

Not all modernization stands on the opposite side of localization. Besides, homogeneous and modular architecture and planning are not the normal or modern urbanization. As an ideology, modernism seldom encourages the spirit of belonging, the lack of cultural personality or breaking through the old to bring forth the new.

Qingyang

MSAAD GRADUATION PORTFOLIO

Selected Work Yu 2021 - 2022

Architects should value public users' inner potential, and instruct them to convert their need of self-actualization into practice. We should play a much more diverse role. The design process should not be one-way autocratic, but should be interactive and responsive. Instead of explaining and sophisticating the localism of modern architecture, it is better to take on the responsibility of the designer and help local residents express the real significance in their eyes with architectural language.

Seam and Border

An ironic story of medical tourism in Tijuana

01



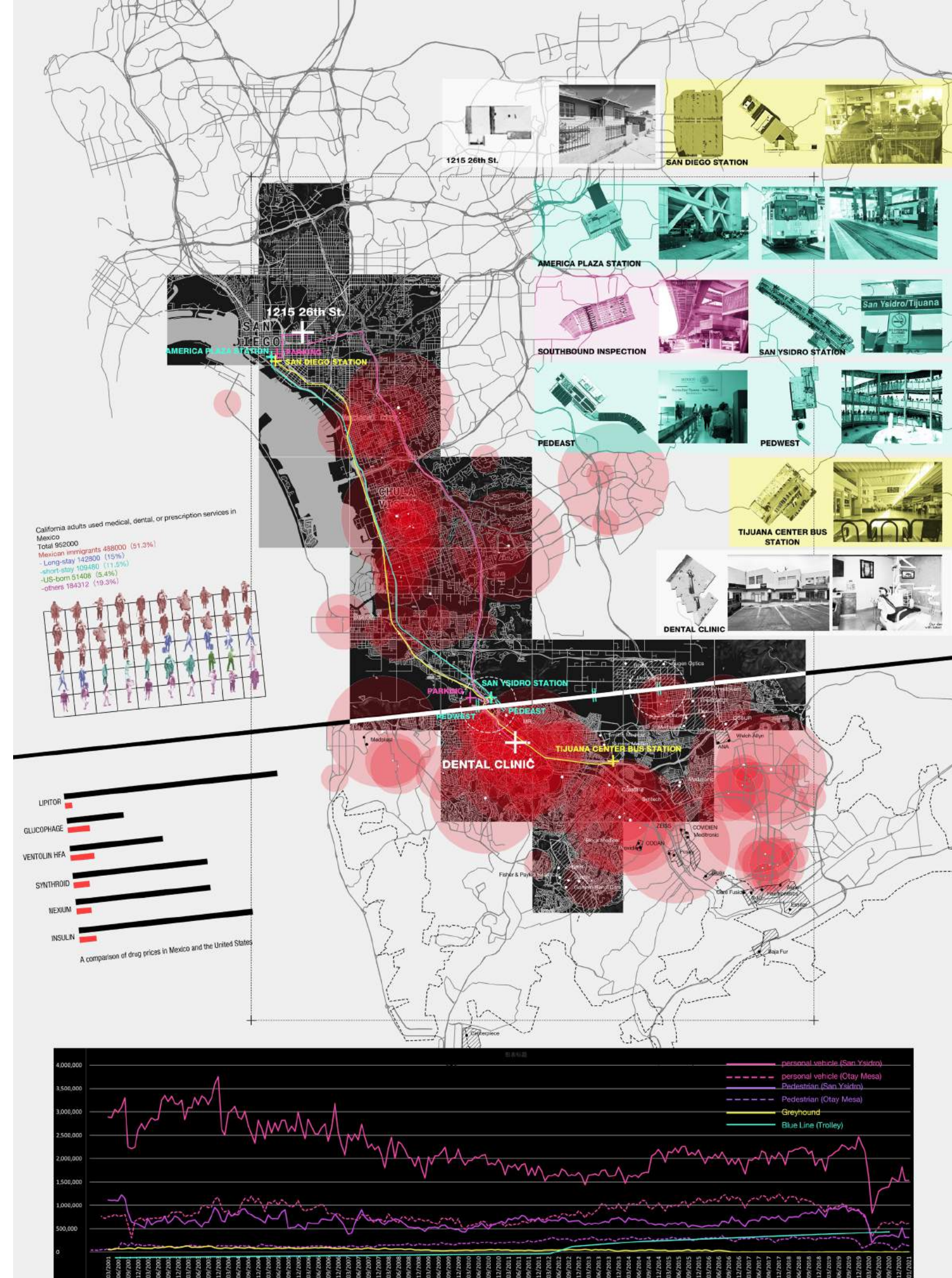
Type: Academic Work
 Partner: Shulong Ren
 Instructor: Ersela Kripa & Stephen Mueller
 Date: 2021 Summer

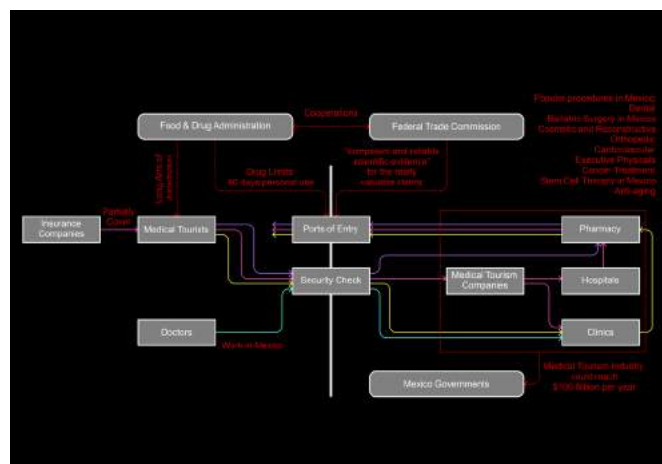
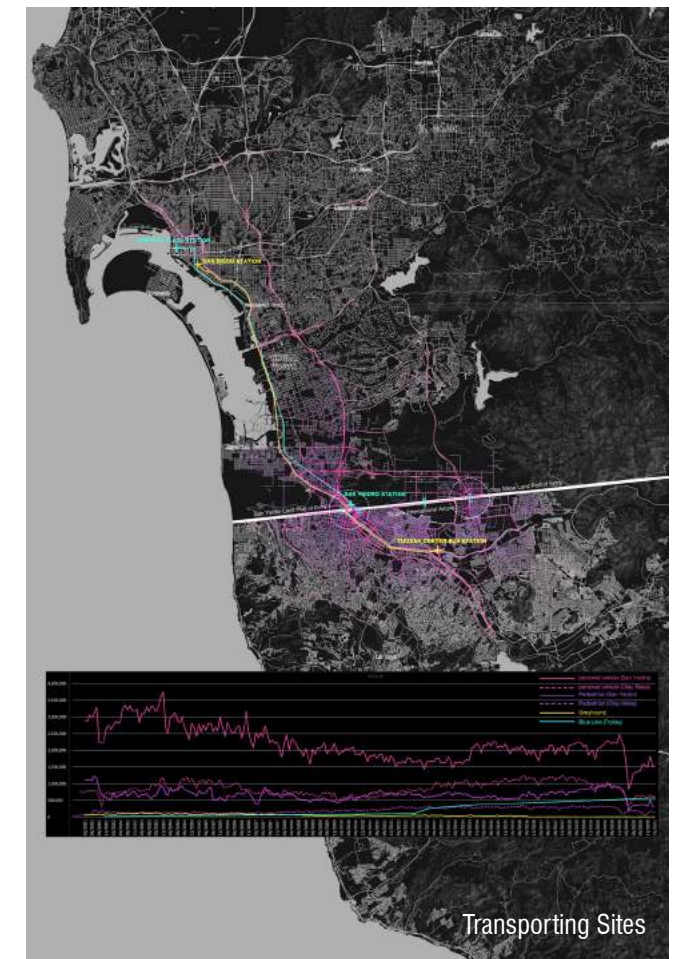
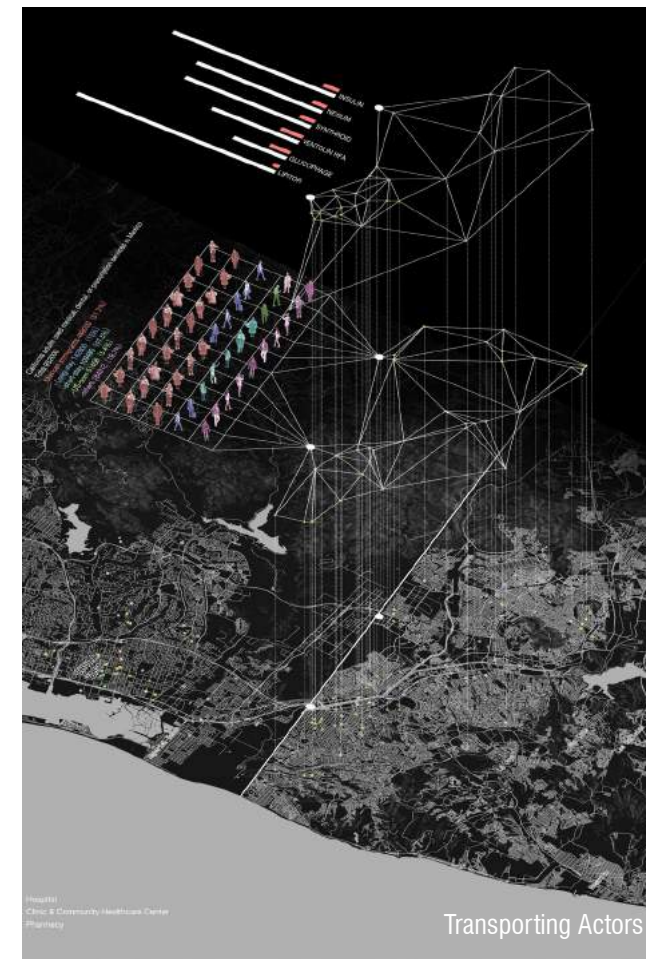
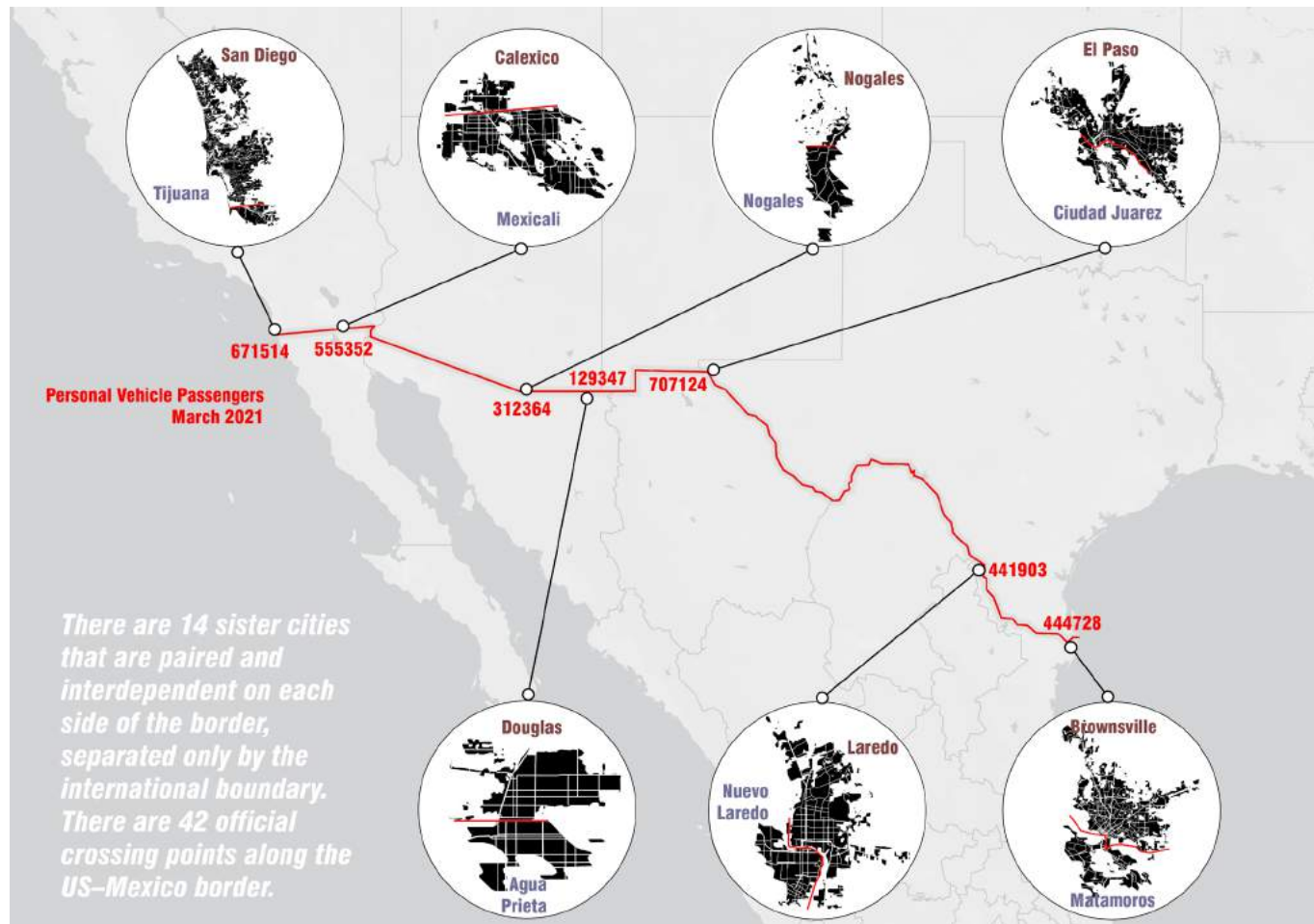
The US-Mexico Border is 1989 miles long, with 14 sister cities and 42 official crossing points along the border. In the most representative pair, San Diego and Tijuana, the growth of the medical tourism industry have been an abiotic form that cannot be neglected. Every year there are 952,000 California citizens who use medical services in Mexico, which majority would happen in Tijuana. When healthcare services are mapped out, we find them either near the ports of entry or near the trolley and greyhound stations. The growth of Tijuana is partially equal to the growth of medical infrastructures. According to the increasing tendency, we predict that the number of medical tourists in Tijuana will soon reach 5.1 million in 2030. City governments of Tijuana, as representatives of Tijuana citizens, may want to find a way to both support the medical tourism industry to keep developing and maintain the quality of citizens' daily lives.

Here our story begins. The best image of short-term tourists is that they come for one-stop service and directly leave. Third governance grows inside the border where patients from the US side and staff from the Mexican side can meet without crossing the border, but entering the border is one option. An NGO will take charge of this grey zoon and manage this medical town. Healthcare staff certified by FDA can make appointments with this NGO and used the shared space to offer services to patients from the US side.

This medical town can be seen as a miniature of the border medical industry. San Diego on the north side represents the real United States, and Tijuana on the south side represents the real Mexico. And this valley, half belongs to the United States and half belongs to Mexico, is a symbol of the true sister cities of the border. Short-term patients in the United States drive into the town, quickly complete the treatment process or buy medicine, and then leave, which is the same as the short-term medical travel in Tijuana. The development process of the medical town can be seen as an experiment of where Tijuana will go. We try to push this process to the extreme and predict what will happen in the future. Maybe at the beginning, this third governance seems quite organized and efficient. But in the end, the inevitable result is new congestion and chaos. This virtual experiment and the predictions about the near future aims to criticize the existing health care system in the United States: the most powerful country in the world, with the best medical technology, their citizens' ill, but they choose to go to a country with much lower GDP to seek for treatment, which is ironic.

We can foresee that healthcare services will grow around the valley. Then what happens when a valley fills up? Maybe the next valley will be opened, filled, and so on. And maybe one day the border will no longer be a line, but a real third country. But is this really what the American government and the American people want? We hope that such a critical project will resonate with people and that the American health care system will be soon fixed.



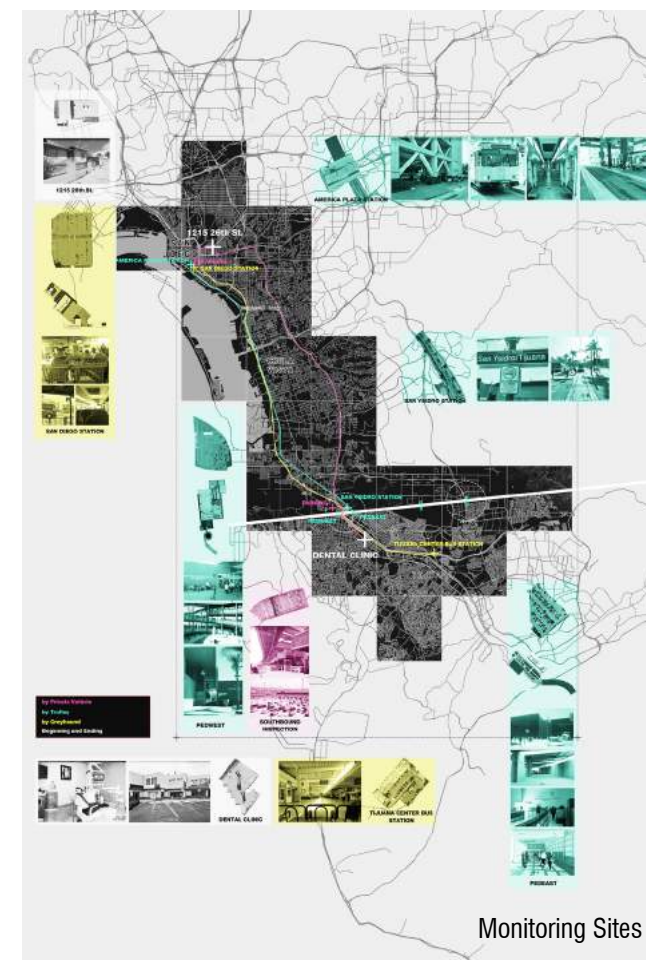
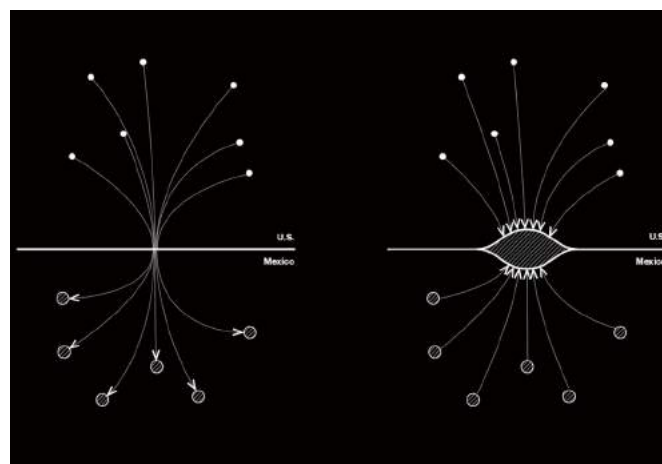


Dilemma of Medical Tourism

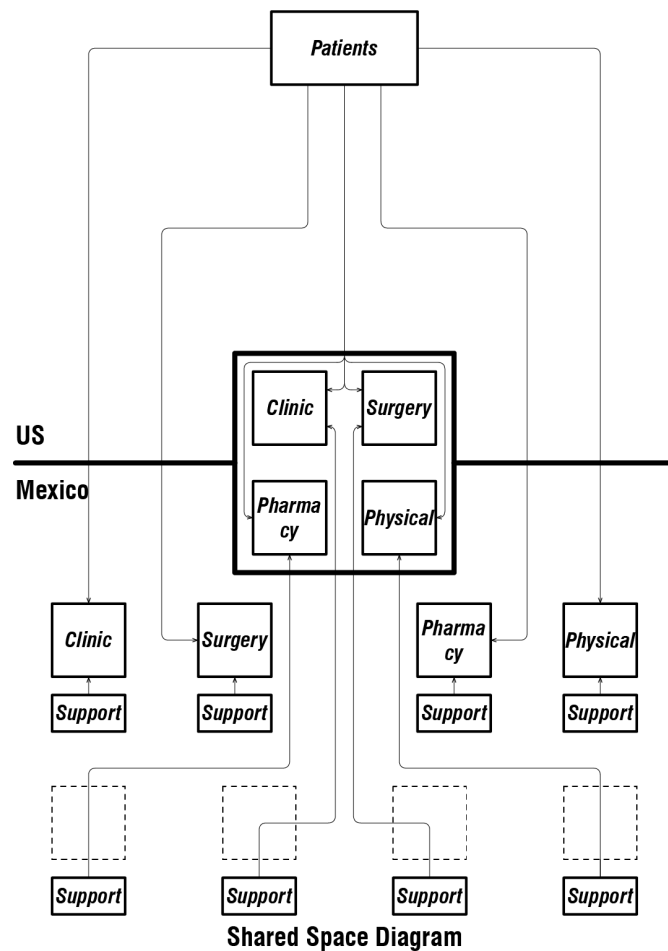
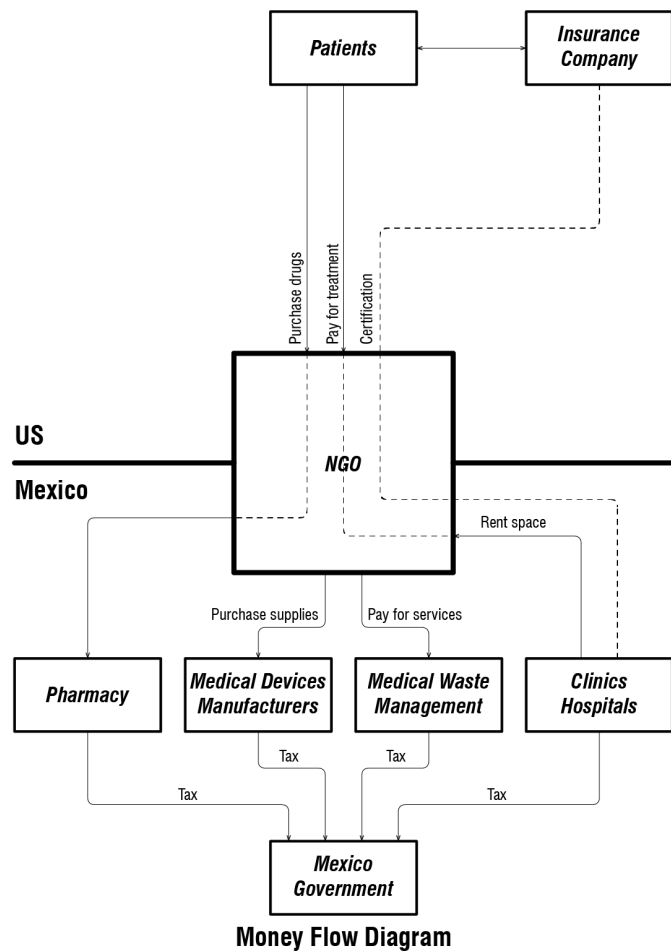
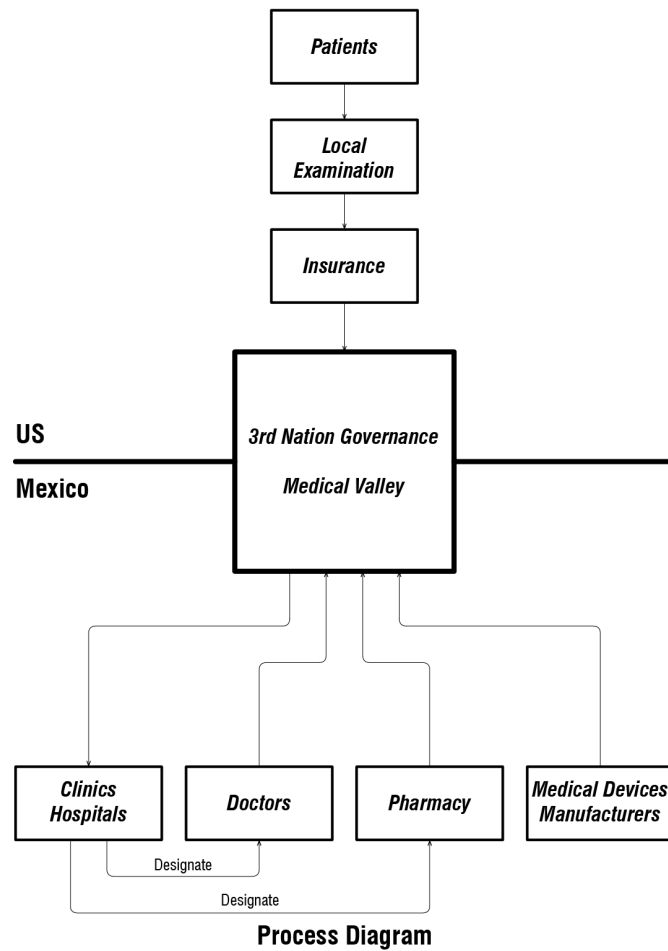
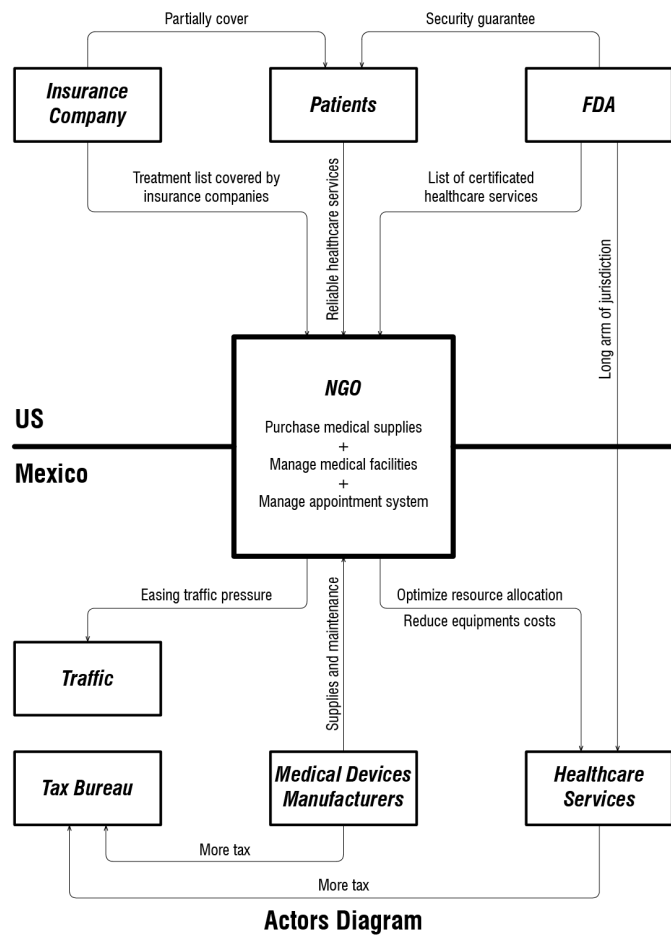
Medical Tourism industry could now reach 100 billion dollars per year. According to the increasing tendency, we predict that the number of medical tourists in Tijuana will soon reach 5.1 million in 2030.

The speed of the growth of the medical tourism industry in Tijuana is much faster than the development of the city infrastructure, and the industry will be limited due to this reason. The growing number of medical tourists will finally disturb the daily lives of Tijuana citizens. Traffic is already a problem in Tijuana and it's going to be even worse. The poor transportation and limited public services will decrease the attraction of medical tourism in Tijuana for patients looking for daytime surgeries or simply purchasing some drugs.

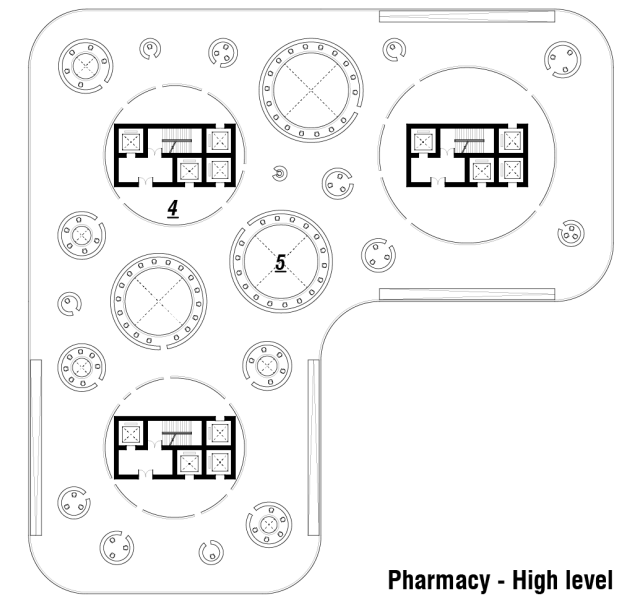
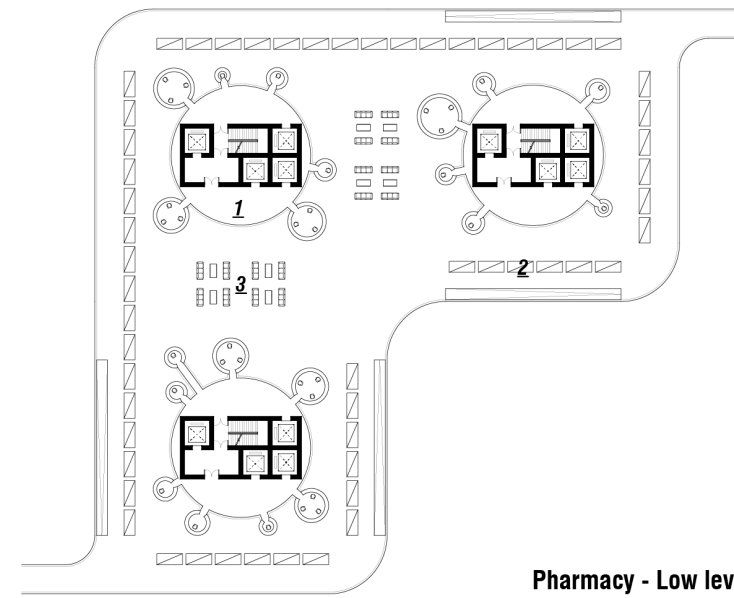
City governments of Tijuana, as representatives of Tijuana citizens, may want to find a way to both supports the medical tourism industry to keep developing and maintain the quality of citizens' daily lives. When analyzing the medical tourists, the first thing is to differentiate long-term tourists and short-term tourists. City government of Tijuana wants to keep the long-term tourists in the city. These tourists will contribute to the development of other industries (tourism, catering, and entertainment, shopping...). City government of Tijuana wants to offer healthcare services to short-term tourists, but doesn't want these people to disturb the daily lives of citizens. A new medical service system may be generated.



Proposal Diagrams



Medical Prototype - Architectural Plans



1 - Aggregated Pharmacy

In low level pharmacies, all the shops are gathered together around the central supply core. Shop assistants will move between the central bubble, where the storage is, and the branch bubbles, where the front desks are, to transport the drugs for customers. Each aggregated pharmacy sells different type of drugs.

4 - Drive-through Pharmacy

The branch form of atriums offer design opportunities for different spatial orientations of pharmacies on different heights. Different from those on low level, branch bubbles gradually aloof away from the central bubble on high level, which makes the gap between each bubble to be wide enough for dual carriageway. With these gaps, we start an experiment of drive-through pharmacies.

2 - Side Parking Spots

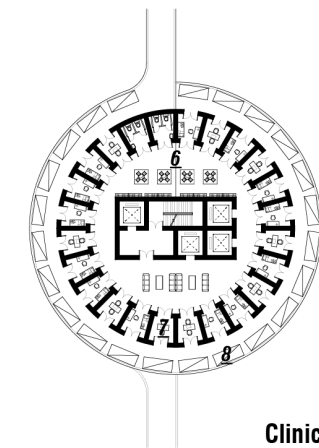
The low level pharmacies majorly aim to serve pedestrian customers. Customers need to park their cars first and then go purchase in the aggregated pharmacies.

5 - Skylights Atriums

Within some branches, when there is enough space, multi-height atriums will allow skylights to enter the building. These atriums will not only be cores of pharmacy desks, but also serve as structure frames. Each bubble will sell different types of drugs, and which drugs will be sold in bubbles with larger area can be flexibly managed based on dynamic sales of each type of drugs. Electric Guide Boards will be needed to help the customers find the specific bubble for them.

3 - Waiting Areas

Customers may need to wait for the transportation of drugs they purchase. Therefore, waiting areas are set in the seam zoon between each aggregated pharmacy.



6 - Spiral Clinic Platform

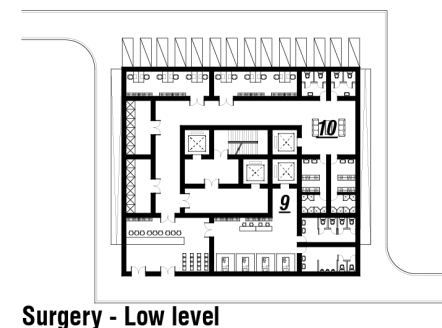
All the clinic rooms are oriented around the central supply core on the spiral platform. The spiral form allows layering orientation of different zoon, including supply zoon, doctor communication zoon, clinic zoon, pedestrian zoon, and parking zoon.

7 - Clinic Rooms

Different types of clinic room orientations are offered. Doctors from Mexico side will register only during the appointment time, and meet patients during appointed time periods.

8 - Side Parking Spots

Since this spiral clinic platform will majorly serve for patients who drive here, each clinic room will have a parking spot associated with it. Patients will park on specific spot and enter the closest clinic room.



9 - Patient Elevator

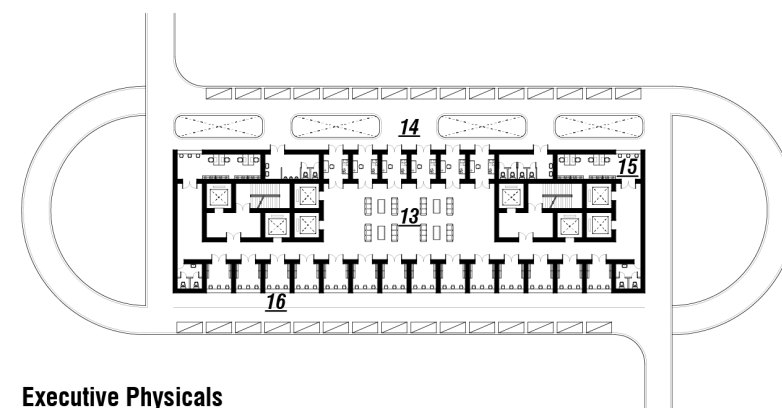
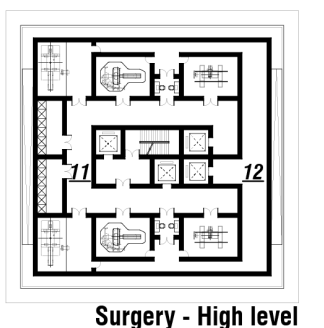
The two story package of surgery space offers a program division opportunity to separate the doctor area and patient area vertically. The patient elevator will not allow doctors to enter; besides it will be isolated from the soil elevator and supply elevator.

11 - Doctor Tunnel

The doctor's tunnel is the gathering space for doctors entering, waste management, and medical supplies transportation.

12 - Patient Tunnel

The patient tunnel is wide enough for the transportation of medical beds. Patients will change clothes, lie on beds on low level, be transited through patient elevator and pulled to surgery rooms by nurses.



10 - Doctor Island

It's the space doctors firstly arrive, connected to the changing rooms.

13 - Gathering Island

The gathering space is where everything gathers: doctors, medical samples, supplies, wastes, and reports. As an inner area, it's strictly separated from the out patients.

14 - Pedestrian Physicals

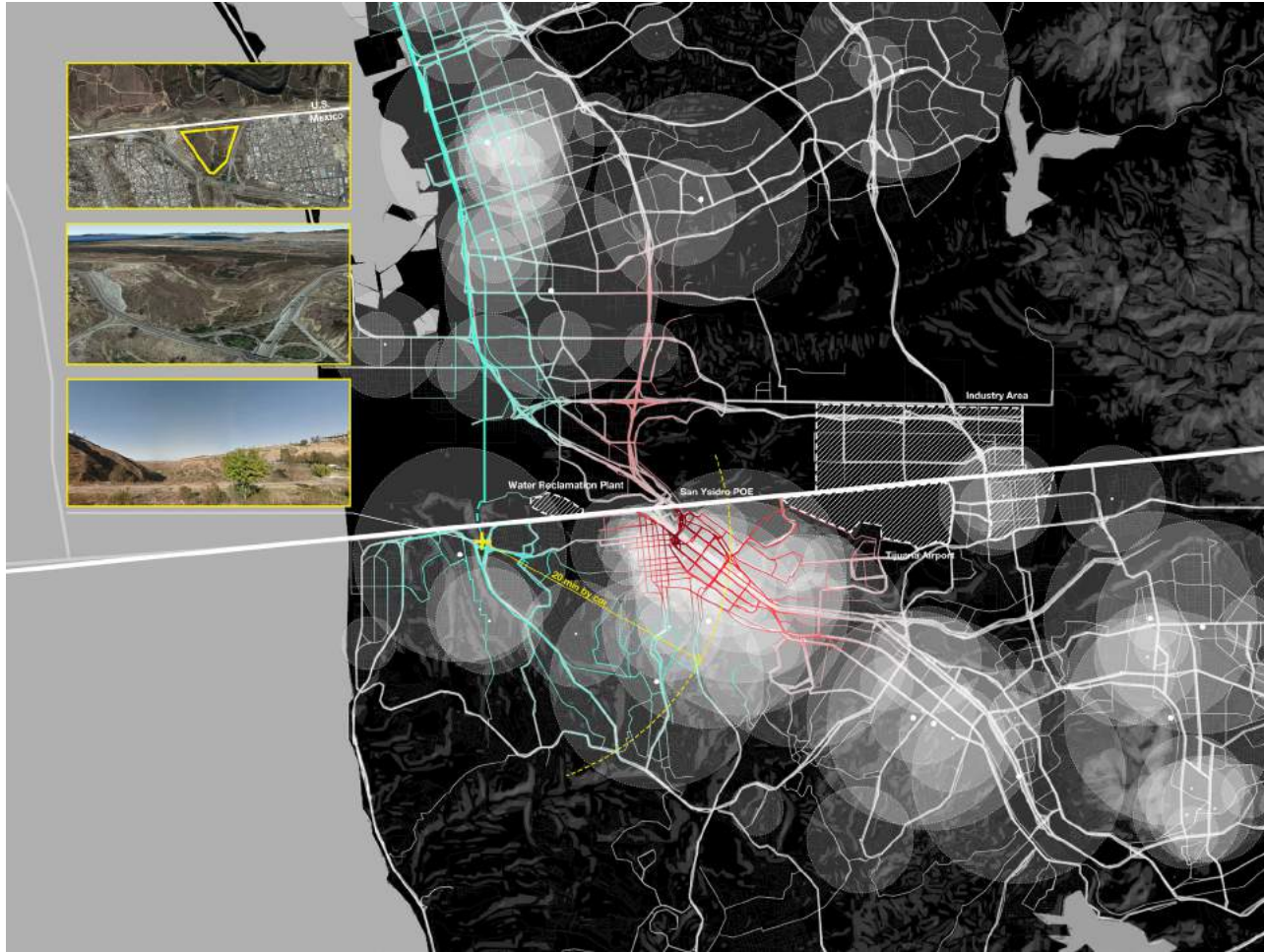
Pedestrian physical rooms are for physicals that cannot be finished in drive-through physical rooms. As additions to drive-through physicals, the number of them is limited. Patients will need to park on the side, walk through the bridges and enter the physical rooms.

15 - Reports Pickup

After finishing all the physicals and waiting for a while, patients can come to the end rooms and pick up their reports.

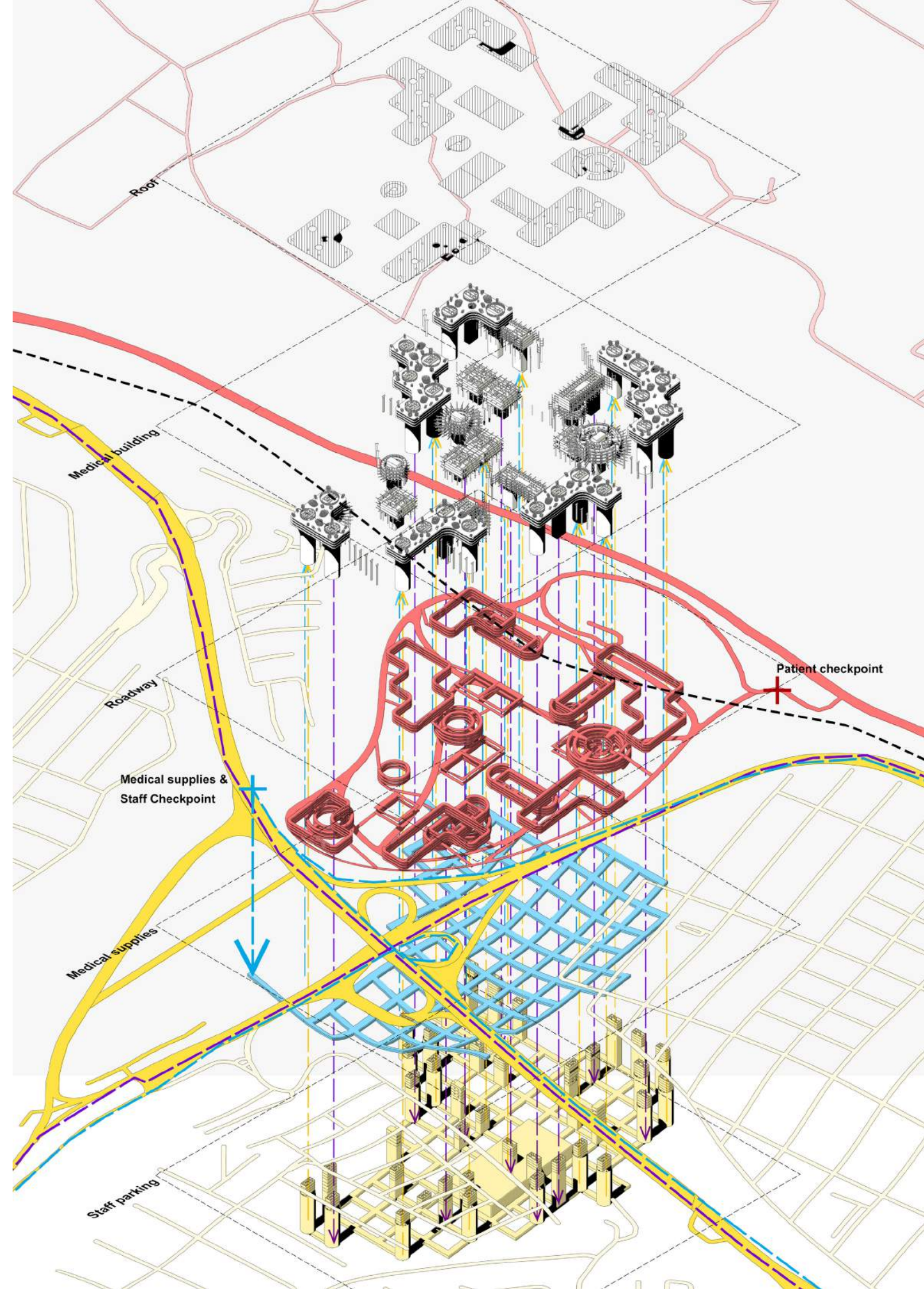
16 - Drive-through Physicals

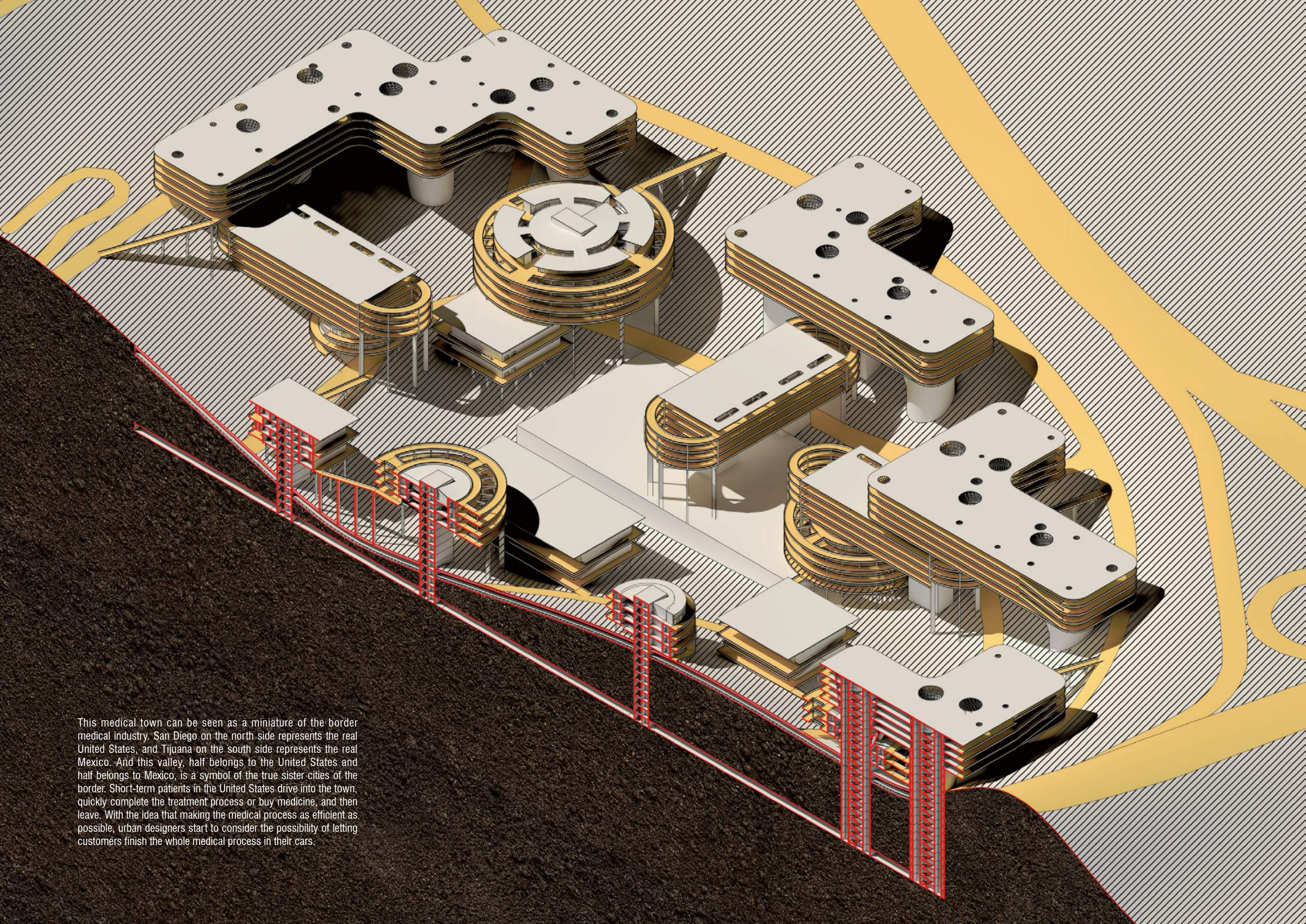
Drive-through physicals are the major physical rooms in the building. Patients don't need to enter the rooms; instead, they can finish most of the physicals in their cars.



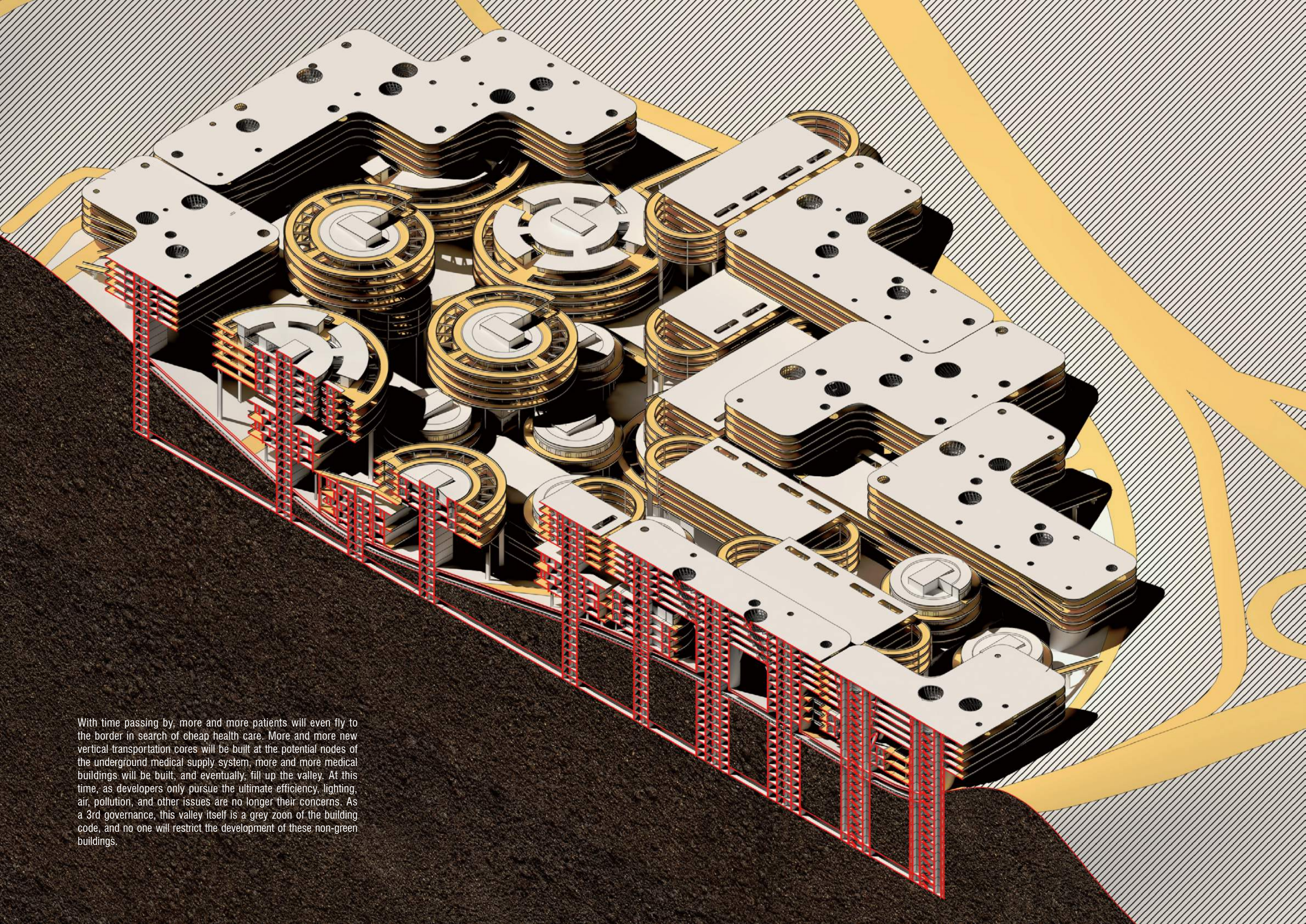
Site of the 3rd governance

The site sits on the border between San Diego and Tijuana. The designers orient the program and space vertically and use the floor plates to separate the patients, staff, and doctors' flow. With the idea that making the medical process as efficient as possible, urban designers start to consider the possibility of letting customers drive into this medical town and finish the whole medical process near their cars, or even in their cars. So they come up with four prototypes, pharmacies, physicals, clinics, and surgeries, for developers to choose from. Different from setting partitions in the way of the grid, developers decide to use a more organic form, setting a system for the whole urban design with the traffic line as the skeleton. Two loops responding to the typology are set and become the foundation for the entire medical town. The underground infrastructure is a rigid grid that has a modulus of 40m, and all the medical facilities are built on that. Different single buildings or combinations will be set in this system according to functional requirements, and all buildings will be connected to the two loops through several secondary roads.

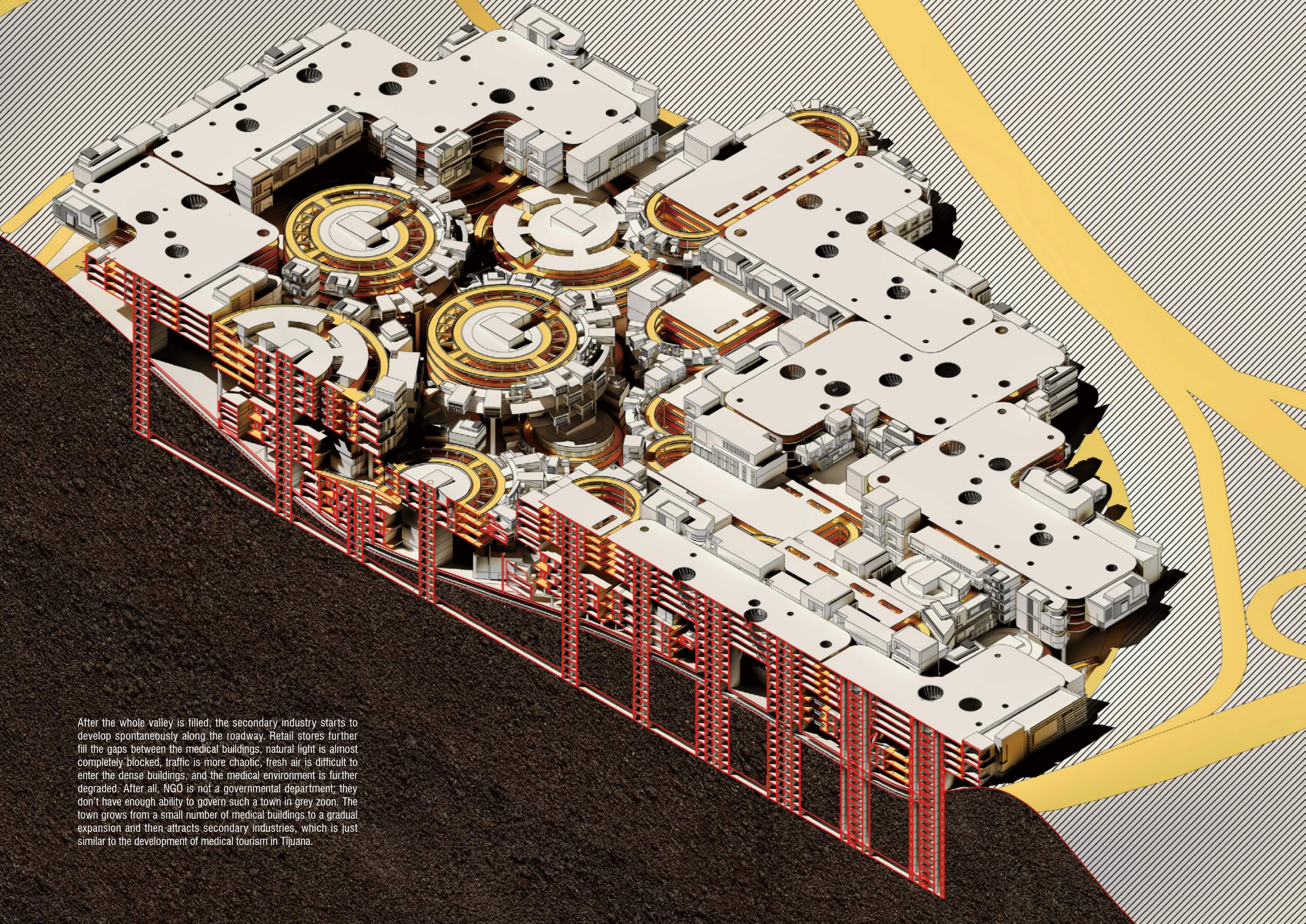




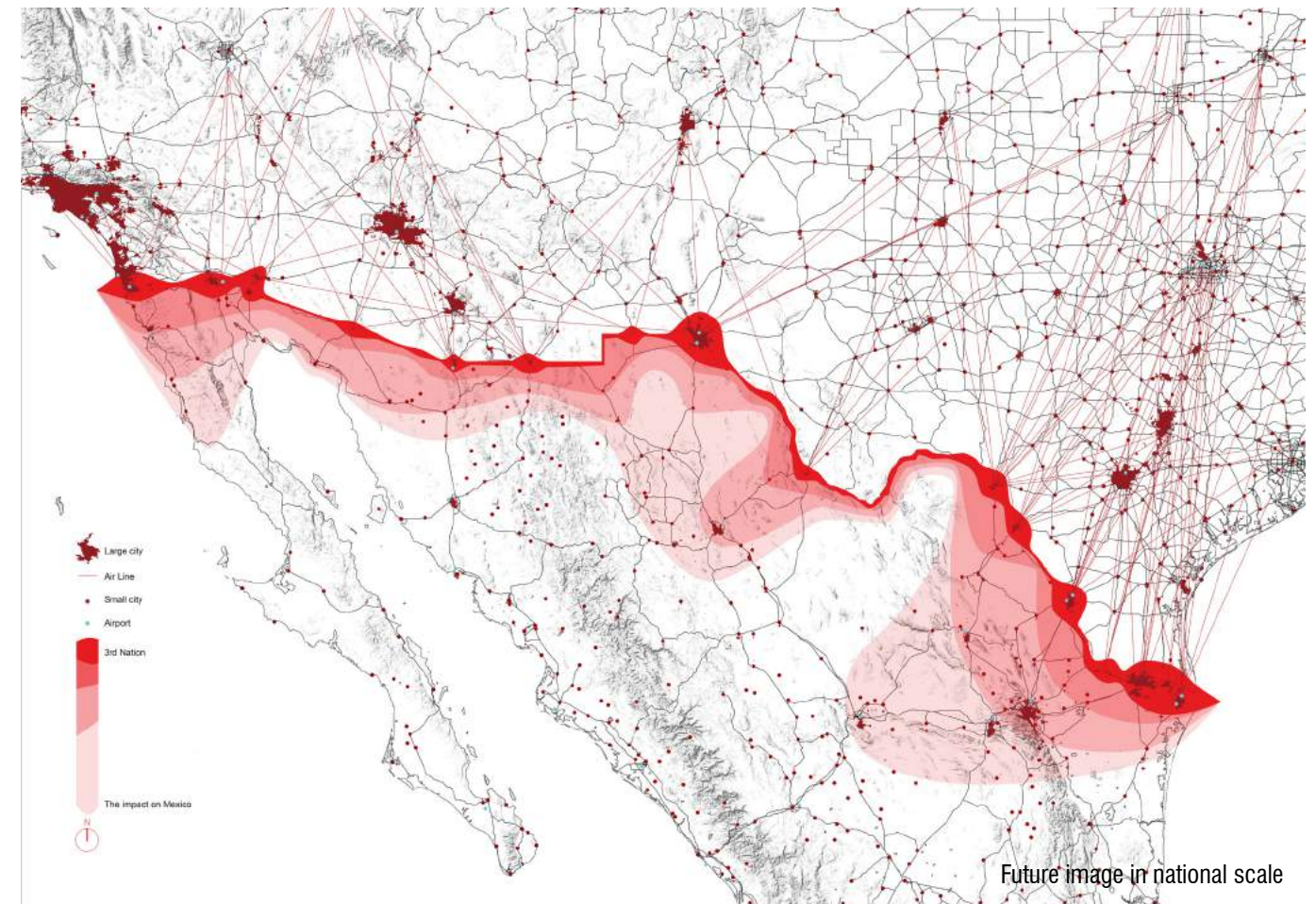
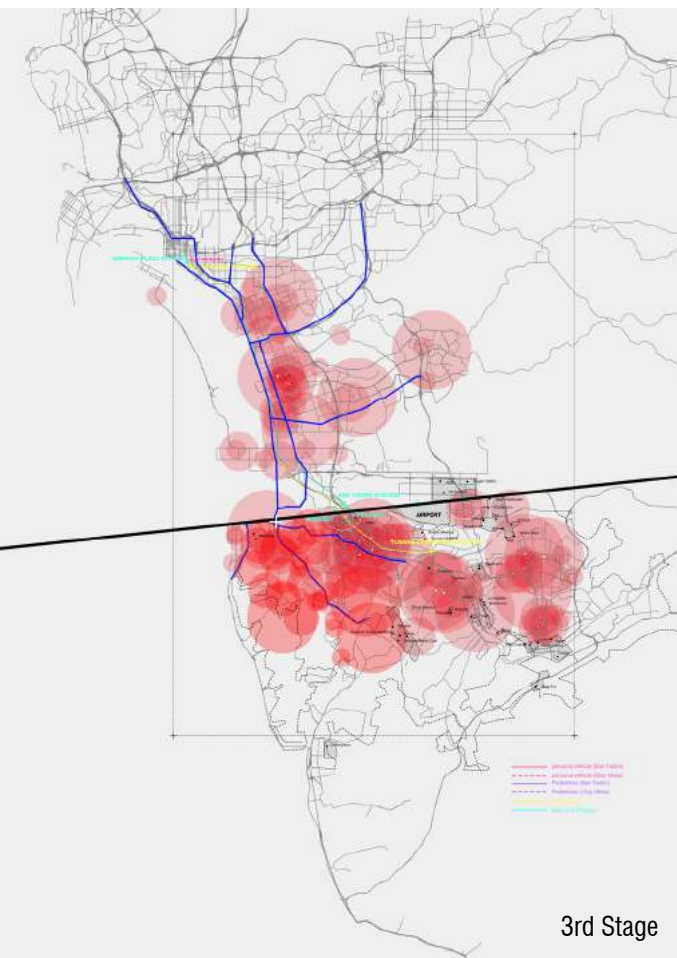
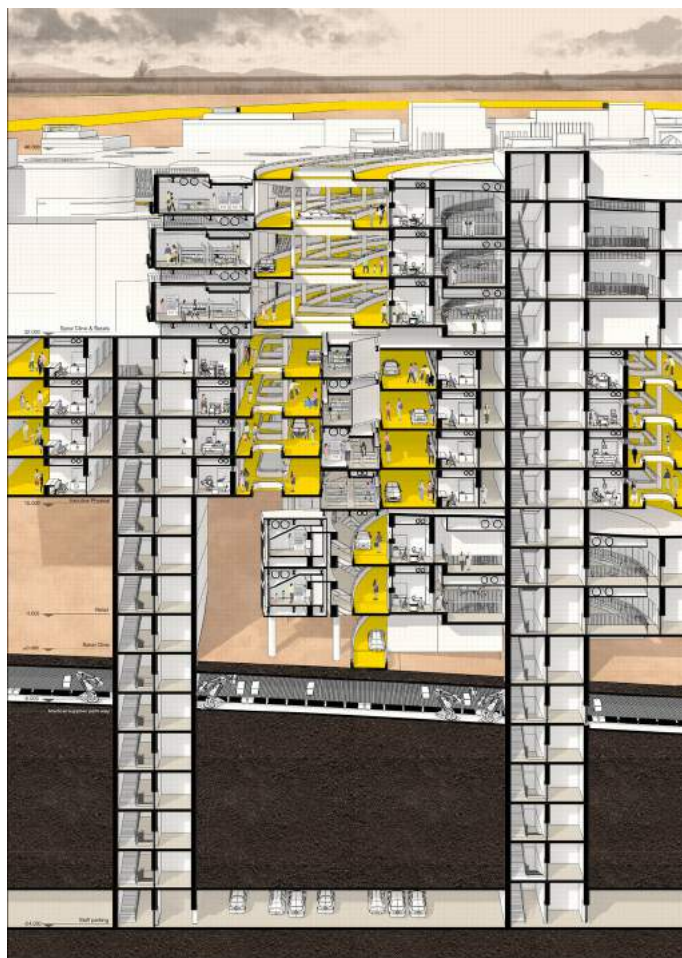
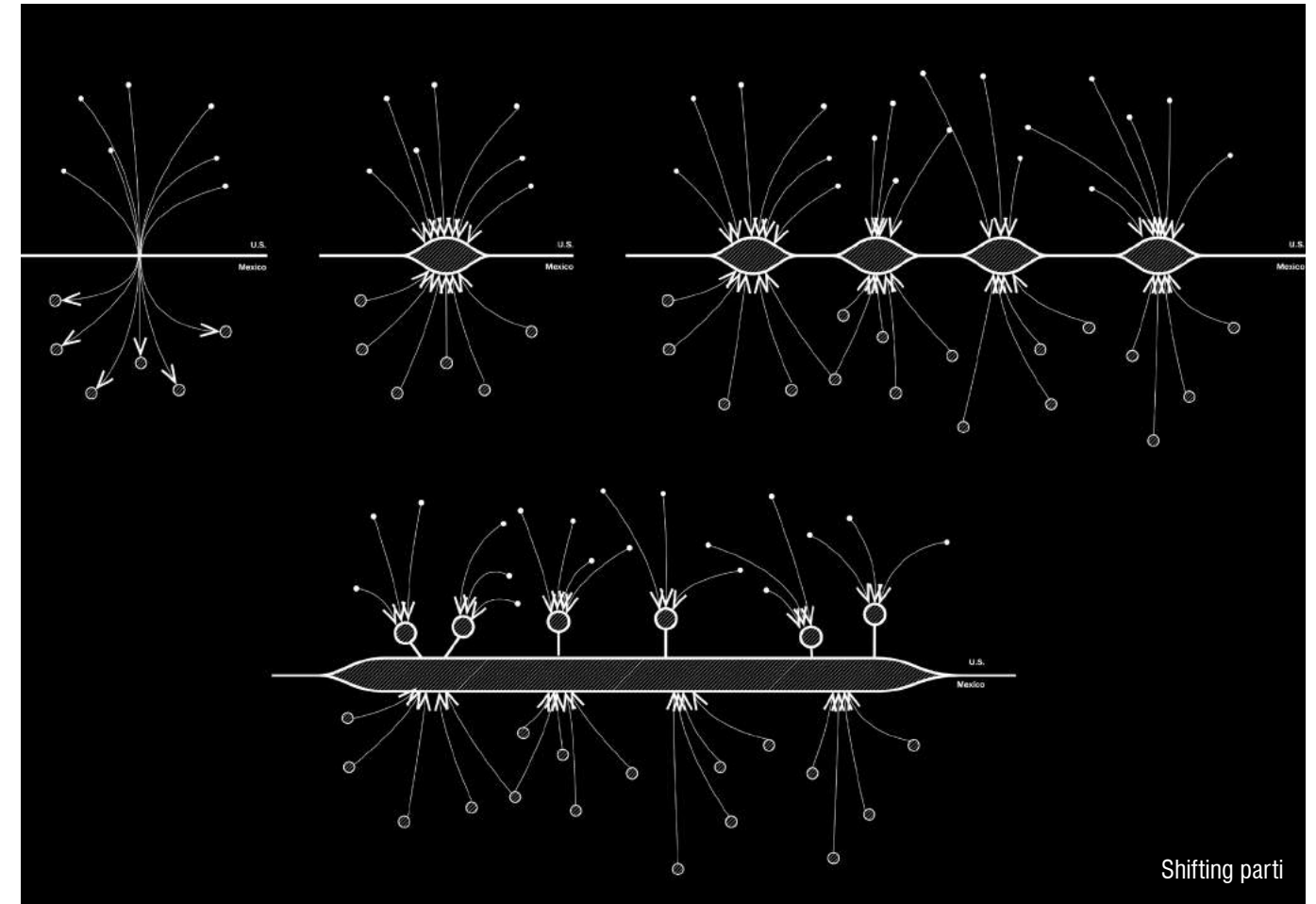
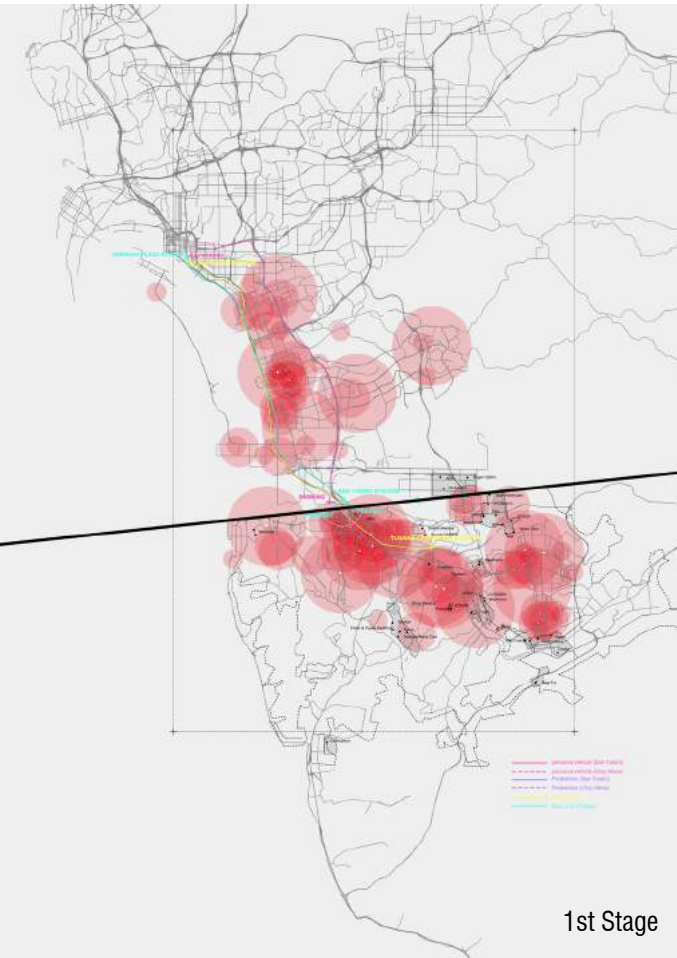
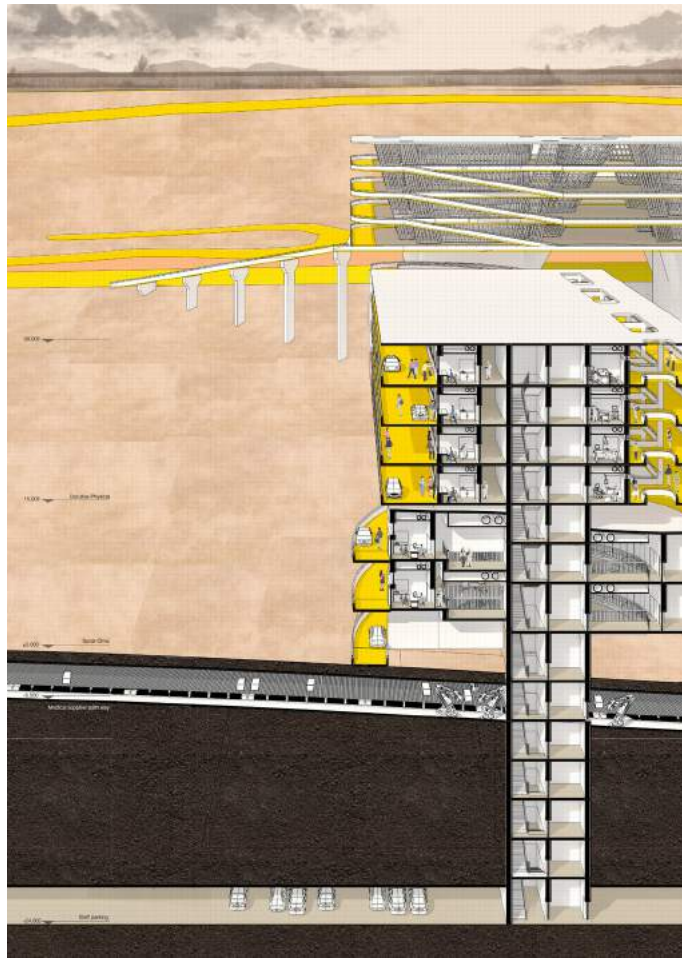
This medical town can be seen as a miniature of the border medical industry. San Diego on the north side represents the real United States, and Tijuana on the south side represents the real Mexico. And this valley, half belongs to the United States and half belongs to Mexico, is a symbol of the true sister cities of the border. Short-term patients in the United States drive into the town, quickly complete the treatment process or buy medicine, and then leave. With the idea that making the medical process as efficient as possible, urban designers start to consider the possibility of letting customers finish the whole medical process in their cars.



With time passing by, more and more patients will even fly to the border in search of cheap health care. More and more new vertical transportation cores will be built at the potential nodes of the underground medical supply system, more and more medical buildings will be built, and eventually, fill up the valley. At this time, as developers only pursue the ultimate efficiency, lighting, air, pollution, and other issues are no longer their concerns. As a 3rd governance, this valley itself is a grey zone of the building code, and no one will restrict the development of these non-green buildings.



After the whole valley is filled, the secondary industry starts to develop spontaneously along the roadway. Retail stores further fill the gaps between the medical buildings, natural light is almost completely blocked, traffic is more chaotic, fresh air is difficult to enter the dense buildings, and the medical environment is further degraded. After all, NGO is not a governmental department; they don't have enough ability to govern such a town in grey zoon. The town grows from a small number of medical buildings to a gradual expansion and then attracts secondary industries, which is just similar to the development of medical tourism in Tijuana.



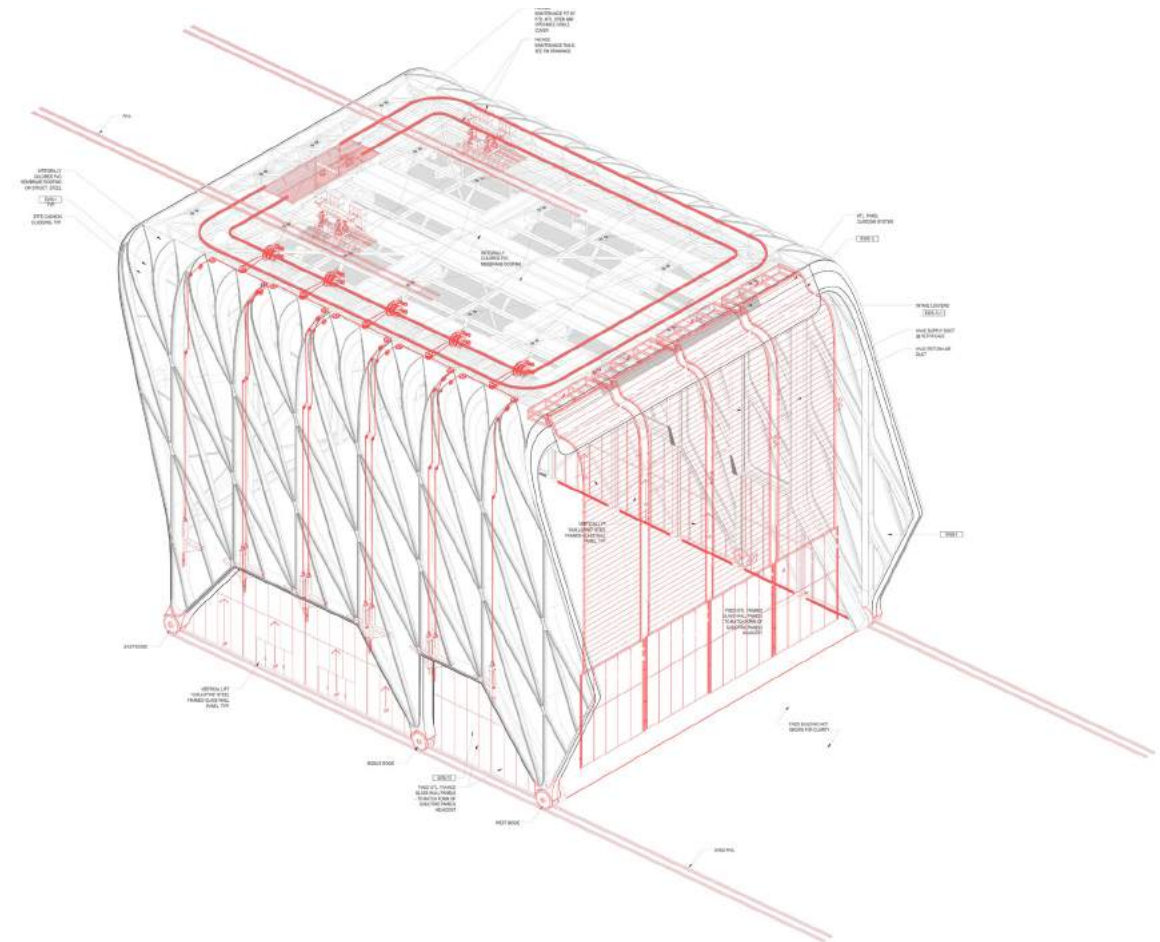
Possibility Maker

A critic on the Shed

02



Type: Academic Work
Partner: Haotong Xia & Yinlei Pang
Instructor: Andres Jaque
Date: 2021 Fall



What can be done publicly with a limited funding of \$550 million? The Shed gives one answer: It is mobilizing a huge amount of resources - \$550 million, maintenance fee every year, and 11 years of development.

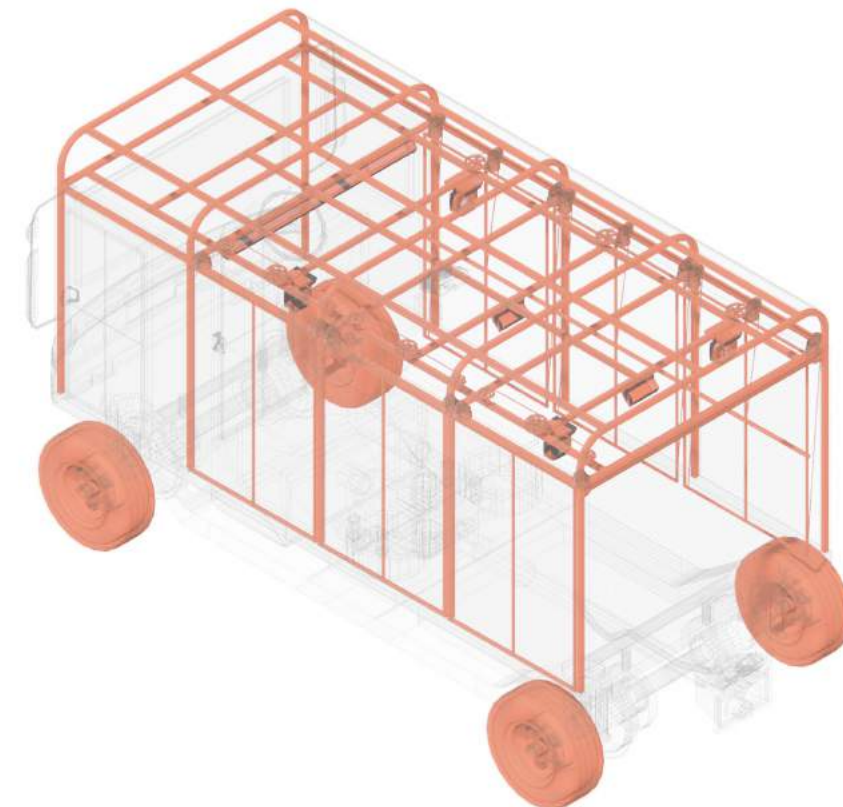
When looking at the details of the Shed, we find it is full of wheels. Eight wheels at the bottom called bogies and a rack and pinion system on the roof of the base building allow the Shed to deploy on a rail and occupy the public plaza. The Toothed Wheel system allows the Shed to operate the side glass doors and elevate the windows while deploying. The drive wheel and roller system allows the Shed to deploy curtains and control the inside space. The wheel and track system on top of the Shed allows the window cleaning machine to adapt to different positions and contributes to the maintenance of this shiny icon.

Moving is a big thing for the Shed, but moving is also making things complicated, it means additional cost: The dynamic conditions will lead to thicker beams and more columns of the foundation, more steel materials in the deployable frame, and a more complex structural system. In total, moving added 1666 ton steel, 168,100 kilojoules of energy, 4277 ton Co2 emissions and about 3 million dollars cost. In fact, the total funding of the Shed is much more than those of some other art institutions in New York City.

Who really need public space are the areas out of Manhattan Island. Then how to offer flexible public space to people who really need it? We decided to take advantage of the existing rail system. We summarized 3 systems from the existing ones, within which all rails are connected. The first system connects most of the rail stations and it majorly serves for new arrivals to NYC. The second system connects Manhattan and the rest. And the third system majorly travels in Manhattan Island. New carriers we propose will be traveling on this rail system, and this new design of carrier will be flexible enough to offer different types of public space to the whole city.

Here is the Possibility Maker. Each of them has an engine to support its transformations, and all the mechanical systems in the Possibility Maker learn from the Shed, but on a smaller scale and are used with different proposals. Instead of occupying and privatizing public space, the Possibility Maker is unfolding publicness as a mean for collective emancipation.

So, again, what can be done publicly with a limited funding of \$550 million? The Shed provides an 18,000 SF public space, which can reach 35,000 SF when deployed. Possibility Maker can offer a 160 SF public space per car, which can reach 320 SF when deployed. When multiplying 3000, the numbers become 480,000 and 960,000 SF. Putting them into the same scale, it becomes an approximately 30 times comparison. And remember, the Shed is not that flexible, but our Possibility Maker is much more flexible for various functions and is able to travel around the whole city.

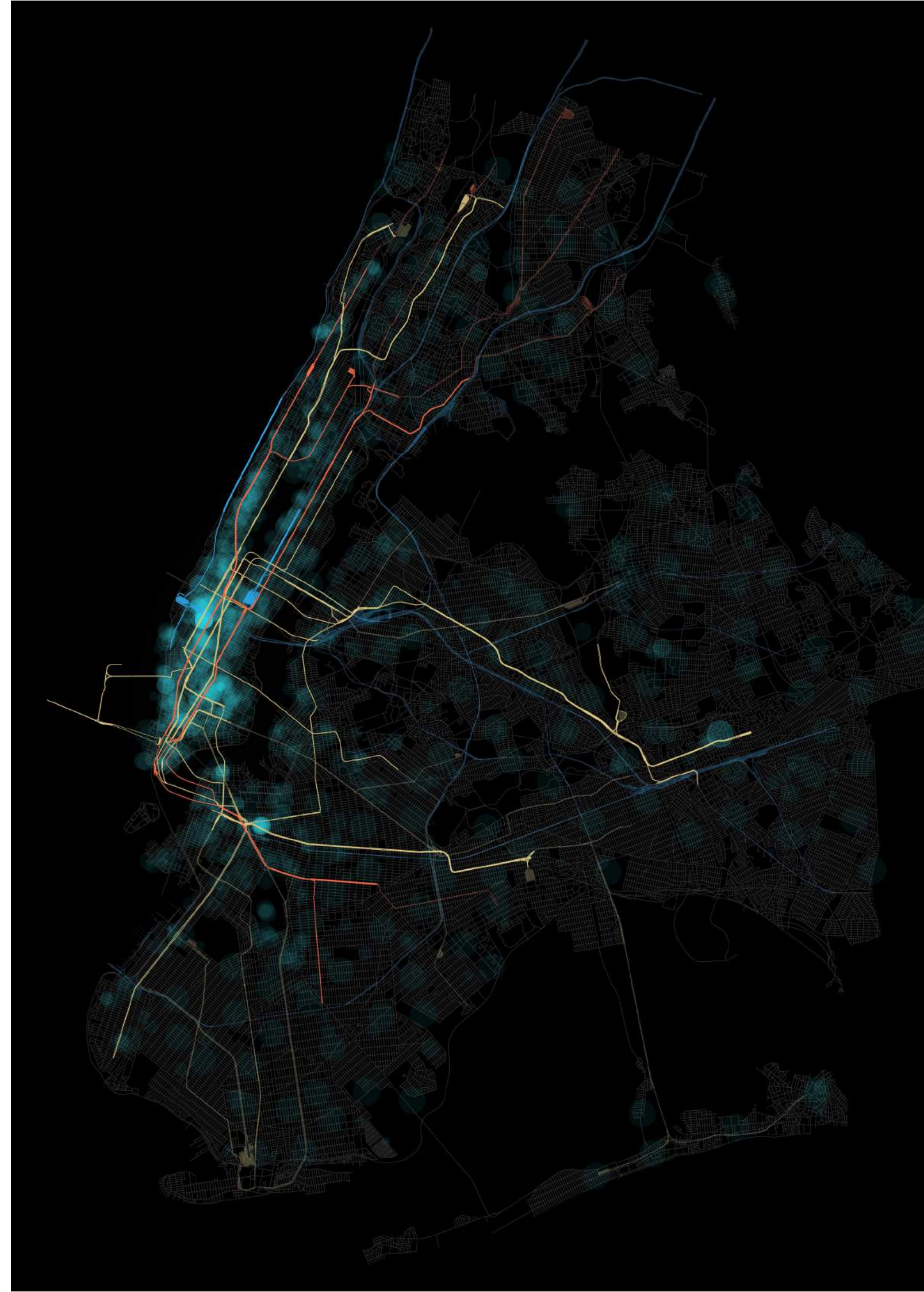




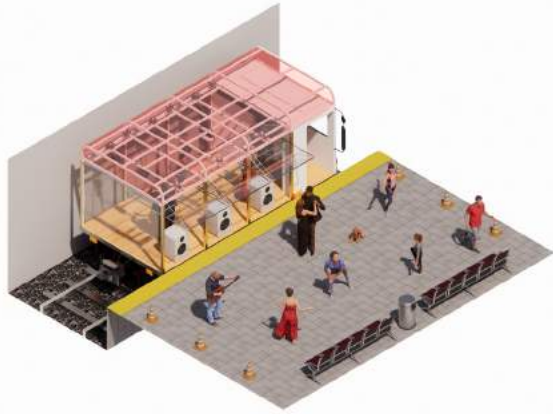
Intervention and System

The bogie system in Possibility Maker is to help it break the limits of rails and travel to every corner of the city. The kinetic system helps it to extend the interior space vertically to respond to different conditions. The toothed Wheel system opens both sides of Possibility Maker to let the space flow from interior to exterior. The drive wheel and roller system enables the shutter door on the back to be rolled up to open the interior space. The wheel and track system is under the roof in Possibility Maker, which allows the lights and projection to move and reposition them for different demands.

Practically speaking, Possibility Maker requires three different management systems: one under MTA's management, one cooperates with some NGOs, and one online to respond to immediate needs. So how much does each car cost? After researches and calculations, we get the number: \$90,000. Now, we can set up a plan on how to use this \$550 million. We can produce 3000 cars with only half of the budget. And the rest half would be spent on issues listed here. Based on the length and users of each system, different numbers of cars will be assigned to them. 1000 for system 1, 1500 for system 2, and 500 for system 3.



Dance Floor



Location: Abandoned stations

Abandoned station platforms will be used as temporary dance floors for low class people who cannot afford a formal bar. Audios will be placed on the cars at the time, and people will be picked up at other locations and dropped off here.

Exhibition



Location: Dead end

Exhibition for individual artists will be held at the dead ends of the rail system. The special rail condition offers an opportunity to expand available spaces by setting two parallel cars and connecting them through the deployment of the side panels.

Education



Location: Public park

Not all communities have their own community centers, and many poor communities do not even have an available space to do the necessary low popularization and basic science popularization for their kids. The car can provide them with a temporary place to carry out these educational activities.

Festival



Location: Public park

As a multi-ethnic city, New York is inhabited by residents of all ethnic groups. Different nationalities have their own festivals, some of which will inevitably be ignored. Cars can provide a suitable space for these minorities to hold their festival celebrations.

Interview



Location: Street parking

The car carries interview tools such as artificial lighting, sound recording equipment, cameras and chairs. The flexibility of the car helps it effectively respond to emergencies, arrive at the scene in time and conduct interviews quickly.

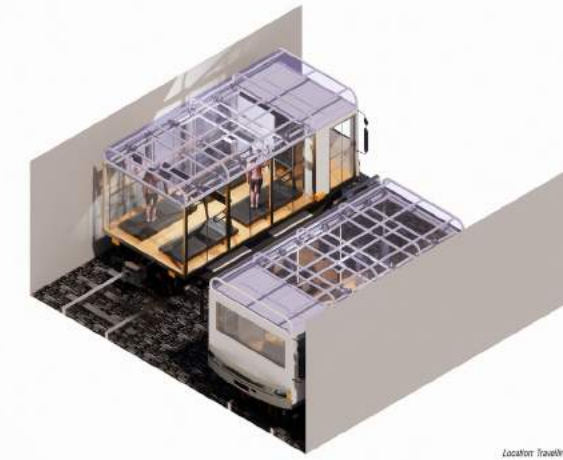
Library



Location: Subway stations in use

The car can be used as a special subway car. It will only stop at a few special stations and have specific passengers, such as students living far away from the school. Books, magazines, sofas or beds will be placed in the car to turn into a small library to provide activities for students.

Gym



Location: Travelling

The car provides a small gym for children who live far away from school, so that children can exercise on their way to school and home from school.

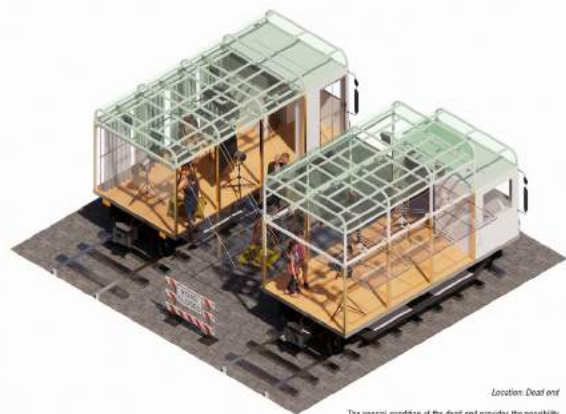
Laundry



Location: Public park

Cars regularly stop in poor communities in a planned way, and provide public welfare laundry services for homeless and low-income people at a fixed time every week.

Photography



Location: Dead end

The special condition of the dead end provides the possibility to open a temporary photography studio to provide necessary public welfare certificate photography for low-income people. The two cars side by side and connected provide opportunities for close-up and medium-range photography.

Daycare



Location: Public park

In many low-income communities, people need to work a few jobs at the same time in order to support their families. The car can drive to these communities to provide daycare services.

Medical Care



Location: Street parking

The cars stop regularly in poor communities to provide physical examination services for low-income people and the elderly and children with inconvenient travel. In special times, the cars can also go to every corner of the city to provide vaccination services for residents.

Movie Theater



Location: Public park

The car stops in a public park and turns into an open-air cinema. The flexibility of the car helps it bring the artistic atmosphere to the edge of the city and bring it to every resident of the city, no matter poor or rich.

Shared Kitchen



Location: Public park

The car stops in a public park and turns into a shared kitchen for homeless and low-income communities. It will not only be a place for storing lockers, but also a place where people can get connected with each other.

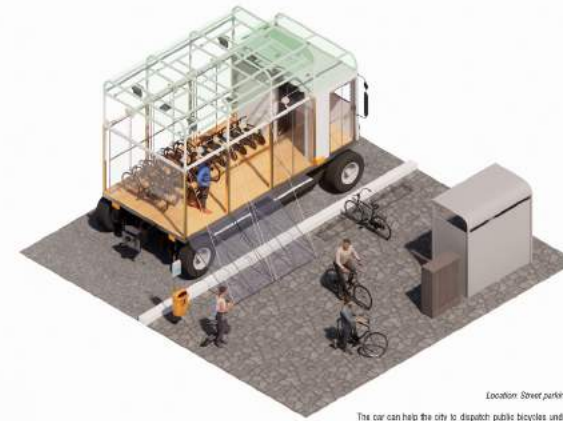
Shared Sports Facilities



Location: Abandoned stations

Abandoned station platforms will be used as temporary platforms and other shared sports facilities for low class people.

Shared Public Bikes



Location: Street parking

The car can help the city to dispatch public bicycles under special circumstances. For example, in the case of large-scale gathering of people such as gatherings, parties, celebrations and sports events, the car can urgently dispatch public bicycles for them to help evacuate the crowd.

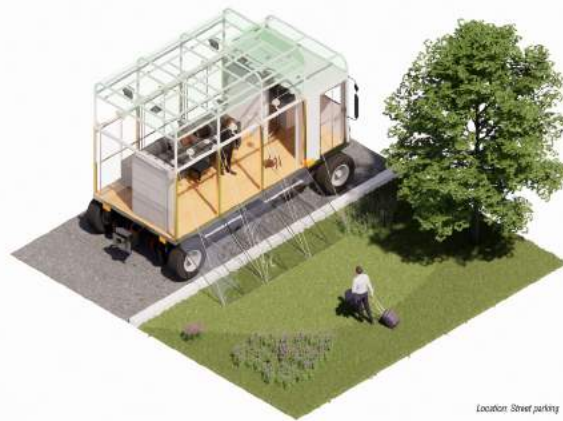
Sightviewing



Location: Travelling

The car can be used as an urban publicity tool for New York City. At the far end of the railway system, such as North Manhattan, the railway track is stretched on the bridge in the form of light rail, which provides the possibility for the car to be used as a sightseeing car.

Translation



Location: Street parking

New York has a large number of ethnic minority communities, and not all of its residents can speak English fluently. The car will stop by their street when necessary to provide them with necessary translation services.

Emergency Care



Location: Street parking

The flexibility of the car allows it to be used as an emergency treatment in very occasional cases of necessity. The car can be used as a potential candidate for the existing emergency care system. In case of special circumstances and gaps in emergency resources, it can immediately participate in the activities.

Vote



Location: Street parking

Under various special circumstances, a large number of residents choose not to go out to vote, which reduces the coverage of democratic elections. The car can drive to these communities to provide temporary polling stations for these areas.

Dinning Car



Location: Public park

During activities or gatherings, the car can be dispatched to these places to provide food for people. This is not a profitable business, but should be regarded as an auxiliary service to help other major activities go smoothly.

Flood Protection



Location: By the river

New York City is a city threatened by floods. The car can provide flood protection support for the city and participate in flood relief operations during flood seasons.

Package Picker



Location: Street parking

The car can be used as a supplement to the infrastructure of New York and contribute to strengthening the delivery system. This function can be used as an additional task during the return journey of completing other activities.

Grocery



Location: Public park

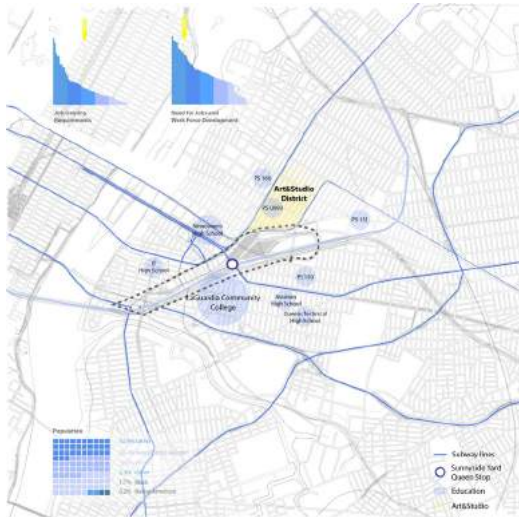
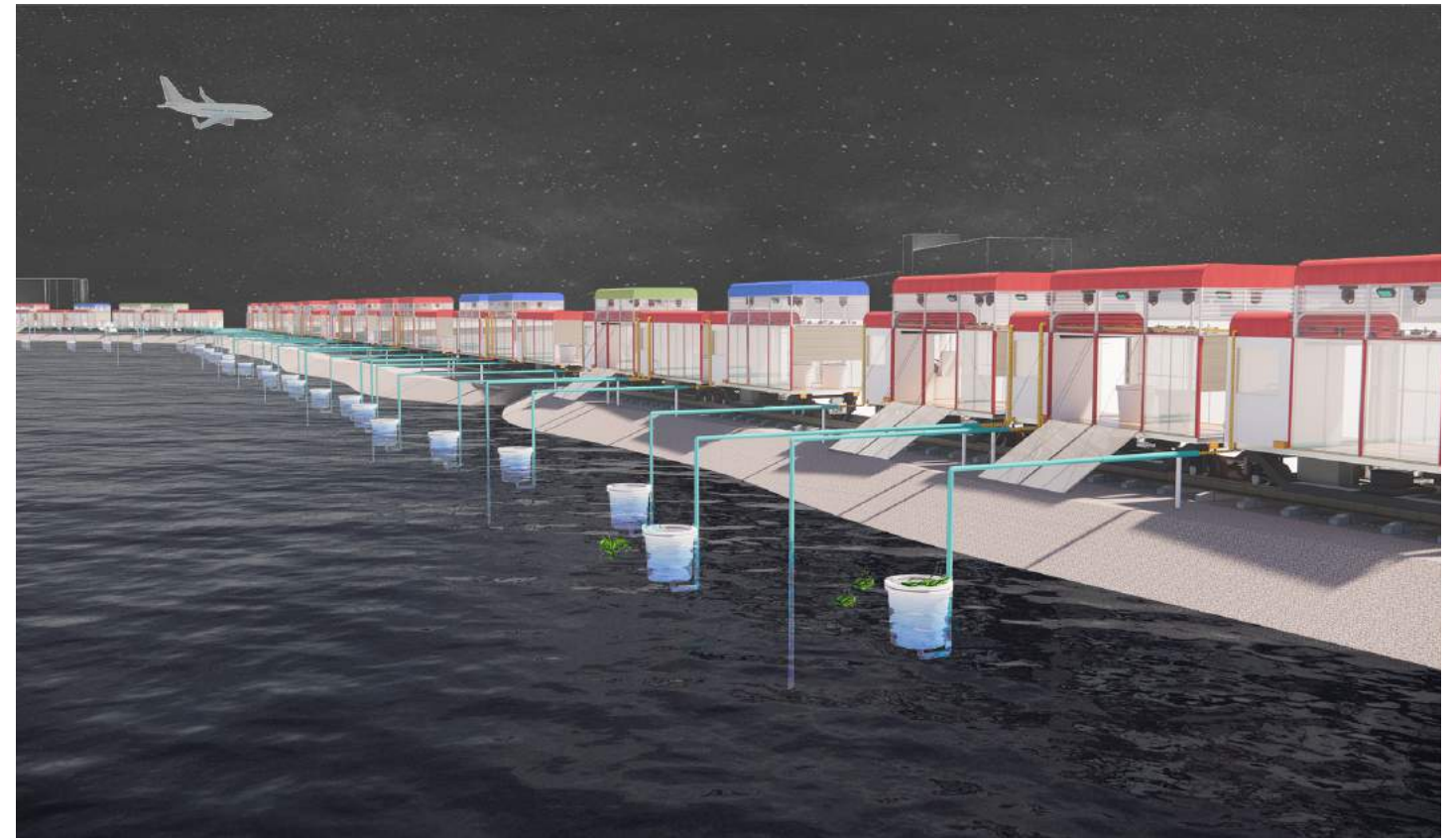
Grocery aims to provide temporary selling places for farmers in New York state. Car rental itself is not for profit. It is more to provide convenience for farmers and provide fresh agricultural products for some low-income communities.

Flower Shop



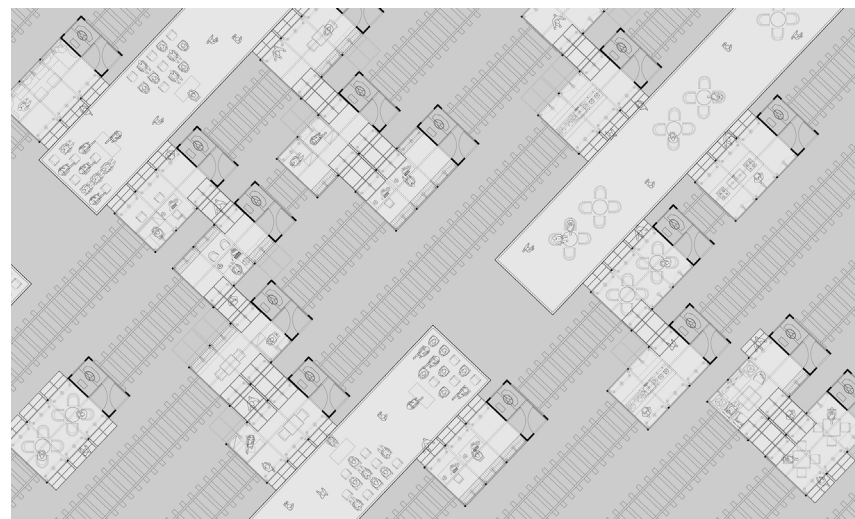
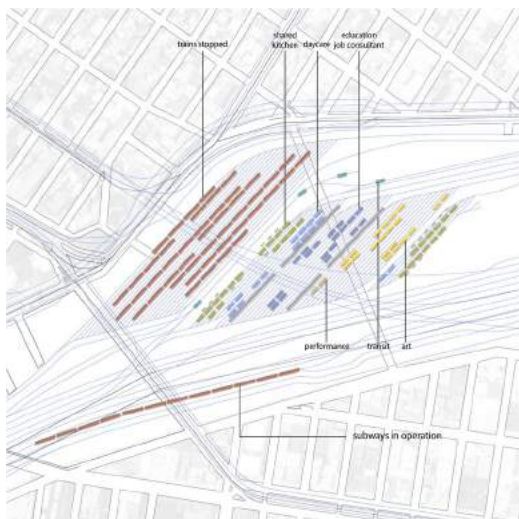
Location: Abandoned stations

In some abandoned stations that people can still walk into the platforms, cars can help transport goods and transform these platforms into small shops, such as an underground flower shop.



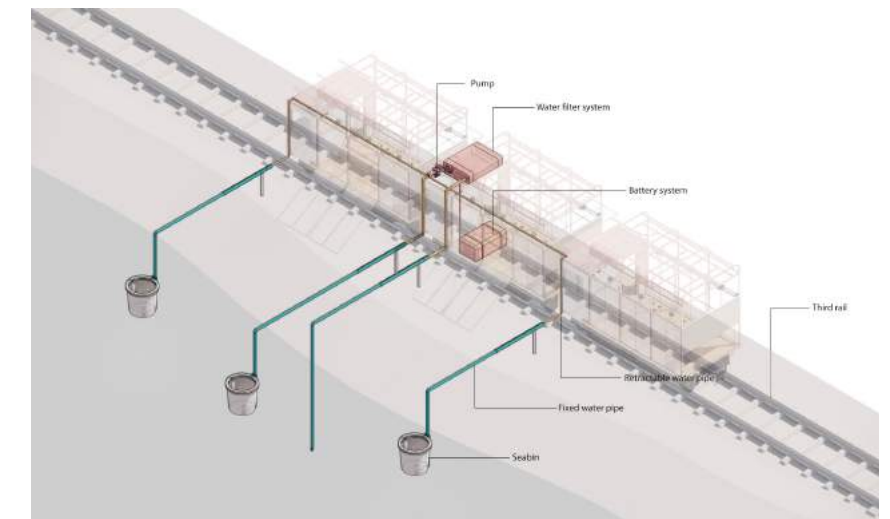
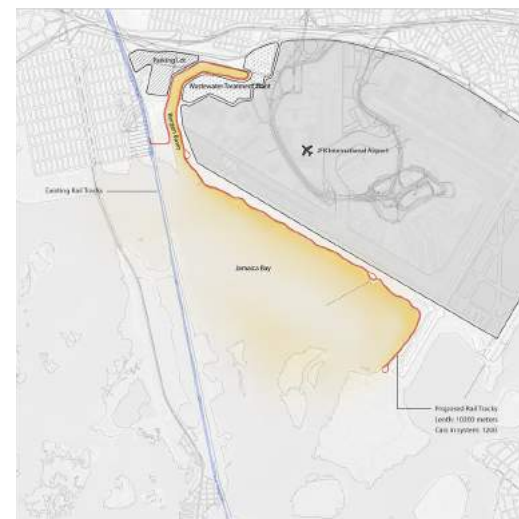
Dead end

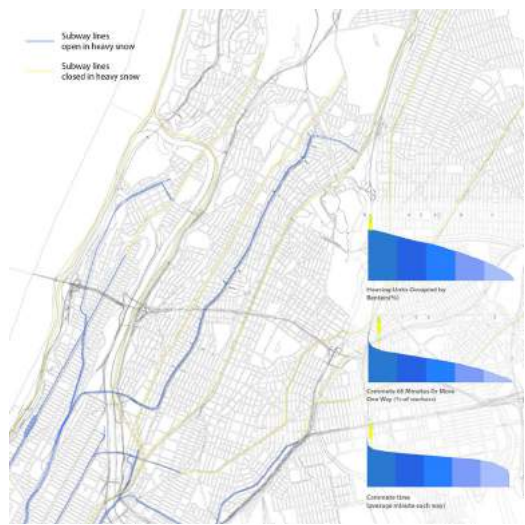
The first condition is in the dead end. It provides space for long-term deployment and a place for rail-to-road transition. Sunnyside Yard Queens is in a diverse neighborhood with a number of schools around. In March 2020, a new Sunnyside Yard Master Plan was released by the city, one goal of which is to establish seamless job training-to-employment pipelines for whom live or receive education in the area. The master plan may still take years to come true, but the demands have already been here. According to the research, there are huge demands on job training and workforce development. Therefore, before the new master plan is constructed, possibility makers can serve as an urgent transitioning response.



By the river

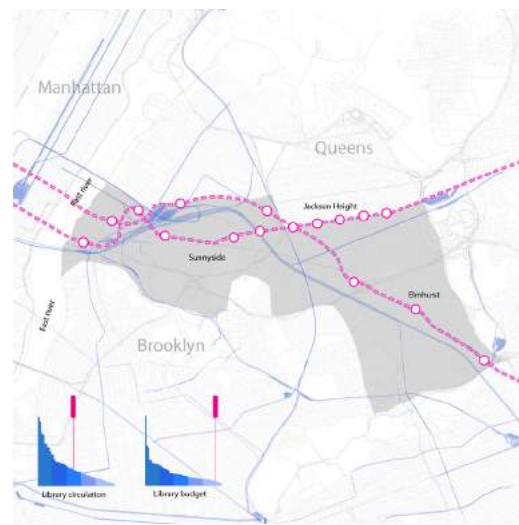
The second condition is by the river. There is a pollution problem in Jamaica Bay. When demand for public service is low, Possibility Makers will be dispatched to the waterside and cooperate with NGOs to help purify the water. Possibility Makers will come and park at the newly constructed rails on the beach of JFK airports, which is in a major polluted area, and has no current programs ongoing. The trash collectors are fixed on the rails to collect trash and dead seaweed, and when the Possibility Makers come at night, pipes on the cars will be connected to the collectors, and the purification will start. The Possibility Makers will use their engines to pump water from the Bay. Every night, 300 million gallons of water will be purified by 1200 cars.





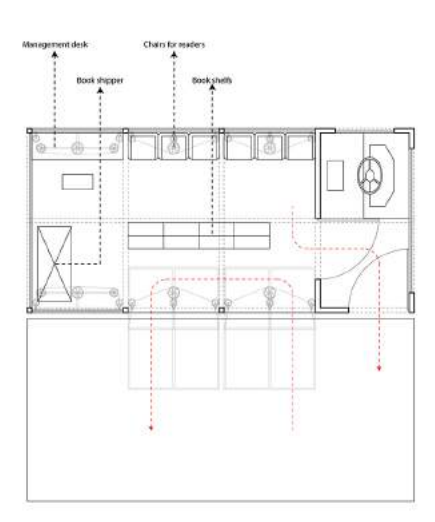
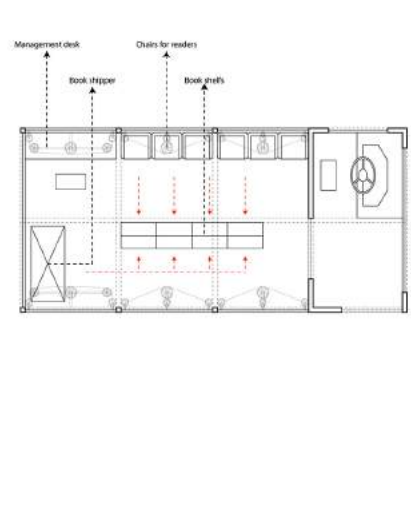
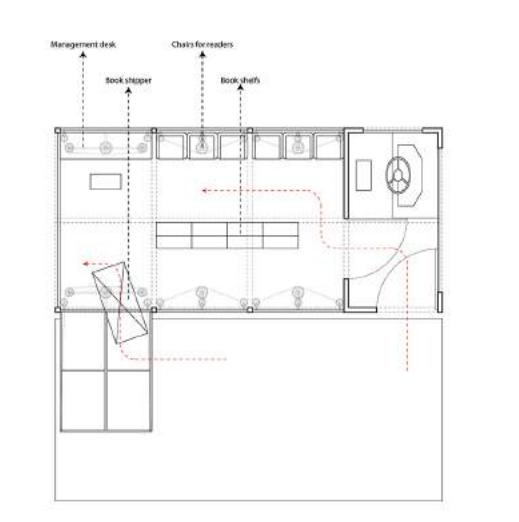
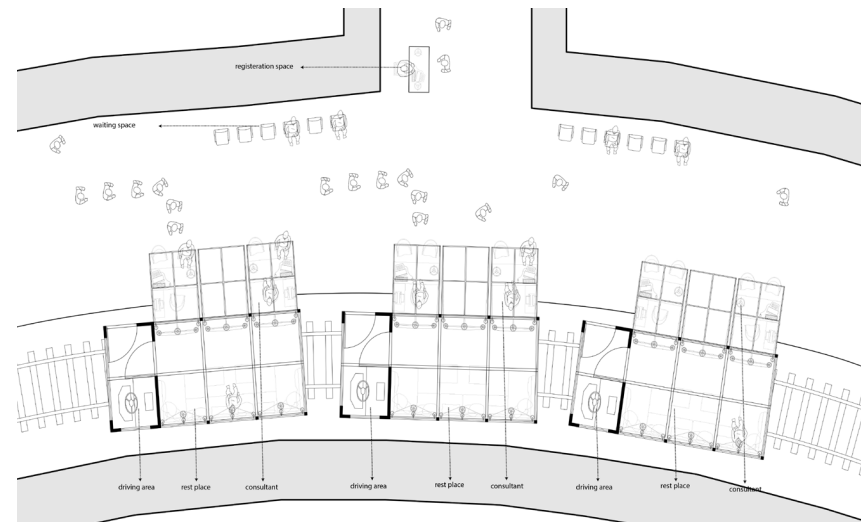
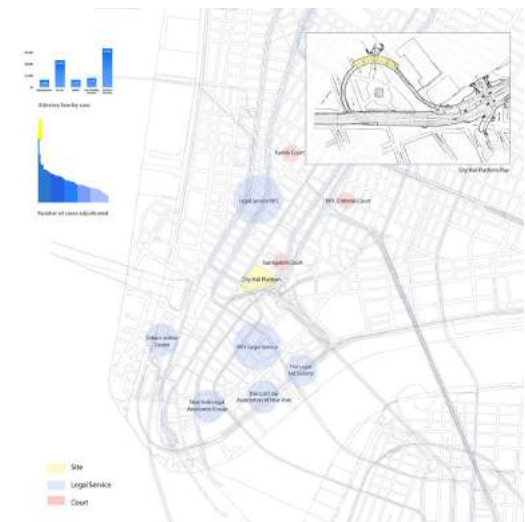
Abandoned stations

The third condition is the abandoned stations. There are 12 abandoned stations around the city. Some of them are totally blocked from the rail system. And some of them are still accessible for subways, only the platform is abandoned. This City hall station is partially abandoned, which sits around three important city courts in downtown Manhattan, where most cases are adjudicated. Most of the current legal services are located south of the city hall, far from the courts. Therefore, possibility makers will be sent to this abandoned station and offer non-profit legal services for people in need.



Stations in use

The fourth condition is the stations in use. The library circulation among students in Sunnyside and Elmhurst is higher than the average of New York City. However, the library budget in this area is at the lowest level in New York City. Therefore, we set some of the travelling possibility makers passing through stations in this area as libraries on rail to supplement the gap between budget and usage. When Libraries in Sunnyside and Elmhurst receive requests for books they don't have, they will contact libraries in Manhattan. Library staff will bring all the ordered books to the Possibility Maker with a book shipper. When the Possibility Maker stops by the platform, the book shipper will be pushed into the car, and readers are also allowed to read in the car.



From H to N

A bridge connecting architecture and real estate

03



Type: Academic Work

Partner: Kourosh Fathi

Instructor: Christoph Kumpusch & Patrice A Derrington

Date: 2022 Spring

The ambition of this studio was to bridge the gap between architecture and real estate which exists because of the incommensurability of aesthetic, emotional, social, and cultural values on one hand, and market dynamics on the other.

The diagram entitled Real Estate Market Dynamics describes the arbitrage between the Space Market (defined by occupancy and rent), the Asset Market (defined by property cash flows and cap rates), and the Capital Market (defined by the cost of debt and equity).

Real estate value is created by the arbitrage between the Space Market, the Asset Market, and the Capital Market.

The formal and programmatic decisions that comprise architecture are difficult to measure in economic terms and it is unclear how architecture influences real estate market dynamics. It is also unclear how real estate can benefit from architectural inventiveness beyond rent optimization according to prevailing rates and gaining a premium on so-called "trophy" buildings.

As architects, we believe that architecture is beyond the necessities of light and air, comfort, popularity, and social connectivity. We believe that architecture is an artistic medium that gives birth to enchanting newness, relieving us from our present needs and desires. Architecture is always pioneering and does not optimize. Any claim to the contrary debases the artistic tradition of architecture and renders the entire profession uninteresting.

How do we value architectural ideas? How do we value the clarity of spatial and visual ideas? How do we value new social experiences? What will real estate market dynamics look like in the future? These questions are interrelated and this project is our attempt at answering these questions which will remain with us for the rest of our careers.



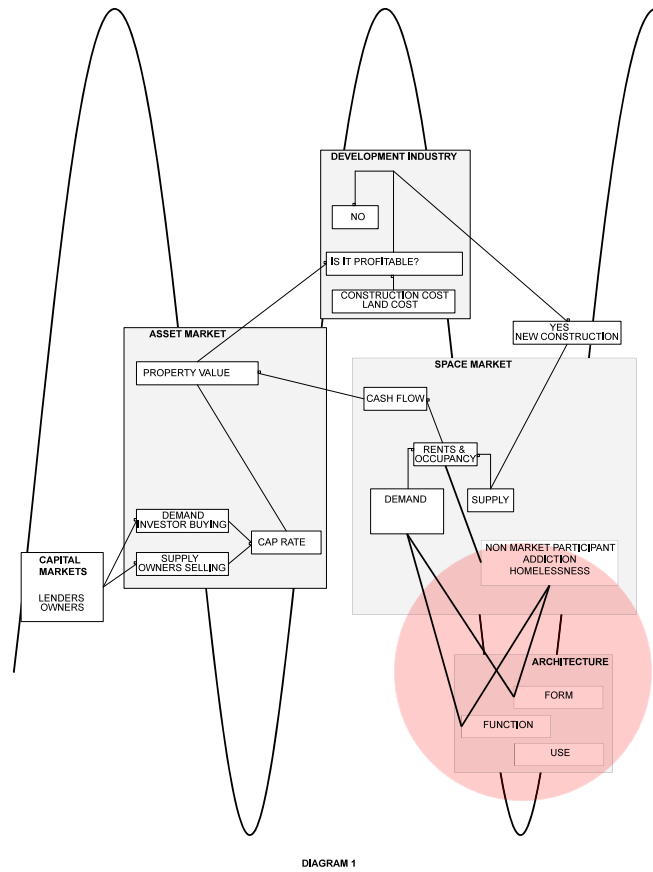
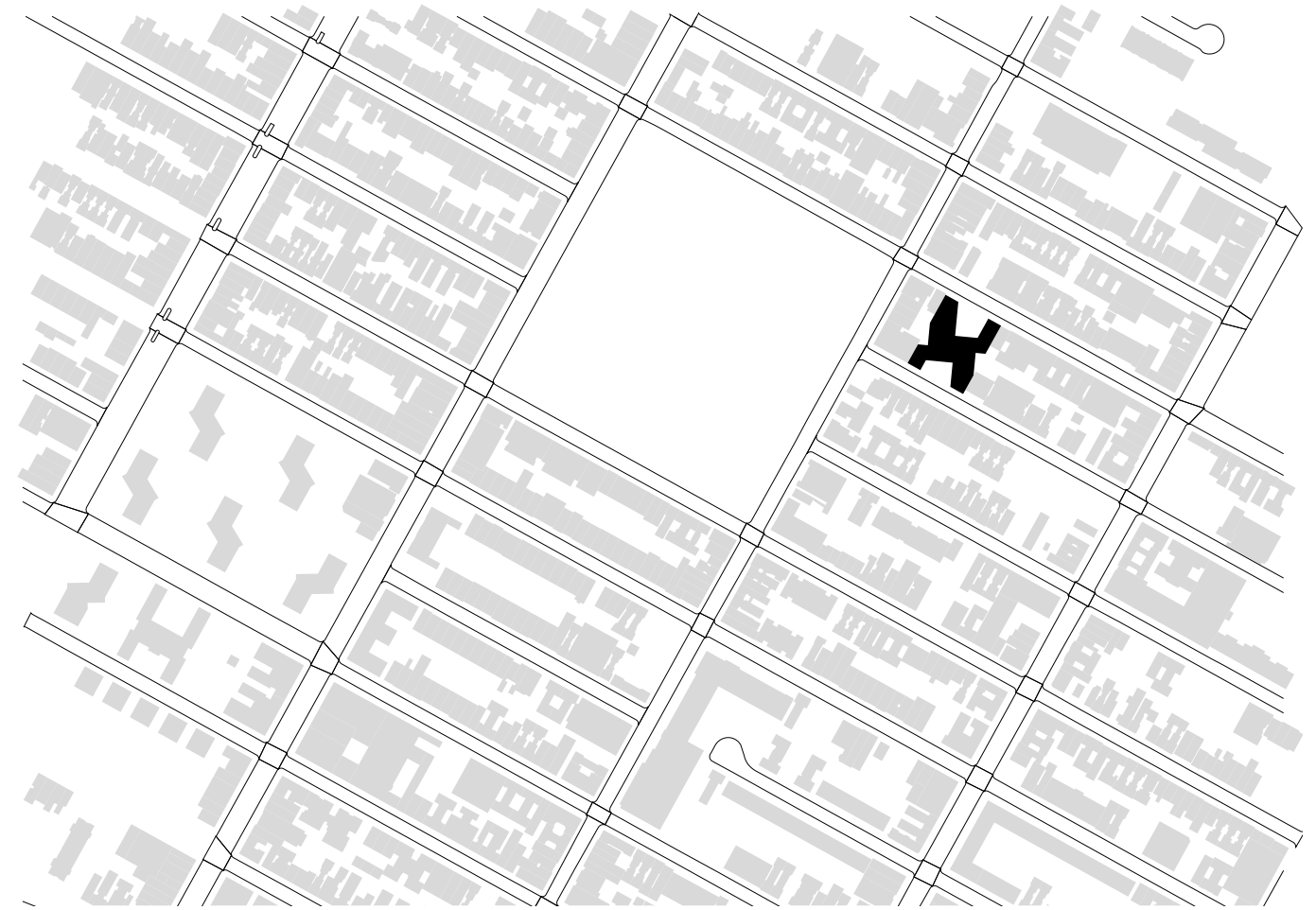
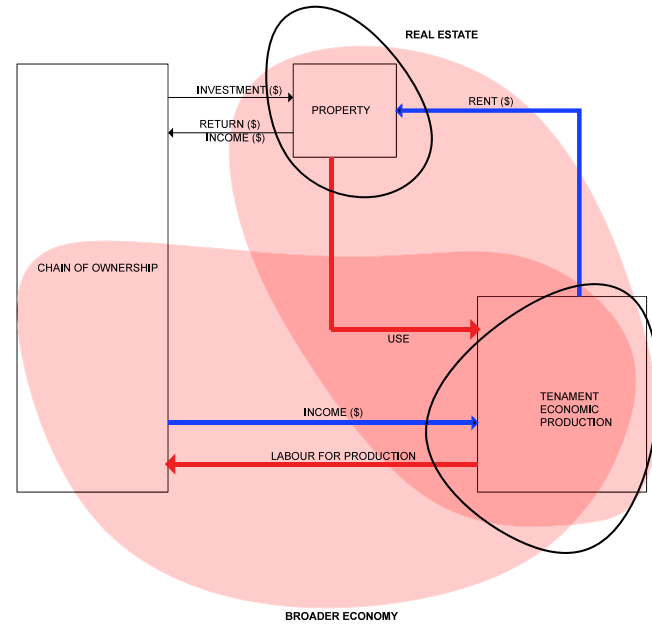


DIAGRAM 1



INVESTMENT TERMS

SOURCES AND USES

SOURCES

EQUITY CONTRIBUTION	\$20,000,000
CONSTRUCTION LOAN	\$97,952,481

TOTAL SOURCES \$117,952,556

USES

TOTAL ACQUISITION	\$26,000,000
HARD COSTS	\$62,951,850
SOFT COSTS	\$4,406,630
GP FEE	\$12,590,370
CAPITALIZED INTEREST	\$11,024,182
ORIGINATION FEE	\$979,525
TOTAL USES	\$117,952,556

FINANCING TERMS

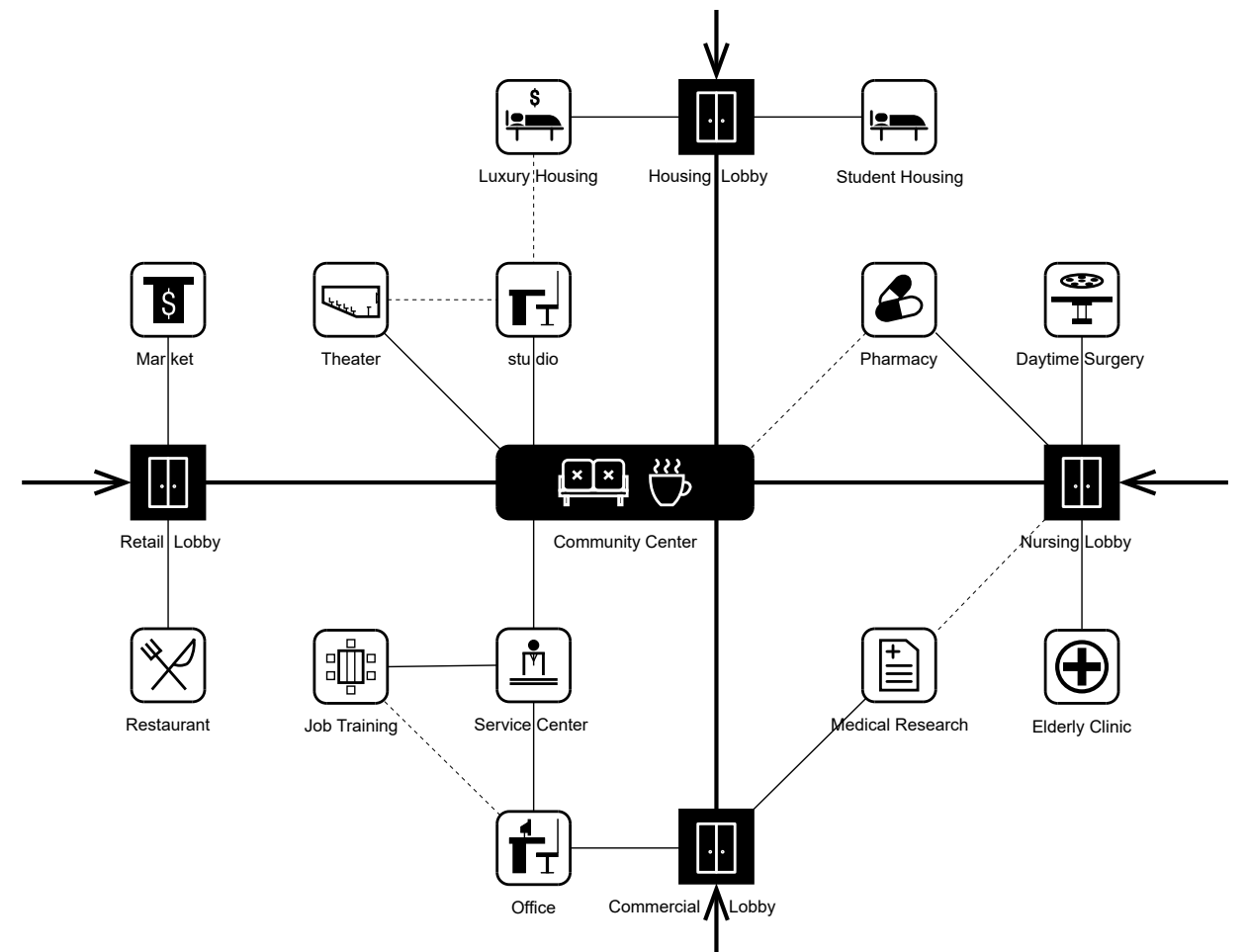
LTC	80%
RATE CAP	6.5%
RATE SPREAD OVER SOFR	4.5%

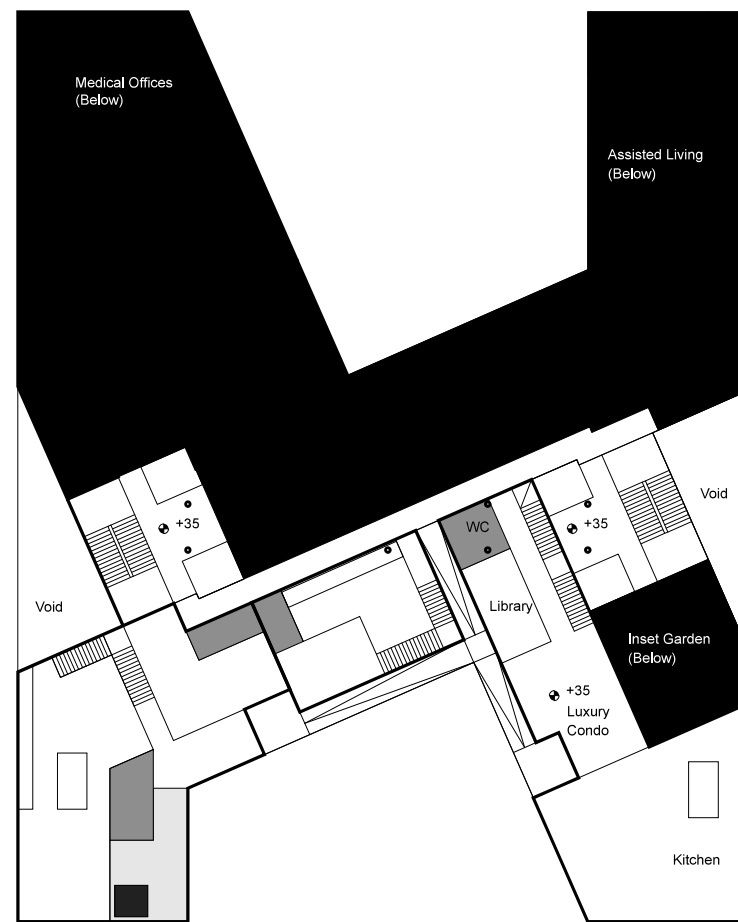
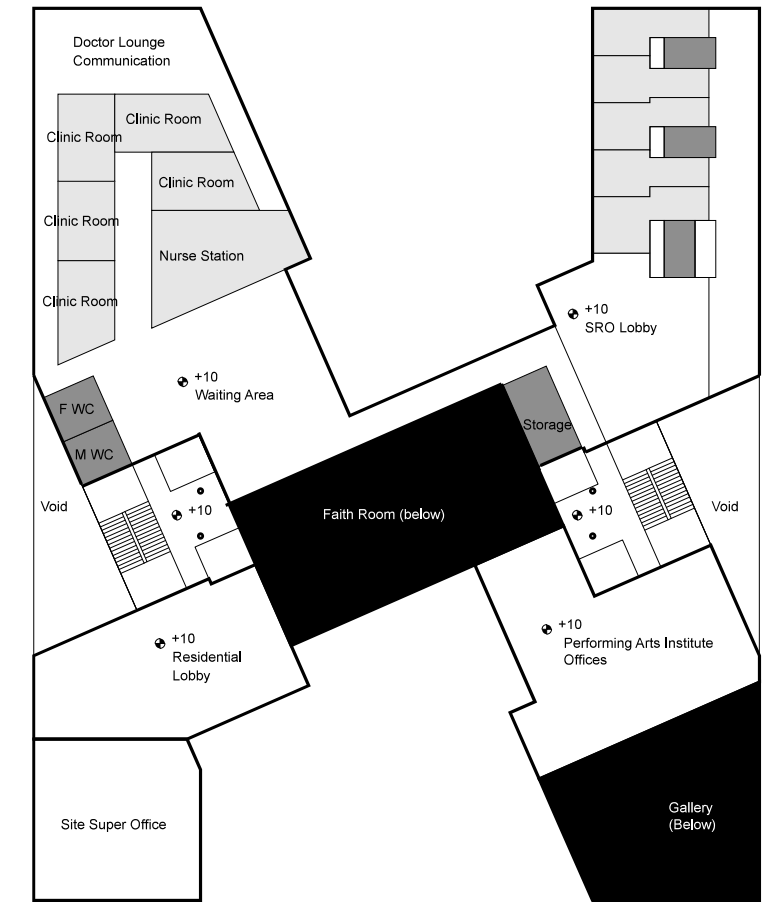
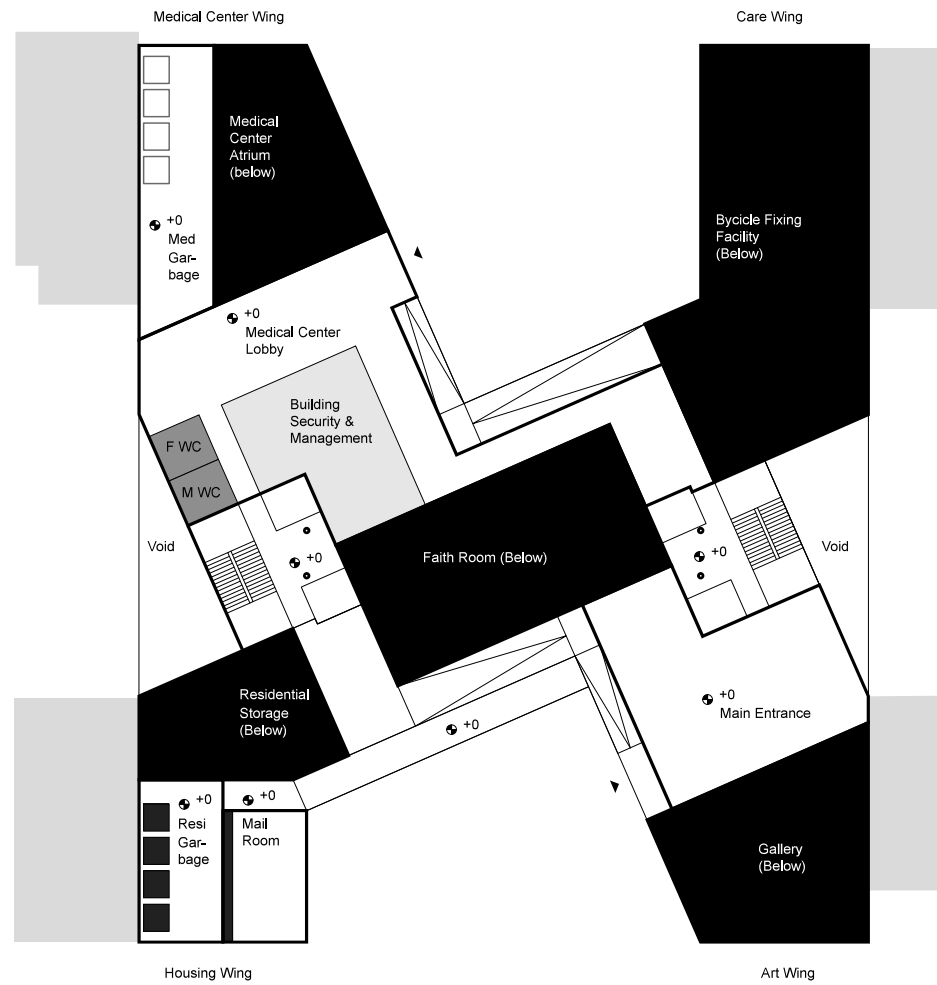
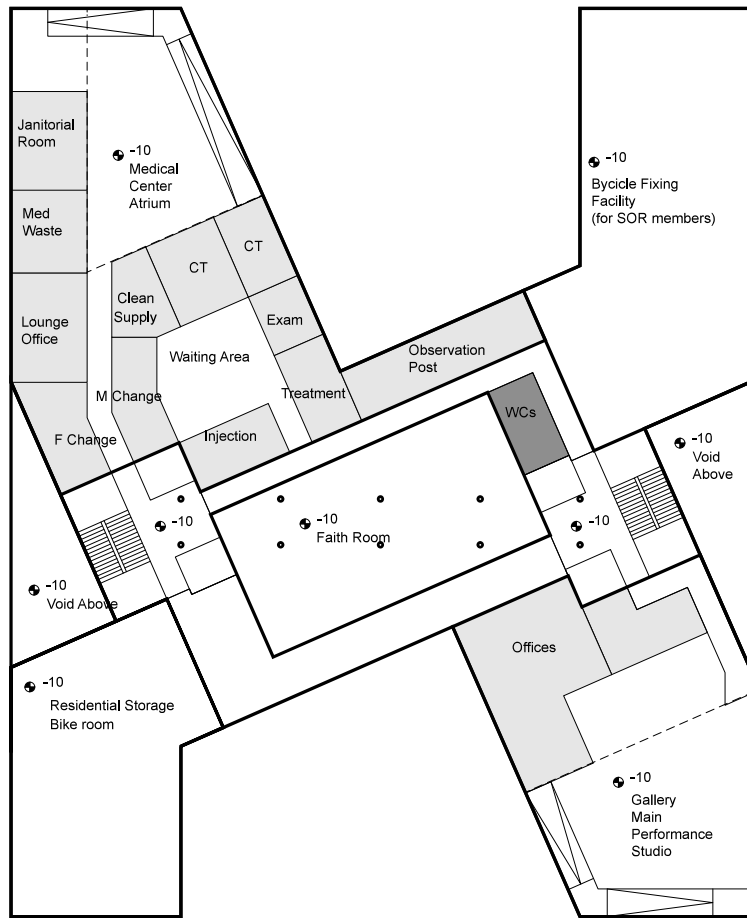
RETURN STRUCTURE

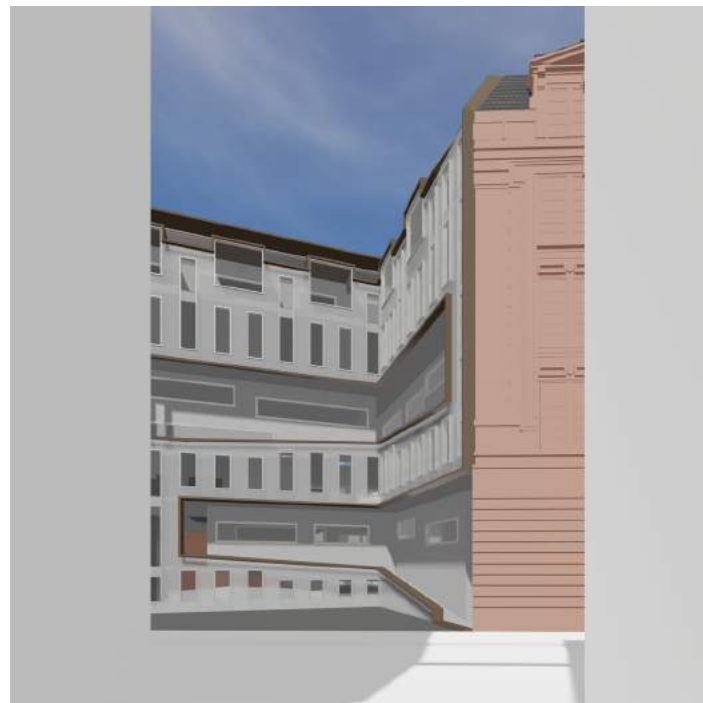
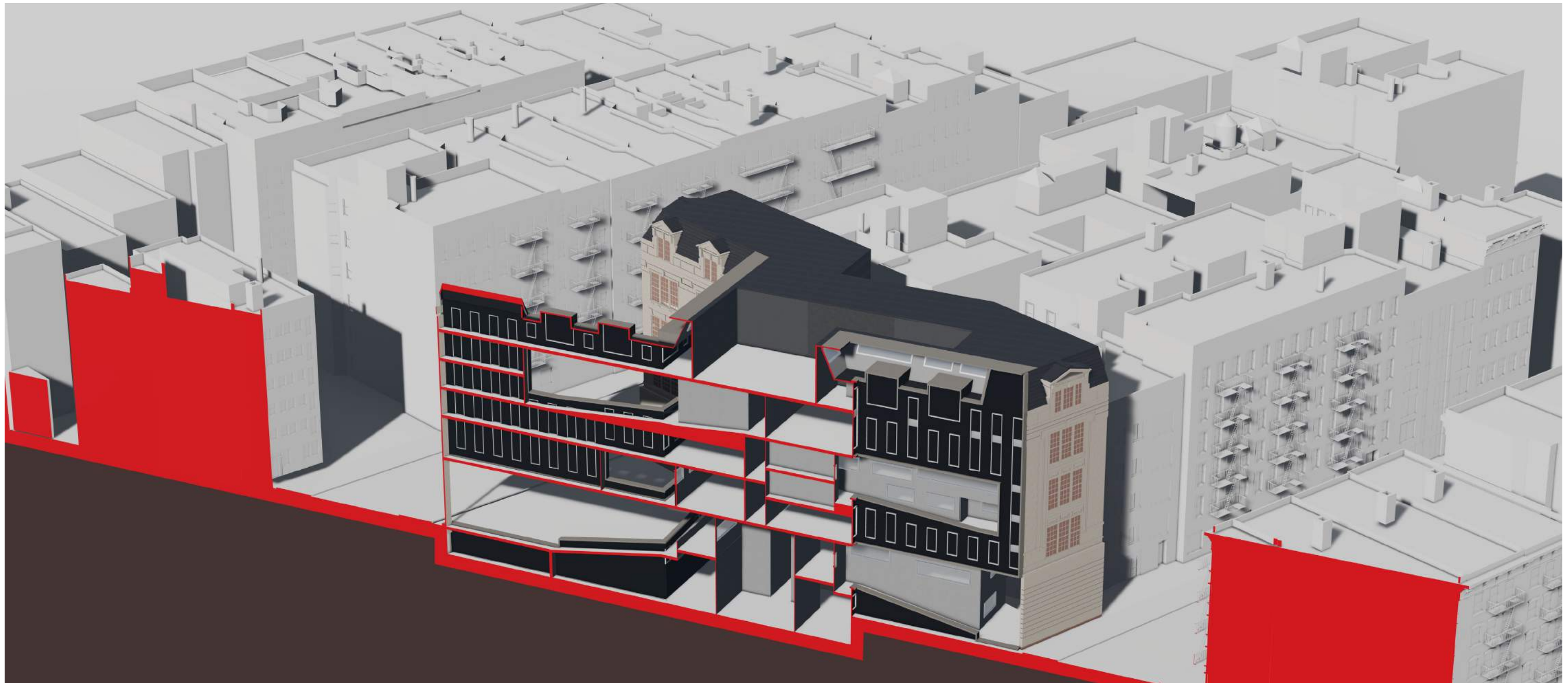
DEAL	
UNLEVERED IRR	7.79%
LEVERED IRR	10.39%
MOIC	3.2X
RETURN STRUCTURE	
PREF	10%
HURDLE II	12%
PROMOTE II	20%
LP IRR	10.44%
LP MOIC	3.2X

BUILDING PROGRAM

RESIDENTIAL	97,150 SF (70%)
MEDICAL CENTER	40,000 SF (30%)
TOTAL	137,150 SF







Self orientation of architects in the design process

-Discussion on Bruno Latour's ANT view in architecture

In the process of learning from many scholars, designers, and architects, my focus is on how to give the building a social position recognized by the public in the process of design. Among them, most contemporary architects try to use a universal vision, standing on a macro perspective, following certain standards and norms to put forward solutions. An architect who specializes in designing skyscrapers once said to me, "When the plane takes off, I look at Shanghai under the clouds. It's not much different from Chicago." As professionals, they see different cities as hotbeds of universal modernism, focusing on what they are in universal standards, not what they might be in the eyes of local residents. On the contrary, I think that when we discuss the locality of modern urbanization, the so-called locality is more about the local residents as users. My interest in the relationship between architects and users started here. It may be helpful to jump out of the limitation of architecture and think about this problem from a philosophical point of view, no longer regard users as a single identity of building users, but try to understand their multiple needs. As Abraham Maslow's hierarchy of needs theory said, when the basic needs are met, people have the desire of self-actualization. Perhaps as architects, we need to rethink our role in the design process from this point of view.

Give me a gun and I will make all buildings move is an inspiring article written by Bruno Latour, first published in 2008. Different from the theories put forward by professional architectural theorists, Latour, as an important philosopher, examines the development of architecture in the current era from his unique perspective and his actor network theory. If the audience of professional architectural theorists is architectural practitioners and architectural students, the audience of Latour's article is not limited to this. It should be said that architects do not seem to be the main potential audience. He seems to care more about how his actor network theory is applied in the field of architecture. Based on this, philosophers seem to be his intended audience. However, this does not prevent us from developing our own ideas through this paper. It can even be said that the author's non professional background gives us more like a theoretical framework, but does not limit our cognition with a large number of specific details, which leaves us enough space to associate.

In addition to proving the application of Latour's actor network theory, he also tries to guide the future development of the architecture industry in this article. He discussed the reform of architecture, the complexity of projects and the great potential of the application of modern technologies in the field of architecture, then studied the process of designing projects from the perspective of actor network theory, and proposed that today's architects should try to find a new and interactive tool to express the real and dynamic essence of architecture. He distinguishes this new tool from the existing presentation display tool, and describes this comparison as the difference between producers of video and image (Marey's photographic gun and cameras).

It should be said that Latour's article is forward-looking, and his views put forward in 2008 seem to be being realized one by one. Today in 2021, various real-time interactive rendering software are applied in the design process of architects, various virtual reality software are applied in the presentation display, and the application of BIM Technology in project management is becoming more and more popular. Everything seems to be developing towards Latour's vision. New architects are trying to involve more people in the design process and cooperate in real time in various ways, rather than regard all aspects of the building as a static state. In this context, it is necessary to reread this article Give me a gun and I will make all buildings move. In view of the particularity of Latour's own research field and the controversy of his actor network theory, I try to first understand his upper actor network theory itself, and then discuss his core concepts through two other people's criticisms of his theory. After that, I will discuss the application of Latour's actor network theory in the field of architecture through this article, and then try to apply others' criticism of actor network theory to the field of architecture to discuss this theory more deeply and comprehensively.

What is actor network theory?

Actor network theory was put forward by sociologists of scientific knowledge represented by French sociologists Michel Callon and Bruno Latour in the mid-1980s. In this theory, Latour advocates that the changes and evolution of nature and society are determined by the interaction between actors and the network composed of actors and interactions. The theory has three core concepts: actor, mediator and network.

Actors can not only refer to human beings, but also non-human objects such as ideas, technologies, organisms, organizations and ideas (Latour calls them actant). Their status is equal and decentralized. Anything that changes the state of things (plays the role of changing things in the network) by making differences can be called actors; Even elements that exist in the network but have no action and no change cannot be called actors. Among them, due to the lack of subjective initiative, the wishes of non-human actors need to be expressed through spokesman or agent. Latour once argued that there is not much difference between people and things in principle. They all need someone to speak for them. From the perspective of the spokesperson / agent, there is no difference between the representative and the representative. The spokesperson speaks truthfully for the person or thing who cannot speak on both occasions. For example, Watt's steam engine was presented to everyone through Watt's mouth, and the light bulb was accepted by everyone through Edison's invention and promotion; If Edison did not invent the light bulb, Edison would not be qualified to be the spokesman of the light bulb. In this sense, researchers can only obtain the qualification of spokesperson of the research object after consultation with the research object. Latour believes that actors have initiative and universality. Actors must have action and look for

it in the process of action. Because actors are acting all the time, the operation of the whole system network is dynamic. Therefore, to evaluate the status and role of actors, it is necessary to reinterpret what actors are every time.

Like the concept of actor, the concept of mediator runs through the whole actor network theory. Mediators change, translate, distort, and modify the meaning or elements they should have expressed. Even a rather insignificant information or program is enough to become an inflection point in the complex mediator chain and change the situation at this inflection point. Here we can compare the mediators to a complex machine. You can know the information and conditions of the input machine, but you can't predict what the output is, because the mediators will "make a difference". Latour believes that any actor is a mediator. So why distinguish between actor and mediator in actor network theory? The difference between the two lies only in that actors emphasize their node significance on the network, while the mediators more prominently emphasize the translation role of actors, that is, the role of "causing differences". Latour introduced the mediator to realize a more profound explanation of actors' initiative.

The network is formed by the connection of actors through action, and the nodes of the network are the actors. Moreover, the more active the actors are, the more frequent the actions are and the closer the contacts are, the more complex the network will be, the greater the density will be, and the wider the extension and coverage will be. The network implies that resources are concentrated in "nodes", which are connected with each other - chains and meshes. These connections make scattered resources form a network and expand to all corners. For example, telephone lines are so thin and fragile that they are invisible on the map, but the telephone network covers the whole world, covering all the scattered resources on the earth. This network is a method of describing connection, emphasizing the process of work, interaction, flow and change. The main purpose of Latour's reference to the network is to integrate human actors and non-human actors in the same identity. Each actor is the node of the network, which is equal and decentralized. The only difference is the number of connections with other nodes, but the importance and network status are equal.

To summarize it in a simple way, actor network theory can be presented as the following points: anything that changes the state of things by making differences can be called actors. Actors can be heterogeneous networks composed of human beings or non-human beings. In the flat actor world composed of human and non-human, all boundaries are broken, there is no difference between upper and lower levels and natural society, and each actor is freely connected under the relationship of equality. And in my understanding, to some extent, the actor network theory questions the human centered philosophical system of "I think so I am".

Two criticisms of actor network theory

Hyton White put forward in Materiality, Form, and Context: Marx contra Latour that the organization of major theoretical projects is determined by the content of their debate, just like the content they put forward. As one of the most influential items in the anti critical movement, actor network theory was quoted and further explained by him. He believes that the main goal of actor network theory is to show a variety of non-human participants - material things, especially to participate in the creation of complex networks or behavior sets, which cannot be understood as the product of pure human behavior. The purpose of actor network theory is to reconsider the interaction between material forms, contact forms and action forms: This is the field dominated by critical theory. Therefore, for Latour, turning to actor network theory is inseparable from turning away from criticism. He calls on us to give up criticism and rethink the entanglement of material objects in relevance and action mode. Latour insists that critical theory is insufficient in understanding the relationship between material facts and social facts.

Hyton White clearly opposes Latour's view. He believes that Latour fundamentally misunderstands the purpose of criticism many times. If the key to the problem is to go beyond a critical method that only exposes power behind the veil of appearance, Latour's opposition to criticism is actually an obstacle to achieving this exact goal. It actually hinders the development of a more dynamic approach to the role of material forms in mediating relationships, actions and consequences. The author believes that not only the criticism assumed by Latour has fallen behind the times, but also the limitations of anti criticism. In fact, it does not grasp what the materialist critical theory actually claims.

In the article Facts, fetishes, and the parliament of things: is there any space for criticality? Srikanth mallavarapu and Amit Prasad criticized Latour's view that criticism is equivalent to an anti-traditional impulse based on modernity projects. The authors believe that Latour's attack on anti-traditional criticism is closely related to his rejection of the modern framework. In fact, in the perspectives of the authors, criticism is actually an integral part of the truly democratic process of knowledge creation and politics. The authors believe that Latour's works do provide us with some relevant opinions on the essence of modernity, which is motivated by a democratic impulse containing multiple voices, but his debate on critical impulse makes it difficult for people to screen these opinions and overcome the limitations of his methodology.

Srikanth mallavarapu and Amit Prasad raised criticism to the height of creating social equity and defined criticism as an important part of democratic politics. If people do not want to impose another dogmatic overall framework on others, then criticism should be regarded as another choice, and the critic is just another actor, which adds an important way to democratic discourse. The problem with Latour's methodology is that if it intends to provide an appropriate democracy, it must find ways to deal with hierarchy and power differences. This requires investigating the different and unequal "motives", "interests" and "roles" of different actors. Of course, the fear of doing so may be that these categories largely form the basis for a human centered understanding of institutions and politics.

Networks don't let us access themselves directly or simply - in addition to the choices we make, there are problems that are omitted or not easy to access. While appreciating the insight that Latour's non-modern methodology can provide, it is also necessary to regard this methodology as only a form of knowledge. With this in mind, the authors believe that criticism is an integral part of the knowledge creation process and politics of true democracy. After all, the key impulse is not to demolish buildings and destroy idols; it's about trying to build a better world with truly diverse voices.

Both these two articles clearly express their criticism of Latour's anti-criticism view, but in my perspective, these are not so much a criticism of Latour's view, but more as a supplement. In essence, Latour's actor network theory is inclusive but basic. It has limitations, but it is enough as a potential theoretical platform to develop continuously in the future, and this continuous development itself is also in line with the basic discussion of actor network Theory: nothing is invariable.

An ANT's View of Architecture

Bruno Latour's article Give me a gun and I will make all buildings move is an application of his actor network theory. In fact, the subtitle he gave the paper was An ANT's View of Architecture. In the article, Latour discusses the transformation of architecture today, the complexity of projects and the great potential of modern technology in the field of architecture. This paper focuses on the design project itself from the perspective of actor network theory, and puts forward that new architects should find a tool to express the real and dynamic essence of architecture.

Latour regards the architectural discourse as a set of transformations. Although it moves back and forth between the initial parti and the final completed project, it is all to meet the needs of imaginary users. In the article Give me a gun and I will make all buildings move, Latour called for a revolutionary understanding of architecture and regarded it as a multi sensory and dynamic thing rather than a visual and static object. He pointed out that traditional architectural expression tools, such as perspective, limit modern architecture to the boundary of three-dimensional static space, rather than fully express the dynamic quality of architecture in real life. However, today's architecture is a complex system, which is much more complex than static images. Architecture is undergoing great changes and architects are being redefined. The role of Architects has changed from the classical view of perceptual and creative individuals to a modern understanding of a more adaptive and group based structure. Under this architecture based on team and technical support, today's projects need to become more orderly and reasonable. Therefore, he proposed that the new task of modern architects is to find a new way, which is equivalent to Marley's camera gun, which can describe the real dynamic quality of buildings. In Latour's examples, hundreds of models and drawings stimulated further "tactile imagination" and unfamiliar ideas, thus forming a new design scheme. In this brainstorming, new constraints will be taken into account to maintain the priority of customer needs. Perhaps we can say that "the linearity of ideas is the burden of architectural design", because habitat needs, site and material constraints are not linear. This focus on users is also in line with the actor network theory on transformation through the design process.

On the one hand, Latour noticed that the emergence of new technologies, such as 3D modeling and virtual programming, did have great potential to complete new tasks, leading to architectural transformation. However, on the other hand, he expressed disappointment that today's new technologies still cannot fully achieve the goal of presenting a "mobile" architecture. Further, Latour expressed the expectation of eliminating the boundary between buildings and other buildings in the future. Perhaps we can say that too much emphasis on professionalism limits the creativity of architects to some extent. Due to the better integration of theory and practice, architecture and art, non professional architects often flash exciting architectural fragments. This development of "illegal and politicized architects" may mean the need for the expansion of the field of architectural culture. In fact, Latour may imply the necessity of this interdisciplinary development by treating architectural theory as "the relevant field of end users".

Application of the existing criticism of ANT to this ANT's View of Architecture

If we try to review this paper on architectural development with the above-mentioned criticism of Latour's anti-criticism idea, what possible discussion will it lead to?

Latour focuses on reconsidering the interaction among material forms, contact forms and action forms, which is, redefining the interaction and cooperation among architects, users, builders and other participants in architectural practice. We can understand his series of descriptions of new tools. Based on his call to abandon criticism and rethink the entanglement of material objects in relevance and behavior, it is inevitable to replace one presentation after another with a platform. However, if we refer to Hyton White's point of view, periodic reporting seems necessary. After all, in White's theory, criticism itself has its existential significance, and criticism itself is a form of creation. Back to the discussion of architectural design, periodic reports one after another are bound to bring different opinions, which we can also call criticism. This form has its rationality, which is exactly the architectural education we are experiencing now. The reason may be that architecture has no accurate right or wrong. A multi person collaborative work process may not bring efficient output, but may bring unexpected adverse situations. On the contrary, participants can gradually adjust their direction through periodic reports. Another reason why criticism is more reasonable is the limitation of design idea expression. After all, there is a translation process from the design idea in the mind to the visual state that can be presented. People may brainstorm together, but it is difficult to unify on the same design stage independently.

If we refer to the views of Srikanth mallavarapu and Amit Prasad, raise criticism to the height of creating social equity, and define

criticism as an important part of democratic politics, the application of actor network theory in the field of architecture cannot avoid the difference of each actor too. The different and unequal "motives", "interests" and "roles" of different actors are fully reflected in the process of architectural design. Clients, architects, construction workers and users all have different perspectives and interests. Their cooperation will never be an ideal state of equality. If it rises to the height of providing appropriate democracy, actor network theory must find a way to deal with hierarchy and power differences, but in architectural practice, this goal seems to be far away. On the contrary, the periodic report on design is not to deny or destroy anything. It is about trying to achieve a better design with truly diversified voices.

Architects' role

There is no doubt that Bruno Latour's actor network theory provides a new method and theoretical platform for investigating the production process of knowledge and the complex relationship between knowledge and society. In particular, it provides a new perspective for investigating the dialectical relationship between objectivity and subjectivity, absoluteness and relativity, universality and particularity. However, his theory is flawed. This theory has too high requirements for each actor, so that in many cases, the practice of this theory is not so credible. The application in the architecture field is a good example. It is difficult to imagine that different participants in an architecture design process can equally affect the design and jointly promote the development process. People are likely to destroy the operation logic of the network and act alone out of their differentiated needs and ideas. It is not difficult to find that only when all actors can start from their own interests and integrate the concept of overall optimization into the network, can they better combine human reflection, criticism and autonomy with the ever-changing technology and better serve the process of human liberation and democratization. I'm glad to see that many of Latour's appeals in "give me a gun and I will make all buildings move" can make progress today, ten years later from the first time this article was published, but I still don't think Latour's ideas can be fully realized at present. It should be said that in the foreseeable future, I don't think we should expect too much. Latour's idea seems too idealistic in my perspective, and it may be most appropriate to take this idea as a reference and benefit from it.

As architects, perhaps we should participate in the design process as observers and guides rather than interveners. We should play a more diversified role. The design process should not be one-way autocracy, but interactive and responsive, which is consistent with Bruno Latour's actor network theory. But architects are also unique and need to recognize their uniqueness. Indeed, as Bruno Latour said, in the context of the gradual diversification of society, non professional architects often flash exciting architectural fragments, but this does not mean that these "illegal and politicized architects" can complete the work of professional architects. In Abraham Maslow's hierarchy of needs theory, self realization is placed in the ultimate position. It includes a series of psychological achievements, such as morality, creativity, internal potential and so on, which may explain the flash of inspiration of these non professional architects. I think architects should pay attention to the inherent potential of public users and guide them to translate their self fulfilling needs into practice.

In the actual operation process, this process of guiding users to realize themselves may encounter many unpredictable problems. For example, users often rebuild buildings slowly according to their changing needs. Considering the future modifications, architects should cherish the self realization needs of users and try to incorporate them into our own design process, so as to make great changes in the architecture. In addition, users' views on self realization are always diverse and unpredictable. In fact, in order to help users realize themselves more accurately, architects need to analyze users' architectural preferences and interpret their random behavior as the architectural language of the system. Since it is from the perspective of people-oriented, it will be a good way to start research by studying various activities that users may carry out.

Instead of directly assisting users to transform their needs of self-actualization, architects may need to invent a "design platform", where users can be guided and instructed to achieve self-actualization in architectural language. This platform, which will consist of a series of "measuring tools", will be reported by users through many implements and modified constantly. Architects will play much more diverse roles in this sort of interactive design process, for example, we are not only the builder and the instructor of this platform, but also in charge of the feedback collection and platform maintenance. Furthermore, with the improvement of this "design platform", architects will have opportunities to help more users achieve self-actualization, which can positively influence on the society.

