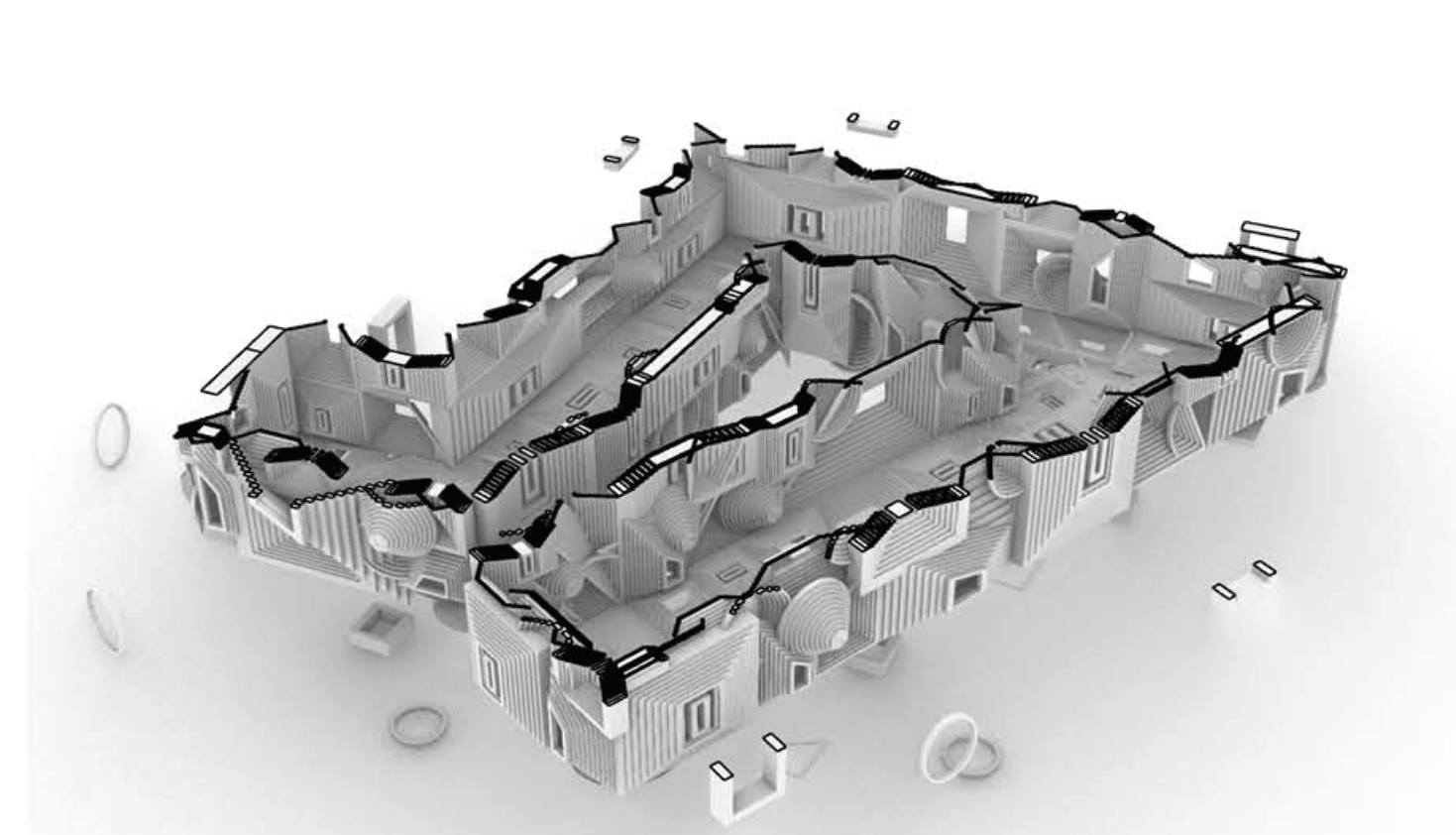
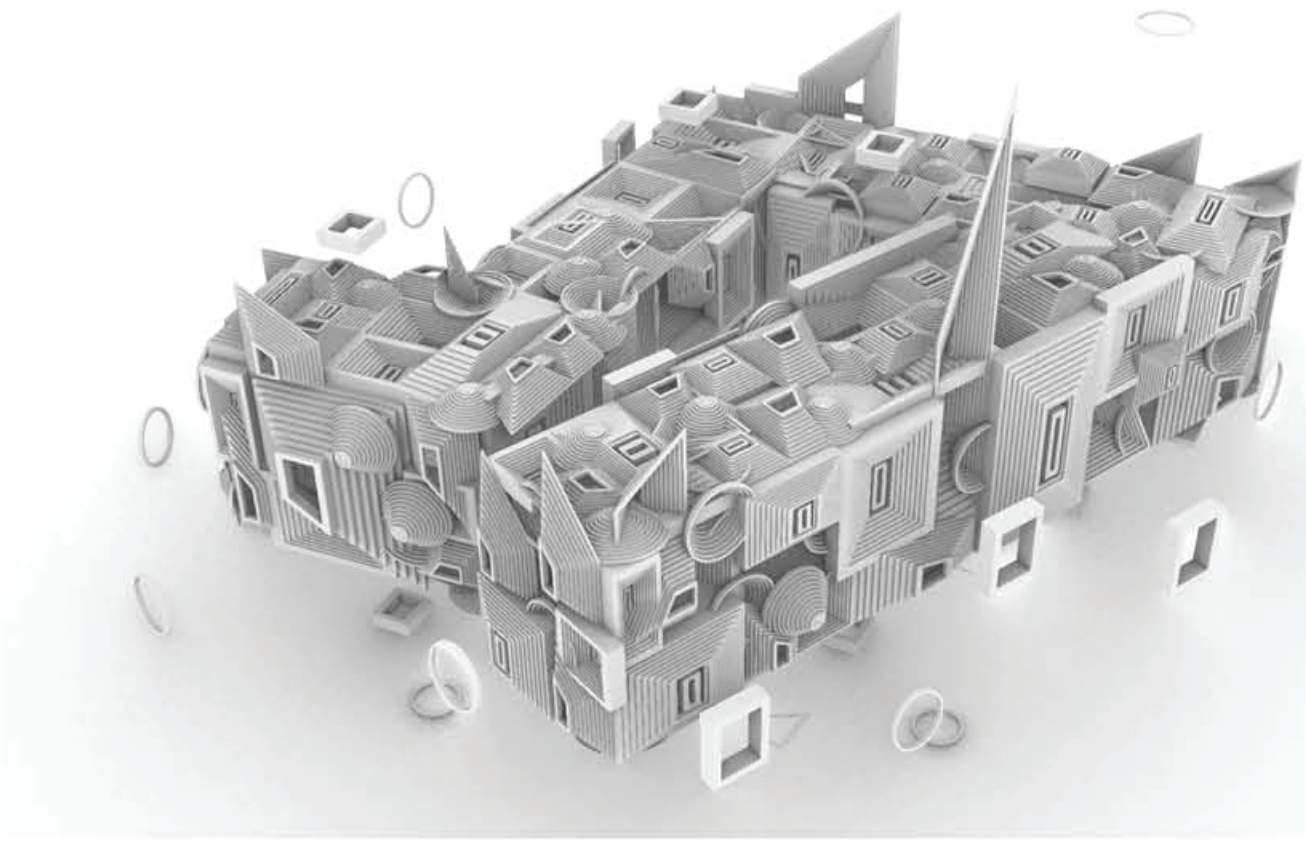
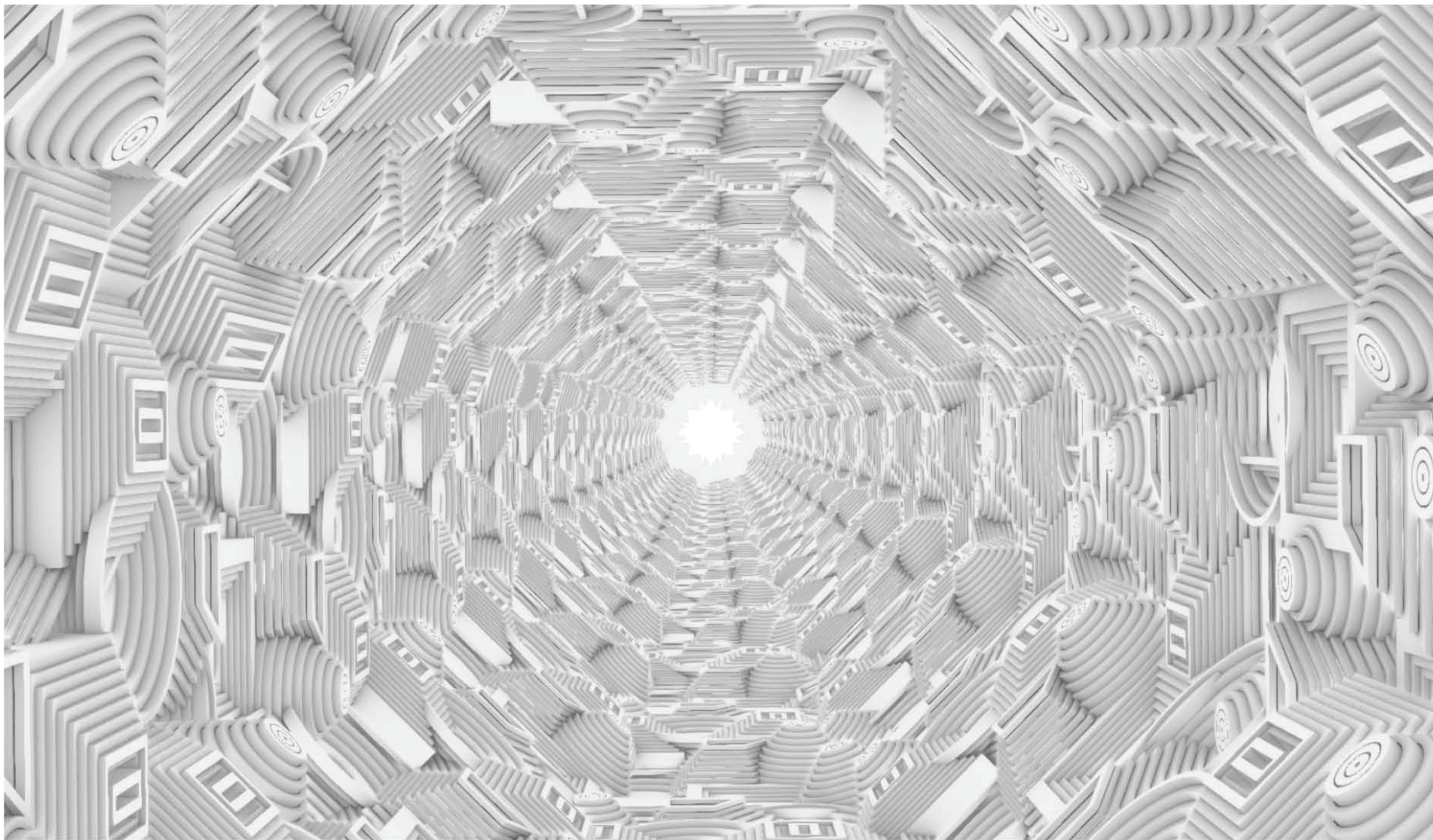
This project was created by Simon Galecki and Claire Koh for the Virtual Architecture course at Columbia University. We used Rhino 7 to create the level design and then exported the 3d model to Unreal Engine. In unreal we experimented with material properties and animating objects like flickering lights.

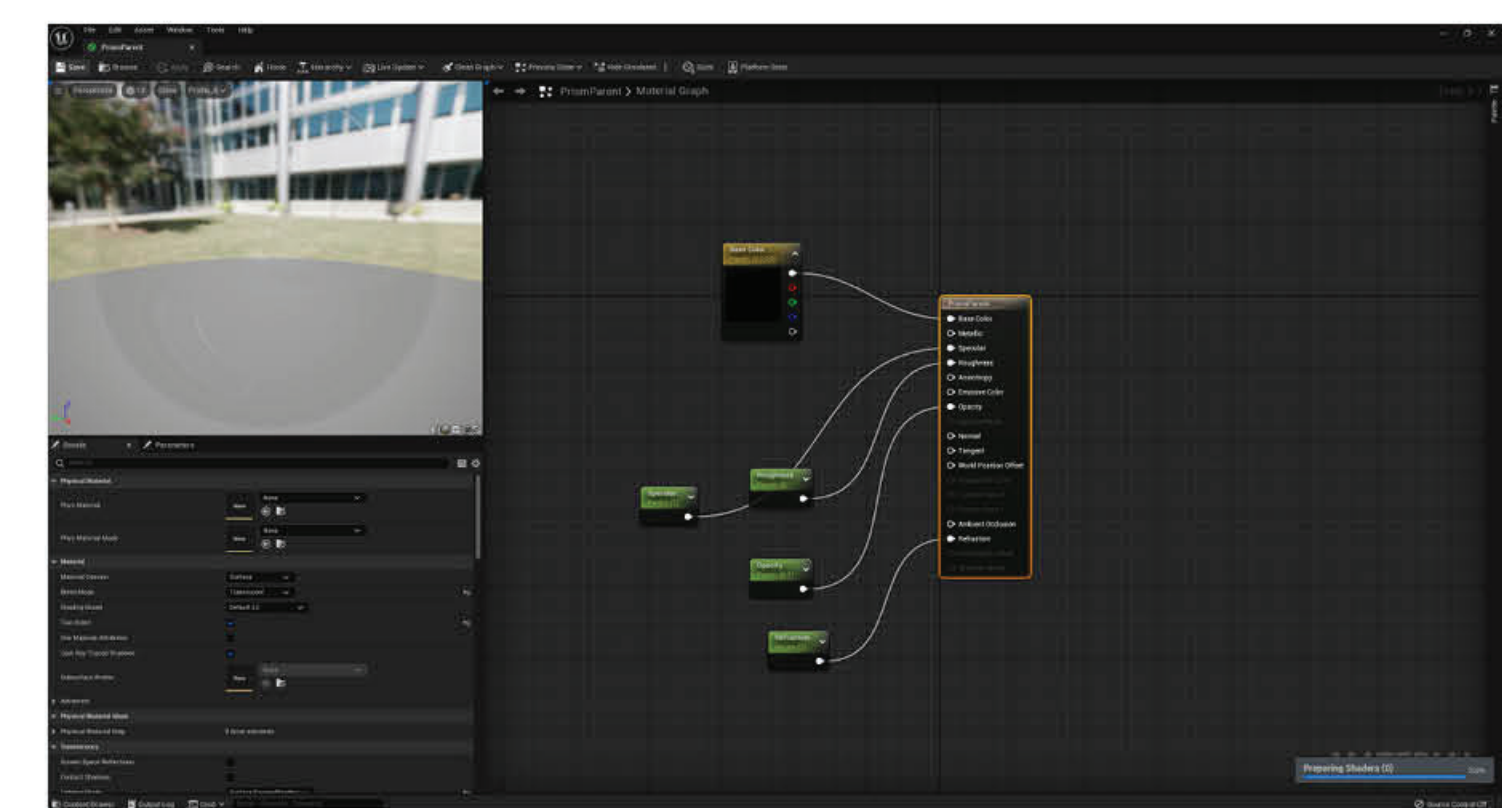
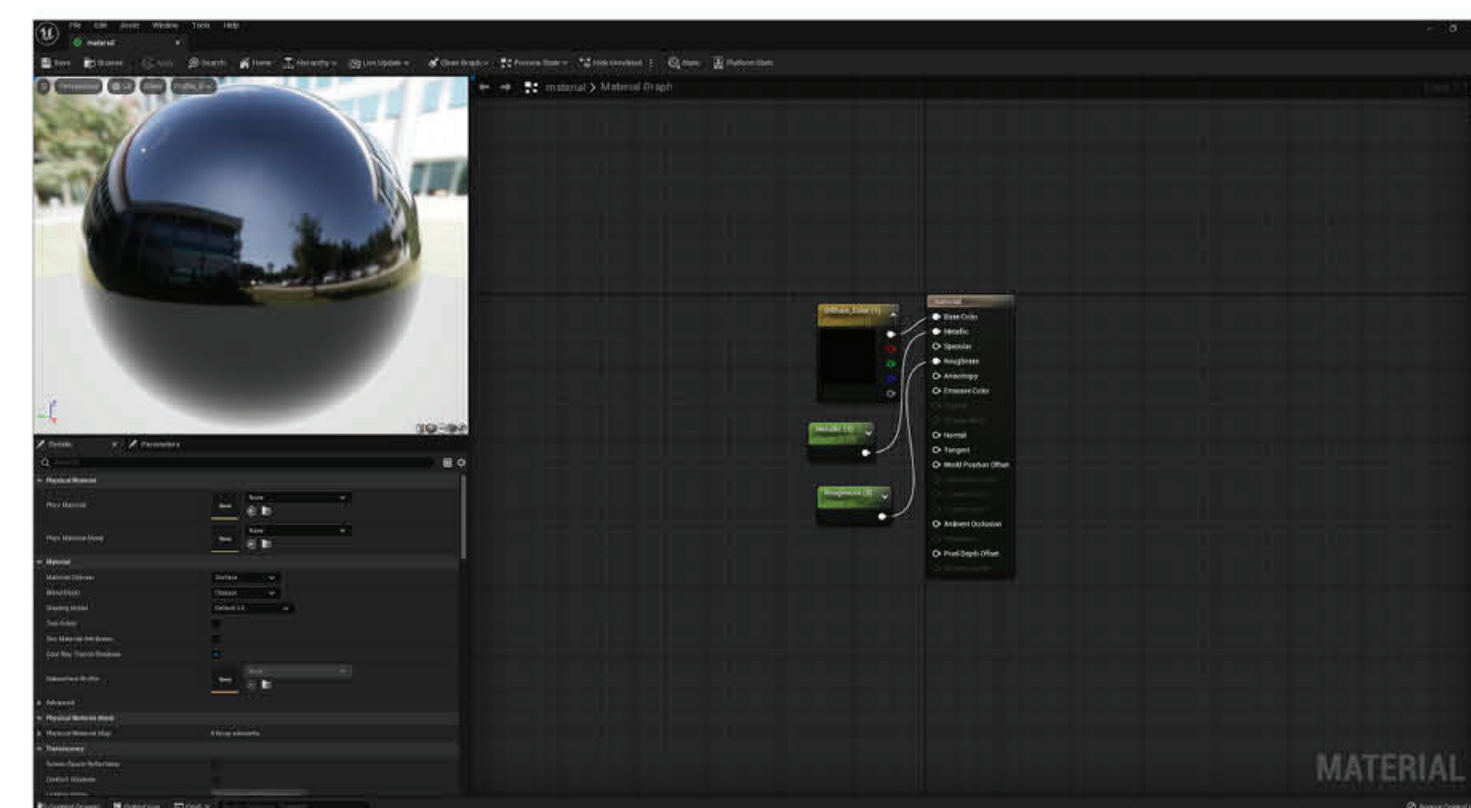
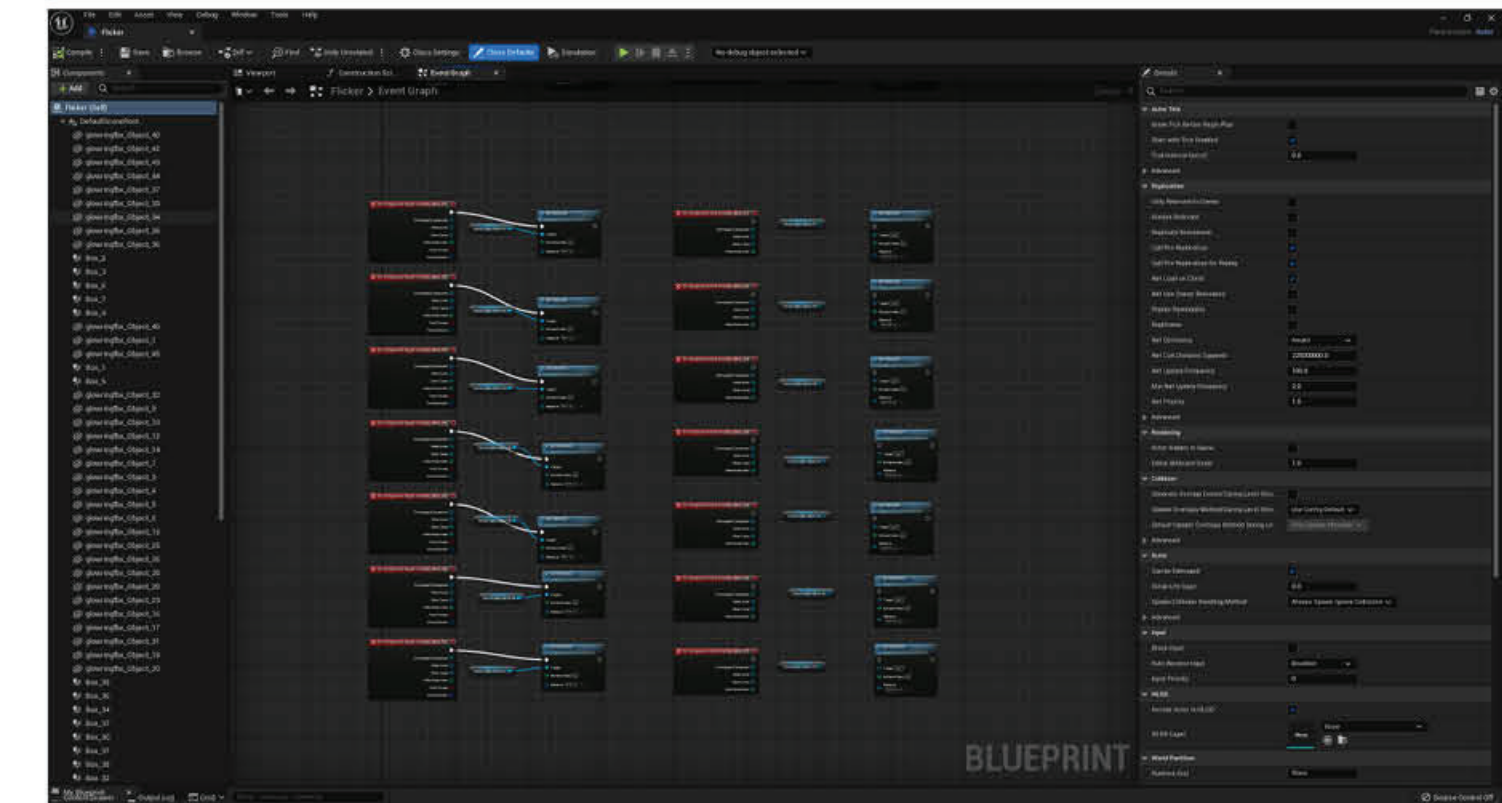
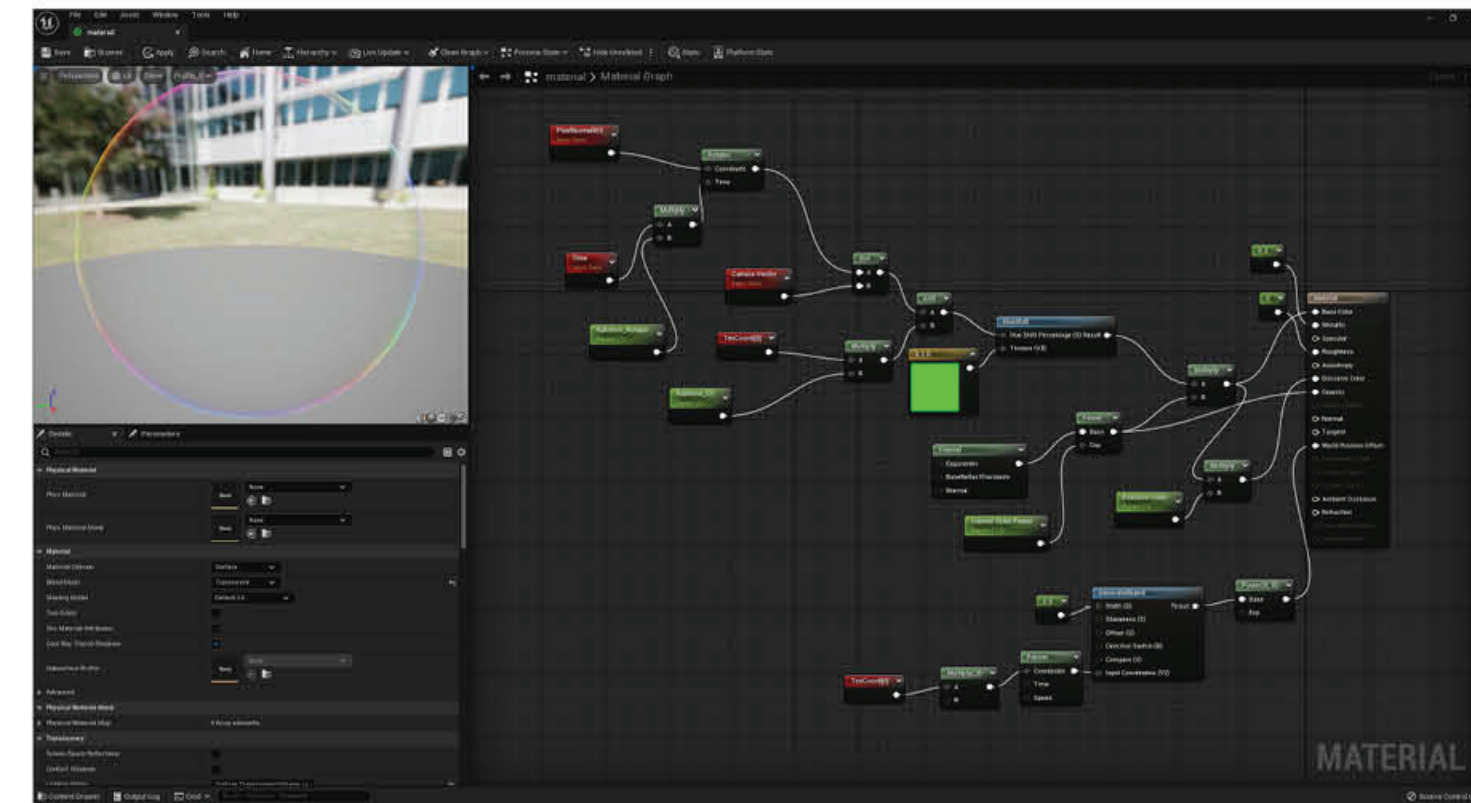
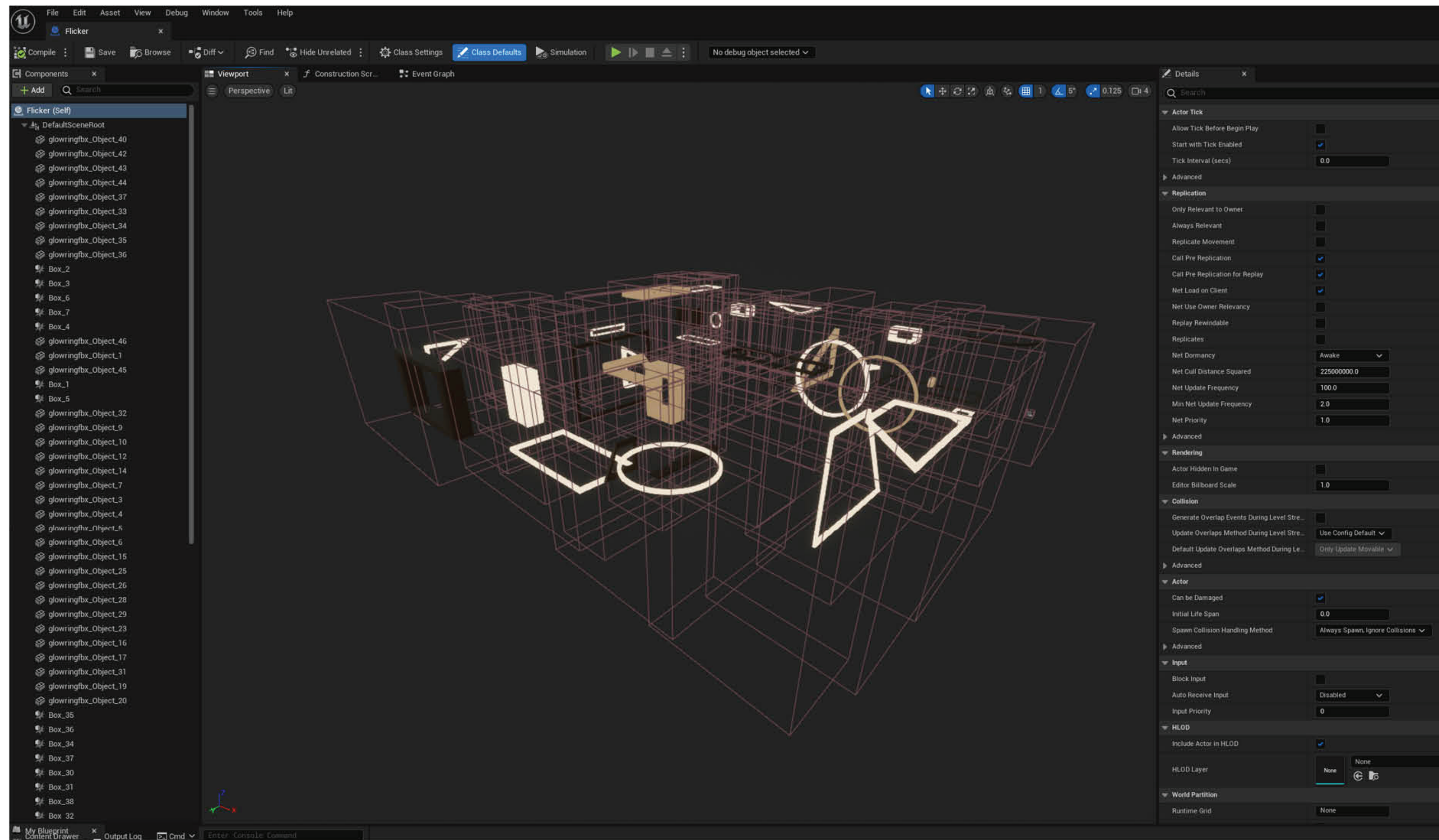














# Spatial Equality Of Open Streets Locations in 2022

## Introduction

The COVID-19 pandemic pushed every city dwellers to realize the importance of outdoor space. New Yorkers, as those who are living in one of the most populated city in the world, are more concerned of it than anybody else. Therefore, the importance of sidewalk width has been put in focus unprecedentedly. In 2020, STREETBLOG NYC called for wider sidewalk by pointing out most of sidewalks in NYC are less than 13-foot-wide, which is a minimum requirement of a 6-foot social distance rule.

Unveiled in late April, 2020, the Open Street Initiative opened 7.6 miles of streets in the Bronx, Brooklyn, Manhattan and Queens. During the waves of pandemic, it was redeemed as a health necessity more than an aesthetic one. It widen the space for outdoor activity and provide with more room to keep social distance.

As the pandemic was normalized, the economic and cultural value of Open Street Program was discovered. Therefore, it was made permanent in 2021. According to the report, Streets for Recovery, released by the city's Department of Transportation, the Open Street program gave a vital boost to eateries by pushing some bars and restaurants's sales above pre-pandemic levels. Street Lab, which is an organization aiming at creating programs for publics, has created pop-up chalk murals and reading rooms, giving more vitality and creativity to the city.



# Spatial Equality Of Open Streets Locations in 2022

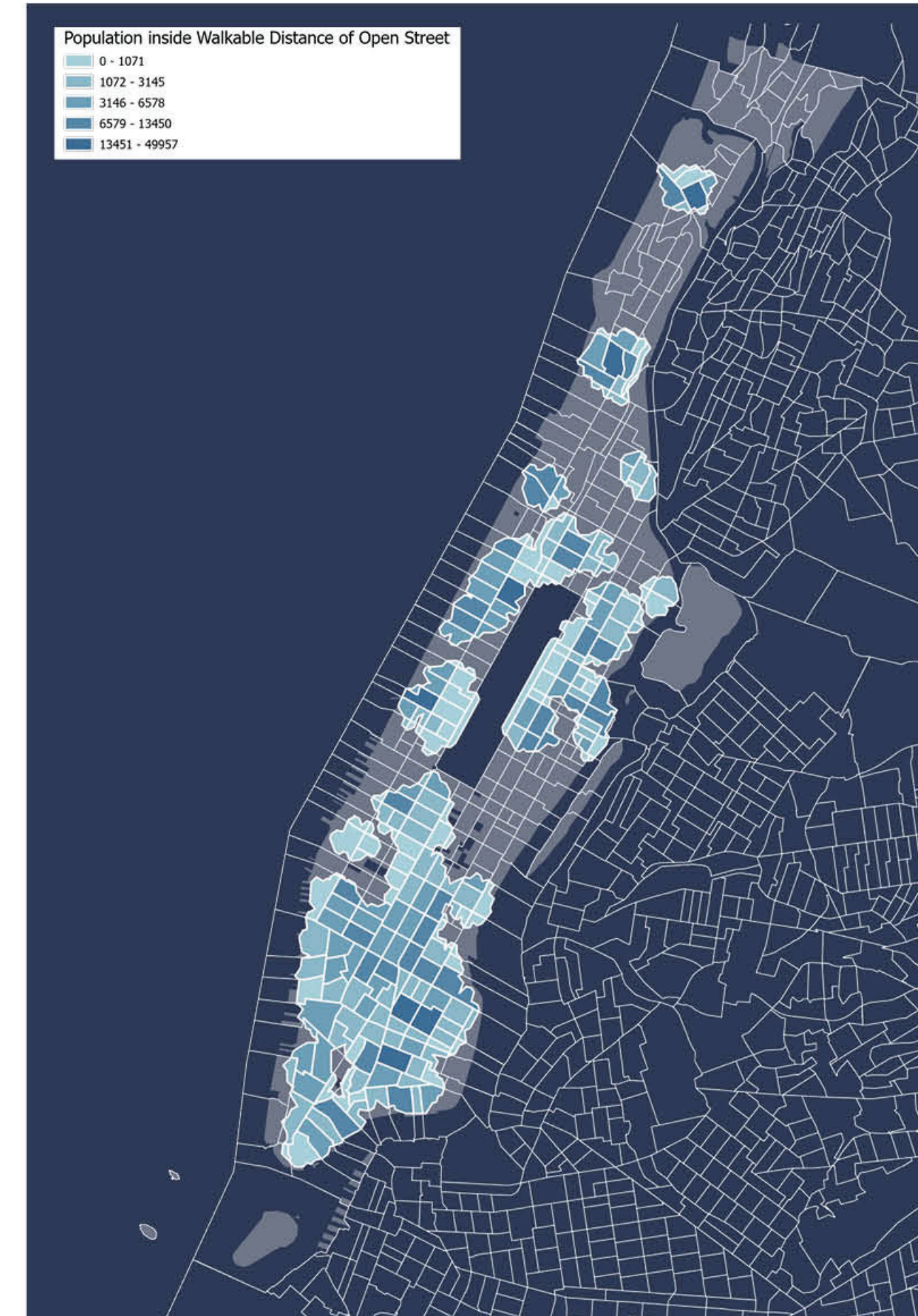
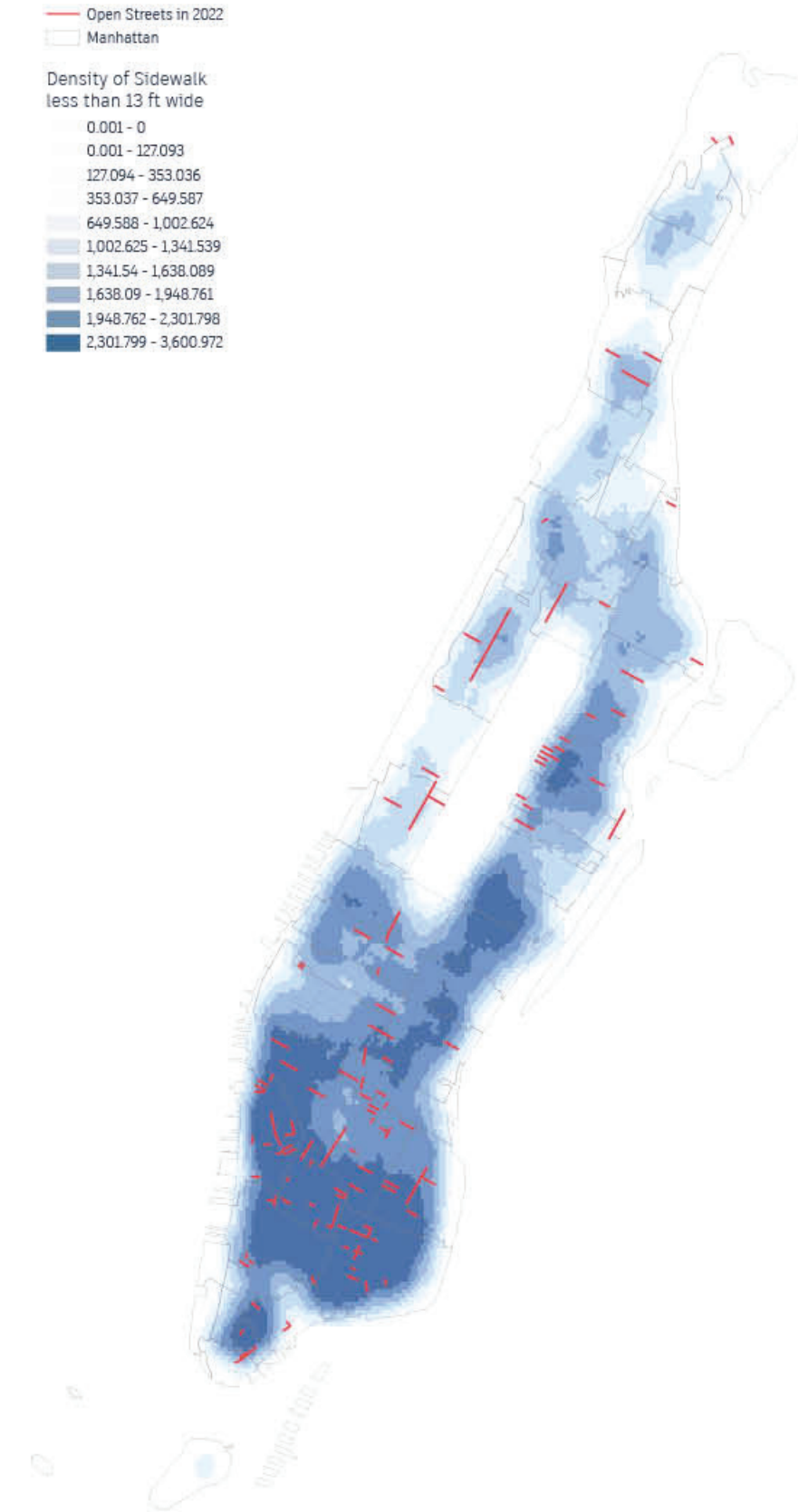
## Locations

In 2022, 21 new locations were added to the list of Open Street Program, with a total of 156 locations throughout the five boroughs. Among them, 8 are located in Manhattan. With this adjustment been made, we hope to evaluate how it changes the spatial justice of open street programs, specifically in Manhattan, where is seen as the borough benefitting the most from the program.

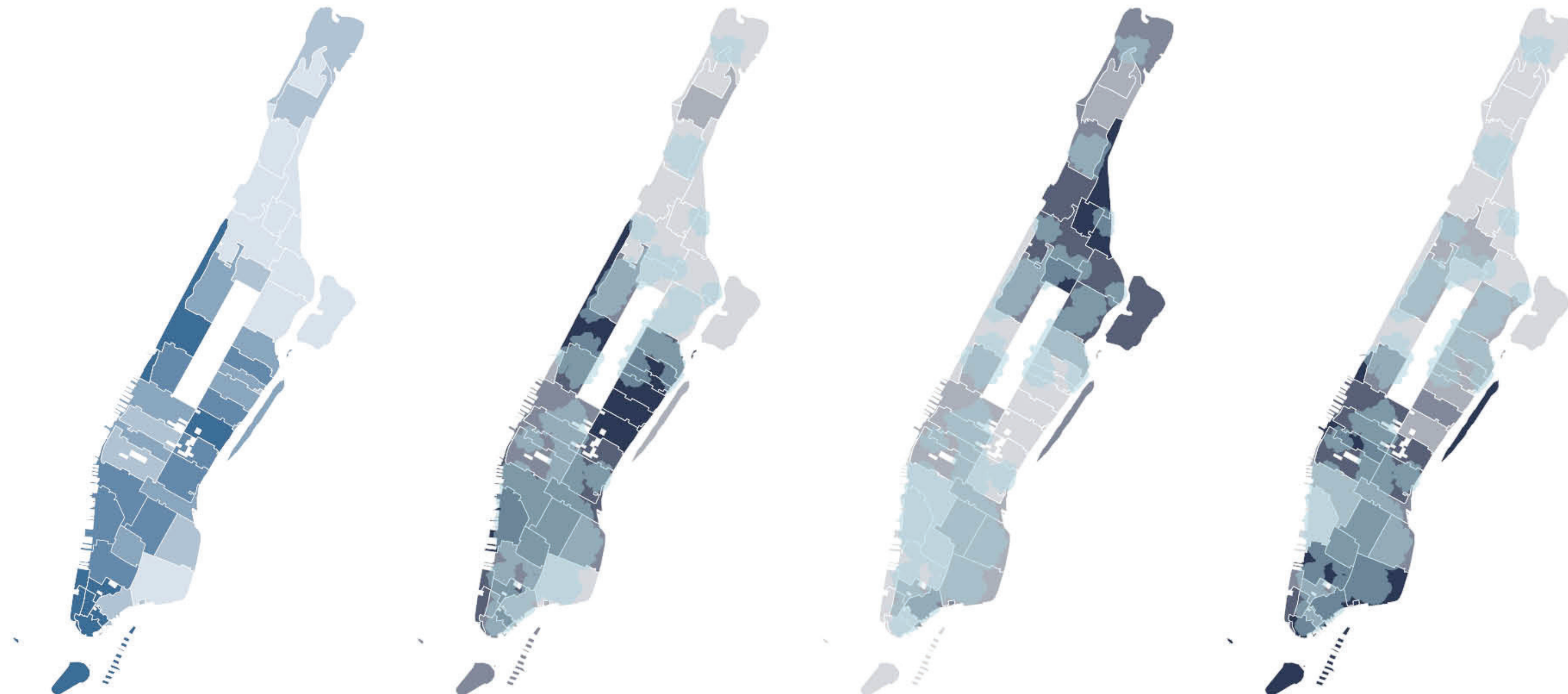
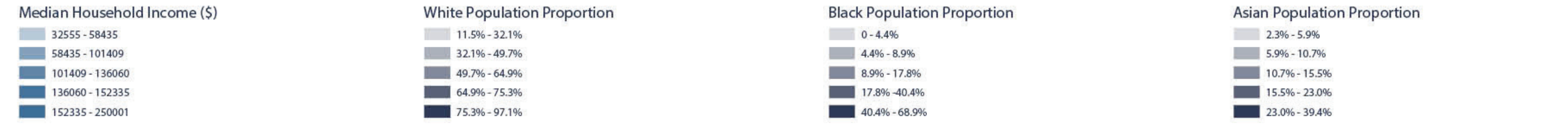
The initial but crucial step is to look at the spatial distribution of open streets and people's accessibility to them. In this project, we are mapping out the open streets in 2022 to see if they are aimed to widen the narrow streets that are not conducive to maintaining social distance; and the difference in household income level that are within walkable distance or not. By doing these, we hope to obtain an overall rating on spatial justice of open street locations.

## Walkable Distance

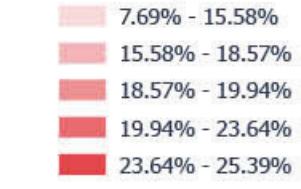
In our project, Walkable distance = 1/4 mile. In the U.S, over the past two decades, 400 meters (0.25 miles or a 5-minute walk) has sometimes been assumed to be the distance that "the average American will walk rather than drive", and has been used as the value of acceptable walking distance in studies. Hence, we selected 1/4 mile as the distance to create the buffer.



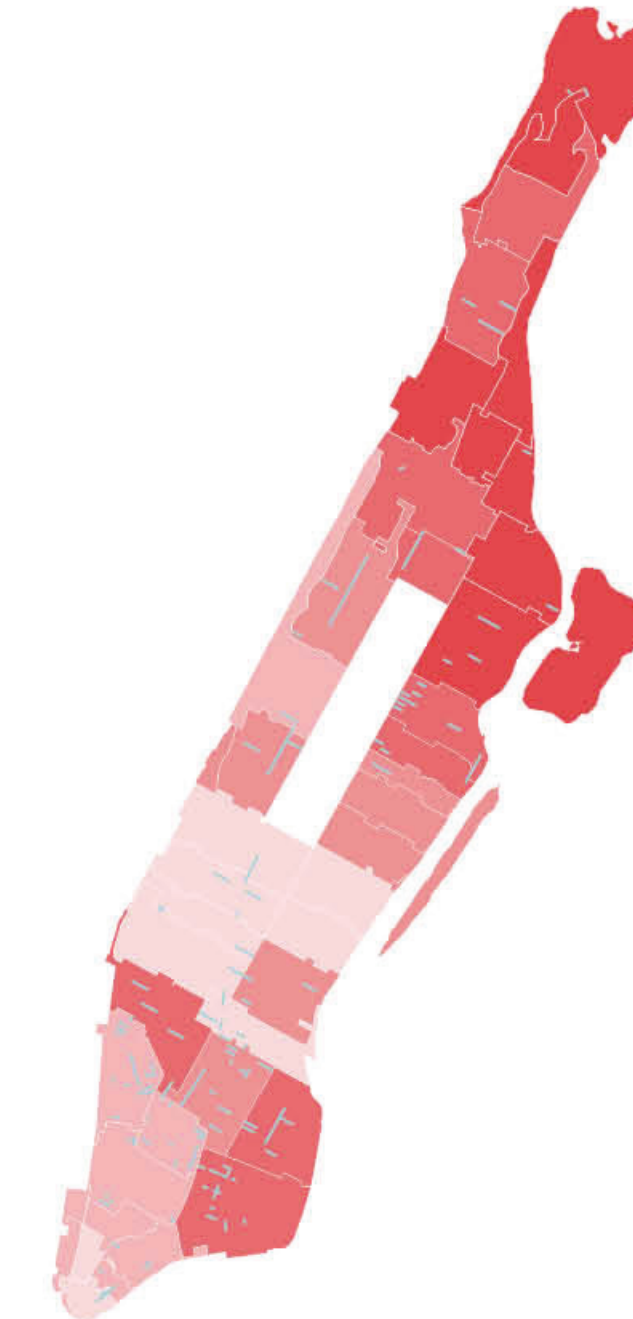
# Spatial Equality Of Open Streets Locations in 2022



Percentage of Positive by Zipcode



Open Streets in 2022



Open Streets in 2022

Manhattan

Sidewalk Width 13 ft or Less



## Conclusions

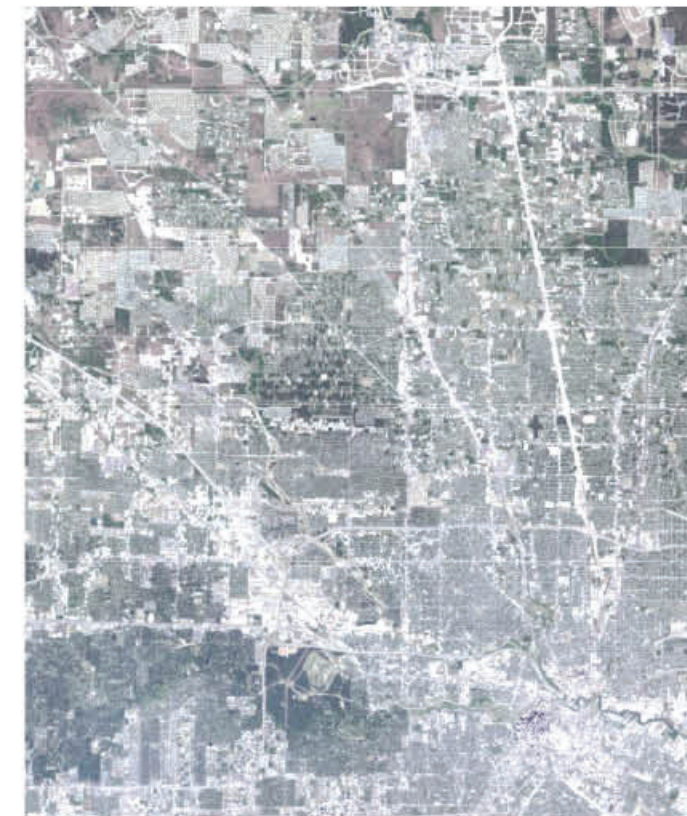
The spatial distribution of Open Streets is not even. 82 of the 113 Open Streets are located below Central park. The accessibility to Open Streets has been elevated in 2022 compared to 2021, with 50.6% of the Manhattan residents living within the 1/4 mile walking distance to Open Streets. Midtown Manhattan and Lower Manhattan have the highest accessibility.

In demographic analysis, the pattern of Open Street distribution is uneven between the areas divided by Central Park. Majority of the Open Streets are located within Lower Manhattan, Midtown Manhattan and Upper Manhattan, where neighborhoods with the highest household income in Manhattan are located. Those areas also have a large white and Asian community. The area above Central Park only has 11 of the 113 open streets in Manhattan and an uneven coverage by the walkable distance to open streets. These areas include Harlem and Washington Heights, where neighborhoods with the lowest household income in Manhattan are located and the community is majorly composed of African-Americans.

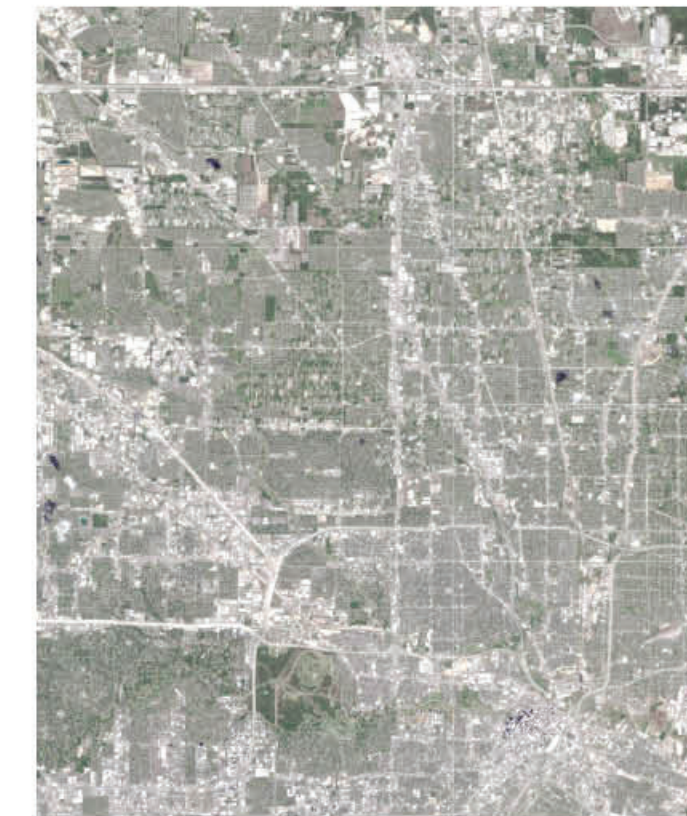


Wetlands and water change from 1987 to 2017

### GIS: Urban and Wetland Change In Houston



1987 Natural Color



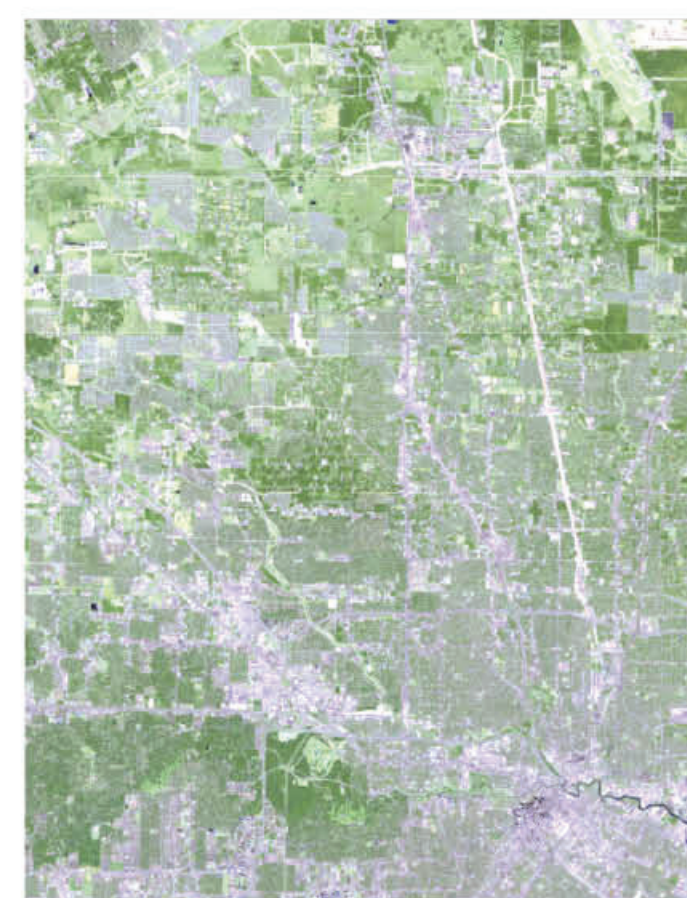
2017 Natural Color



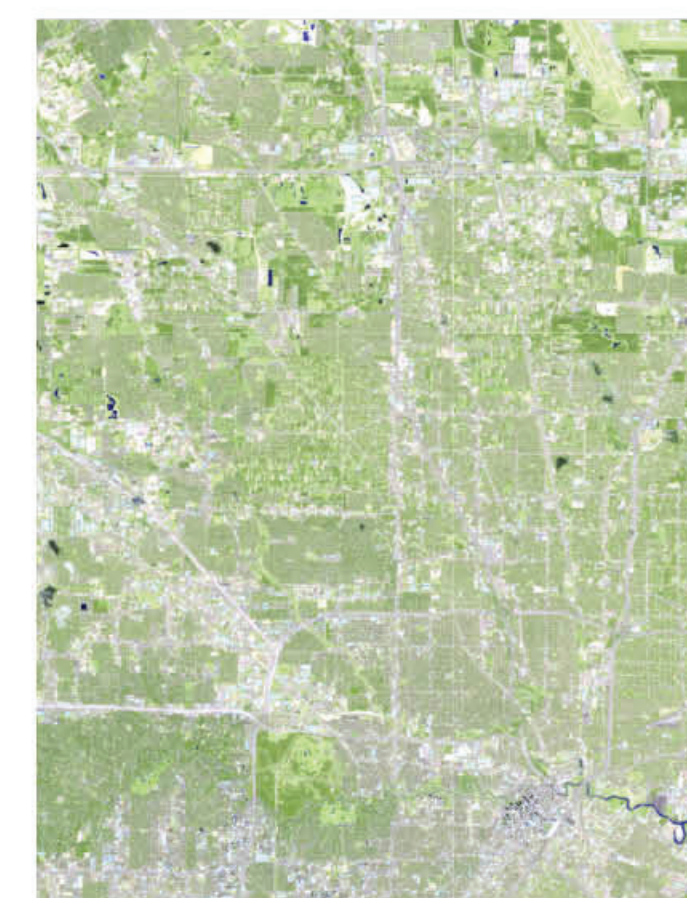
1987 Color Infrared



2017 Color Infrared

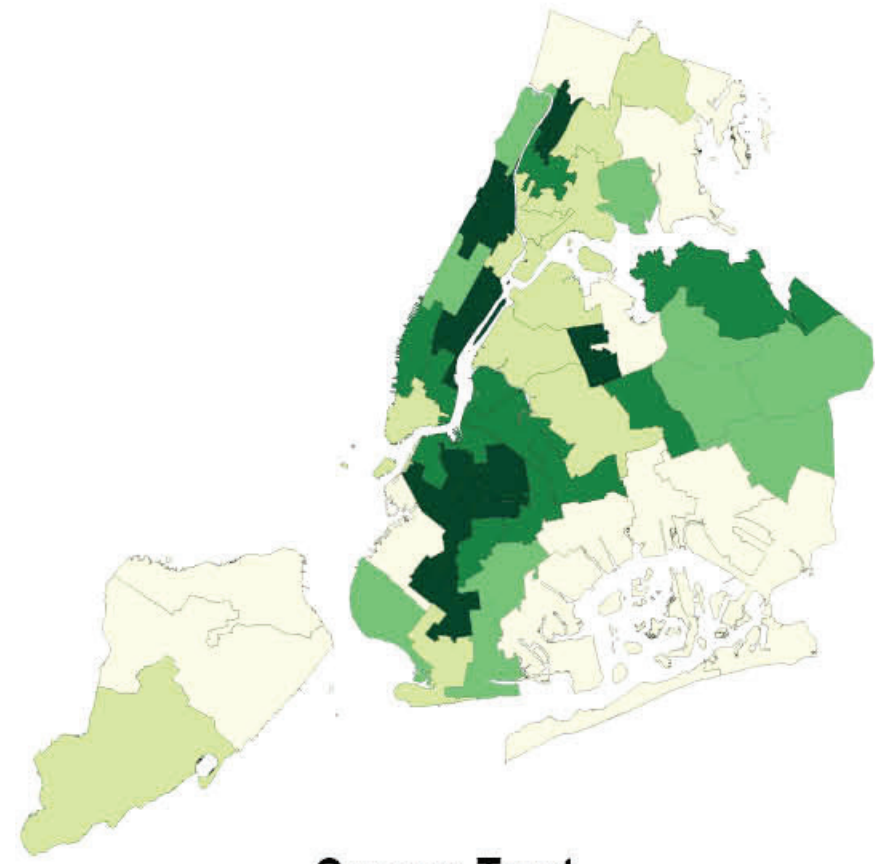


1987 False Color Urban

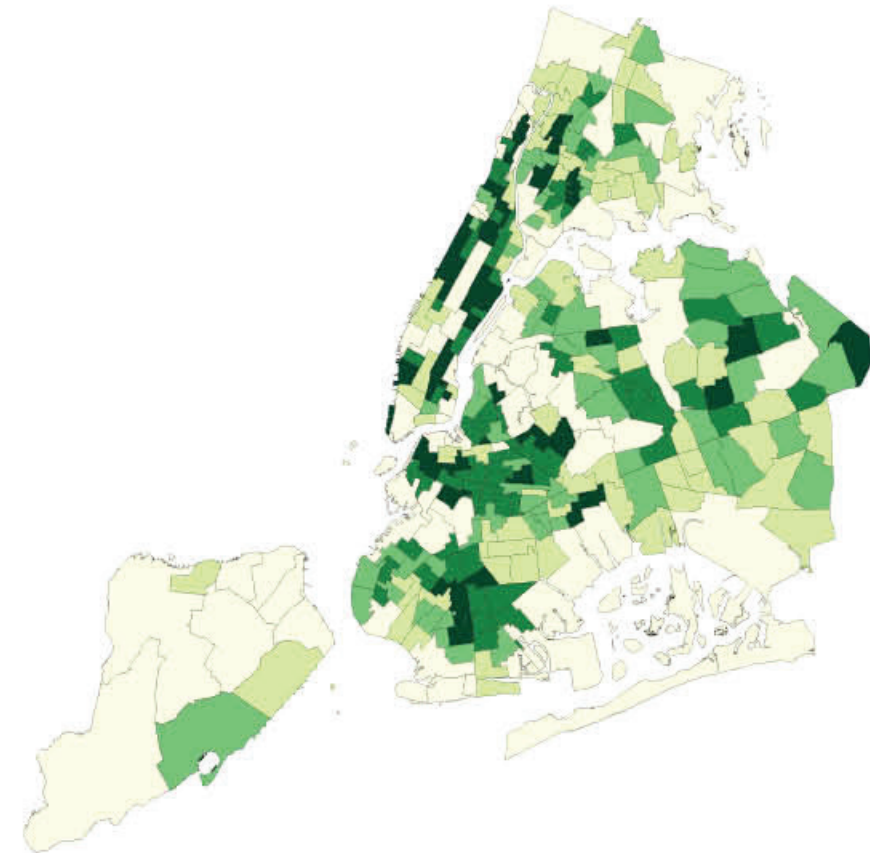


2017 False Color Urban

### GIS: Street Tree Density in NYC



Census Tract



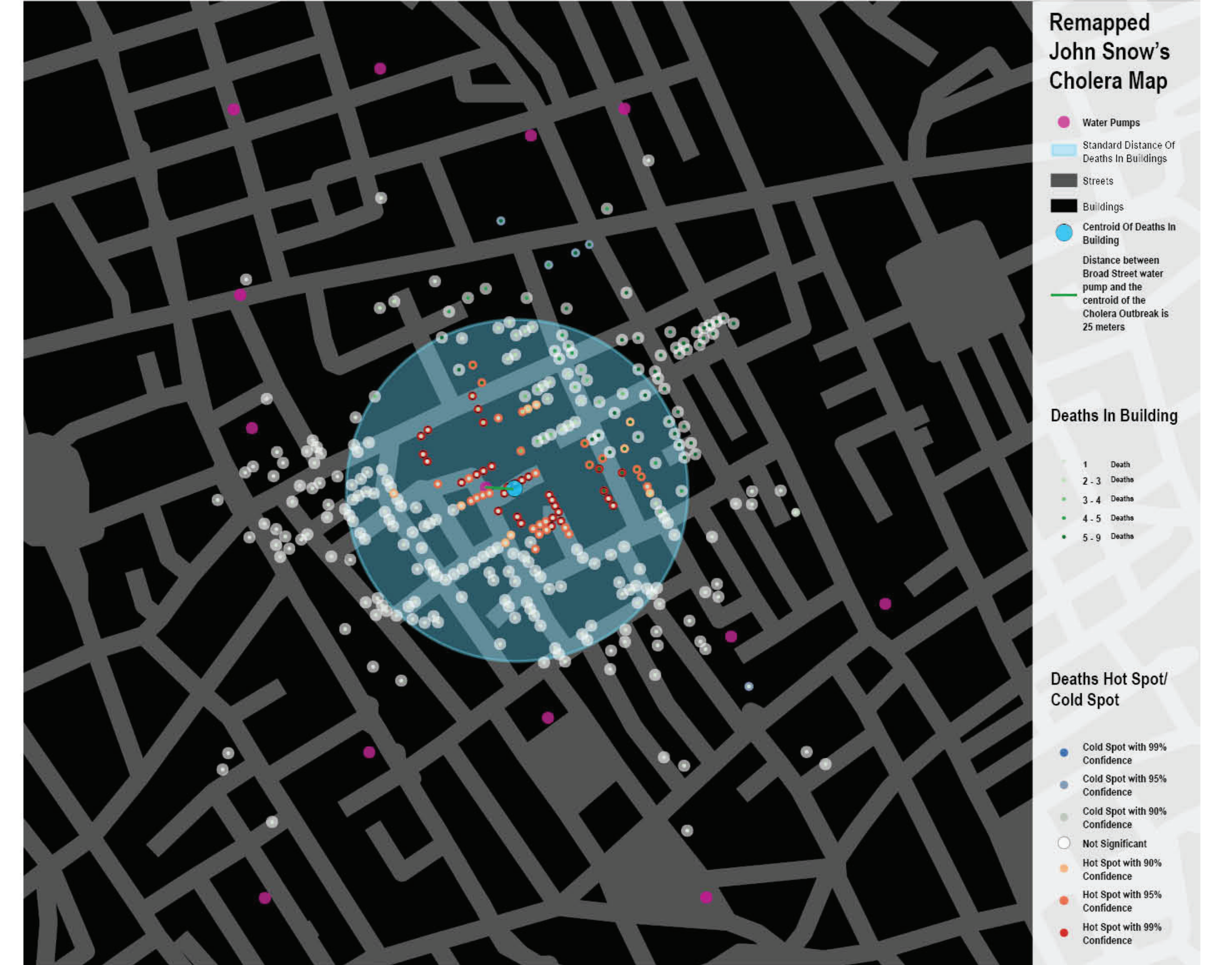
Health Area



Census Block

### GIS: Remapping

### John Snow Cholera Map



#### Remapped John Snow's Cholera Map

- Water Pumps
- Standard Distance Of Deaths In Buildings
- Streets
- Buildings
- Centroid Of Deaths In Building
- Distance between Broad Street water pump and the centroid of the Cholera Outbreak is 25 meters

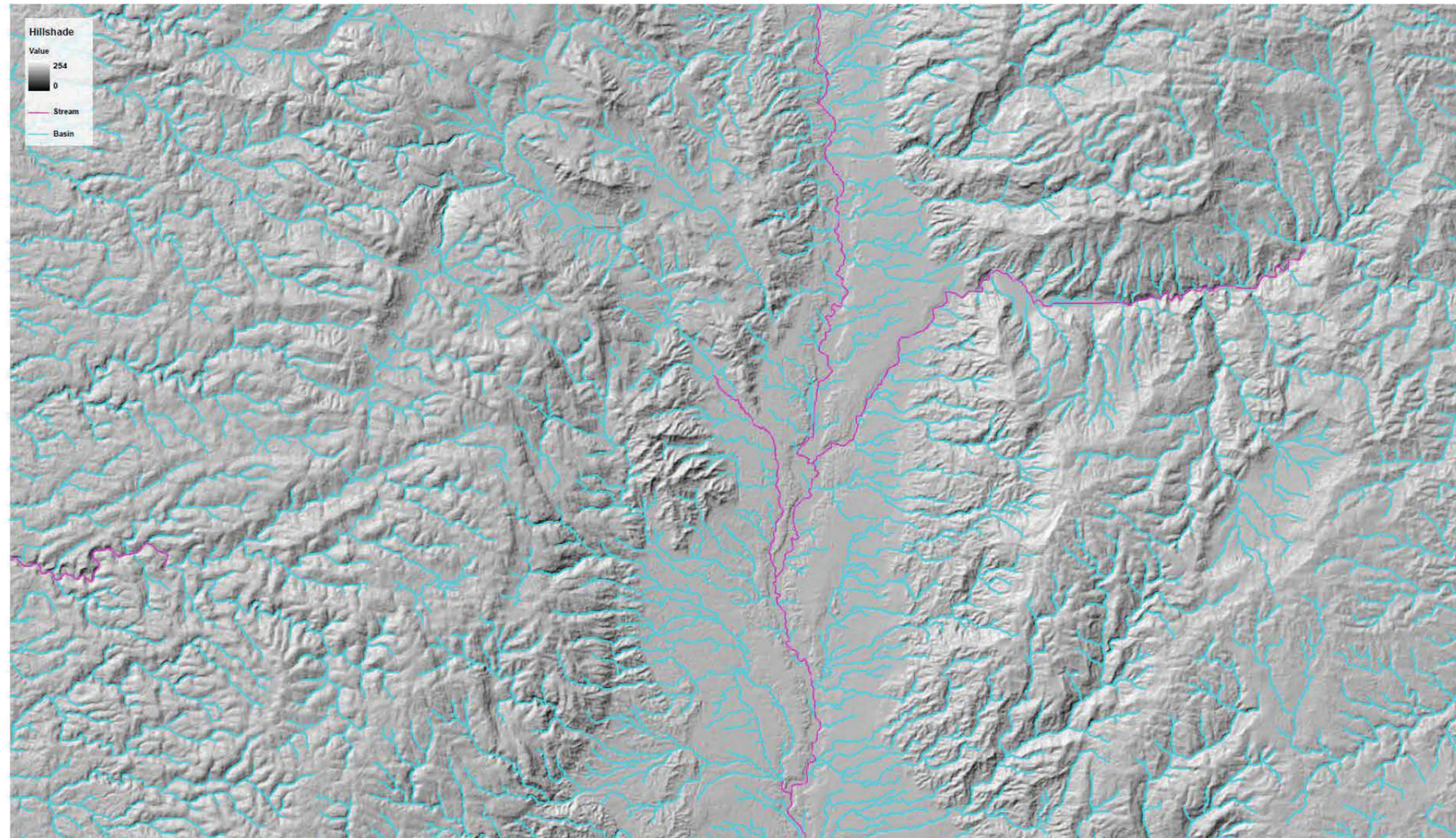
#### Deaths In Building

- 1 Death
- 2 - 3 Deaths
- 3 - 4 Deaths
- 4 - 5 Deaths
- 5 - 9 Deaths

#### Deaths Hot Spot/ Cold Spot

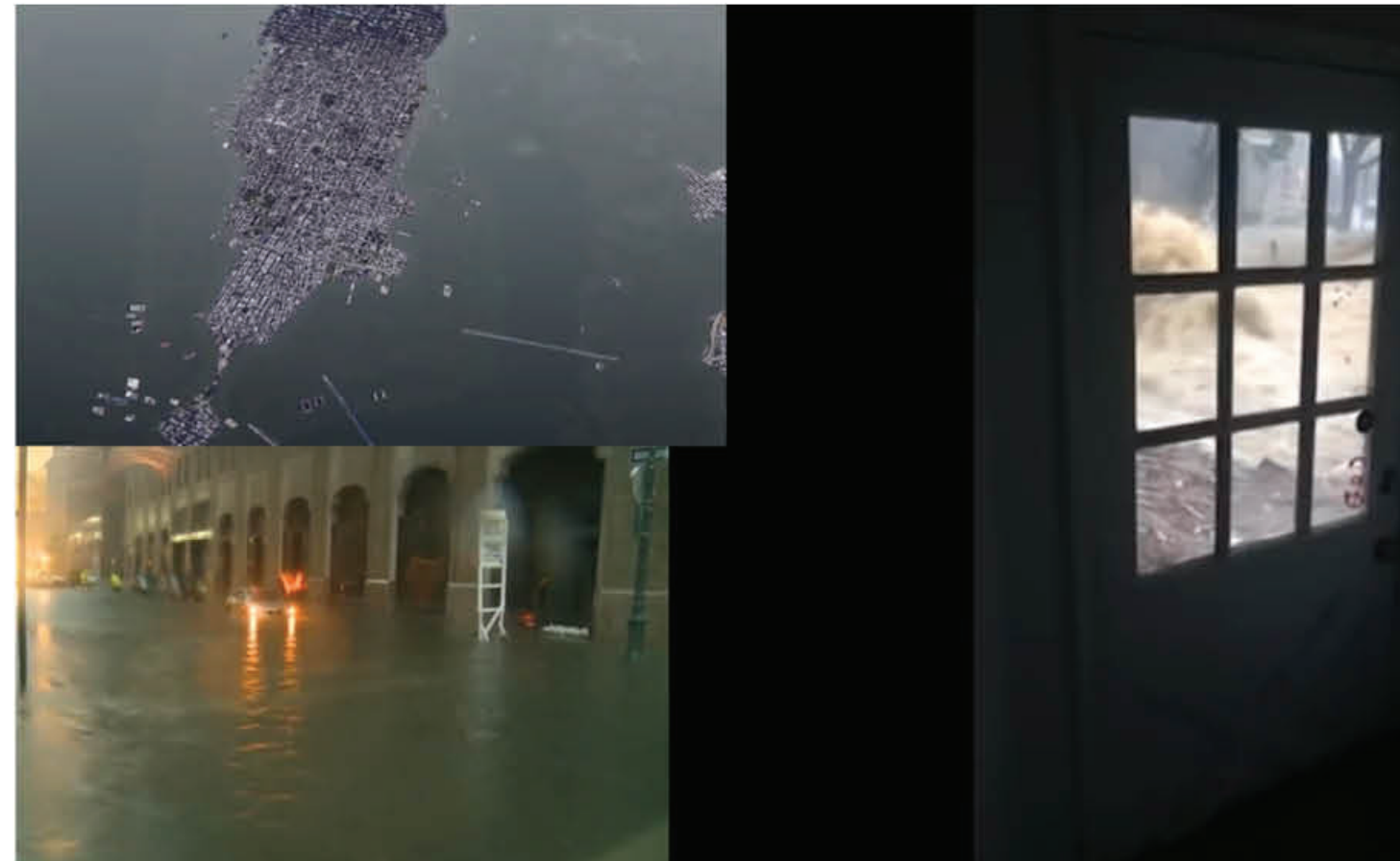
- Cold Spot with 99% Confidence
- Cold Spot with 95% Confidence
- Cold Spot with 90% Confidence
- Not Significant
- Hot Spot with 90% Confidence
- Hot Spot with 95% Confidence
- Hot Spot with 99% Confidence

# GIS: Jordan Valley River Flow



# GIS: Generating Service Areas Along a Network, More Street Trees in Brooklyn





### Dirty Water Exploration Of NYC Through The Lens Of Water

Dirty waters is a video cartography that explores water in New York City. It explores how we as humans and new yorkers use water. How do we pollute water with Chemicals and sewage? What health issues it creates for people? What kind of microorganisms prosper in this environment? How will climate change affect the city and critical infrastructure located near the coast? What were the natural coastal habitats in New York that we destroyed to create the city and how they could have helped prevent the many issues we have created with water pollution? This cartography collects water sounds and speeches made by students, biologists, newscasters and more.

