Portfolio

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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 Hammarskjöld 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 UN North Lawn into a series of outdoor activity and exhibition spaces. Designers 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.

Forum For Humanities
Culture, Governance
And Public Space

Collaborator: Maria Candelaria Ryberg
Critic: Eric Bunge
Columbia University: Summer Semester 2022
Course: Advanced Architecture Studio
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 can the public 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, and educate people about healthier eating habits. One reason why people 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, teaching people about healthier eating habits, and selling the produce at the marketplace.

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 mezzanine 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 substation is a water collection space where water will be used to water insects and crops. Underneath the substation is an 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.

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 redistributing 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 mezzanine, and courtyard. The courtyard provides access to the substation and allows people to have two levels of urban agriculture. The ramp also provides access to 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 New York City is one of the lowest in New York City.
Farming Modules

There are 2,535 acres of vacant land which is 110.424.600 square feet and which equates to 3494 football fields. We can deploy 766.837 modules if we use all the vacant lots in New York. Each module is 120x120 feet and comes in a height of 40 feet or less to ensure height restriction. When the farming units are deployed all the food that will be harvested in those farms will be transported to a central processing station by rail which will be 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 allows for water to gather into a single point. Through PVC pipes rainwater is collected and stored. The Wastewater water is then used for crops and insects through a separate system.

The hydroponic module is filled with growing tanks that have a built in LED lighting as well as a sprinkler system. The insect module is filled with insect growing farms called hives that have mating chamber, growing farms, insect collection chamber and ventilation system. It is designed to produce 1000-1500 grams of insect protein a week and the insect module has 32 of those. In perfect conditions a single module can produce 5000 grams of insect protein which is approximately 100 meals per week and 20000 grams or 400 meals per month. The hydroponic module has 48 growing tanks that is equivalent to 600 square feet in growing space. It can produce 10 tons of food per year which is equivalent to 250 meals which could feed a family of four for six 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 part 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 grounded up into protein powder that can be used to make burger patties, smoothies, protein shakes, protein bars, waffle mix or candy.
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 3,733 km of abandoned rails. If there’s one station every 5 km, 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 is higher.

With 15 million Ukrainians flooding into Poland because of 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 Poznan’s city center. We developed three modular components that can be combined to form 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 created 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 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 - a perception of light, perception of location, perception of moving. By 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 objects 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 the 3d model was then exported to Unreal Engine. In unreal we experimented with material properties and animating objects like flickering lights.
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.

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 to face unprecedented early in 2020. STREETBLOG NYC called for wider sidewalks by pointing out most of sidewalks in NYC are less than 5 feet 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 more room to keep social distance.

As the pandemic was normalized, the economic and cultural value of Open Street Program were 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 restaurants by pushing some bars and restaurants’ 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.

Walkable Distance
In our project, Walkable Distance was 0.25 miles (400 meters). This distance has been used as the value of acceptable walking distance in studies. Hence, we selected 0.25 miles as the distance to create the buffer.

Locations
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Spatial Equality Of Open Streets Locations in 2022

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 improved 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. These 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
GISS: 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 Water 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 do these create 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 this city, and how could they 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.