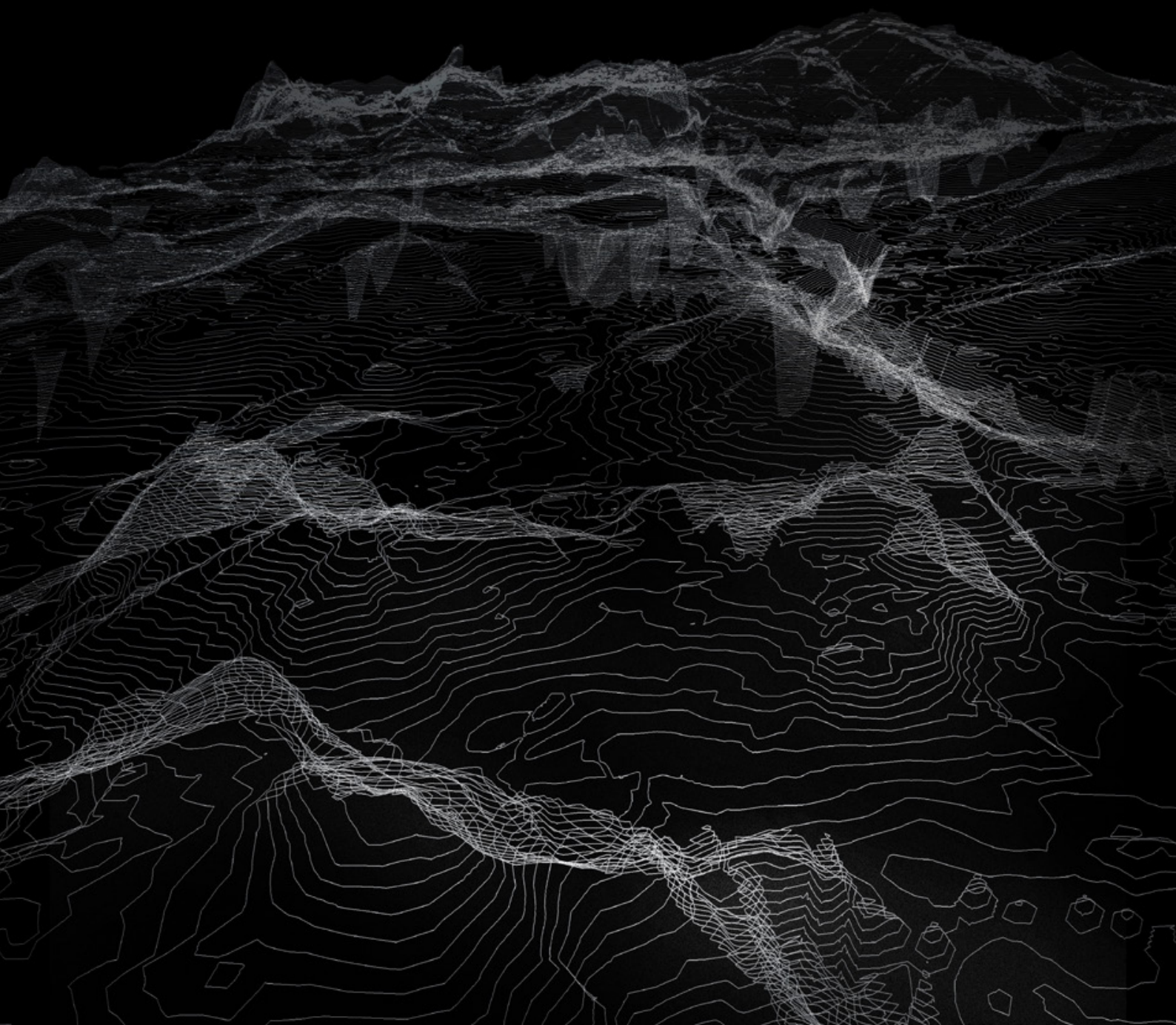
ZIXUAN ZHANG

MSAUD '19 | Selected Works 2019-2020

Graduate School of Architecture, Planning and Preservation
Columbia University



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ACKNOWLEDGEMENT

I never believe my life in GSAPP ends up in such a rush without taking a moment to say goodbye in such a challenging time. Despite this, the most beautiful things are still vivid in memory. I'm glad to have you all and thank you so much for everyone to make me this year. Hope to see you again soon. All the best!

Love you all.

01 WELL-HOUSE RENAISSANCE

DATE Jan – Apr, 2020 Spring, Urban Design Studio
INSTRUCTORS Kate Orff, Geeta Mehta, Lee Altman, Dilip Da Cunha, Thad Pawlowski, Julia Watson, Adriana Chavez, Fitse Gelaye
LOCATION Tel Aviv – Yafo, Israel
Collaborated work with Danwei Pan, Kuan-I Wu, Tian Hao

FUTURE CLIMATIC INFRASTRUCTURE

The site is located at the south part of Tel Aviv, on the west side of Ayalon River. Our project is to reimagine the historical well-house, with a water ventilation strategy to reduce the urban heat effect. Our project is combining ancient technologies with the Well-House network to create a cooling ventilation system to resolve urban heat.

WELL-HOUSE IN 1900s

Well houses and orange orchards are symbols of Jaffa's history. They catalyzed the agricultural production and enriched social life outside the city in the 19th century. These well houses became a forgotten landscapes today.

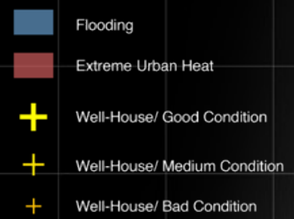
We recognized Well-Houses as a unique feature in Shapira during our field visit. On the left, you can see these old traditional Wellhouses which were elements in the historic landscape of Tel Aviv where water is pumped up and irrigated the famous Jaffa orange field.

WELL-HOUSE TODAY

Later the landscape became urbanized around the orchards, layered up with modern developments. Our project is taking the former well-house network which exists in various conditions today, pulling it forward as a new nodal climatic infrastructure.

Prof. Amnon Bar Or
Tel Aviv University
Architect expert in the preservation and restoration of historic buildings and heritage sites.

Yonatan Shlomo
Local Tour Guides
15 years Resident in Shapira



SOCIAL VULNERABILITY

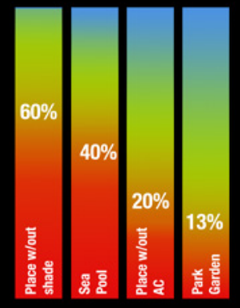
The Shapira community is vulnerable to urban heat which exacerbates the chronic stresses of daily life, and makes commuting and outdoor activities more difficult.

The neighborhood is also socially fragmented, and could benefit from additional social programs that help bring together old and new residents.

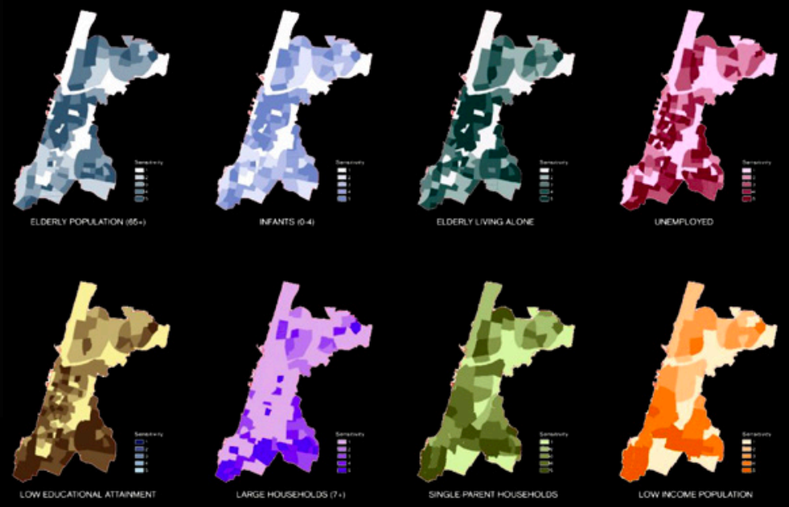
According to the Resilient research maps on the right, Shapira is one the most sensitive areas towards social vulnerability, which means not only lacking resilience towards natural based disaster, but also lacking job opportunities for the growth of Asylum seekers and migrant workers; lacking of resources and service for getting higher education. There are also elderlies and younger people that are most vulnerable towards heat. Our response to this overlay of heat and social vulnerability is a nodal system that can make social resilience possible.

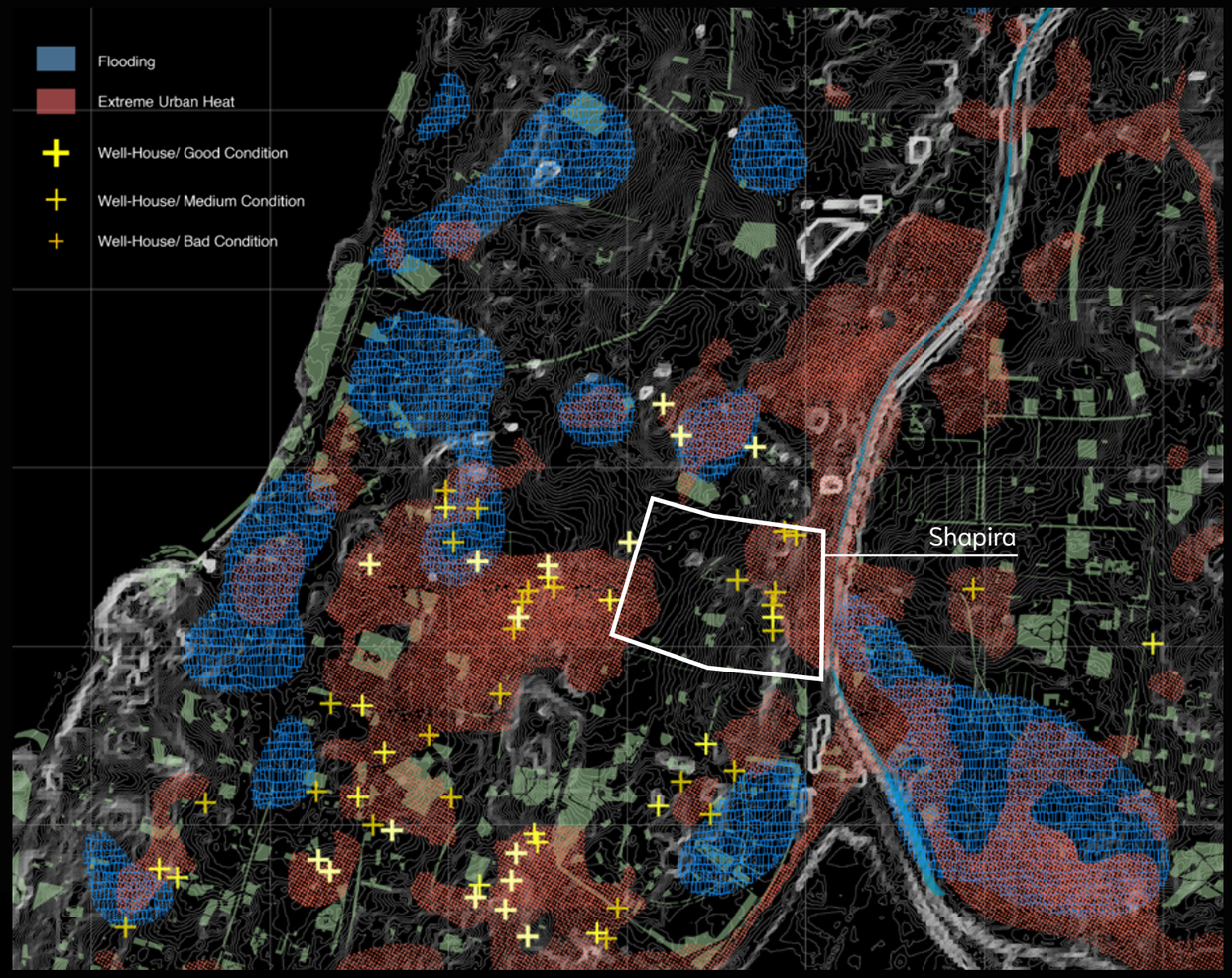
(Source: Center for Resilient Cities and Landscapes, 2019 Evaluation of urban heat island in Shapira)

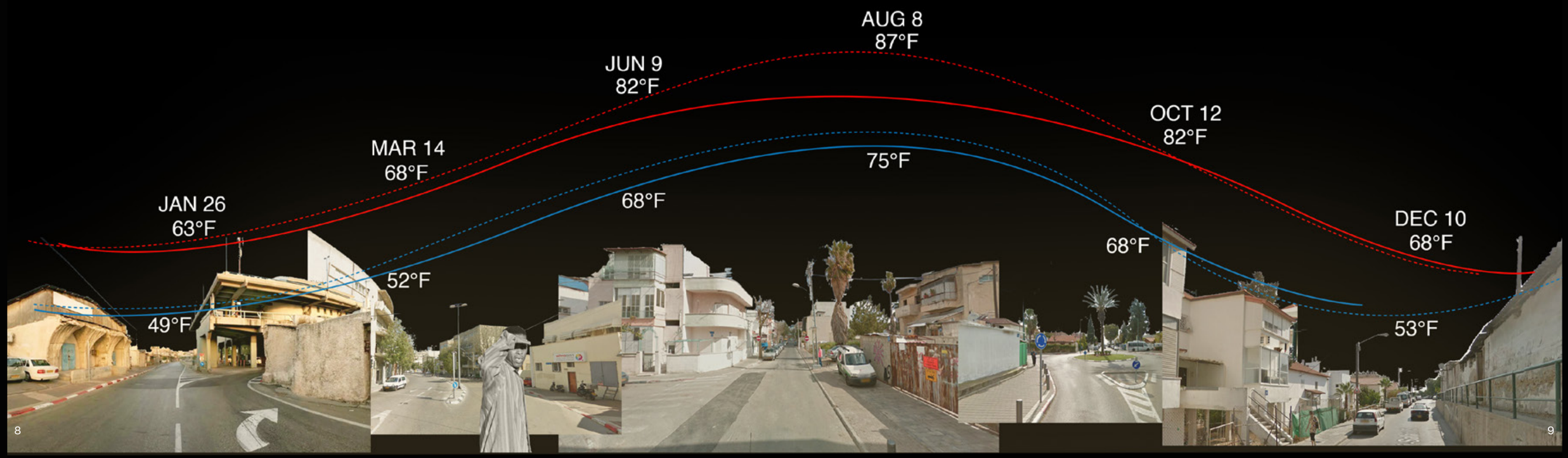
OUTDOOR ACTIVITIES



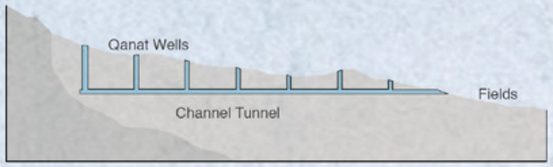
PLACES AVOIDED





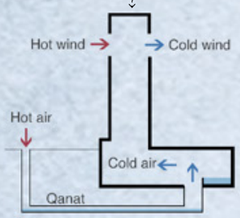


Ancient Badgir

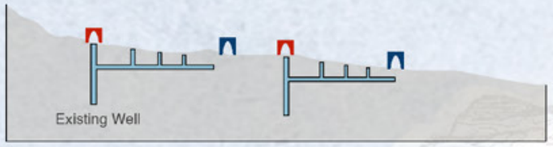


Ancient Qanat

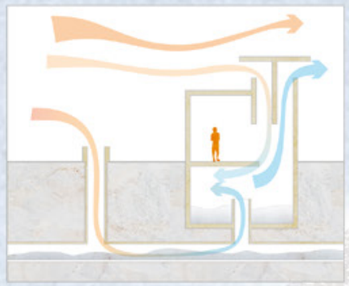
Existing Well-House



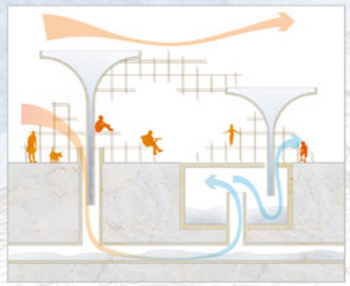
Reinvented Wind Installation



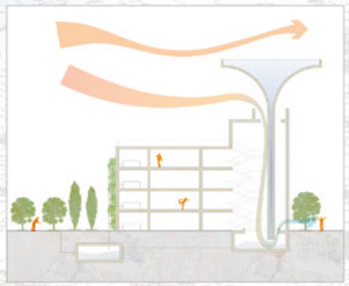
Reinvented Micro-Qanat



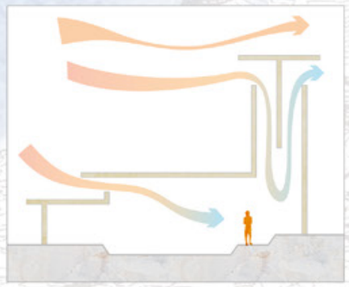
Qanat System



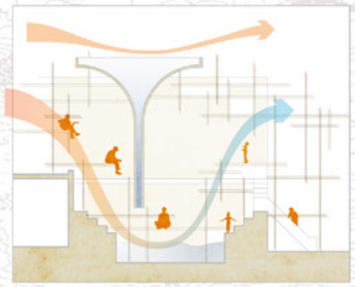
Well House with well



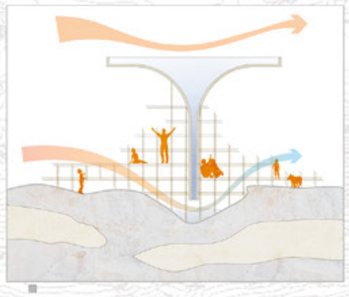
New Well House
with Cooling Installation



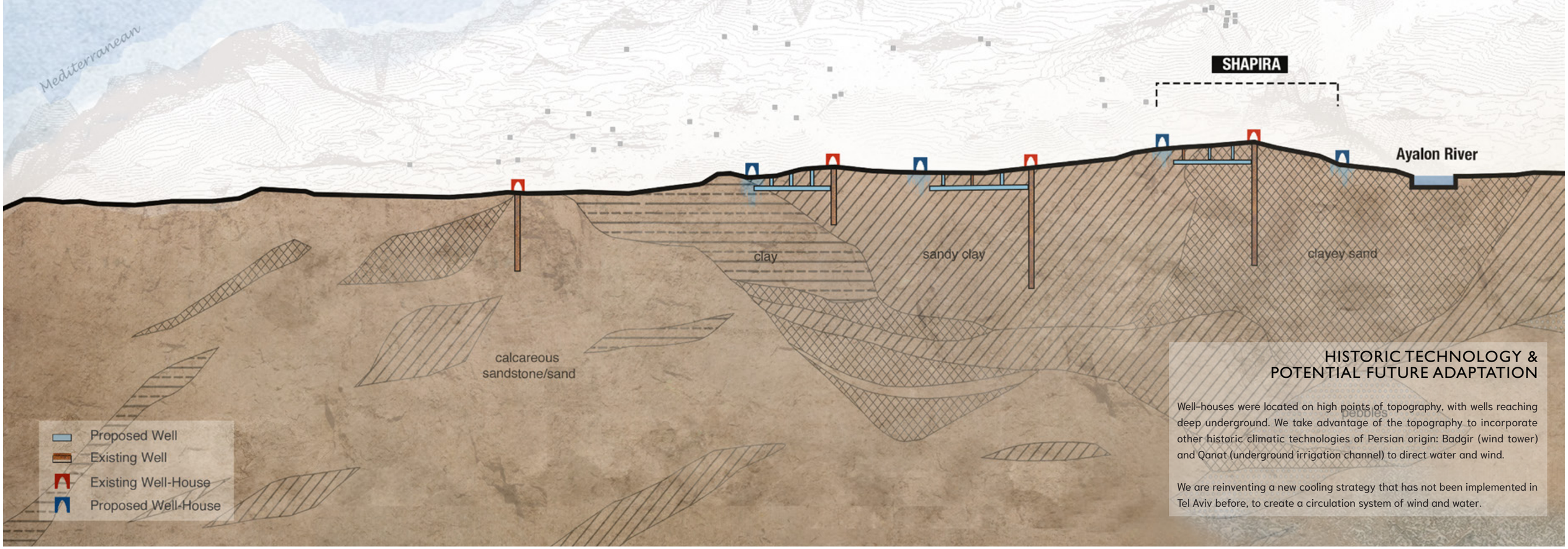
Wind Tower



Well House with pool



New Well House
with Cooling staircase + Grey Water Reuse



HISTORIC TECHNOLOGY & POTENTIAL FUTURE ADAPTATION

Well-houses were located on high points of topography, with wells reaching deep underground. We take advantage of the topography to incorporate other historic climatic technologies of Persian origin: Badgir (wind tower) and Qanat (underground irrigation channel) to direct water and wind.

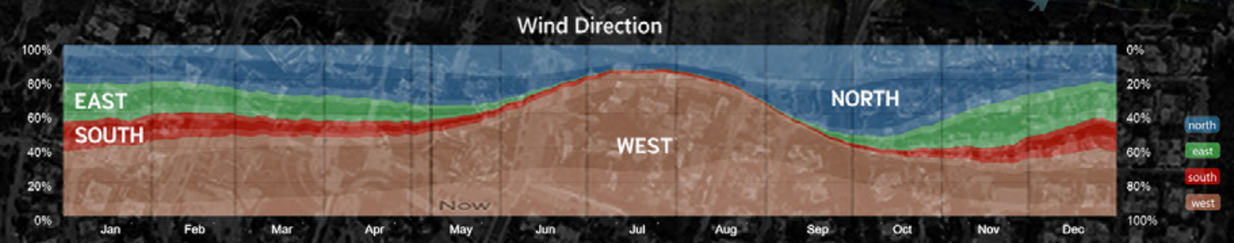
We are reinventing a new cooling strategy that has not been implemented in Tel Aviv before, to create a circulation system of wind and water.

REVITALIZE THE FORGOTTEN NETWORK

These highlighted roads were once the essential routes used to export Jaffa oranges. We envision these as future green corridors, funneling sea breeze from the Mediterranean into the neighborhoods and channeling water to lower grounds to recharge the aquifer. The green corridors also provide habitat for migratory birds.

Cool — Hot

- Well-house
- New Well-house
- Cooling Installations
- Well House
- Underutlized Space
- Community Facilities
- Green Space
- Water Direction



REDIRECT THE FLOW OF WIND & WATER

In Shapira, secondary east-west green corridors utilize prevalent wind direction, in combination with cooling spots, to transform warmer wind into a cooling breeze that eases urban heat.
Rainwater will be gathered at Well-Houses and proposed installation for cooling, irrigation, and recharging the aquifer.

A NEW NEIGHBORHOOD FABRIC

Orange shows existing Well Houses while red shows the New Well Houses. In Shapira, **10** micro qanat systems will efficiently reuse greywater in the neighborhood by collecting over **2,500 gallons per household/month**. One micro qanat system will serve several neighborhood blocks. Besides, Green corridors will maximize the cooling effect of airflow. A total of **33** Well House-centric social facilities will offer a wide range of programs like job training, retail, and seasonal events.

MICRO COOLING SYSTEM

A transect cut from the Red House (an existing Well House) to Shapira Cafe (community social place) demonstrates the water collection strategy and use of the micro Qanat to activate wind flow. Greywater is the constant water source for irrigation and filling the micro Qanat. Impervious surfaces are replaced with permeable materials to reduce runoff contamination increase infiltration, supporting wildlife habitat in the long term.

Residential greywater will be the constant water supply for the micro qanat, the greywater will be treated and filtered before release into the micro qanat. Also seasonal rainwater will be collected through the installations on the buildings. Once the qanat is filled up, hot air will be drawn from the surface and goes through the qanat, turning into a cooling breeze and sending it back to the surface that enables a microclimate cooling ventilation cycle.

Asylum Seeker

Jobs

Public Ownership

- Community Orchard
- Street Orchard
- Blvd Orchard

+colu. $ −colu.

Private Ownership

- Community Orchard
- Espalier Orchard
- Private Orchard

- Seasonal Event
- Seasonal Market
- Sell (Lower Price)
- Trainning
- Education

- Seasonal Event
- Seasonal Market
- Sell (Brand)
- Orchard to table

Incentives

Household

Bussiness Owner

"I can get tax incentives by giving spaces to community orchards and holding events. Also, I can accelerate my brand awareness.

"I can get Colu $ from doing voluntary work in community orchards and use them to buy groceries, shop in Shapira Cafe, attend skill training and workshop and visit museum.

Sderot Hachmei Israel
Senior Day Center ±$
New Shapira Cafe ±$
Cooling Installation Tax% +$
Ba'al HaAkeda
Community Garden +$
+$
Community Center ±$
Street Living Room Tax% ±$
Ha-Tiboním St
Elementary School
Orchard Classroom −$
Red House Art Center −$
Kindergarten
Central Bus Station
Sonia Park +$
Visra'el mi-Salant St
Rue De Modena St
+$ Tax%
After School Street
−$
Training Center + Rertail
Shalma Rd
Golomb St
+$
Sponge Park
±$
Memorial Museum Park

ECOLOGICAL & SOCIAL SYMBIOSIS

The Well House system works with existing facilities and businesses to form a local social-ecological network, making the cooling environment more accessible to users.

We learned from COLU during our visit, a platform of local currency in TelAviv. The well-house system we implement is tight with an incentivizing system for social credit, that can empower the local business and strengthen the community based on our well-house node system. For example, business owners can get tax and COLU incentives if they give private spaces for doing community orchards, or holding events. Residents can get COLU by volunteering, and then shop in local retails, or attend other programs. We also provide jobs for asylum seekers and migrant workers.

ACTIVATED SOCIAL SPACES

The network of existing and new Well Houses is programmed based on local neighborhood needs, to provide recreational activities and opportunities for social interaction for different resident groups.

Community users can earn their COLU credits by checking in at multiple Well-House nodes, and earn extra credits from volunteering and maintaining orchards. People can also scan COLU QR code with their phone at our Well-House nodes to receive groceries and services to fulfill their daily needs.

Red House

People can redeem their colu credits online by Colu App. Then they can get free tickets for Red House art exhibitions which are constantly updated by different artists.

Orchard Classroom

By visiting the orchard classroom, attending related eco- educational classes, also doing the orchard voluntary works, people can get equivalent colu currency.

Neighborhood Street

People can also shop at seasonal markets that hold along the activited neighborhood street. They can get discount by using the colu credits.

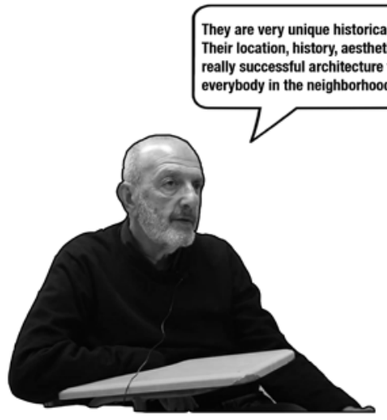
Green Roof

The owners who are willing to attend in cooling intervention and contribute their rooftop to be truned into green roofs will get incentives like tax discount. Also, the green roof will be helpful to cool down the air inside the buildings.

Urban Oasis

Activated Street Life

Red House Art Center



Prof. Amnon Bar Or
Tel Aviv University
Architect expert in the preservation and restoration of historic buildings and heritage sites.

Urban Oasis

New Shapira Cafe (a topographic low point), is provided with a porous terraced landscape that recharges to the aquifer and is better adapted to the changing climate needs. The new cooling structure performs as a multi-functional social space for events, surrounded by a community orchard.

Activated Street Life

On Car-free Fridays, neighbors can open up their yards as semi public spaces for events and activities. Some fences are removed to enable street interactions. Residential greywater is used for cooling and irrigation.

Red House Art Center

The historic value of the Red House is emphasized by new programming and the introduction of an orchard landscape within the urban fabric. The new Red House will become a multidisciplinary art and community center, connecting the neighborhood's different populations through culture and art.

Well-House Renaissance

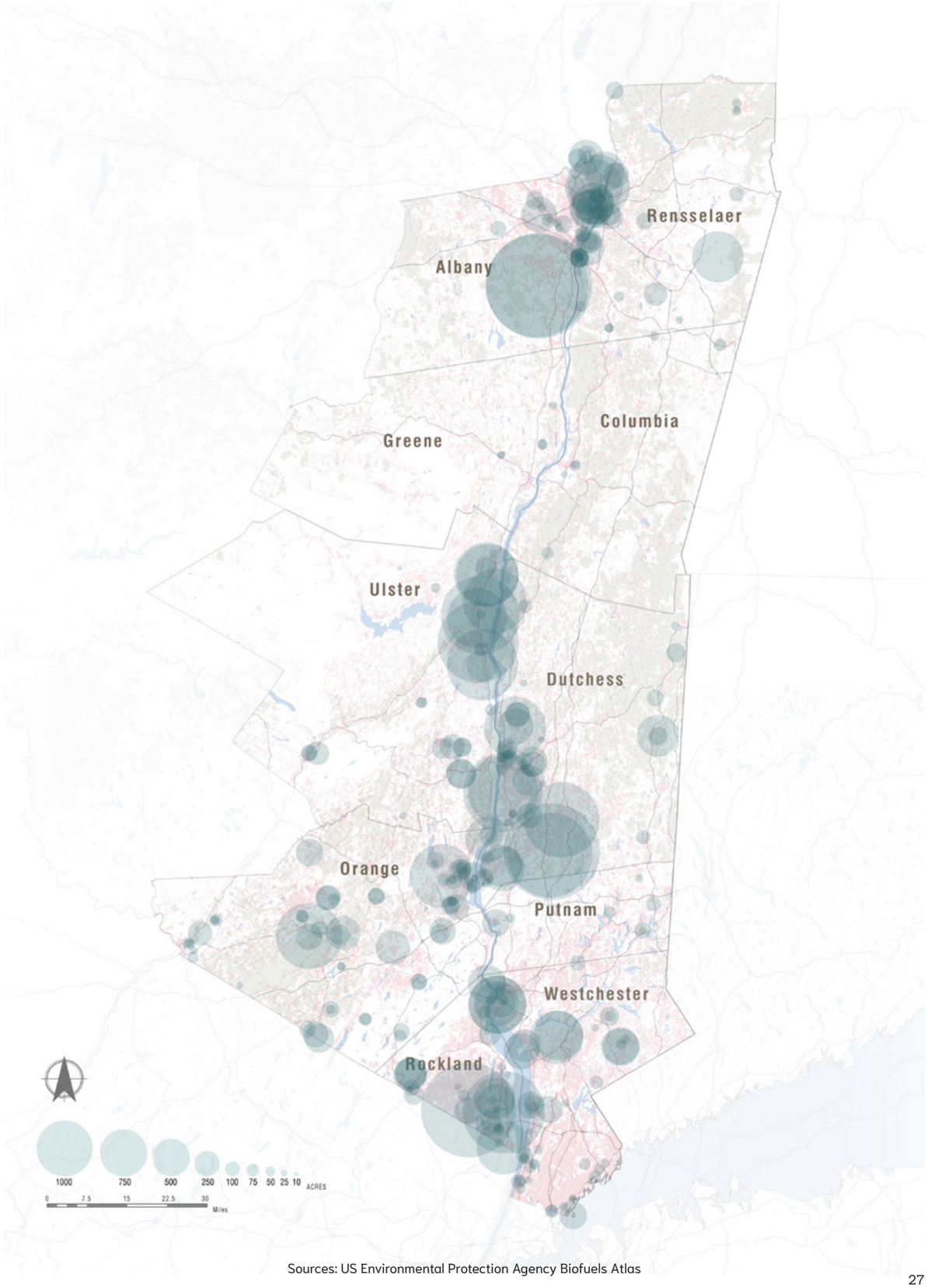
We see the 21st century well-house as a nesting place where both culture and social can thrive, that benefit everyone in the community. It is a period of Well-House renaissance and a period of climate resilience for the next generation.

02 CLEAN IT, GREEN IT!

DATE Sep – Nov, 2019 Fall
INSTRUCTORS Kaja Kühl (Coordinator), Anna Dietzsch, Jerome Haferd, Liz McEnaney, Justin Moore, Shachi Pandey, Raafi Rivero, David Smiley, Dragana Zoric
LOCATION Tech City, Kingston, NY, USA
Collaborated work with Anai Perez, Danwei Pan, Pratibha Singh

Around **130,000 acres** of land in the Hudson Valley have been contaminated by the direct and indirect influence of industries. Our project proposes to transform these wastelands into community assets that can tackle contamination, while improving soil health, sequestering carbon and restoring the productivity of the land. This process enables us to open up the site to the people and develop further relationships with the surroundings, providing recreational and economic benefits for the community. The programs generate a wide range of jobs in research and manufacturing sectors, as well as low skilled maintenance jobs, supporting the low income and deindustrialized communities and strengthening the local economy. These sites become places for continued research and education about nature as an enabling infrastructure.

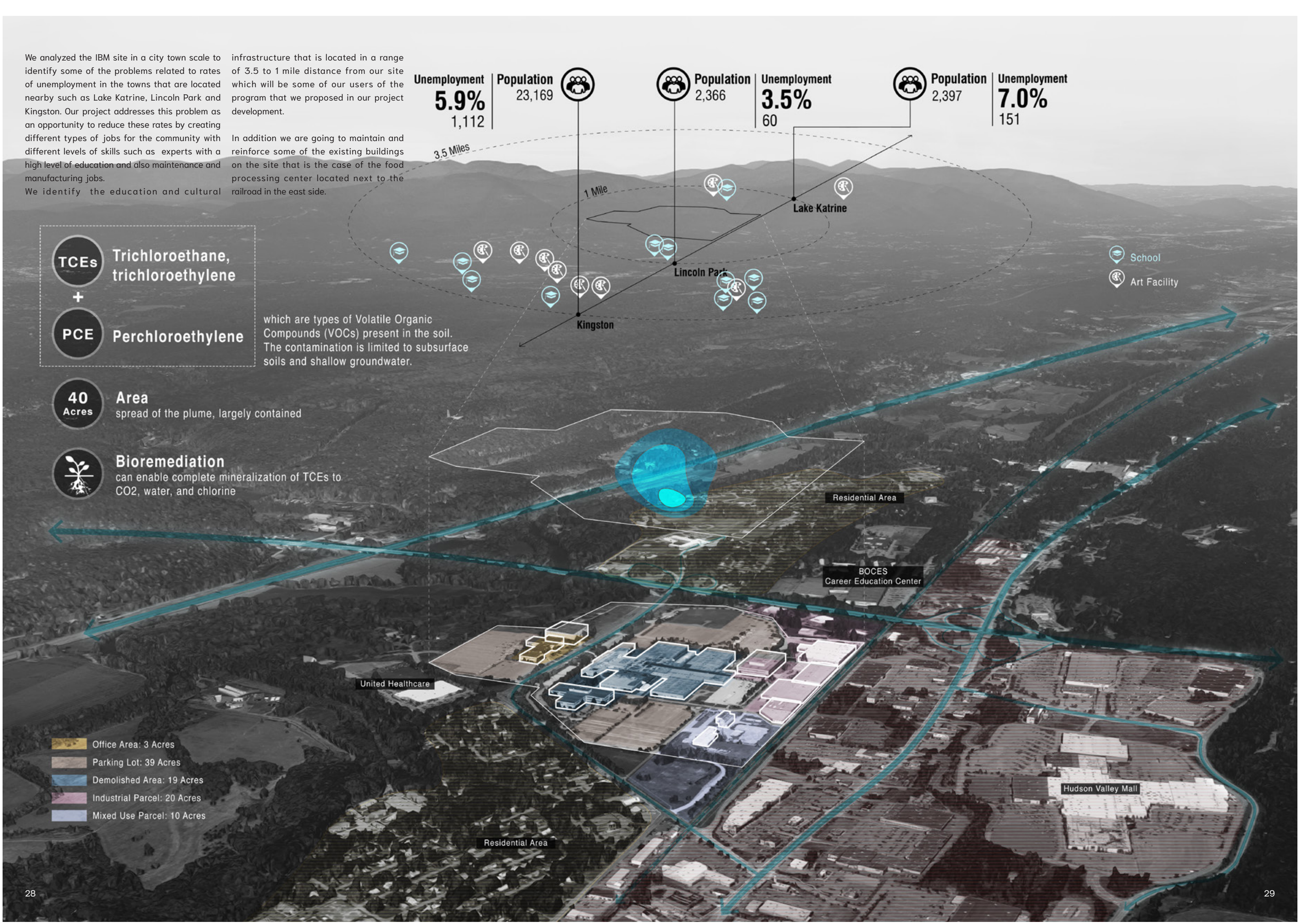
Existing IBM, photo shot on site, 10/03/2019



Sources: US Environmental Protection Agency Biofuels Atlas

We analyzed the IBM site in a city town scale to identify some of the problems related to rates of unemployment in the towns that are located nearby such as Lake Katrine, Lincoln Park and Kingston. Our project addresses this problem as an opportunity to reduce these rates by creating different types of jobs for the community with different levels of skills such as experts with a high level of education and also maintenance and manufacturing jobs.
We identify the education and cultural infrastructure that is located in a range of 3.5 to 1 mile distance from our site which will be some of our users of the program that we proposed in our project development.

In addition we are going to maintain and reinforce some of the existing buildings on the site that is the case of the food processing center located next to the railroad in the east side.

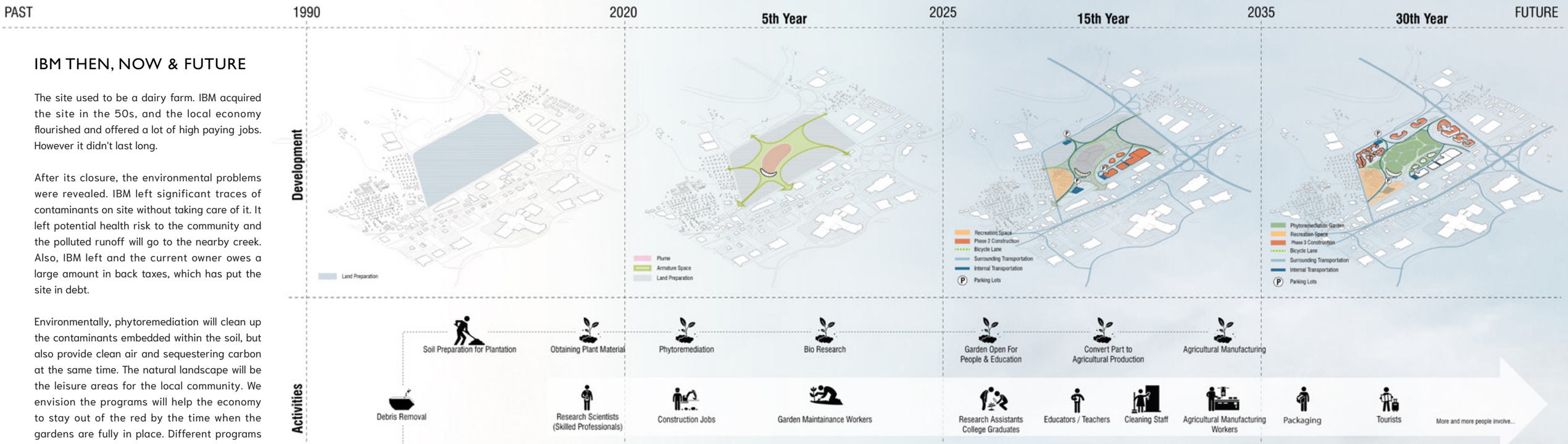


IBM THEN, NOW & FUTURE

The site used to be a dairy farm. IBM acquired the site in the 50s, and the local economy flourished and offered a lot of high paying jobs. However it didn't last long.

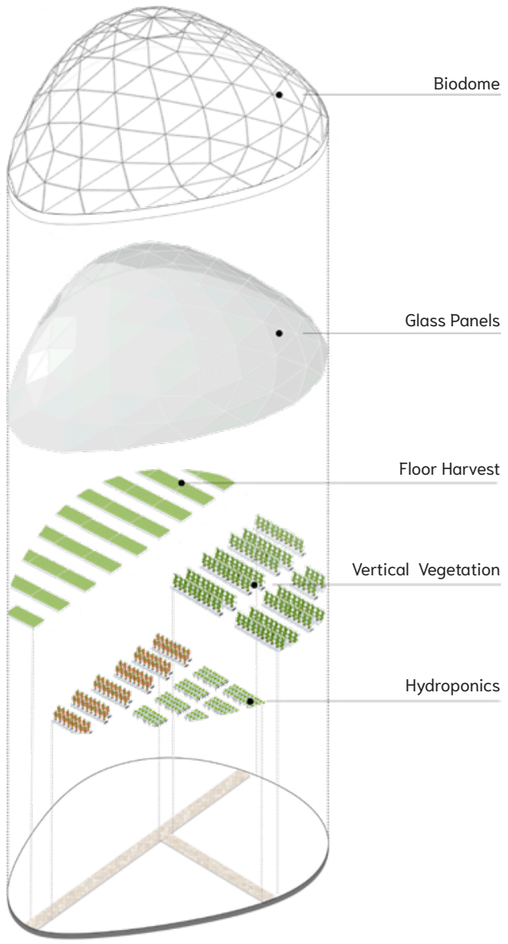
After its closure, the environmental problems were revealed. IBM left significant traces of contaminants on site without taking care of it. It left potential health risk to the community and the polluted runoff will go to the nearby creek. Also, IBM left and the current owner owes a large amount in back taxes, which has put the site in debt.

Environmentally, phytoremediation will clean up the contaminants embedded within the soil, but also provide clean air and sequestering carbon at the same time. The natural landscape will be the leisure areas for the local community. We envision the programs will help the economy to stay out of the red by the time when the gardens are fully in place. Different programs will constantly offer a wide range of jobs to attract people with different education backgrounds.



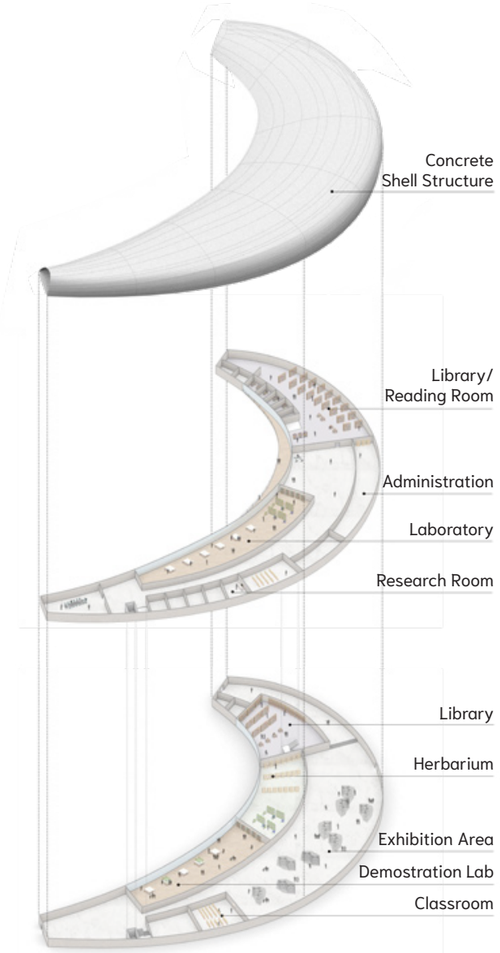
Green House

As a part of the educational program, we proposed greenhouses to complement the research center and the phytoremediation part. This biodomes will provide awareness in the new techniques of farming. Once the contaminated area is clean after this process, part of this land will be repurpose for agricultural production.

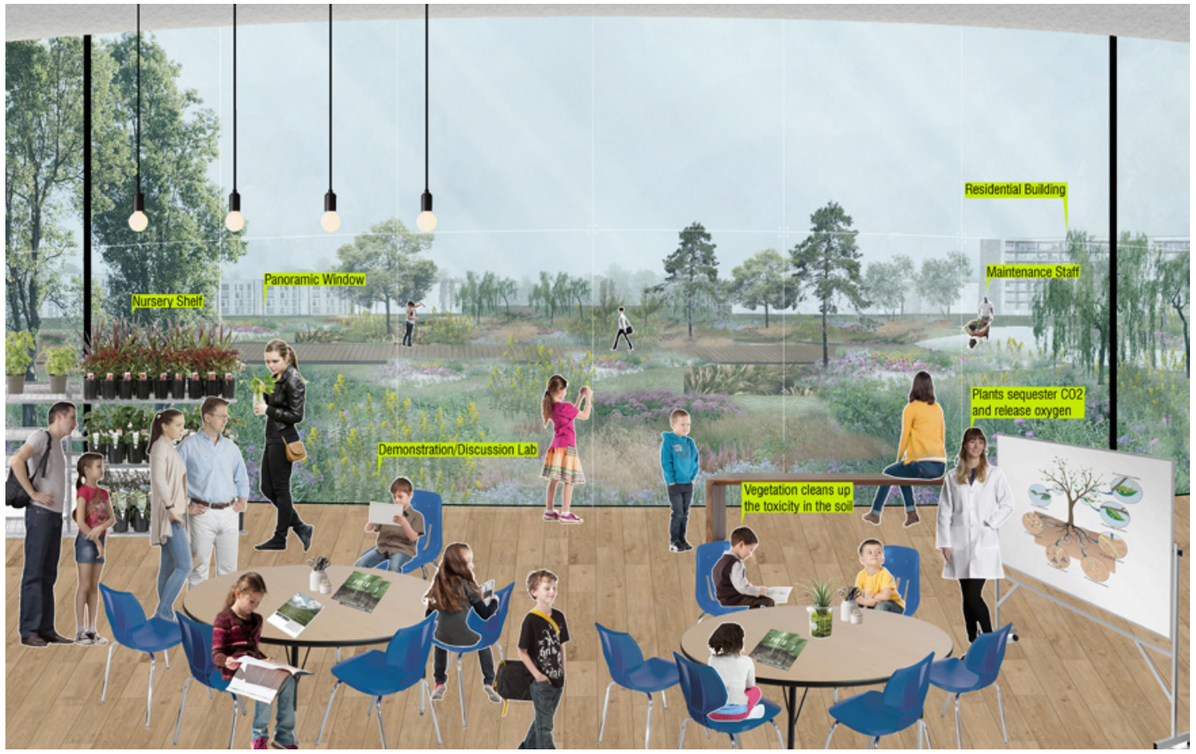


Research Center

Research center will be the main base for phytoremediation related reasearch. But later, when more and more people come to visit IBM site, part of research center will be opened to the public for education purpose. For example, some schools can cooperate with this center to hold workshops for primary school students or offer practice for graduates.



Community Playground



Research Center

Phytoremediation Garden

Manufacturing Campus

03 A CITY OF LAYERS

DATE Feb – May, 2020 Spring
INSTRUCTOR David Grahame Shane
LOCATION New Delhi, India
Public Space / Recombinant Urbanism Seminar
Collaborated work with Kuan-I Wu, Pratibha Singh

A CITY OF LAYERS

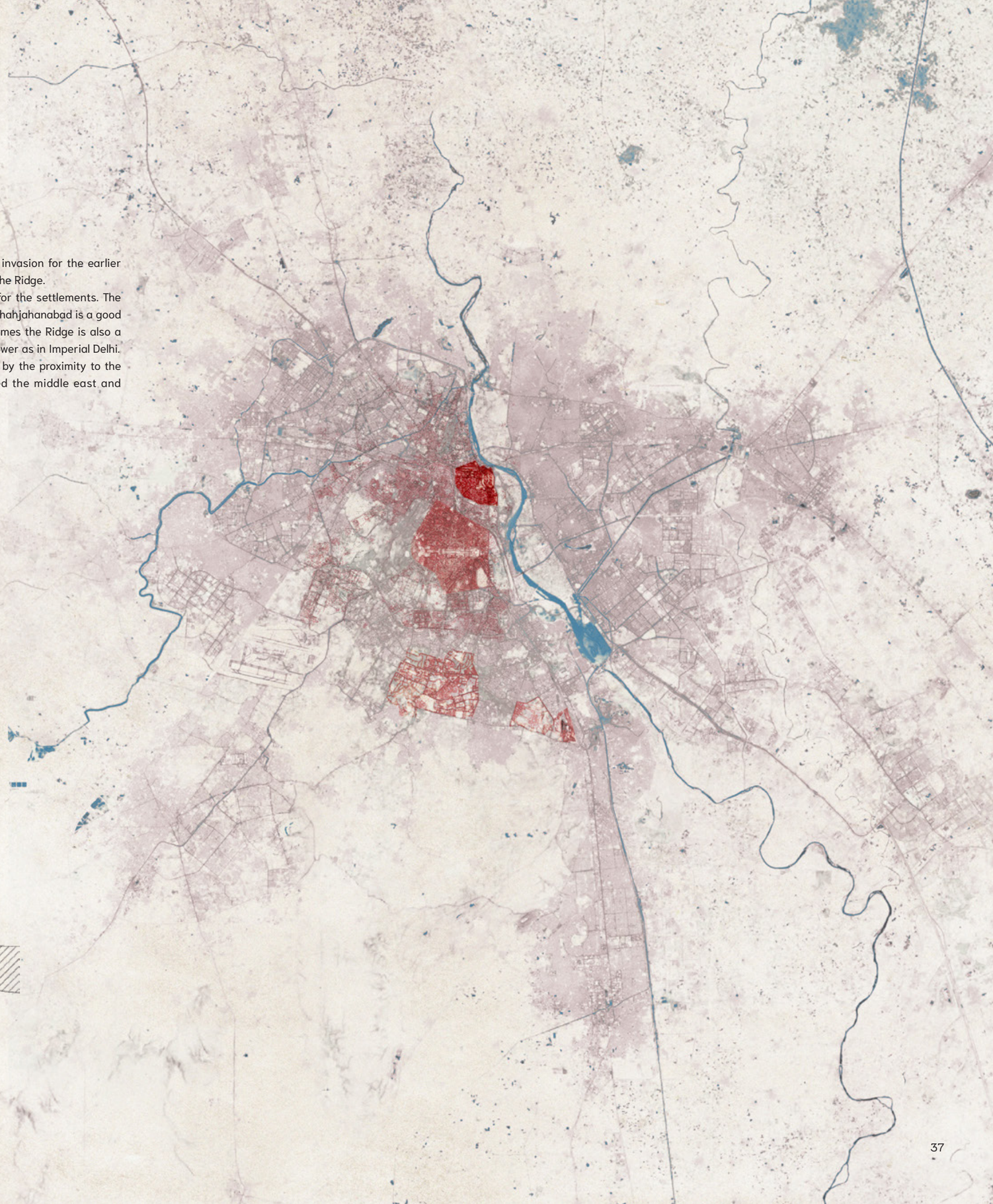
Delhi is the capital of India and one of the world's oldest continually inhabited settlements, tracing its origins to 3000 years back. The city has had numerous incarnations under successions by multiple rulers, each establishing their own city and culture.

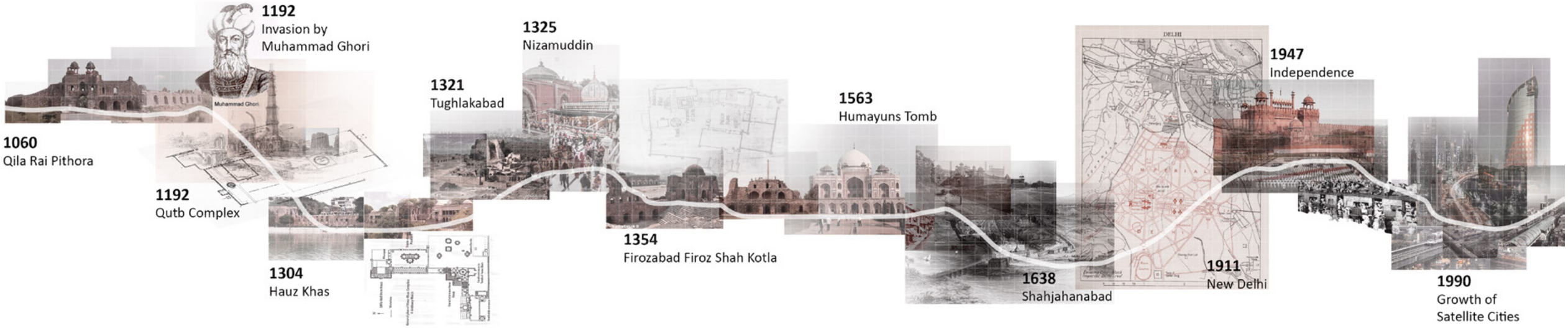
Since then New Delhi has grown over a history shaped by Hindu, Afghan, Turkish, Persian, Mughal and British occupation, remains of which are still visible in the built fabric and have stood the test of time to form the melting pot it is today.

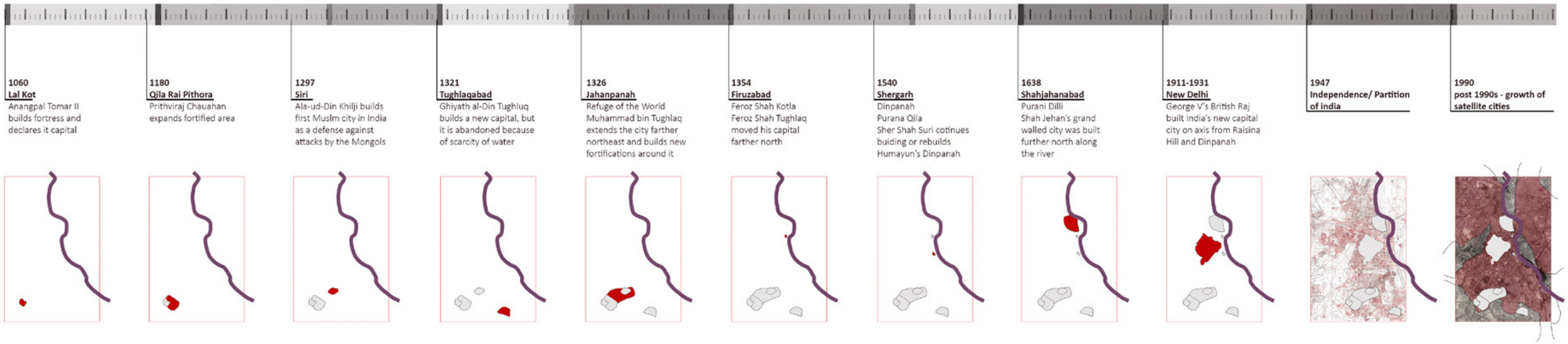
Delhi is a city of layers where different cultures, architecture and ways of life come together. Natural elements played a pivotal part in Indian history as it has always been a gateway city, built on the plains initially near the Yamuna River and the mountain Ridge creating a natural barrier of prevention of invasion for the earlier cities established along the Ridge.

River can supply water for the settlements. The growth of population in Shahjahanabad is a good example for that. Sometimes the Ridge is also a symbol of governance power as in Imperial Delhi.

Delhi was also benefited by the proximity to the Silk road that connected the middle east and Asia.







Historical Timeline

In 1060 The first city was built with a fortress to declare the capital, Lal Kot. Other cities were built over time, and they were destroyed and rebuilt various times.

In 1638, Shahjahanabad, old Delhi, was built along the river with a grand wall–red fort. During 1911–1931 British built the imperial city of new delhi.

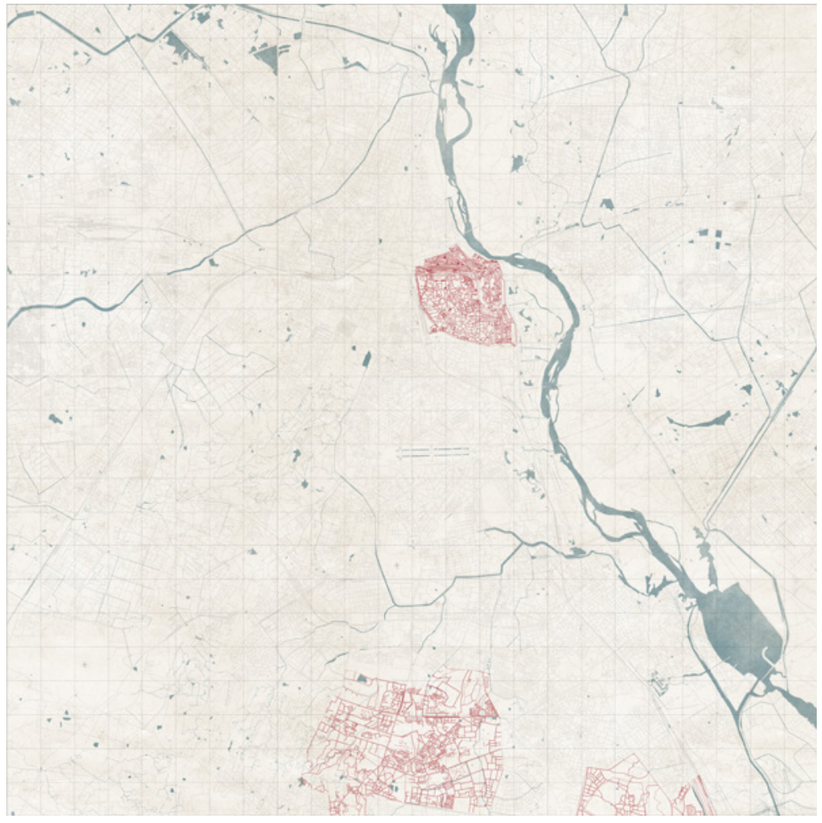
Architecture and culture were brought by different cultures and rulers, and Delhi became a city of cities.

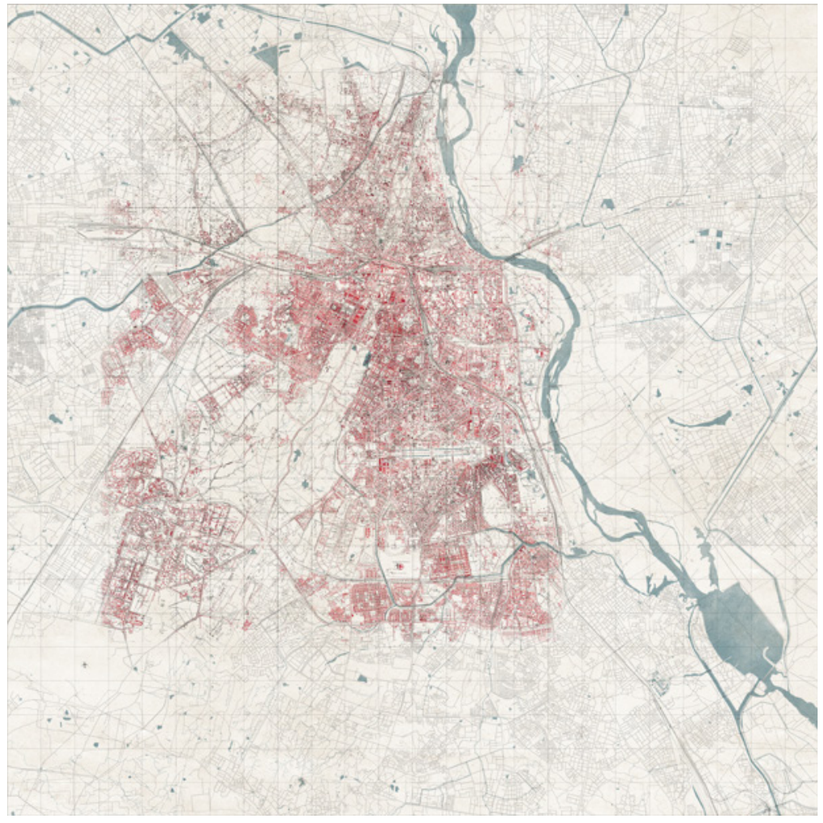
In 1947, independence of India and partition, Delhi became the Political center and expanded rapidly with the influx of refugees from pakistan. After 1990 the growth of the megacity is attribute to satellite cities

Delhi's political and economic significance has attracted people from all over the country and the world, resulting in a truly cosmopolitan city.

Archi-Citta

Delhi was first mentioned in the Epics, but archaeological evidence places the first city of Delhi at 1060AD. The old cities of Delhi followed the city of faith model, where usually the palace, temple or mosque and a place of learning would be at the center and the populace would reside around it, protected by a wall and military encampments. The most notable of these cities was the walled city of Shahjahanabad, built by the mughal emperor in 1638, shifting the mughal capital to Delhi. The city was centered around the red fort which had the largest mosque in the center of the city and planned with axial avenues going towards the gates that surrounded the walled city.

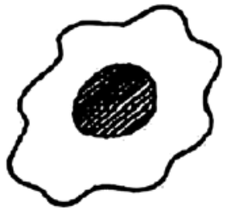




Tele-Citta

With the city's growth, New Delhi keeps expanding from 1990 until now. It has expanded into a Tele Citta with multiple satellite cities around, such as Ghaziabad, Gurgaon and Noida. More and more people are moving to live in these satellite cities and even work there. In comparison to the center of the city, satellite cities have more potential space to be developed. Also, the convenient metro and highway system solve the issues of distance.

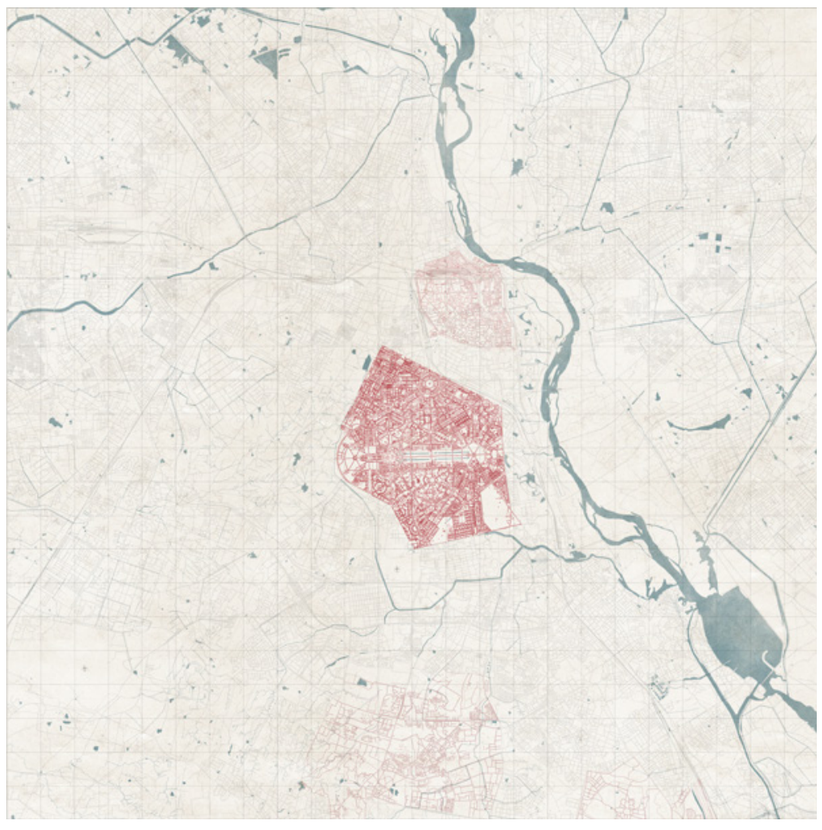
The government has political incentives to encourage the development in these satellite cities. Now even there is a trend for more and more new businesses to be established in the cities around Delhi.

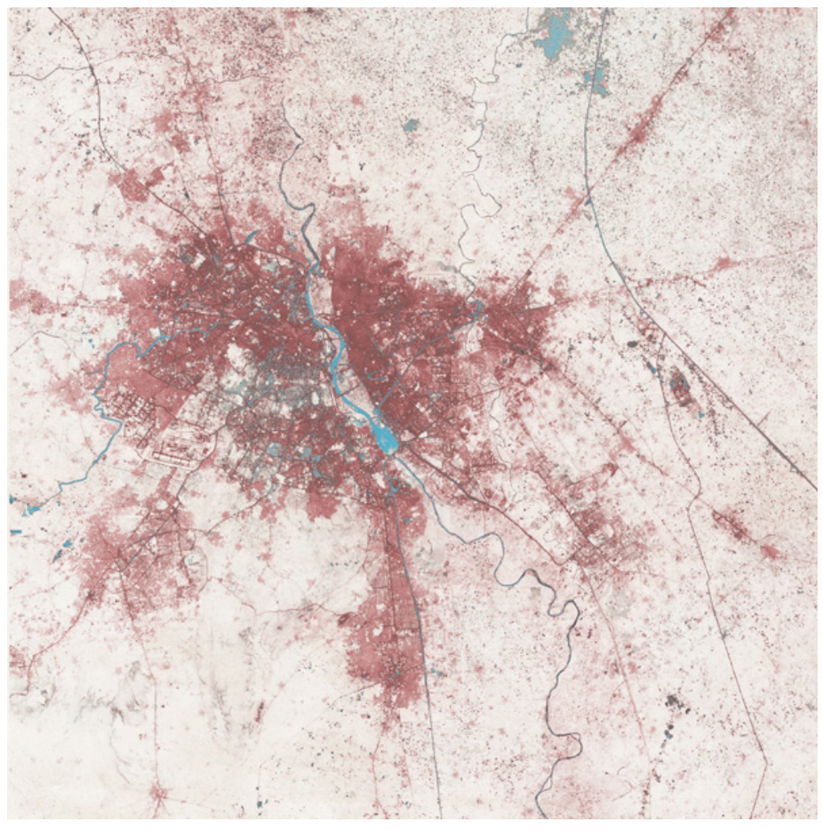


Cine-Citta

In 1803, the city came under the British rule. Edwin Lutyens and Herbert baker designed the imperial city of new delhi, based on the garden city concept. The planning was characterised by wide boulevards and stately administrative buildings, fit for the colonial government and a symbol of power.

After the Independence and partition of India in 1947, New Delhi became the seat of the indian government. Nearly half a million refugees poured into the city from present day pakistan, and started occupying any open areas they could find as temporary shelters. Wilderness and agricultural fields began to give way to residential colonies, commercial markets and industrial zones.





Megacity

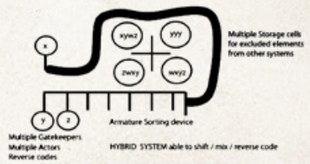
Nowadays, the whole New Delhi is expanding into a Megacity composed of multiple dense centers, intervening suburbs, embedded green spaces, and diffuse boundaries between traditional cities and suburbs. Megacity in New Delhi will not only emphasize the size of the city, but also it will show a new and dynamic form that has the potential to integrate the new activities with historical context.

Source: Diagram – "Egg analogy" of the form of the city (Vancutsem, 2011) – is from Corrado Iannucci, Urban sprawl indicators and spatial planning: the data interoperability in INSPIRE and Plan4all

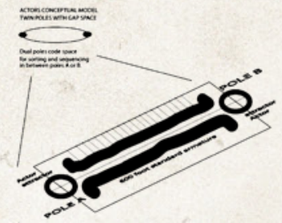
FOUR TYPICAL PUBLIC SPACES IN DELHI

Here we analysis four typical public spaces in Delhi. Three of them represent a kind of heterotopia experiencing different times. One of them, the Central Vista is representing a kind of linear armature.

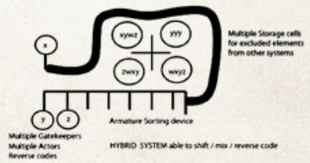
Khari Baoli



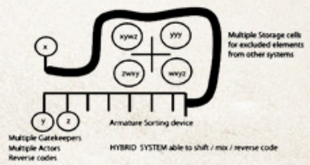
Central Vista



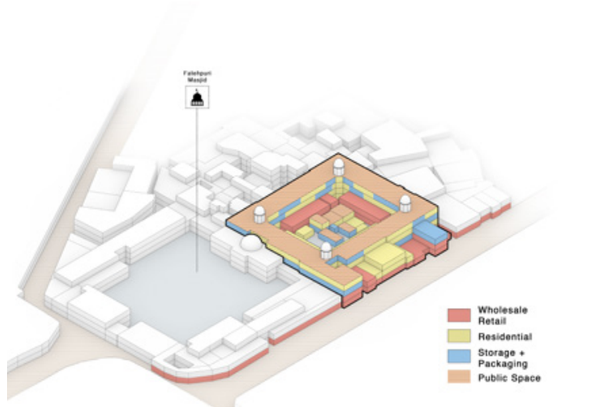
Nehru Place



Hauz Khas



Khari Baoli



Khari baoli within the city of shahjahanabad or old delhi, is a rectangular market centered on a vast courtyard. It is the largest wholesale spice market in Asia, selling all kinds of spices and other perishable commodities. Khari baoli was built in the 1920s , also it is one of the first 'mixed-use' developments in the city.

Its style is a fusion of colonial and Indian architecture with a mix of commerce, storage, and residences. The building is 4 levels that comprise wholesale retail + production + storage + living.

Over the years, the courtyard has been nearly filled in with buildings, leaving a crowded, square-shaped path running around it. These are dotted with activity throughout the day. The rooftops are used for social interaction, washing clothes, drying spices and other daily activities. The roof of the rectangular structure forms a public space that can be reached through narrow openings within the structure.

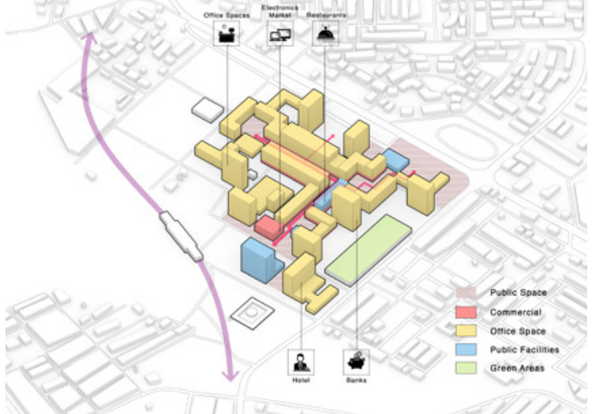
Hauz Khas

Hauz Khas is translated to a royal tank. The water tank that was built during [Alauddin Khalji]'s reign (1296–1316) in the second city of Delhi to meet the water supply needs of the newly built fort at Siri. The heritage complex houses a seminary, a mosque, a tomb and pavilions. The village around came up to house the scholars and students that came here for education.

The village has gentrified over the past few years, with tourist and commercial area with numerous art galleries, upscale boutiques and restaurants developing.

What we are looking at now is the decline of this restaurant culture that initially developed thanks to the beautiful surroundings of the heritage complex, and an uncertain future of this area in a time when people are no longer coming out to dine.

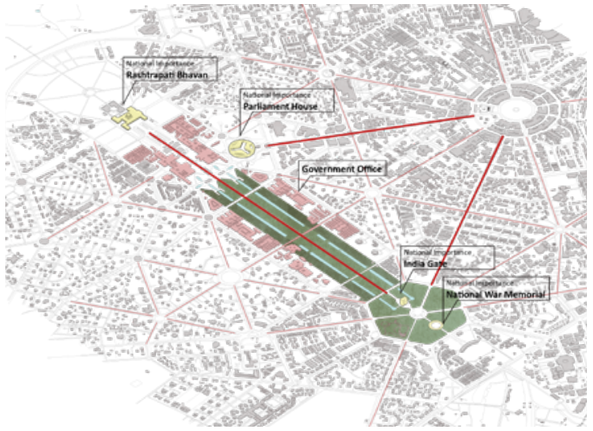
Nehru Place



Nehru Place is a popular and competitive electronic market located in South of New Delhi. It is always crowded with people and small business. It's a large commercial, financial, and business centre. Here, people cannot only get access to the shops to buy what they want with the cheapest price. Also they can have their social activities here. As soci'ologist Richard Sennett observed, it is a completely porous spot in the city, where people of all classes, races and religions come and go.

Along with the major people flow, the ground floor and street is domained by the commercial function. On the upper floor are mainly office buildings. People and activities are changing in a 24 hours circle. During daytime, it is a busy market with shopping and electrical repair services. But when it comes to night, the nightlife here is rich and varied. For example, people can go to the bars with friends for music and beer.

Central Vista



Central vista is a Typical amature public space. It is the heart of the Imperial New Delhi plan. It is the form of the axis that connects the president house, parament house to the India gate. Many important government buildings are located along this axis. Also, it is a place of national importance. National events such as the Republic day parade take place here. Besides, this area also forms a very important green space for the city.

Central vista plays diversal roles.
- An important Heritage : Mixture of british and indian architectural style;
- The main armature connect with surrounding city;
- Supply open public spaces, people come here to relax.

The government has recently passed a Proposal for the redevelopment of the central vista. It proposes to add new structures for the prime minister's house, office and a new parliament building next to the old one. The square shape buildings are all government offices, so the original green space will be destroyed and become a restricted area, not provided to the public any longer. The redevelopment proposal was a completely top-down plan, without any input from the people or the architectural community, or holding an open design competition. The idea is to redevelop the symbol of power in the country, at the cost of a democratic public space.

04 AGRICULTURAL EXPERIMENTATION CENTRE

DATE Jun – Aug, 2019 Summer, Urban Design Studio
INSTRUCTORS Tricia Martin, Nans Voron, Hayley Eber, Sagi Golan, Quilian Riano, Austin Sakong, Shin-pei Tsay, Alex Burkhardt
LOCATION Long Island City, New York, NY, USA
Collaborated work with Aasiya Maaviah, Eleni Stefani Kalapoda

TOTAL YEARLY FOOD DEMAND 507,250.8 lbs

TOTAL YEARLY YIELD 963,497.2 lbs

LaGuardia Community College
Roof Area: 5.84 acres
Growing Area (Supply): 3.74 acres
Total Yield: 395,991.2 lbs

New York City Administration
Roof Area: 2.71 acres
Growing Area (Supply): 1.73 acres
Total Yield: 183,172.4 lbs

Academy of Finance and Enterprise
Roof Area: 1.29 acres
Growing Area (Supply): 0.77 acres
Total Yield: 81,527.6 lbs

LaGuardia Community College – C Building
Roof Area: 2.03 acres
Growing Area (Supply): 1.30 acres
Total Yield: 137,644.0 lbs

Agricultural Center (new)
Building Area: 1.24acres
Growing Area (Supply): 0.79 acres
Total Yield: 83,645.2 lbs

Robert F. Wagner, Jr. Secondary School for Arts and Technology
Roof Area: 1.21 acres
Growing Area (Supply): 0.77 acres
Total Yield: 81,516.8 lbs

P.S. 76 William Hallett
44,875.0 LBS/yr
4–11 age
500 students

Newcomers High School
74,981.2 LBS/yr
14–18 age
919 students

Bard High School Early College Queens
48,790.8 LBS/yr
14–18 age
598 students

Public School 78
58,337.5 LBS/yr
4–13 age
650 students

Riverview School
24,477.0 LBS/yr
14–18 age
300 students

VOICE Charter School of New York

P.S. 76 William Hallett

Public School 111 Jacob Blackwell

Newcomers High School

Bard High School Early College Queens

Middle College High School at Laguardia

Information Technology High School

Public School 78

Riverview School

Robert F. Wagner, Jr. Secondary School for Arts and Technology

Public School 111 Jacob Blackwell
24,950.5 LBS/yr
4–13 age
278 students

Middle College High School at Laguardia
41,141.4 LBS/yr
14–18 age
504 students

Information Technology High School
77,510.5 LBS/yr
14–18 age
950 students

VOICE Charter School of New York
61,030.0 LBS/yr
4–13 age
680 students

Robert F. Wagner, Jr. Secondary School for Arts and Technology
51,156.9 LBS/yr
14–18 age
627 students

WHAT ARE WE DESIGING?

AN AGRICULTURAL EXPERIMENTATION IN LONG ISLAND CITY

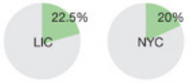
WHO ARE WE DESIGING IT FOR? — STUDENTS

1 IN 5 PEOPLE IN LONG ISLAND CITY ARE HUNGRY

AMONGST THEM, FAMILIES WITH CHILDREN ARE AT A HIGHER RISK OF BEING HUNGRY

1 IN 4 CHILDREN IN LONG ISLAND CITY IS HUNGRY

1 IN 5 CHILDREN IN LONG ISLAND CITY RELY ON FREE SCHOOL LUNCH

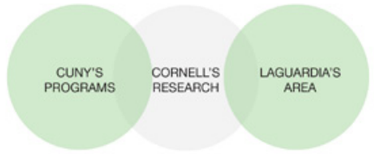


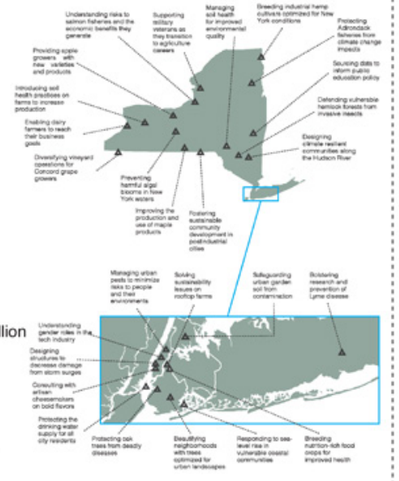
OBESITY IN LIC IS 2.5% MORE THAN THE CITY AVERAGE

WHO IS MANAGING IT? — COLLEGE STUDENTS

CORNELL CALS BY THE NUMBERS: 2019

16 ACADEMIC DEPARTMENTS	**1,040** GRADUATE STUDENTS	**360** FACULTY
2 SCHOOLS	**3,780** UNDERGRADUATE STUDENTS	**960** STAFF



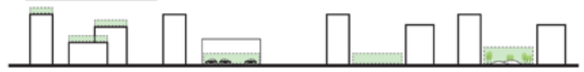


The Global Smart Farming Market is expected to reach $23.14 Billion by 2022, rising at a compound annual growth rate of 19.3% from 2017 to 2022

THE SMART FARMING MARKET AS A LUCRATIVE CAREER OPTION

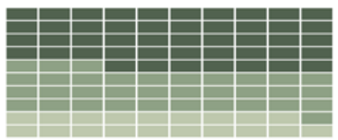
WHY IN THE IBZ?

WHERE IN THE IBZ?



Plot Name	Typology	Space Available
SP + Parking Lot	Parking Lot	11,127.03 m²
English Language Centre	Public Building Rooftop	9,473.00 m²
Academy of Finances	Public Building Rooftop	5,737.50 m²
Department of Design & Construction	Public Building Rooftop	11,513.62 m²
LaGuardia Community College	Public Building Rooftop	24,476.75 m²
Robert F. Wagner, Jr. Secondary School	Public Building Rooftop	10,626.58 m²
Nycon Concrete Supply	Vacant Lot	8,236.22 m²

WHY THIS SYMBIOSIS?



47% COLLEGE GRADUATES
35% HIGH SCHOOL GRADUATE
18% LESS THAN HIGH SCHOOL

Name	Program	Enrollment (2017)	Class Laboratory Per Capita use area - sq.ft
CUNY + La Guardia Community College	Biotech	253	**47.58**
	Food Service	100	

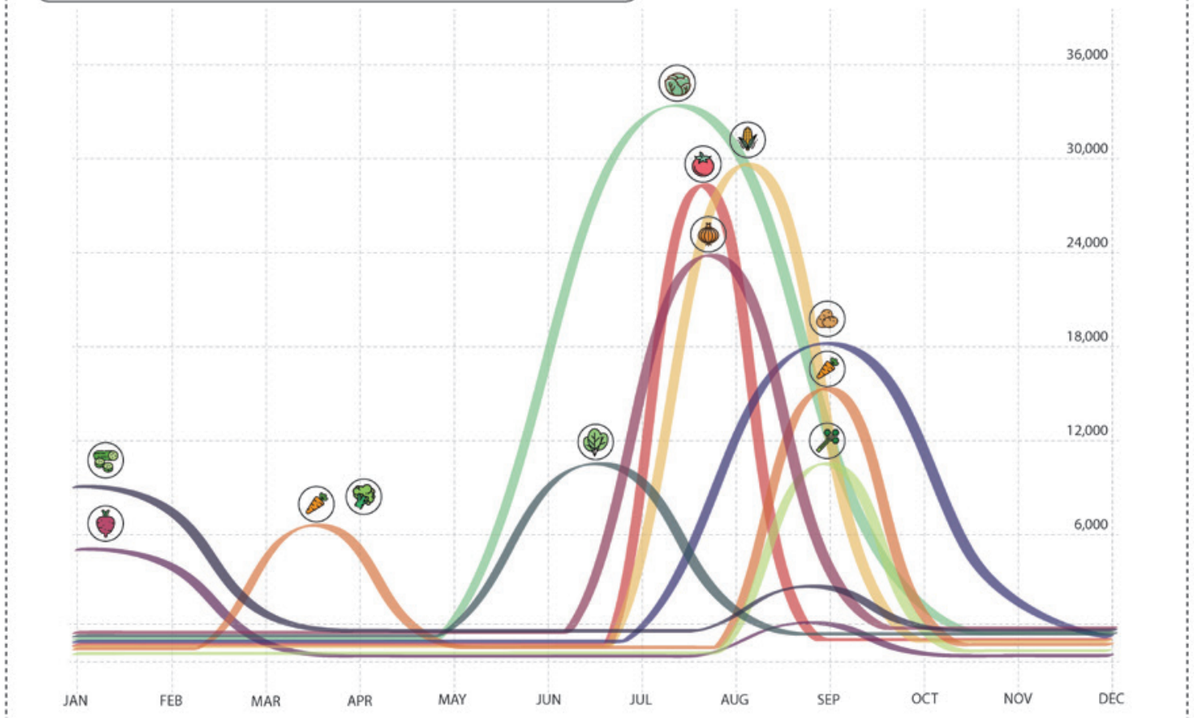
IN **JULY 2011**, MAYOR BLOOMBERG ANNOUNCES THE PROPOSAL FOR A UNIVERSITY OF APPLIED SCIENCES.

18 UNIVERSITIES APPLIED AND CORNELL WON THE CAMPUS EXTENSION OPPORTUNITY

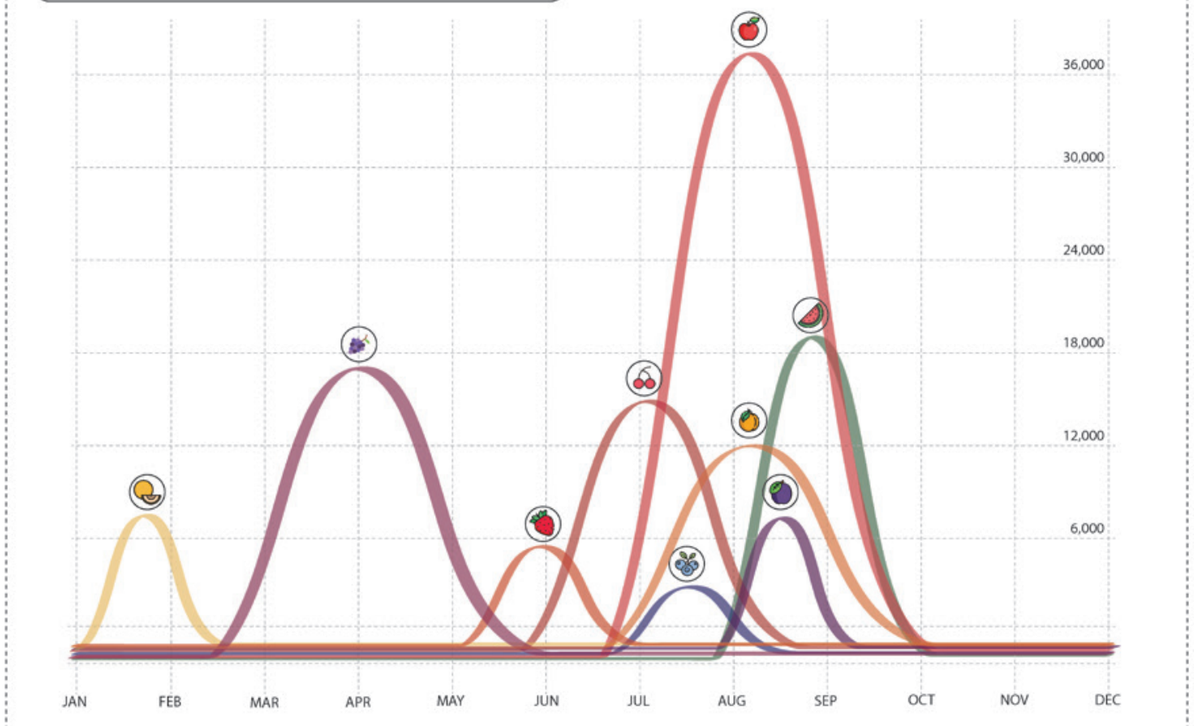
IN **JULY 2011**, MAYOR BLOOMBERG ANNOUNCES THE PROPOSAL FOR A UNIVERSITY OF APPLIED SCIENCES.

Final Calculation	Requirement	Availablity (Total existing Space)
	Metres	Metres
Total Space for Growing in Spring	27838 m²	58,361 m²
Total Space for Growing in Fall	20507 m²	58,361 m²
Total Space for Research	4046 m²	7,120 m²
Total Space for Education	8093 m²	7,471 m²
Total Space Available		72,952 m²

WHEN WILL WE GROW IT? - VEGETABLES



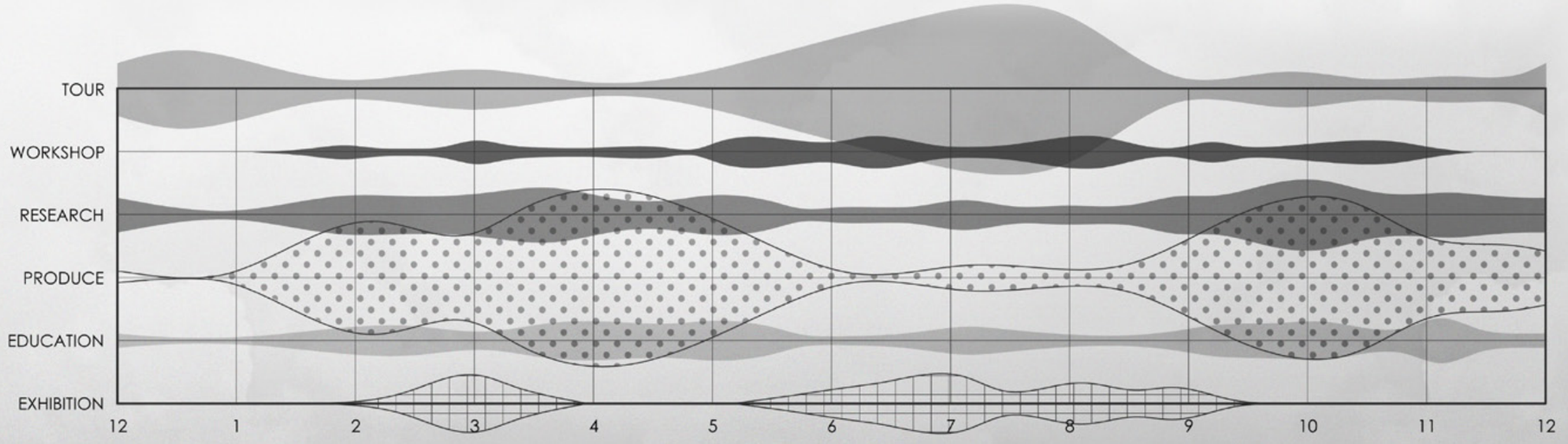
WHEN WILL WE GROW IT? - FRUITS

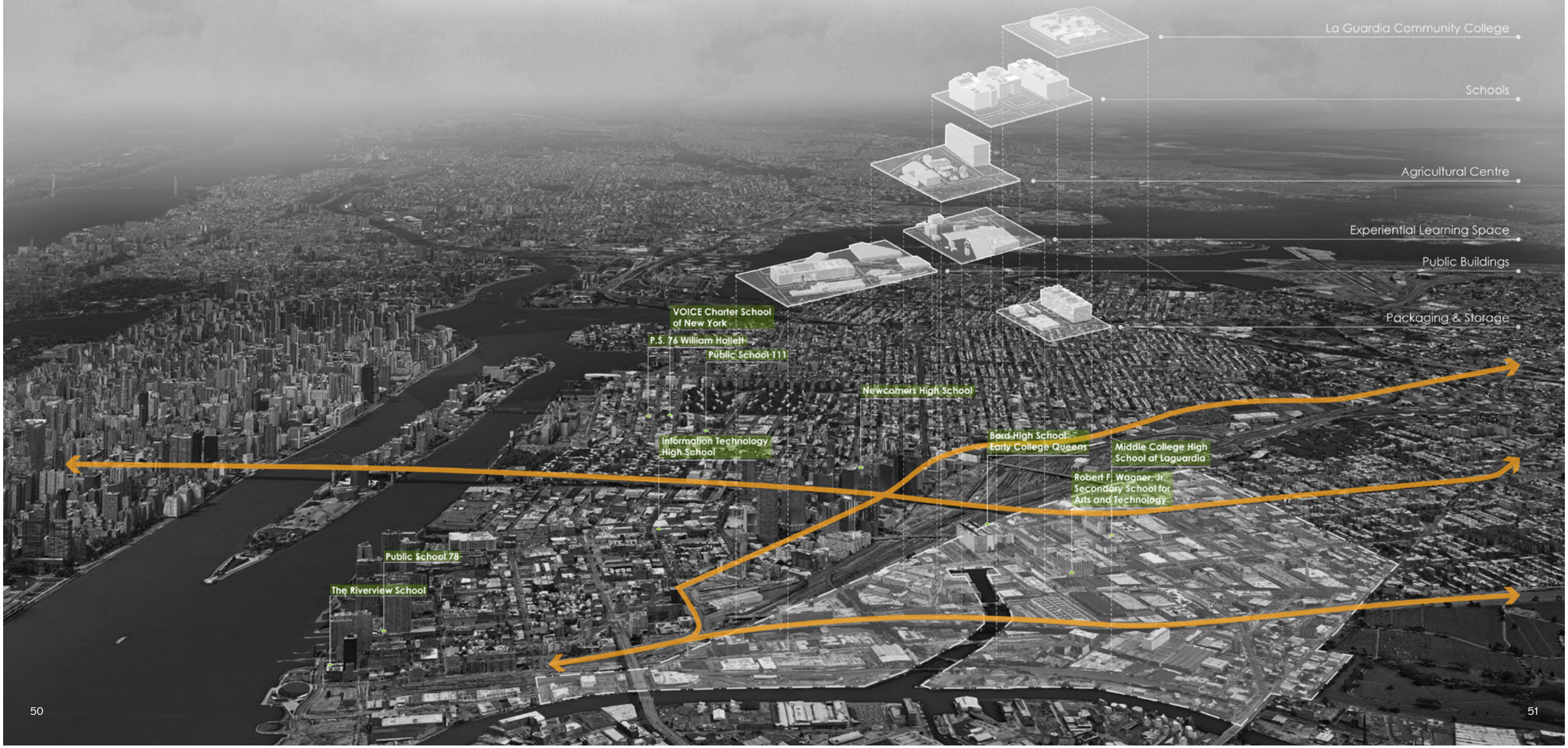


FOOD DISTRIBUTING SYSTEM

Children of long island city rely heavily on school lunch meals to rescue themselves from hunger. However, these meals are often inadequate, of poor quality, and exported from outside the city. This pattern is observable in many growing urban societies.

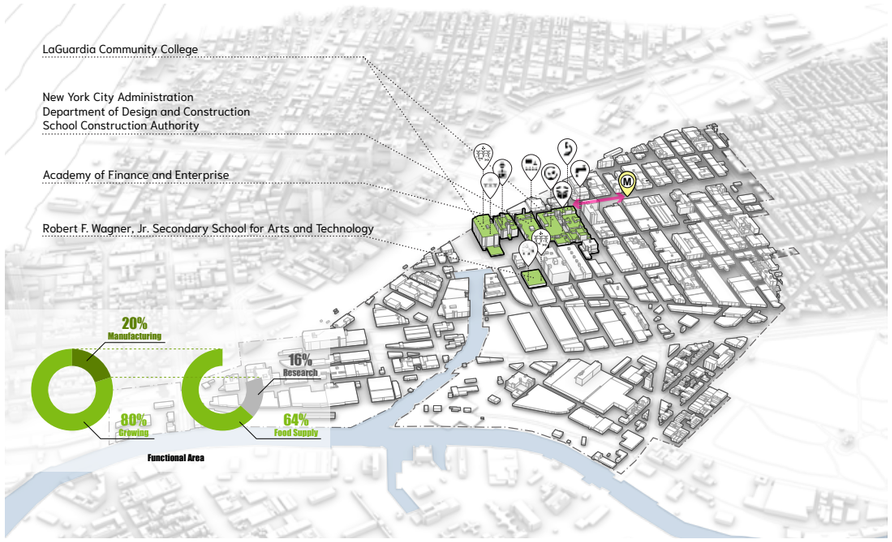
We propose an agricultural experimentation centre with three categories of replicable modules in LIC's industrial business zone. Firstly, the program offers students of agriculture an opportunity to grow and package food at a massive scale using advanced hydroponic techniques. Secondly, this concept is supported by infrastructural modules for distribution to create a system around the life cycle of food. The third category of modules proposed aim to educate and start a dialogue around the way we think about food and pass these lessons down to our children.





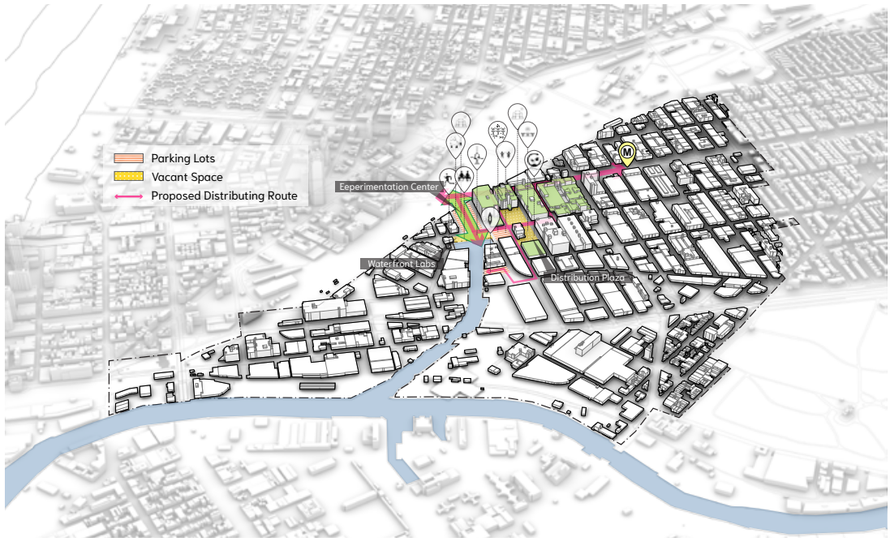
PHASE 1

In pahse one, we mainly develop the area centered of metro station, for there will have higher density for people flow. We cooperate with public buildings sucha as LaGuardia Community College, NYC Administration building and some other schools. We make full use of their vacant spaces and rooftops. For cooperation, we also propose some incentives that they could benefit form doing this.



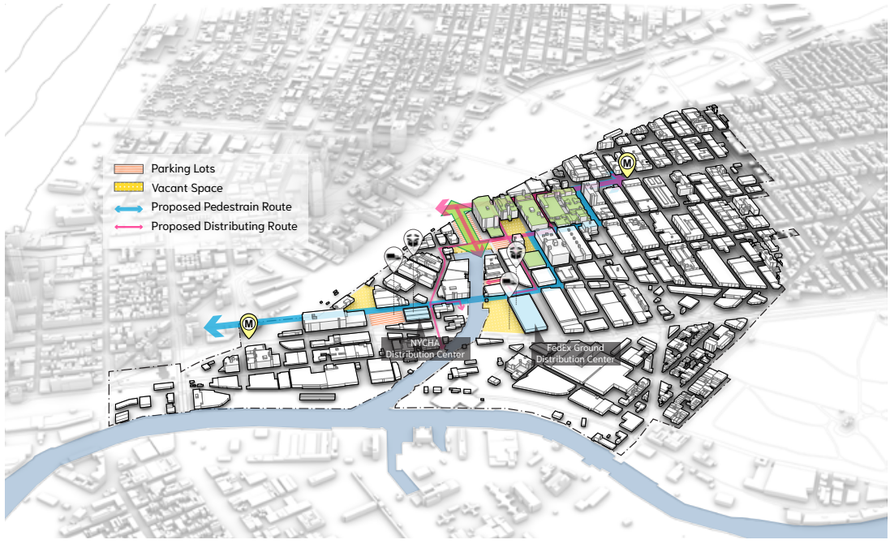
PHASE 2

In phase two, the proposed pedestrain route will be extended to the river side. Along the major sidewalk, various functions related to the food eco system will be inserted. Most of them are opened to the public which greatly increase the opportunity of people interaction.



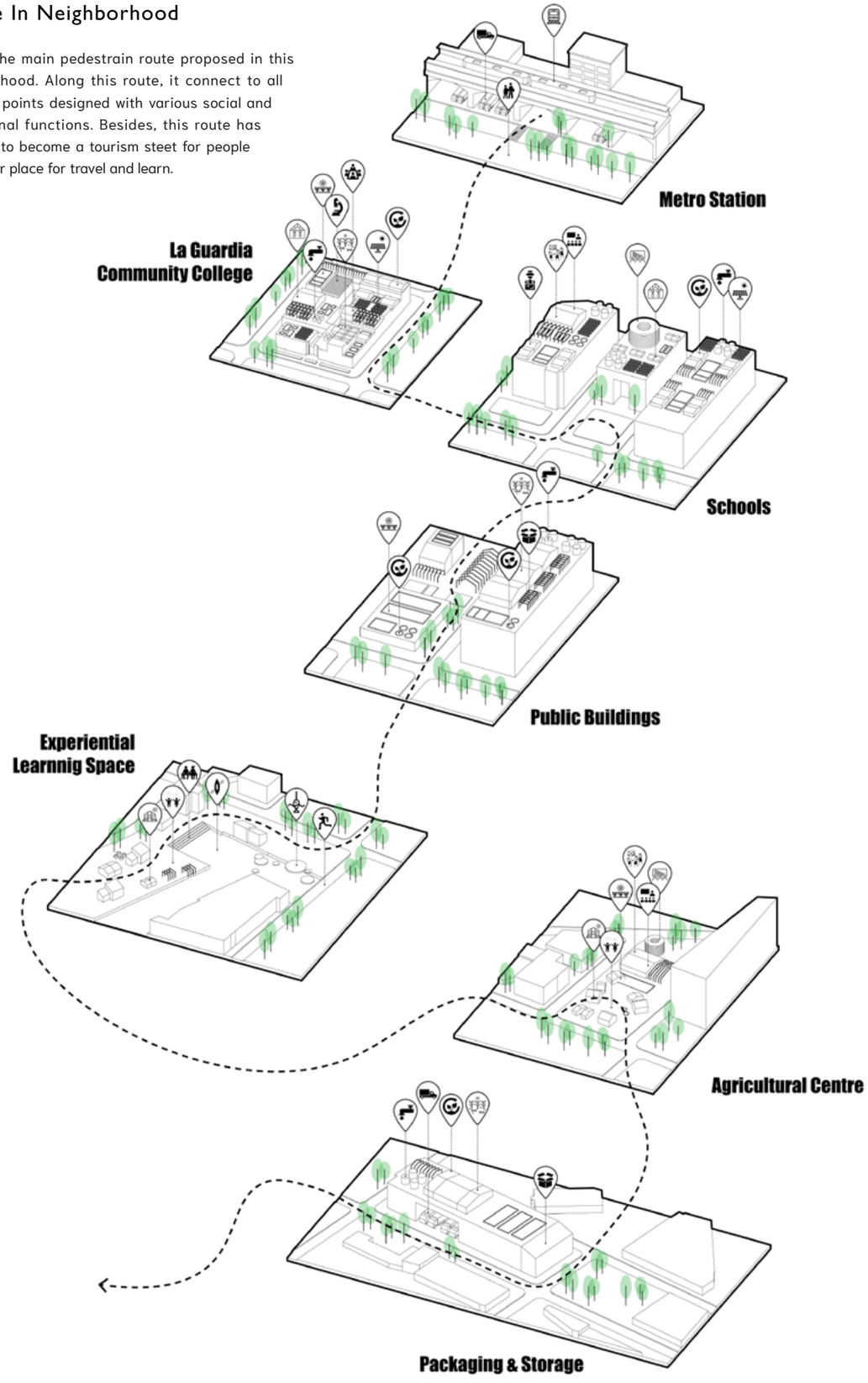
PHASE 3

In phase three, the pedestrain network is still expanding. Besides, we propose the distributing routes which can connect to the public builidings that are producting various food, also connect to the distributing centers / plazas to make it more efficiency during transportation.



Dérive In Neighborhood

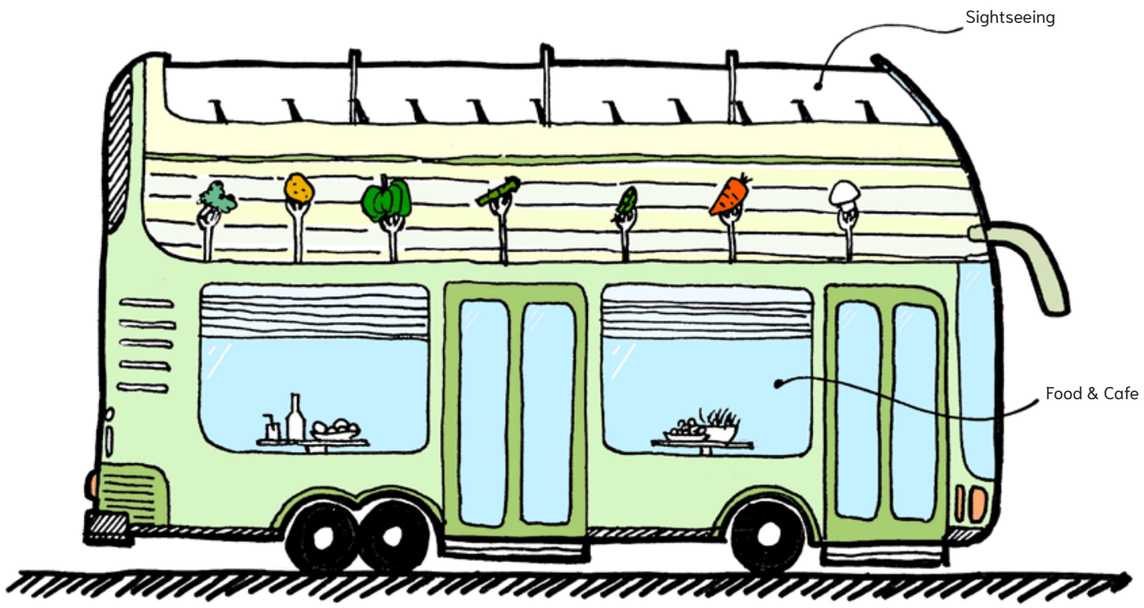
This is the main pedestrain route proposed in this neighborhood. Along this route, it connect to all the main points designed with various social and educational functions. Besides, this route has potential to become a tourism steet for people from other place for travel and learn.



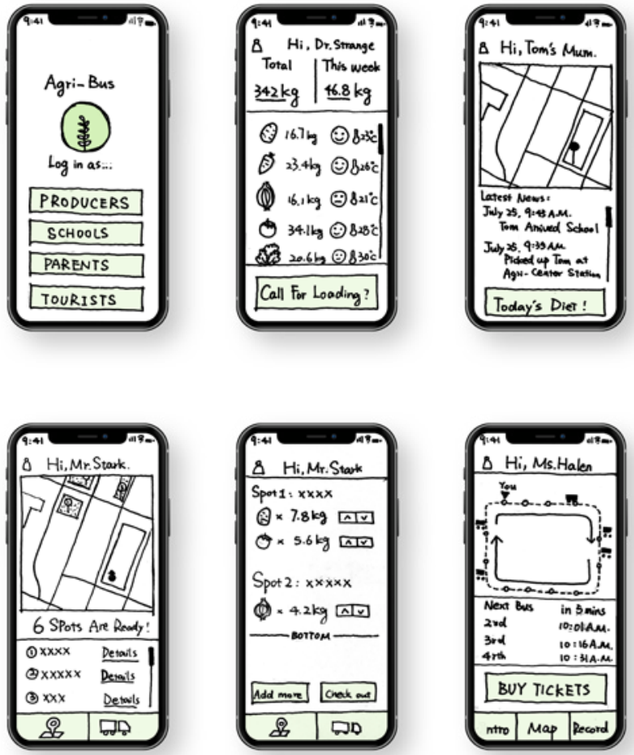
FOOD BUS

Based on the food system proposed, we think about how to deliever in more sustainable way. School bus will be a great choice because it works regularly. Thus we don't need to import extra vehicle which will cost more and also make traffic heavy. We intervent the roof of the bus to offer space for food distribution.

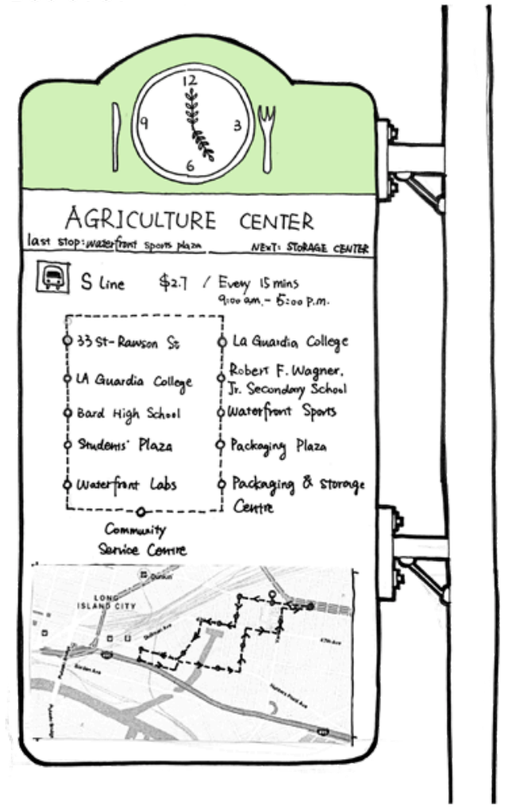
Then in the future, when the popularity of this place increases, we proposed a kind of food bus for the tourists that can visit the places as well as enjoy the food produced locally during their visit.



COMMUNITY APP



BUS STOP



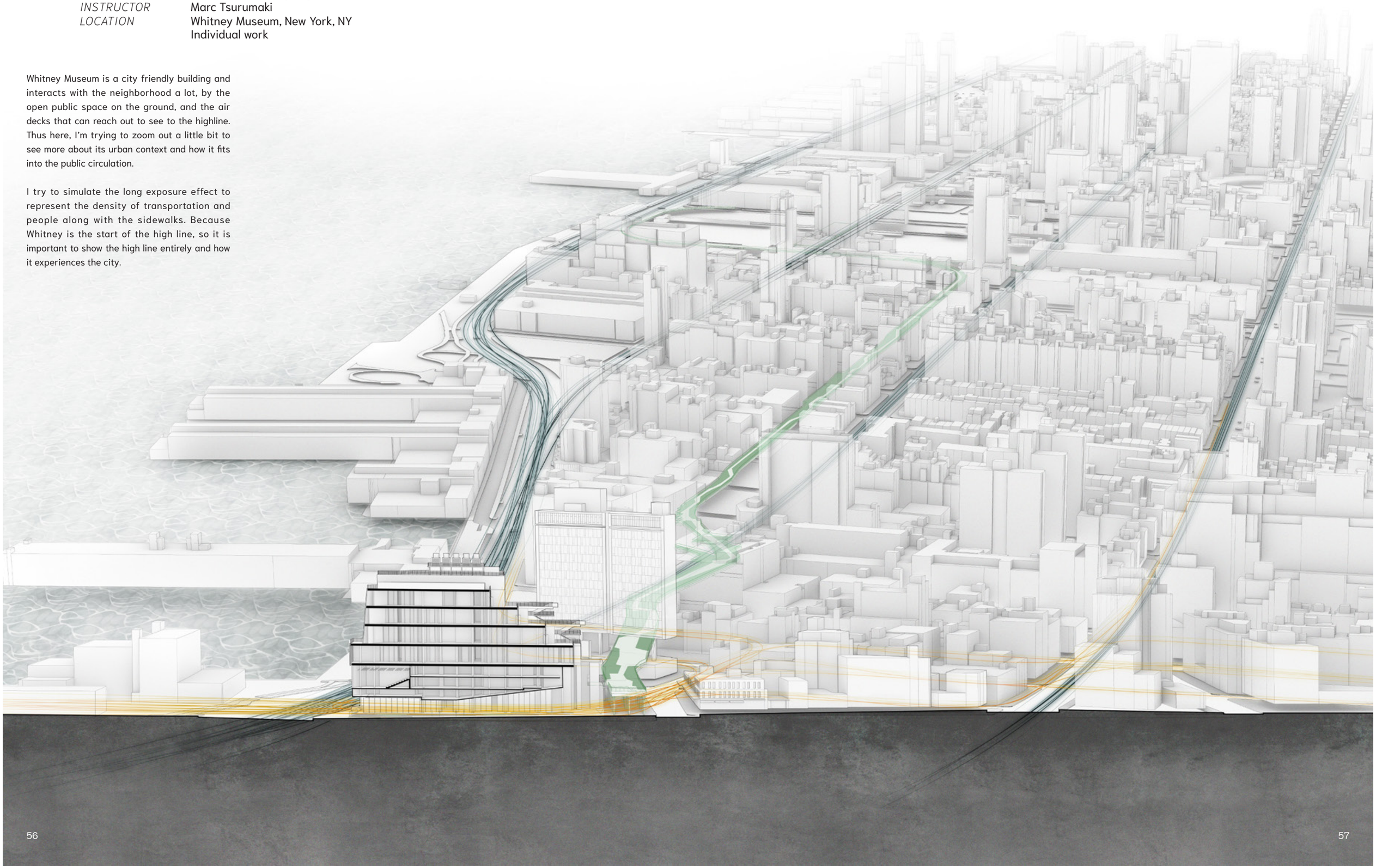
BUS ROUTE

05 SEMINAR OF SECTION- WHITNEY MUSEUM

DATE Feb – Apr, 2020 Spring
INSTRUCTOR Marc Tsurumaki
LOCATION Whitney Museum, New York, NY
Individual work

Whitney Museum is a city friendly building and interacts with the neighborhood a lot, by the open public space on the ground, and the air decks that can reach out to see to the highline. Thus here, I'm trying to zoom out a little bit to see more about its urban context and how it fits into the public circulation.

I try to simulate the long exposure effect to represent the density of transportation and people along with the sidewalks. Because Whitney is the start of the high line, so it is important to show the high line entirely and how it experiences the city.



06 Bike Campaign in NYC

DATE 2019 Fall, Urban Informatics
INSTRUCTOR Anthony Vanky
Collaborated work with Chris Zheng, Ting Zhang

A City on (2) Wheels

The City of New York in a parallel universe is starting a campaign to take all automobiles off the roads. It kicks off with bicycles taking over certain streets and avenues in Manhattan in certain time of the day, and eventually every streets in the whole city, 24/7. While most New Yorkers are embracing this more equal and healthy future, they also wonder what are the next steps to take in the coming days.

To learn from the trend of bicycles, especially shared bicycles' growth in New York City, we will look into the data of Citi Bike, a privately owned public bicycle sharing system serving the city since 2008, and to come up with suggestive proposals for its development.

The City of New York in a parallel universe is starting a campaign to take all automobiles off the roads. It kicks off with bicycles taking over certain streets and avenues in Manhattan at a certain time of the day, and eventually every street in the whole city, 24/7. While most New Yorkers are embracing this more equal and healthy future, they also wonder what are the next steps to take in the coming days.

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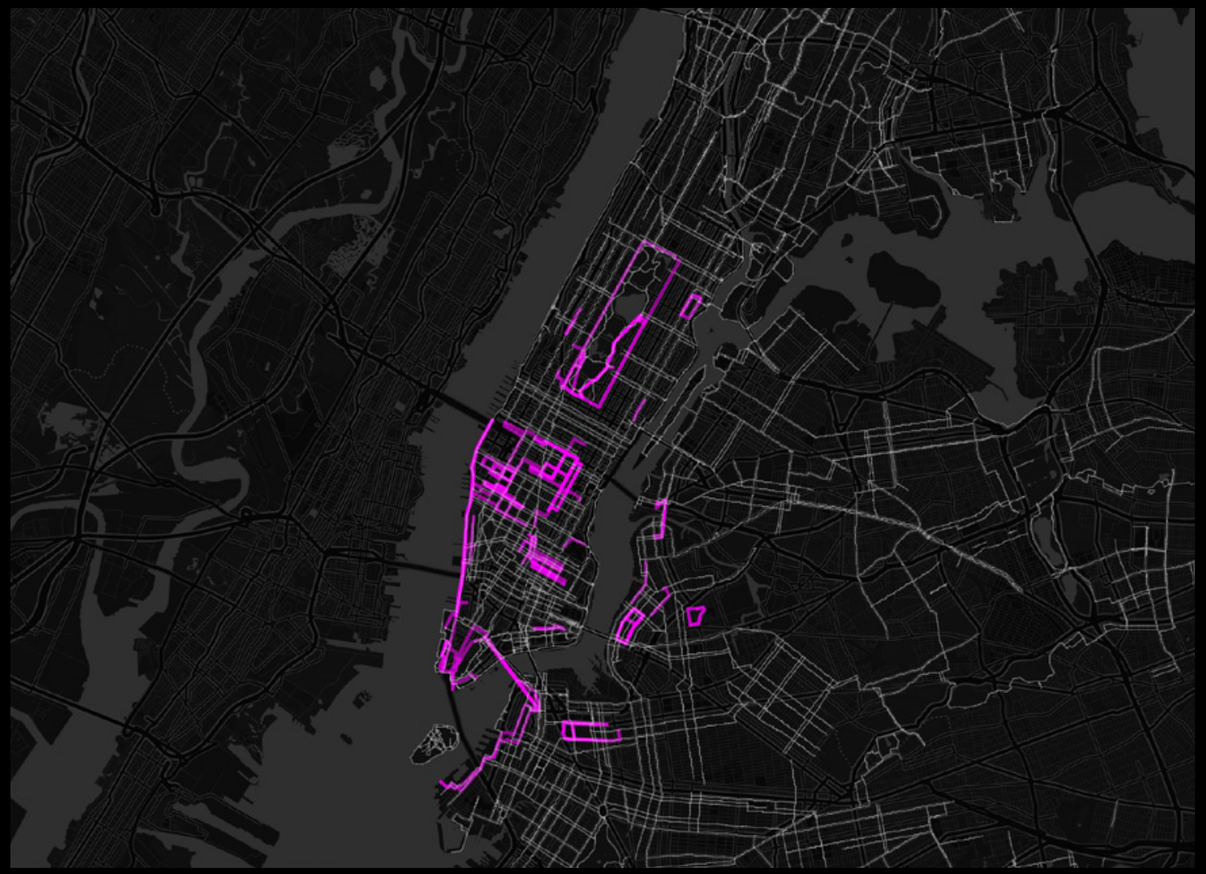
By analyzing Citibike data in 2018, the number for usage, station location, traveling time, etc. are visualized which contributes to forecasting where the next bicycle lane will be built in the near future. If we are going to launch a campaign which could be participated as many people as possible, what time is the perfect time?

Where is it?
Currently, there are a total of 837 citibike stations scattering in New York City. The distribution is even basically, and they are relatively concentrated in Midtown and Downtown in Manhattan.

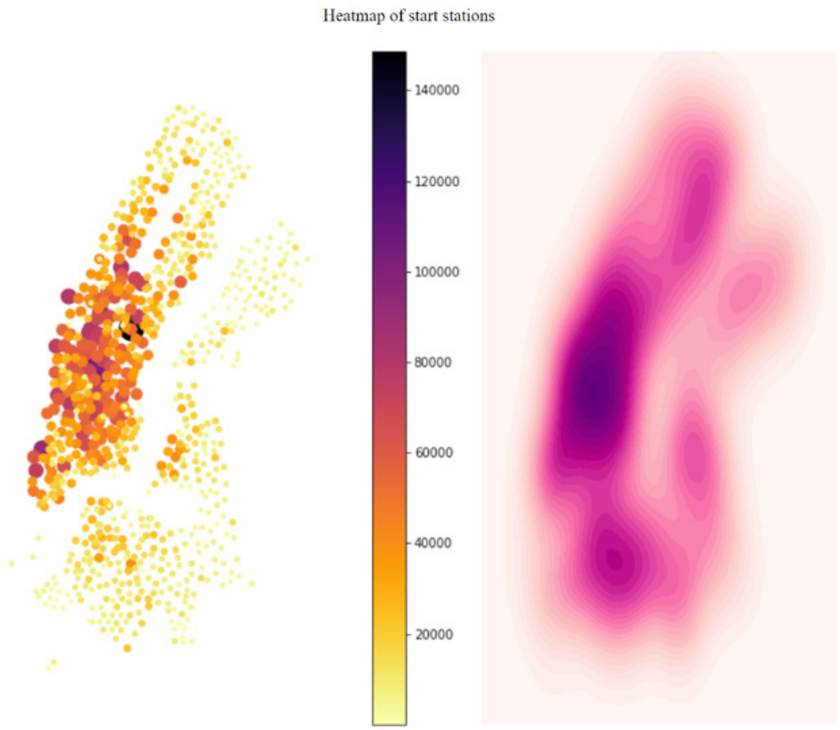
Vote by Feet
By analyzing the data of start stations and end stations, the frequency for every riding line happened between different stations. Then we sort them in descending order and screen the most popular paths ranked top100. What's more, it could overlap with existing bicycle lanes in NYC. From this, we could observe which places people currently prefer to ride, but lack related bicycle lanes. Therefore, this grabs our attention: which will be the next bike lane soon.

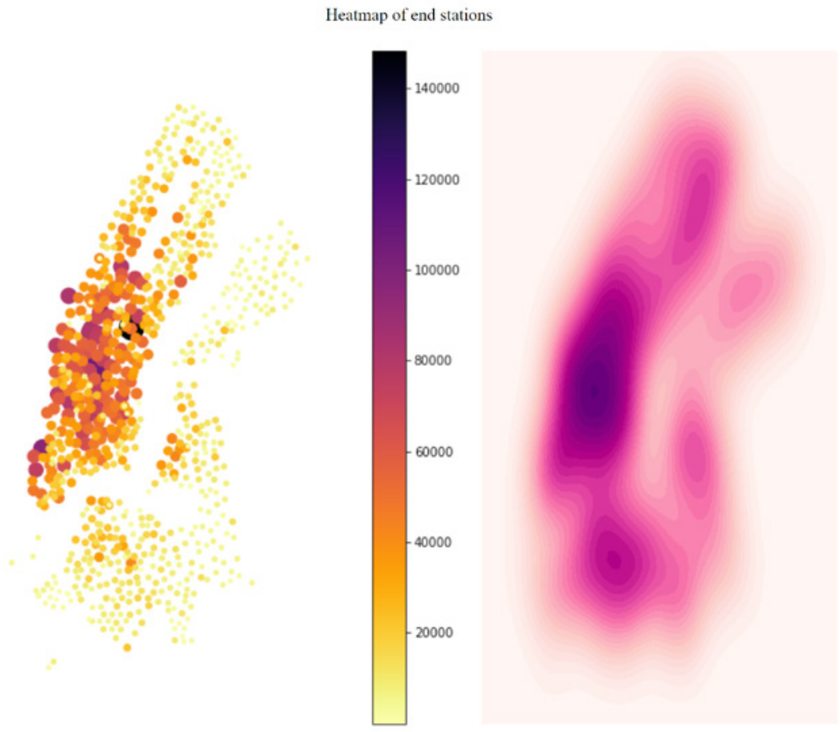


http://www.columbia.edu/~tz2436/BikeCampaign.html

Dynamic Balance

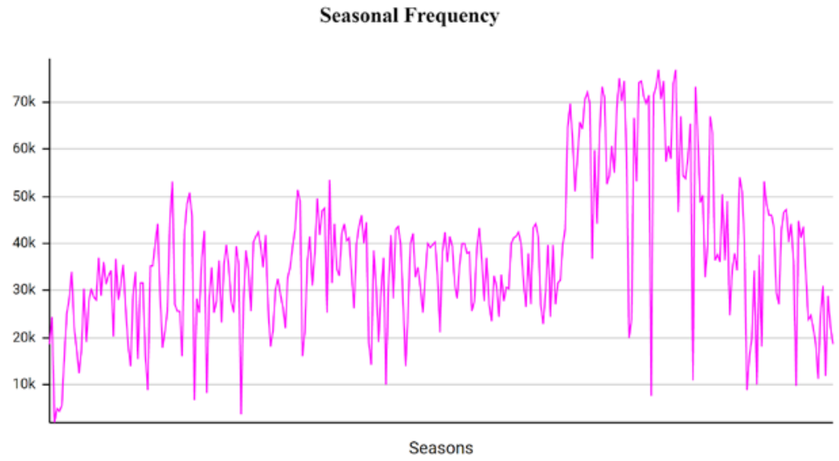
We try to have a general sense of which area that riding is relatively popular by visualizing the amount of usage on each bike station. Besides, we calculate the number between the start and endpoint of every single trip, trying to prove that there is an imbalance in citibike. However, the result shows that the imbalance was not obvious.





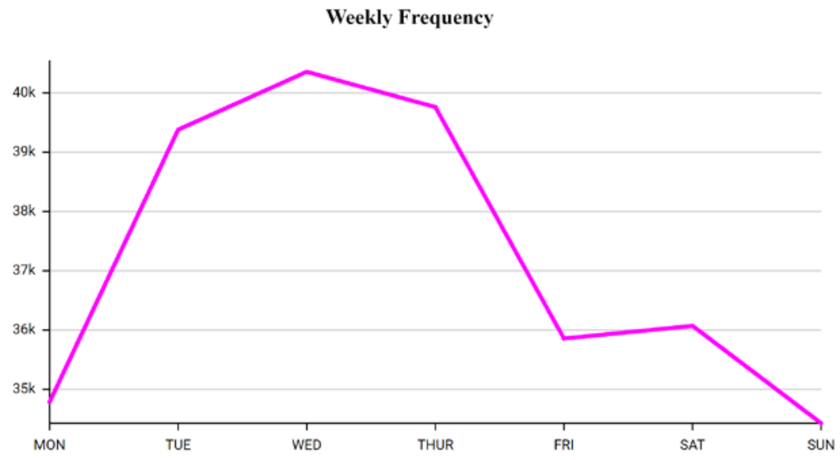
Year / Season

By visualizing the amount of bicycle trips in a year, it is obvious that people are more likely to choose a bicycle during their trips in the warm summer, while in the winter, the number for riding is greatly reduced. Thus, bicycle travel is significantly influenced by weather factors.



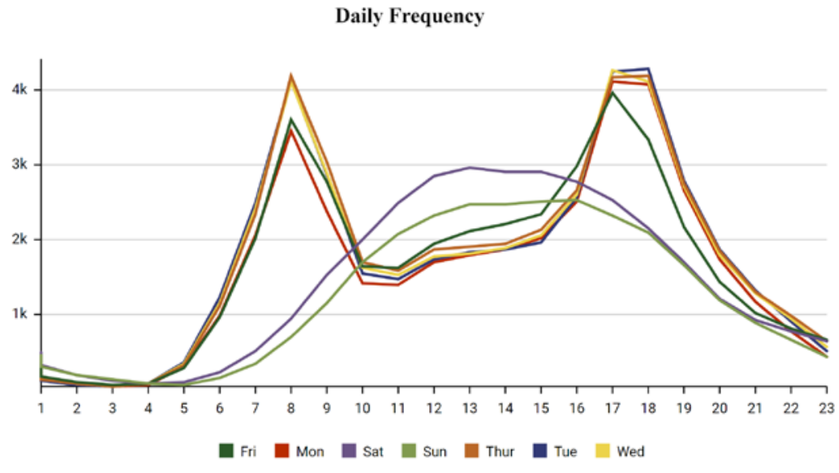
Week / Weekdays & Weekends

Through the visualization of data, we speculate that citibike is the main choice for some people when commuting to and from work, which is even more than people who use it for leisure and exercise. In the whole week, the means of each day that people ride citibike are changing. Tuesday, Wednesday, and Thursday, which is in the middle of the week, consist of the peak of citibike using, while at the beginning and end of the week, bike usage declines. However, on leisure Saturdays, bicycling is also a good option for people to travel.



Daily / Morning & Noon & Evening

The time-specific data contribute to understanding the regularity of people's travel every single day. We analyze the travel time of each day in a week and compare it with each other. Obviously, during the working days, the peak period of people using citibike is mostly concentrated in the morning and afternoon, which overlap with the peak periods of work commuting. However, on the weekends, the stress of work is eliminated, and people prefer to ride a bike on a relaxing afternoon.



07 VERTICAL MORALITY

DATE 2019 Fall
INSTRUCTOR Vishaan Chakrabarti
LOCATION New York City, NY, USA
Collaborated work with Luyi Huang, Lino Caceres, Xinyue Liu, Yi Zhang, Zihan Yu

City planning is over, and architecture has no real value anymore.

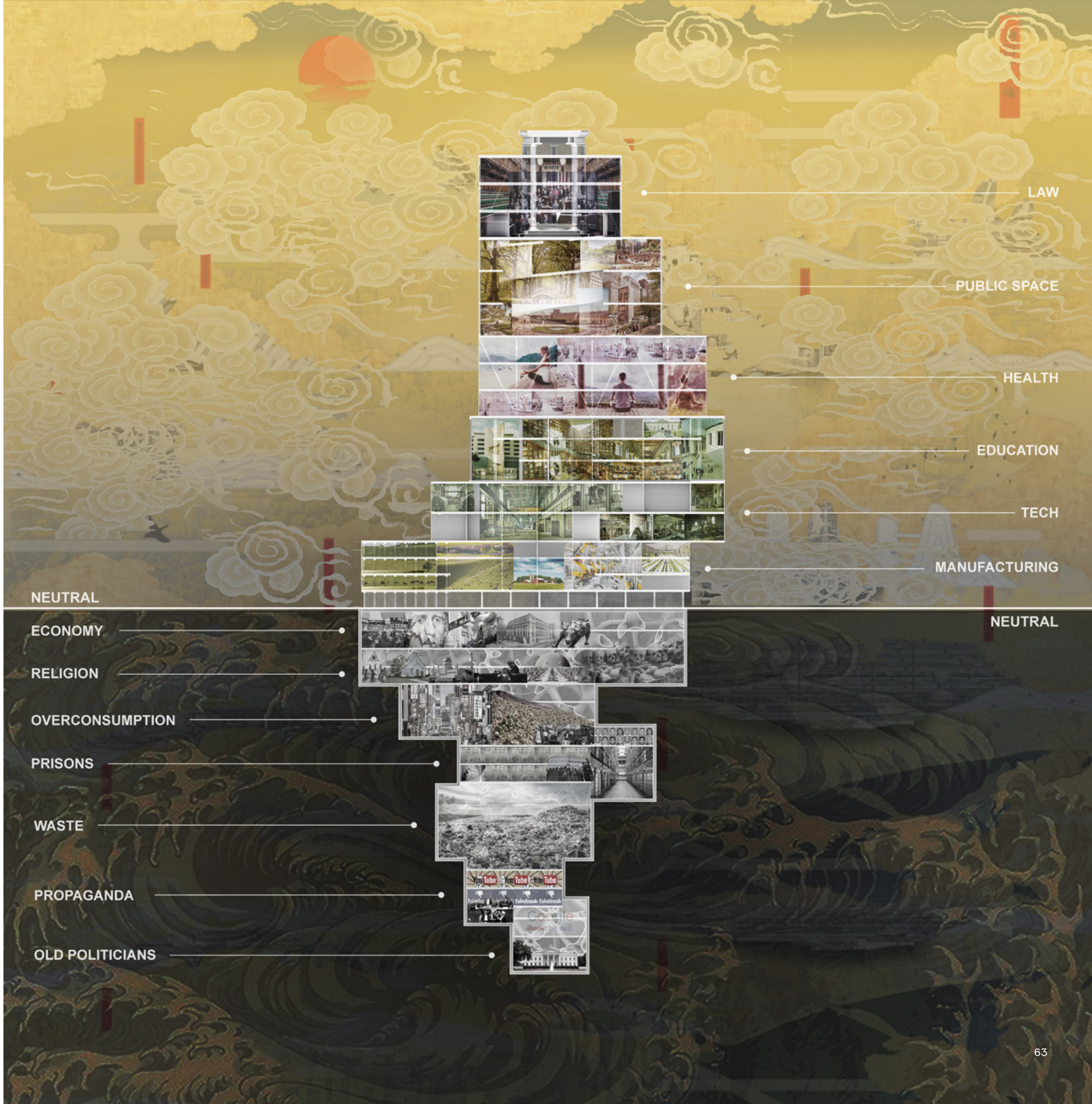
Kevin Lynch was right in Good City Form[Lynch, Kevin.“But Is a General Normative Theory Possible?” Ch.5 in Good City Form. MIT Press, 1990, pp.99–10] “If we have some ground for understanding what cities are, we have practically no rational ground for deciding what they should be, despite a flood of criticism and proposals.The dreams of utopian cities seem to come from nowhere and go nowhere”.

We need to start over, but it is not a “tabula rasa” deal anymore, we come here not to colonize lands, but minds. Lets build inner city enclaves, that serve as a guide for what the pre-existing must be, let’s use all the available technology to build beacons of behavioral guidance, let’s plan ourselves into better citizens.

In the current post-truth environment, there seems to be a tendency to muddy the waters in favour of camouflaging the most vile practices, relativizing every action, expanding the grey area of behavior, continuously driving our cities in the wrong direction. But there is a right and wrong, and the dyad has even been spatially represented in every culture around the globe throughout time.

In Judaism, Olam Haba, or a “World to Come”, which living humans could never describe, hence it is absent from sacred scriptures. And its opposite: Gehinnom, which refers to a valley in which children were sacrificed to the god Molech. Eventually, this valley became a constantly burning land where sinners were sent.

For christians, New Jerusalem, with its walls and gates, structures made of precious stones, trees, rivers, and a neverending stock of fruits. On the other end, The Book of Revelation indicates that those whose names are not found written in the Book of Life are thrown into the lake of fire.



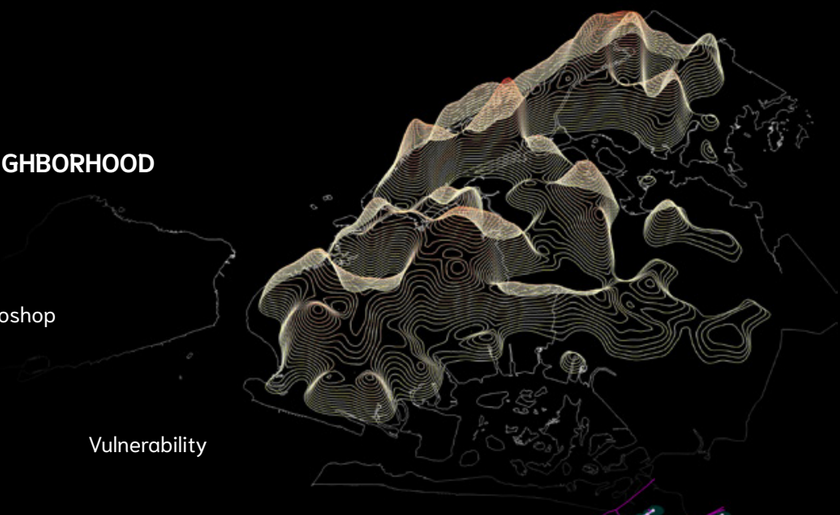
08 PERSONAL GIS WORKS

WATER RECHARGE

Technology:
ArcGIS | ArcScene | Illustrator | Photoshop

LEARNING THE NEEDS OF NEIGHBORHOOD

Technology:
ArcGIS | ArcScene | Illustrator | Photoshop



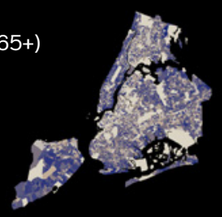
Calculation of "Vulnerability"

Vulnerability

Unemployment

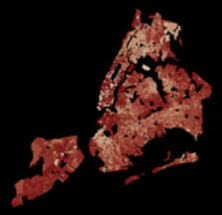
Low Education

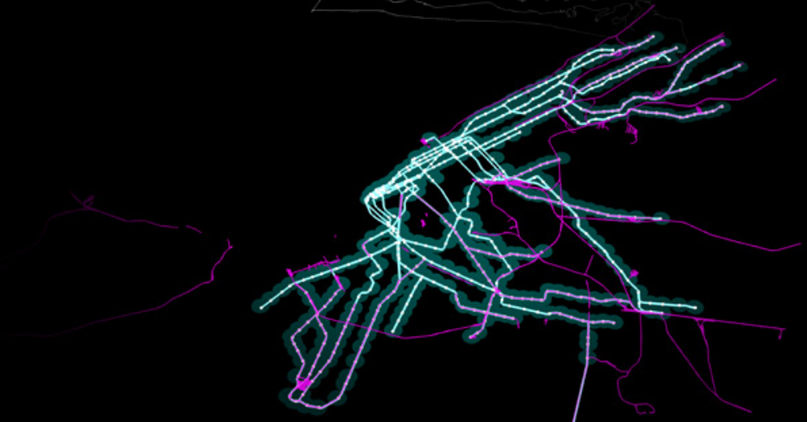
Elderly (65+)



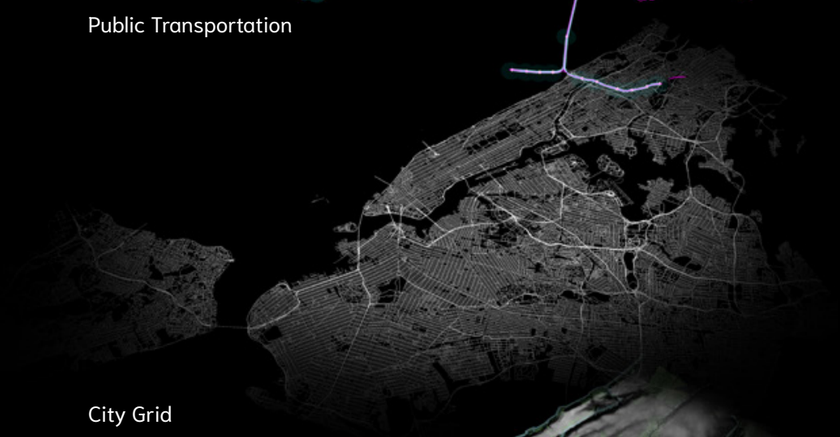
Infant (0-4)

Income

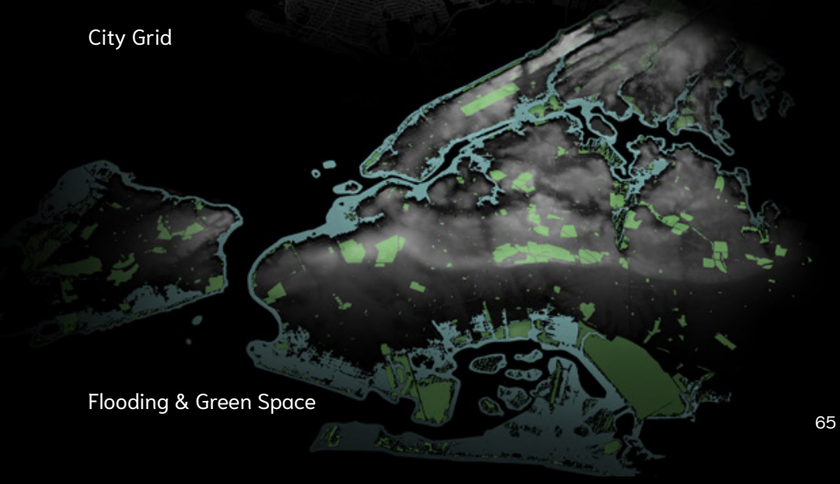




Public Transportation



City Grid



Flooding & Green Space

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MSAUD '19 | Selected Works 2019-2020

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