

Portfolio

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Master of Urban Spatial Analytics (MUSA)

Selected Works
2015-2020

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Turn autonomous vehicles into mobile multi-function modules

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modular city

Flexible modular autonomous vehicles with various functions in the future city



Imagine reorganizing open Spaces in the context of Autonomous Vehicles

Urban Design and Landscape Architectural design
Group work with Huang Fan
Location:Guo Mao CBD District,Beijing
Time:2020.07-2020.10
Instructor: Ding Yufei

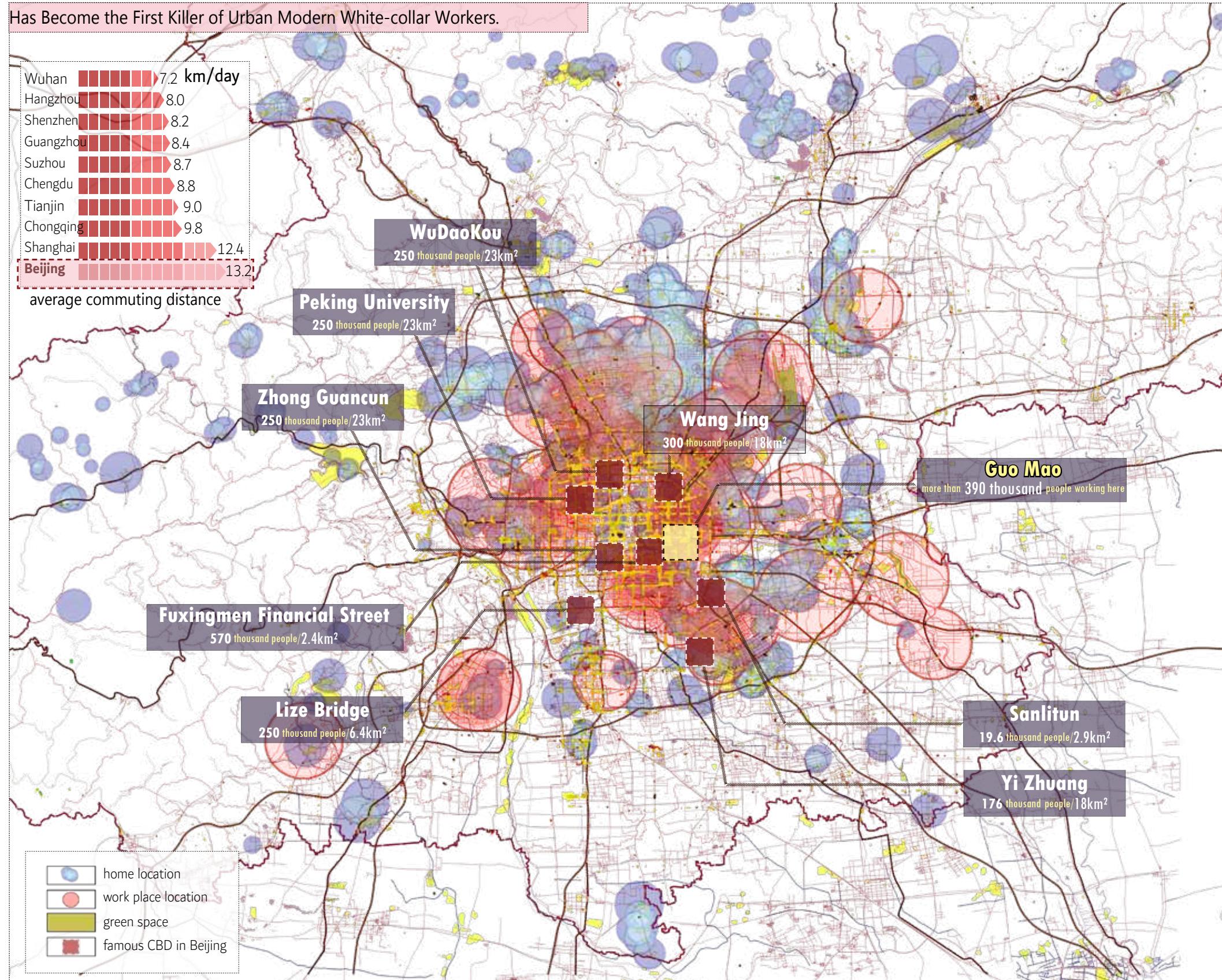
Contribution: 80%
design concept,mapping,site analysis,strategy,detail design,modeling

Contemporary urban white-collar workers, represented by young people living in first-tier cities, are facing great pressure. With the development of technology, the research related to Autonomous Vehicles is constantly progressing. The spread of Autonomous Vehicles is just around the corner.

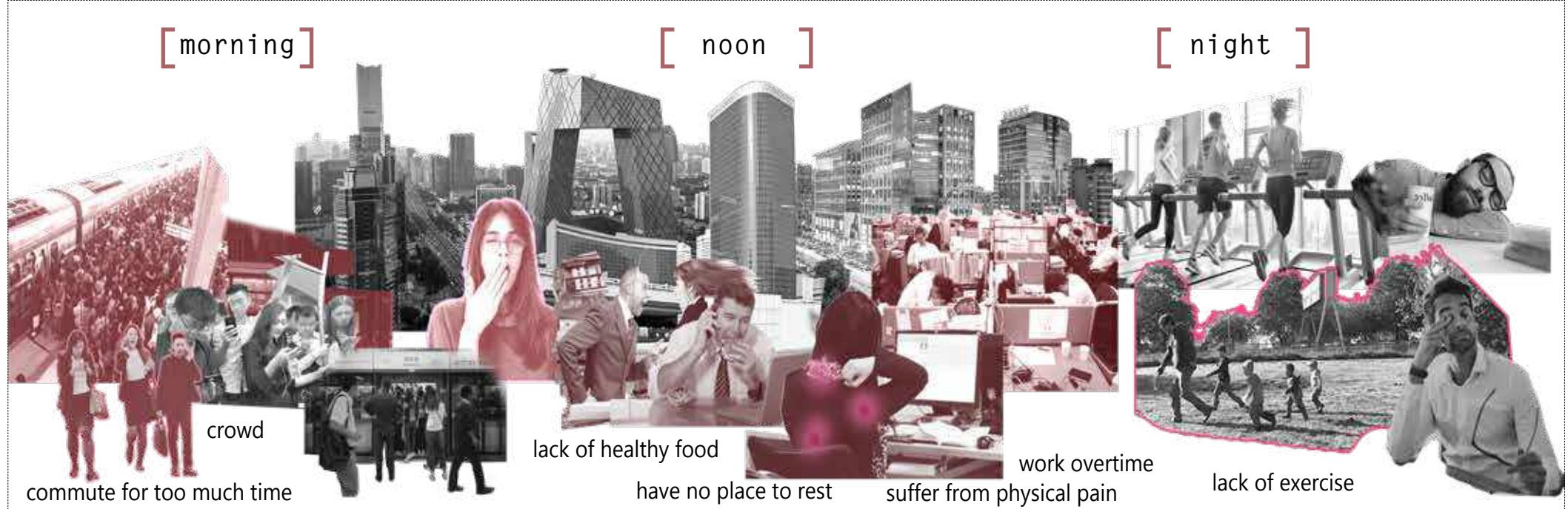
So we wondered if it would be possible to apply urban design into the context of Autonomous Vehicles spread, which may help alleviate the widespread stress and improve the quality of life of people in big cities.

Mental Stress...

Has Become the First Killer of Urban Modern White-collar Workers.



The Source of Stress

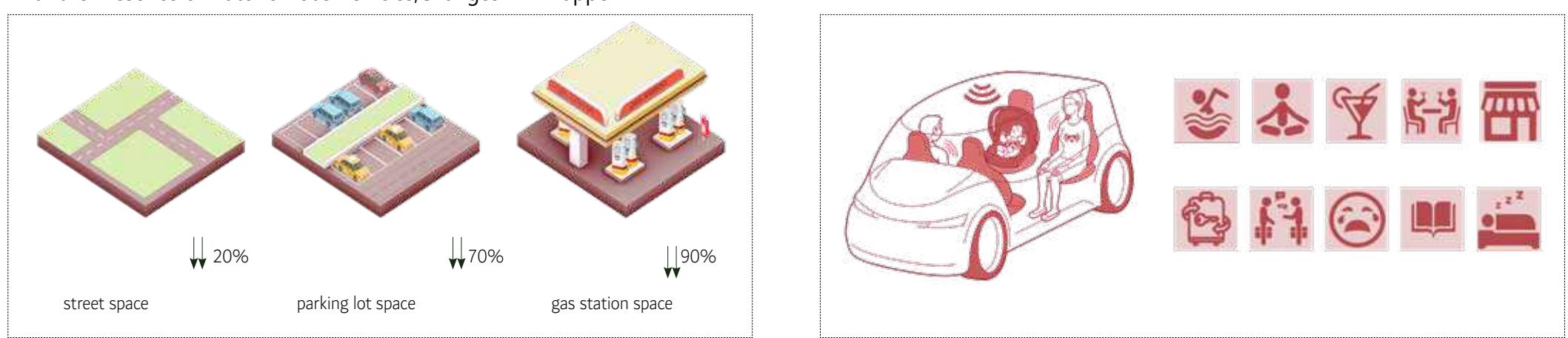


Problems

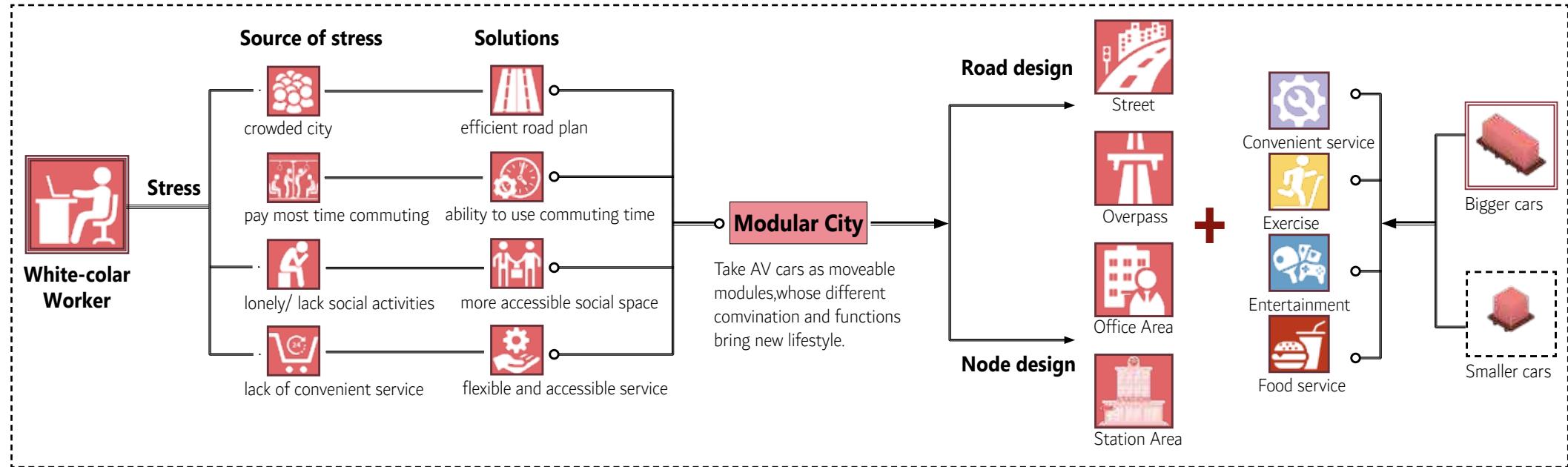


Potentials

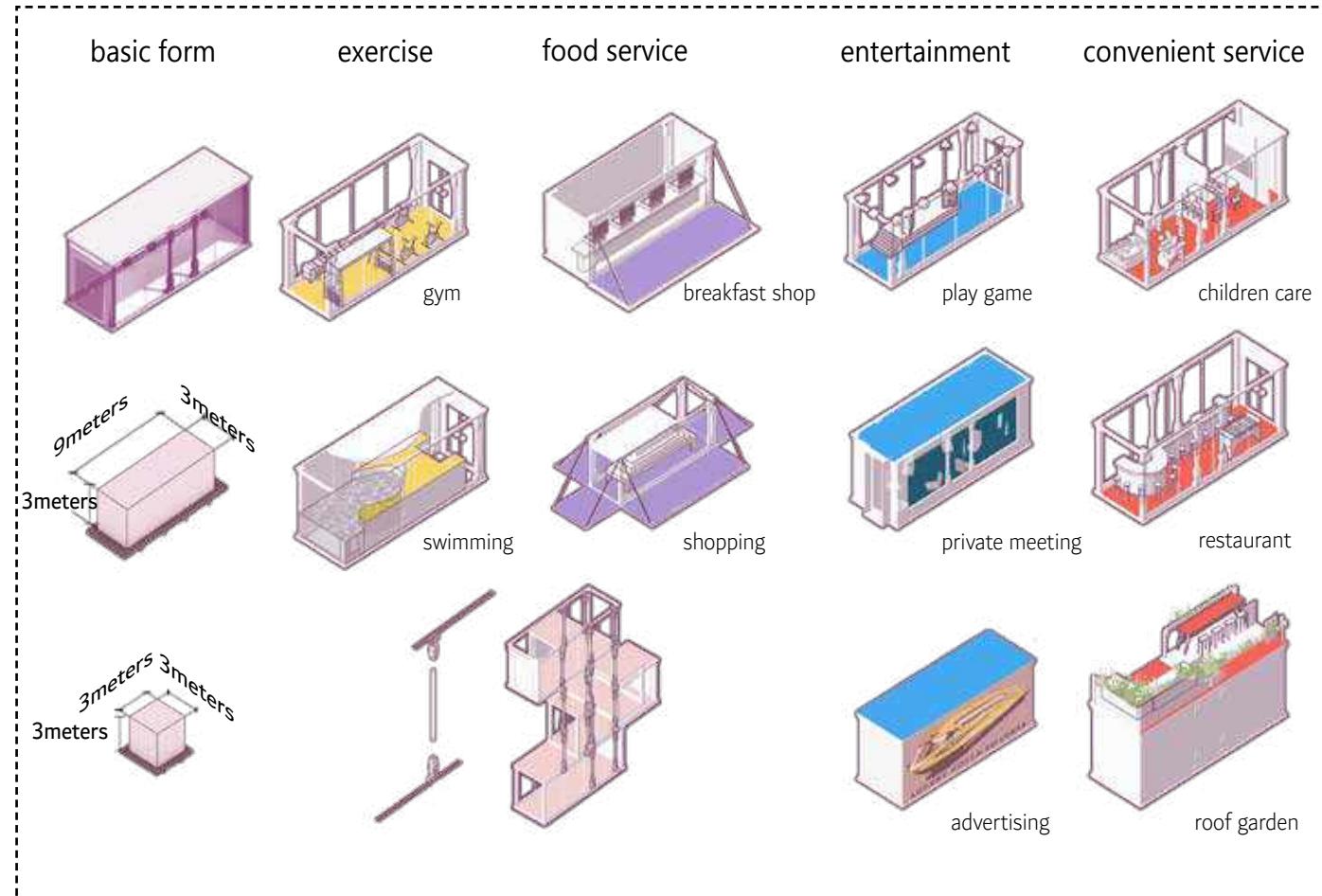
With the Presence of Autonomous Vehicles, Changes Will Happen



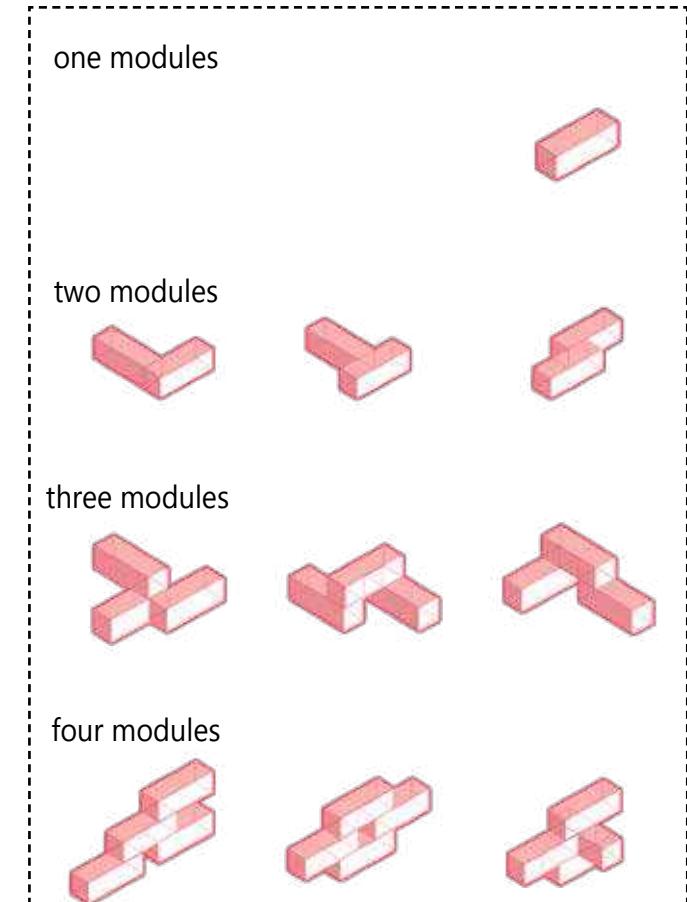
Framework



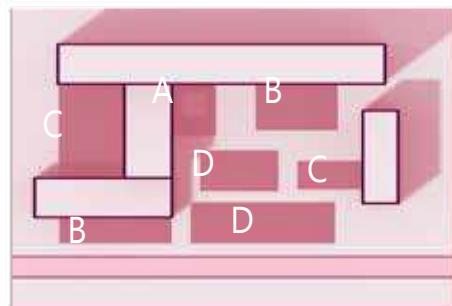
Detailed Design of Module AV Cars



Aggregations of AV Cars



The Combination of Modules and Green Space



According to the openness and accessibility of space that buildings and streets can enclose, we divide the space into four categories.

We place the modules along open boundary, the green spaces will change accordingly

Small scale
10× (5-20) m

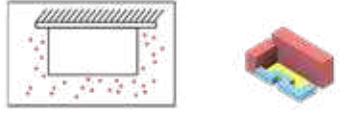
Medium scale
20× (10-20) m

Large scale
30× (15-40) m

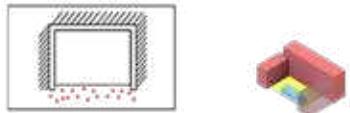
A Restricted in one directions



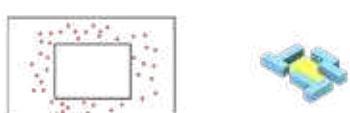
B In the corner of the building



C Open and free in three directions



D No restriction



Different Functional Spaces

Food service



Entertainment



AV cars turn into a dining car to provide convenient breakfast for commuters

AV cars turn into game center,KTV studio and bar, people can also have fun outside the car.

Exercise



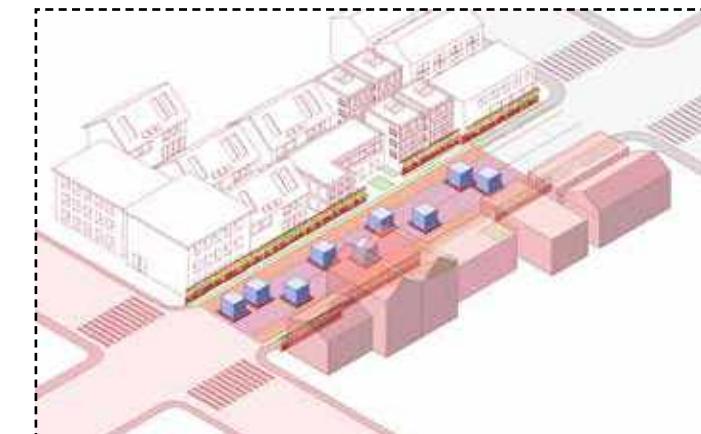
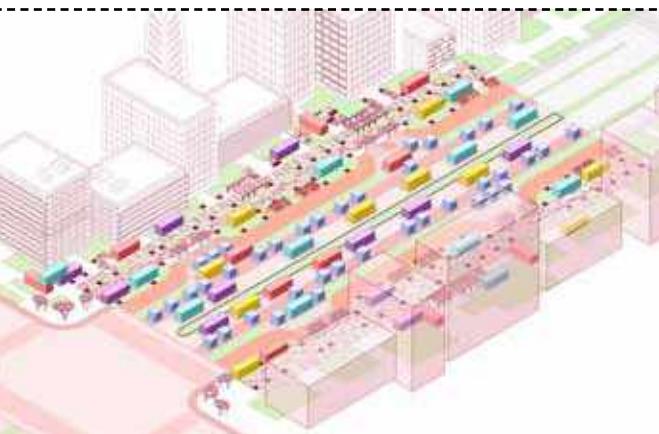
Convenient service



AV cars turn into flexible gym.During the commuting time, people can do exercise at the same time.

AV cars turn into a private space, mother can put their baby into cars safely.People can also buy fresh fruits in it.

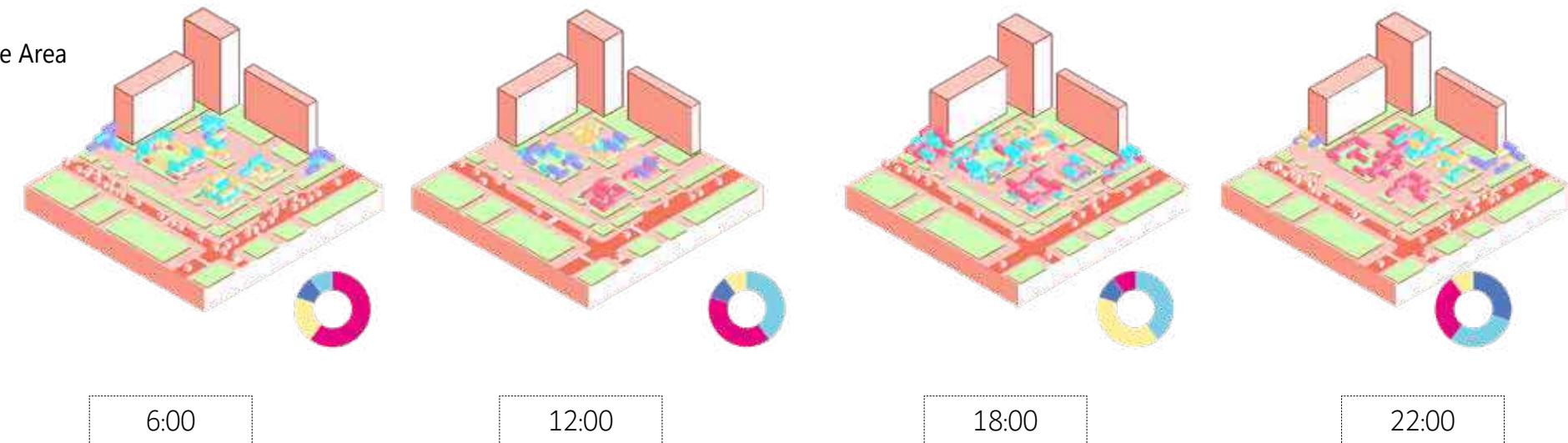
Street Design - Divide Into Three Level



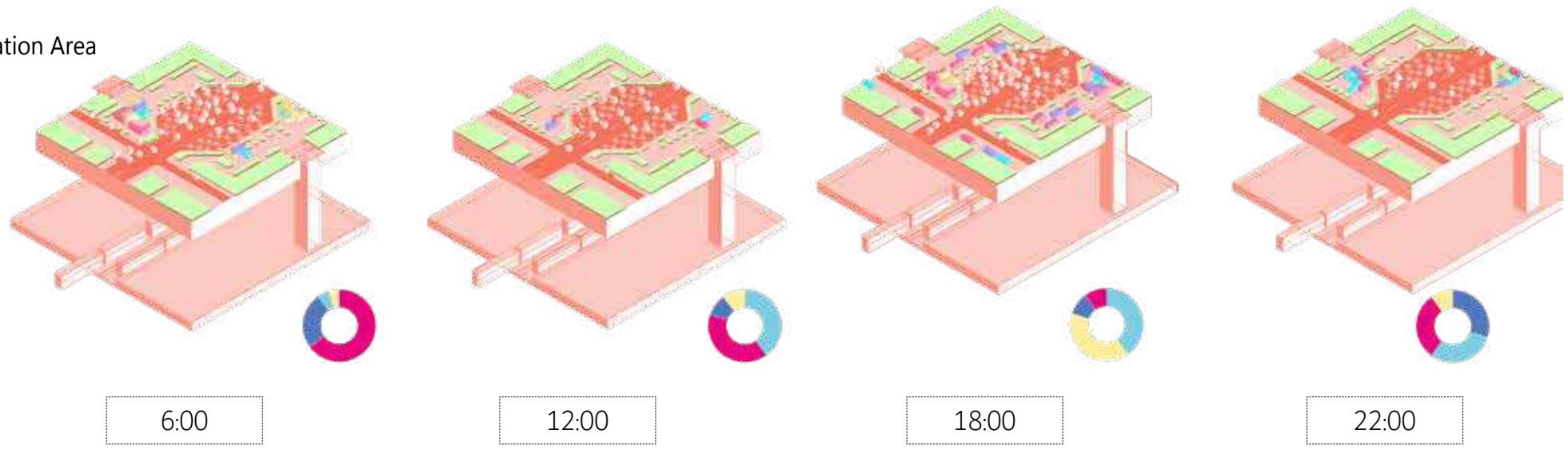
Node Design

Module arrangement changes with time

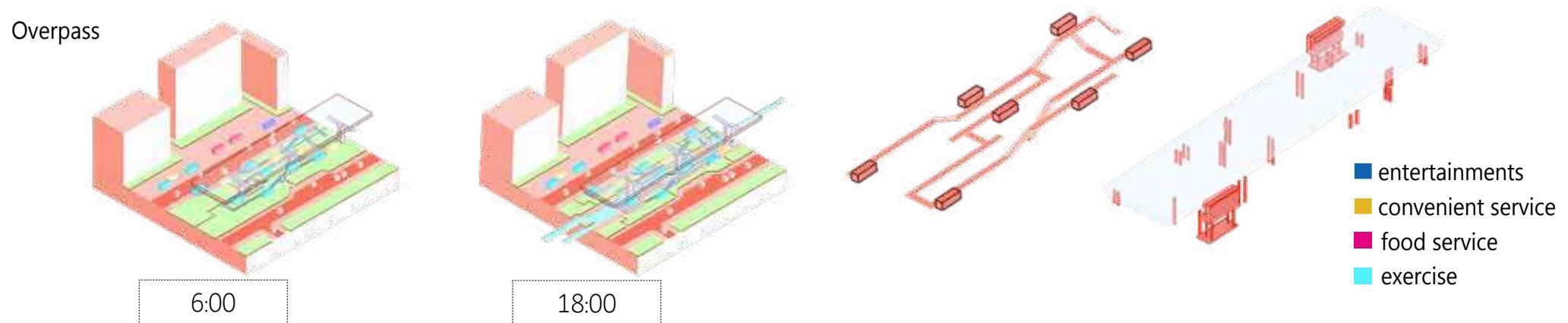
Office Area



Station Area

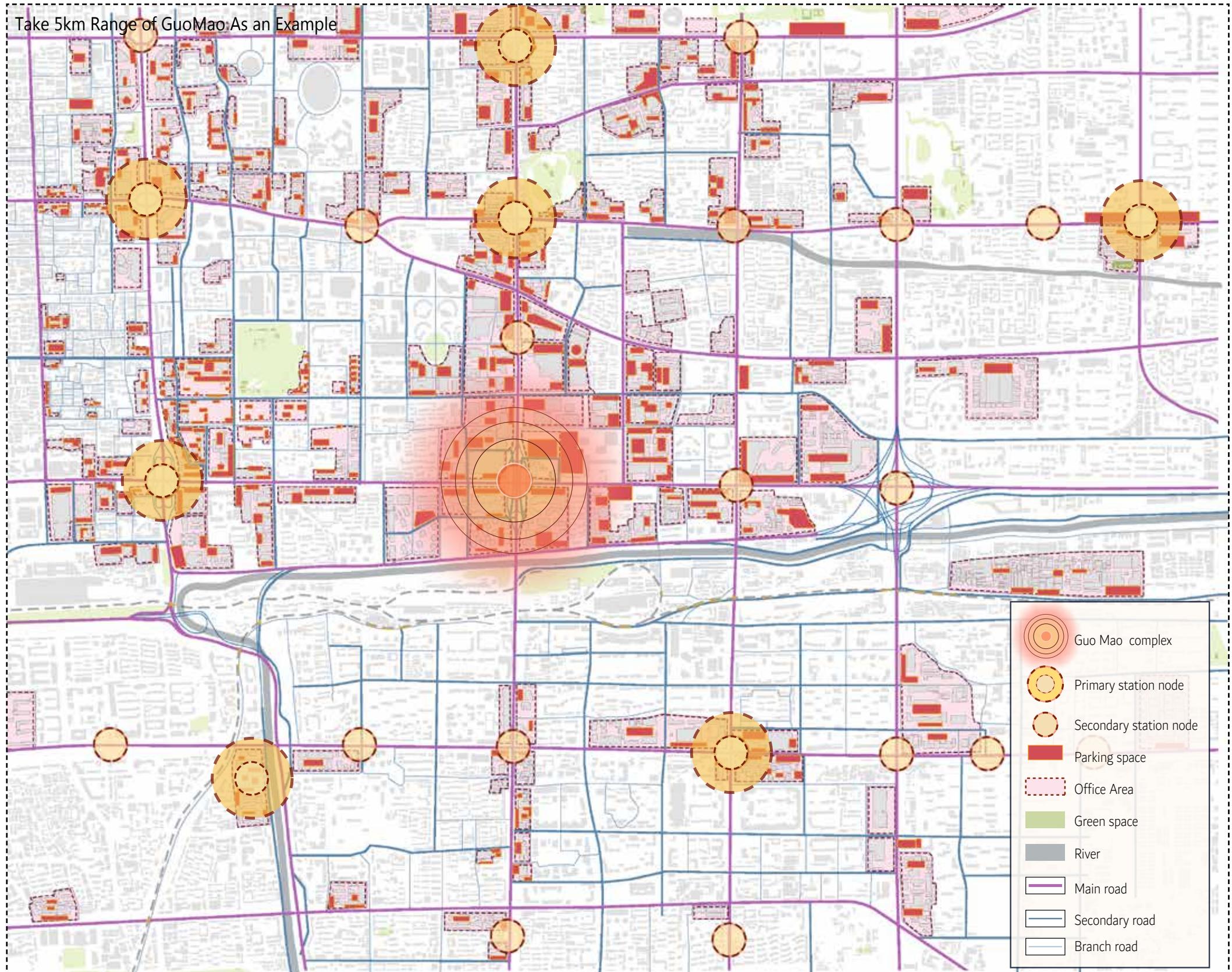


Overpass

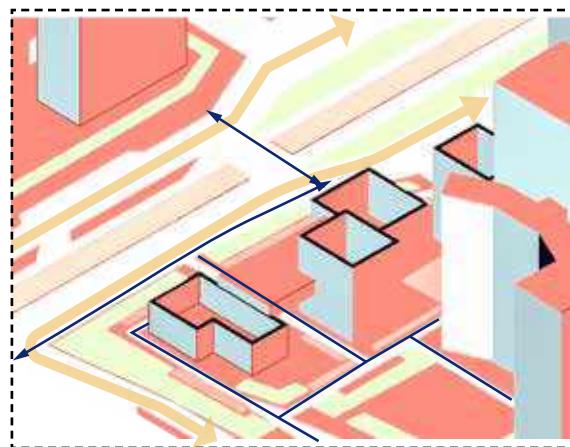
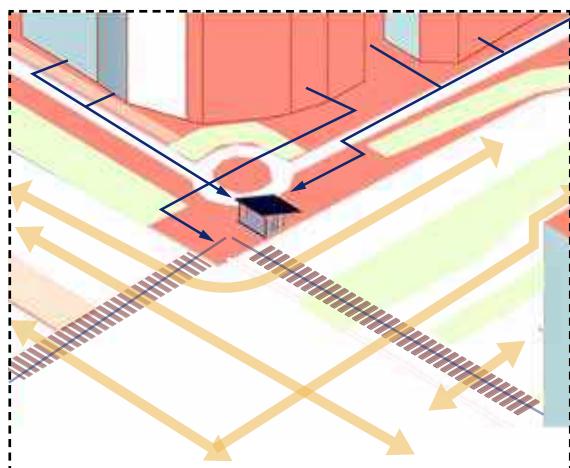


Prototype

Take 5km Range of GuoMao As an Example



Traffic Flow Analysis



Axonometric Drawing of the Site



Space Before Office Area



Before the office buildings, use healthy walkway connect open spaces along the street. Stack modules there and people can reserve the function they choose in advance through phones.

Space Under the Overpass



Make use of the space under the overpass. Hang modules on it with the metal structures. People can walk through the handrail. Use ground space as temporary parking lot.

02

Landfill revitalization

Research on the restoration of Beijing municipal Landfill
take Yonghezhuang landfill as an example

Redesign the landfill to promote the balanced development of the community

Urban Design and Landscape Architectural design

Group work

Location:Yonghezhuang landfill District,Beijing

Time:2017.07-2019.03

Instructor: Li liang

Contribution: 80%

project leader,mapping,research,problems,strategy



Beijing, the capital of China, is an international metropolis with ancient and modern cultures. There are neat clean streets and rich entertainment life. Fast pace life take over People's daily life, However, behind the city's high-speed operation, landfills and incinerators scatter around the city, working day and night, quietly bearing the waste produced daily by its densely populated population.

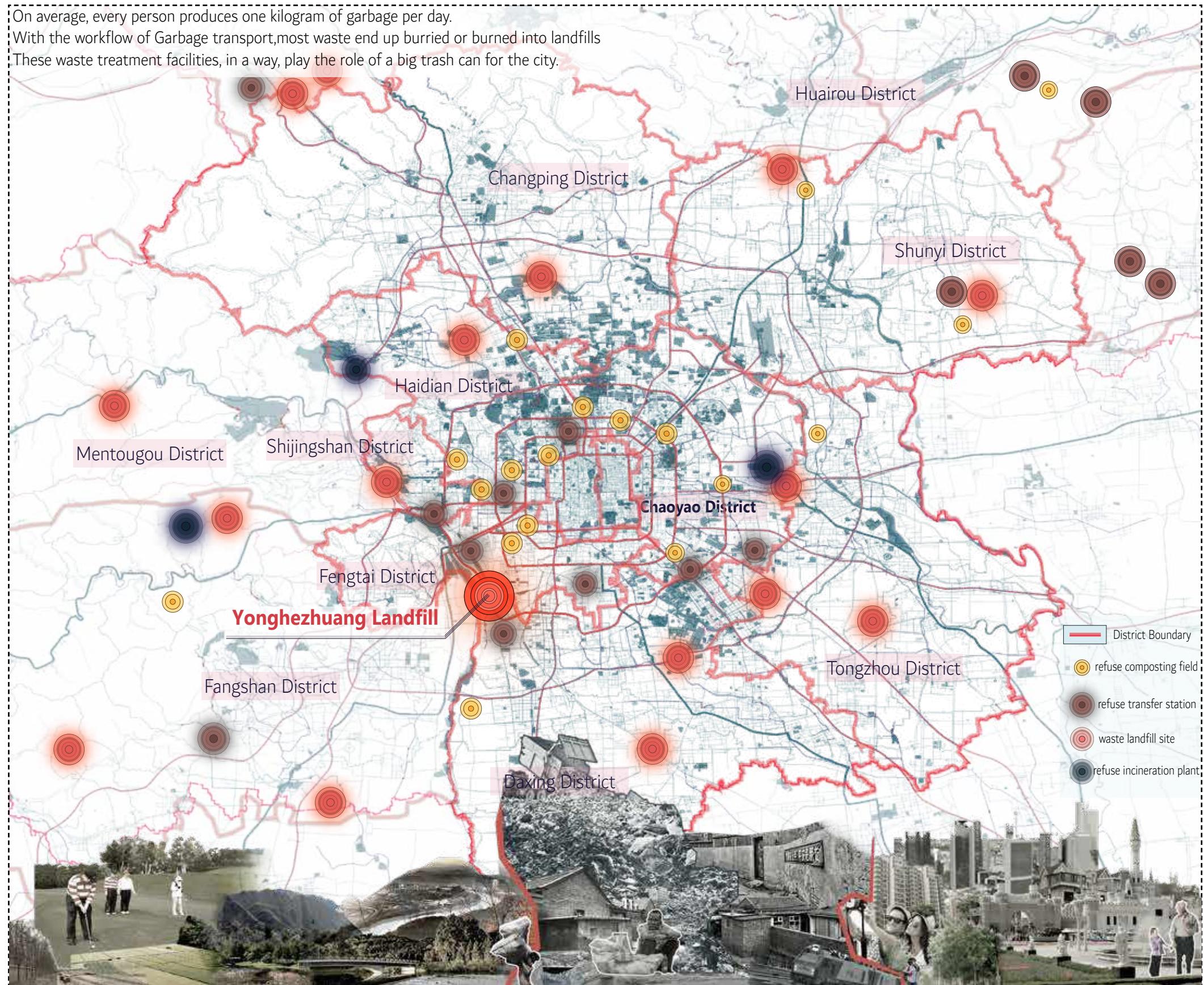
Nowadays, there are 37 domestic garbage treatment facilities in Beijing, with a daily treatment capacity of 22,000 tons. These land acts as the city's garbage can and are roughly closed when they reach the limit of affordability. But at the same time, its impact on ecology, cities and society is continuously going on...

Mapping of Waste Treatment Facilities

On average, every person produces one kilogram of garbage per day.

With the workflow of Garbage transport, most waste end up buried or burned into landfills

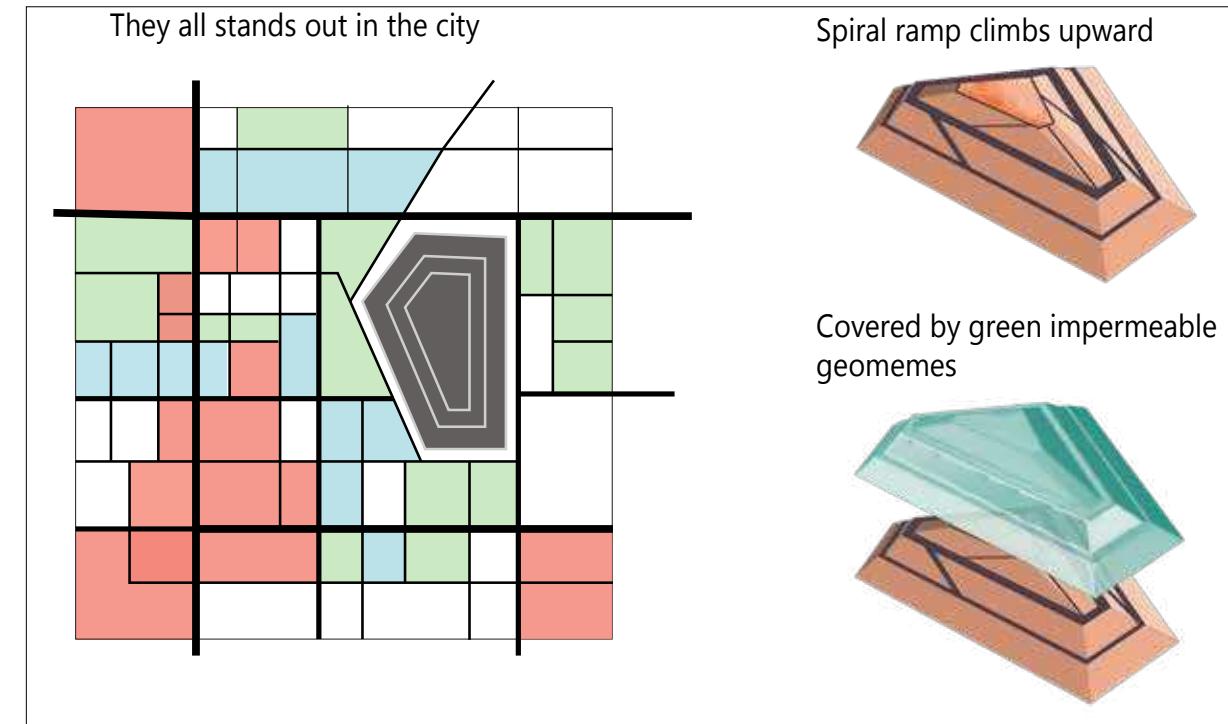
These waste treatment facilities, in a way, play the role of a big trash can for the city.



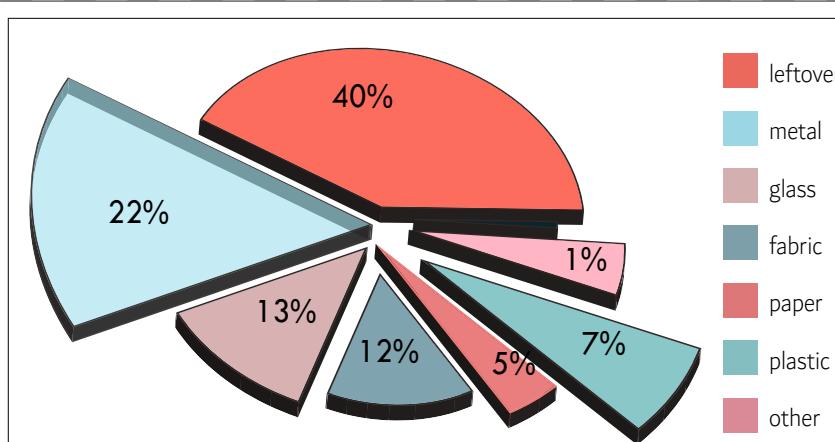
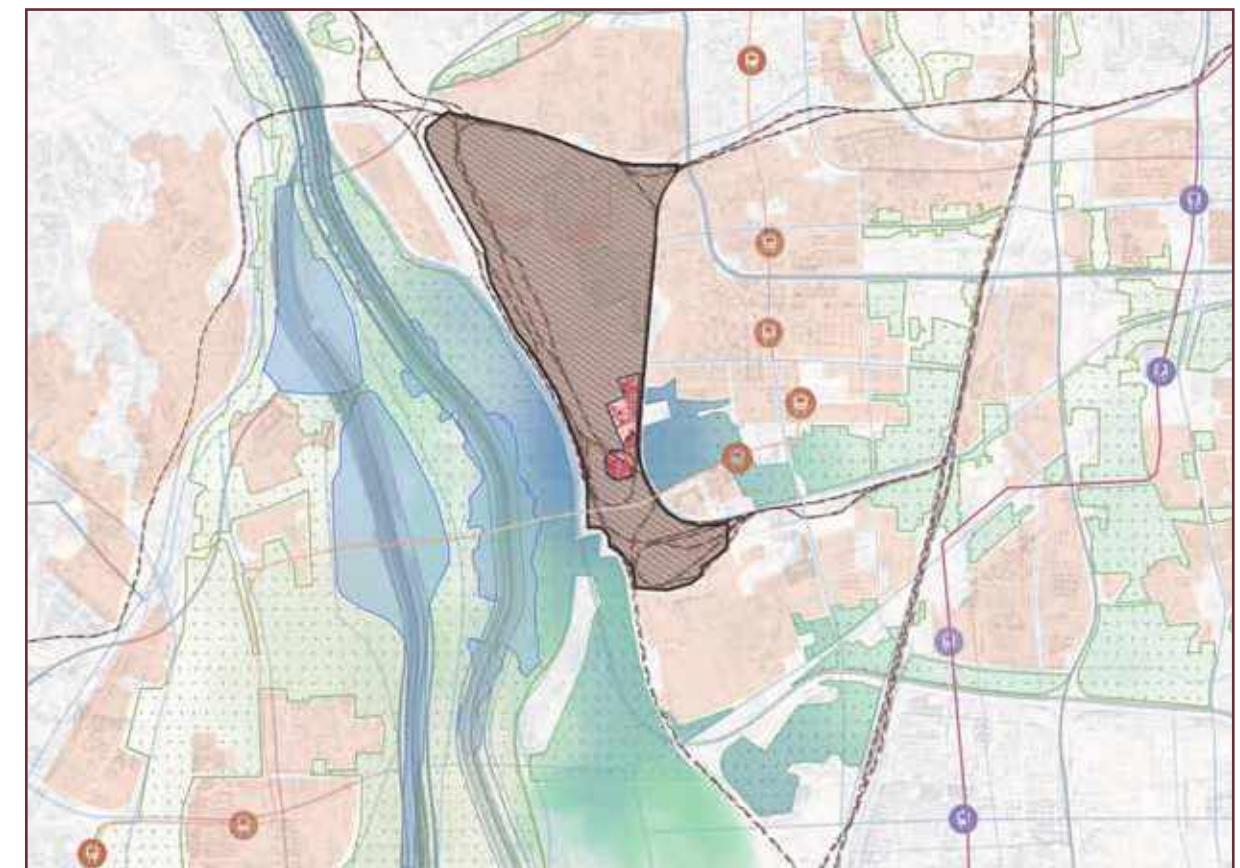
Field investigation records



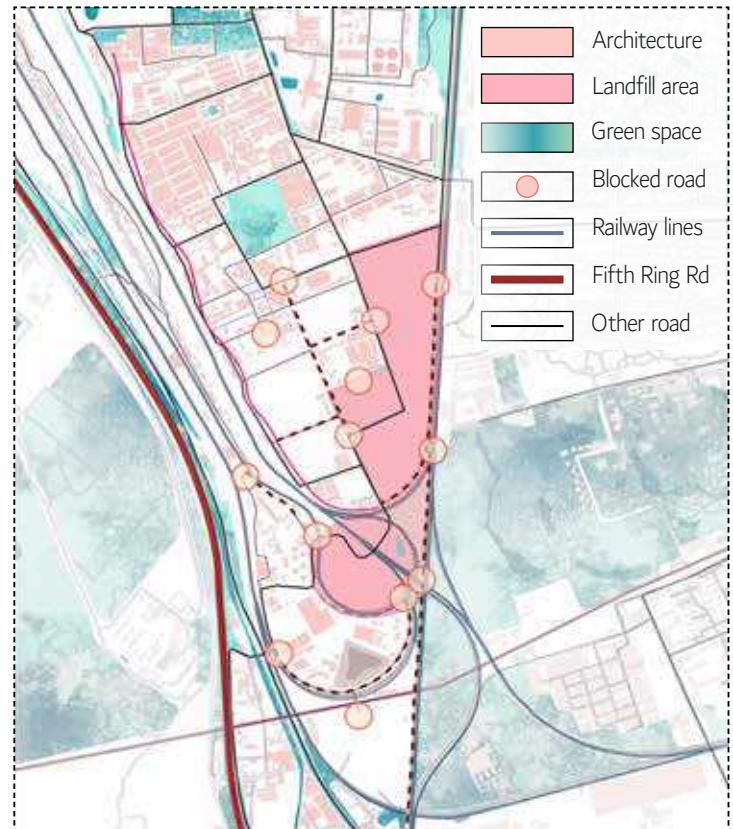
Common Grounds in Those Landfills



Surrounding Environment Analysis - 5.0 KM Scale



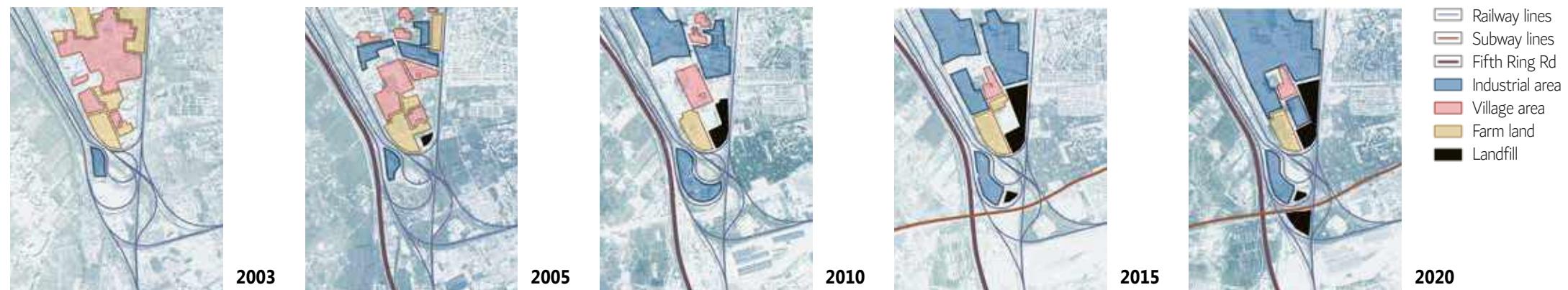
Surrounding Analysis - 1.5 KM Scale



Existing Problems



Evolution Process

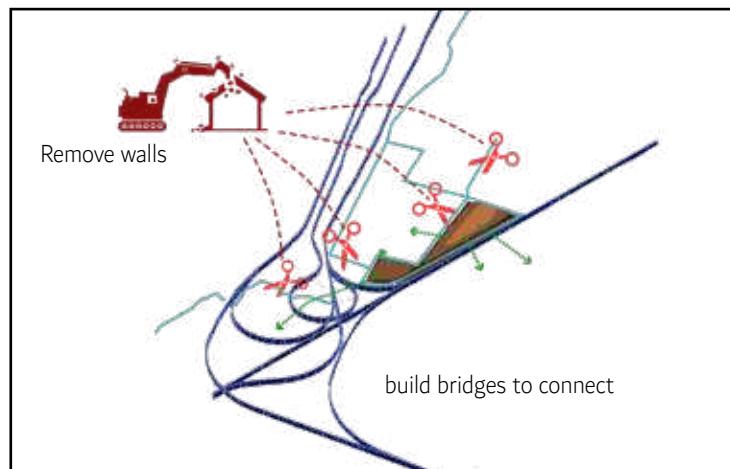


Yonghezhuang Development Timeline

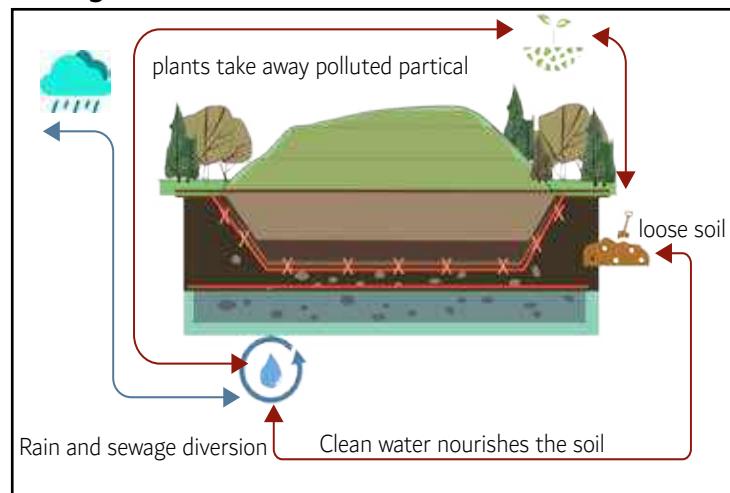


Solutions

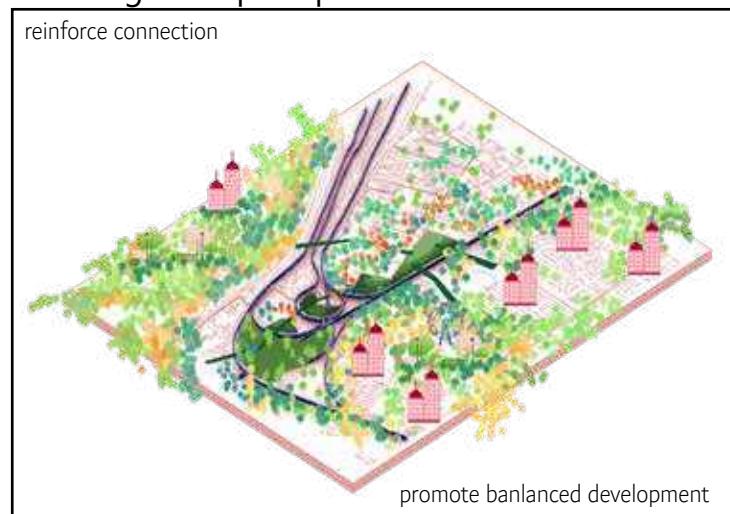
Break barrier & Add more connection



Ecological restoration



Turn to green open space with functions



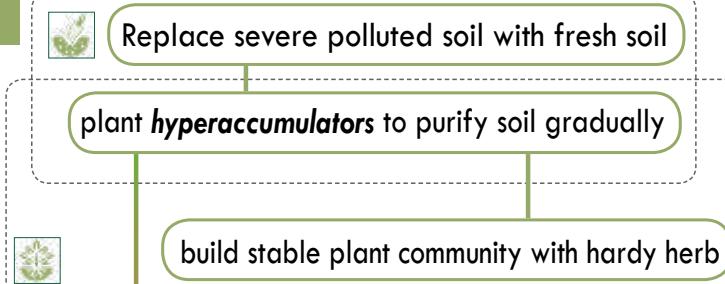
Framework

Landfill Revealing Plan

stage1—5 years

ECOLOGY

soil remediation



phytoremediation

water pollution treatment

collect and classify useful waste

- metal
- glass
- Tyres
- woods
- plastics
- rocks
- fabrication

stage2—10 years

LANDFORM DESIGN

Space design for different slopes

make use of landfill height

Organize drainage direction according to slope

Apply materials into construction

Take advantage of the height, add funny space

organize exhibition spaces, increase environmental awareness

build bridges work as green corridor

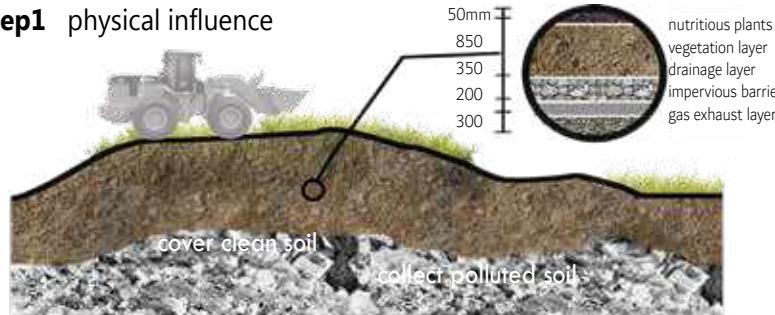
stage3—15 years

SOCIAL CONNECTION & ENTERTAINMENT

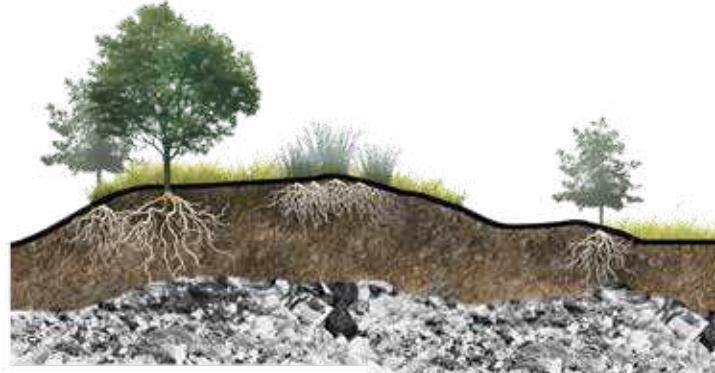
Landfill Memorial Park Born

Soil Remediation Strategy

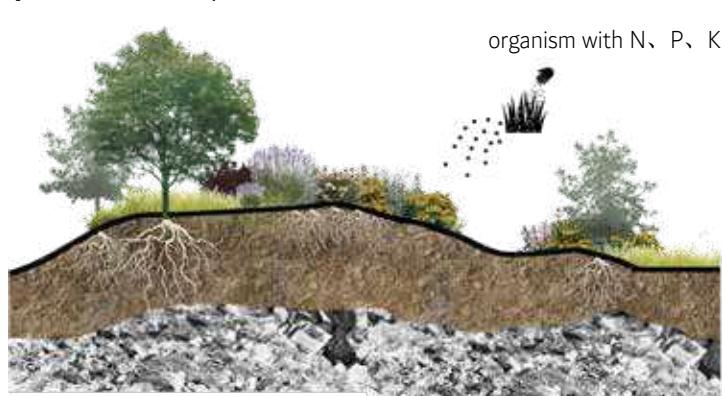
Step1 physical influence



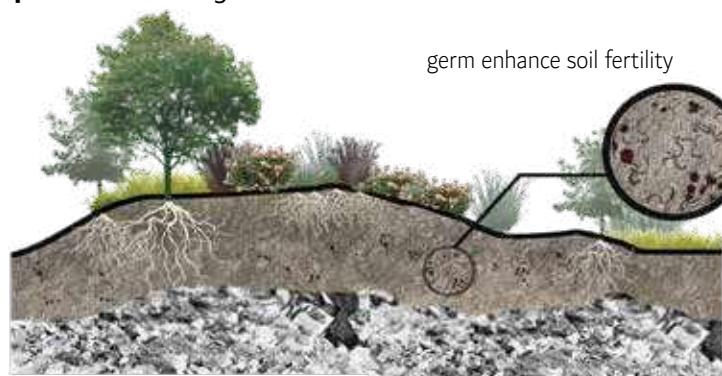
Step2 Plant roots loosen the soil and absorb pollutants



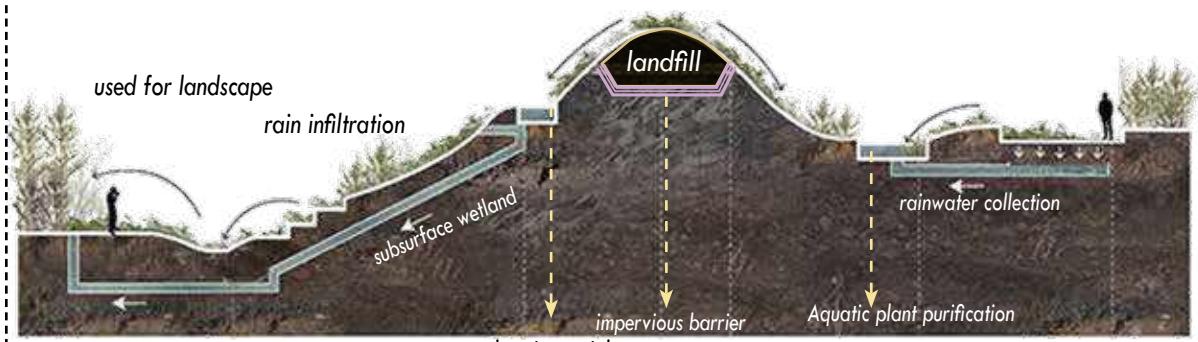
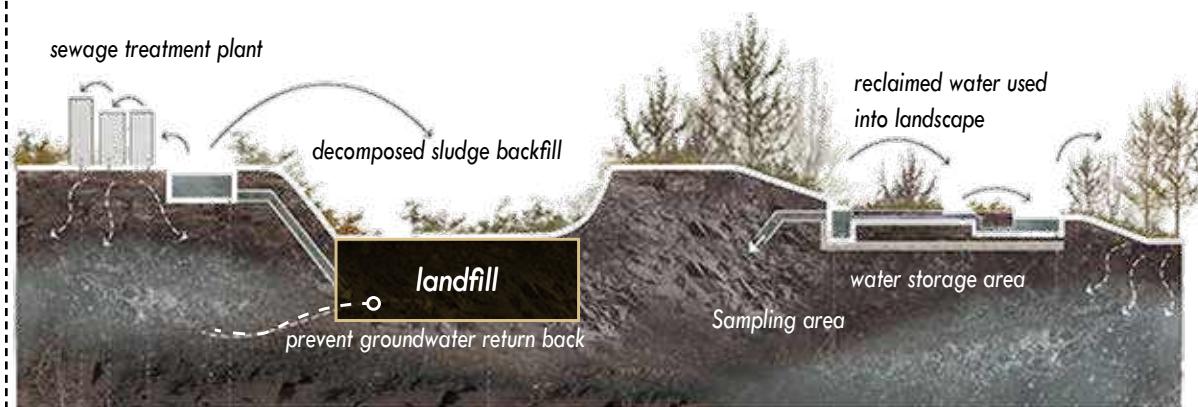
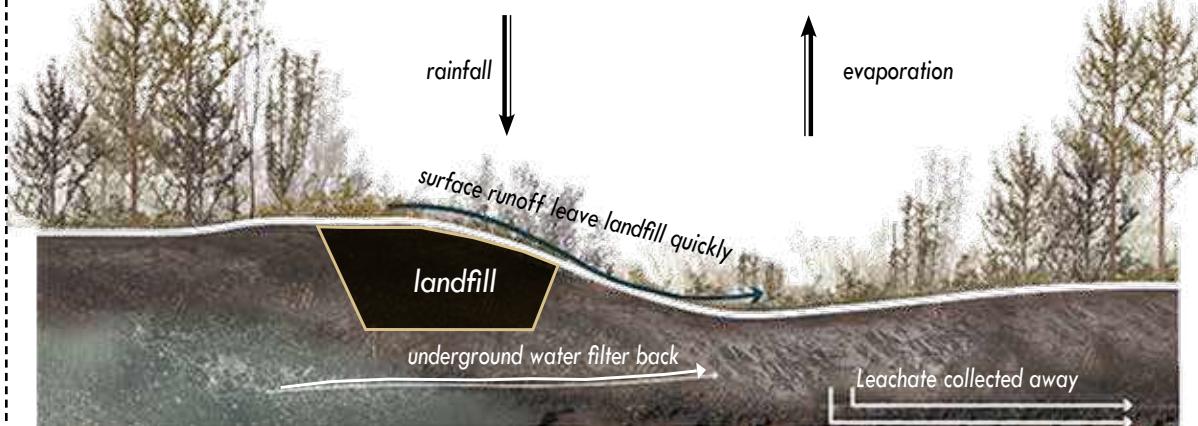
Step3 Chemical Improvement



Step4 Put micro-organisms to absorb harmful substances

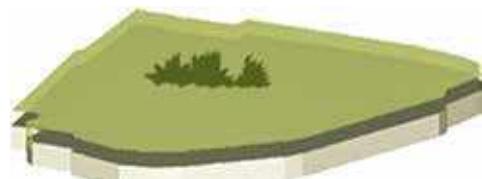


Water Management Strategy



Plant Community Evolution

Step1 Improve soil quality
Introduce pioneer herbs



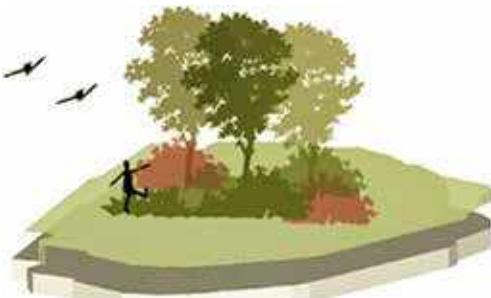
Step2 Absorb metals by resistant plants



Step3 Stable vegetation restoration



Step4 Improve plant community



Master Plan





03

Urban village reborn

Industrial revitalization of a dying village

*Combining location advantages, transform the dilapidated village
into a furniture distribution center*

Urban Design and Landscape Architectural design

Group work with Fan Yufei

Location:Houqi Village,Beijing

Time:2016.07-2020.10

Instructor: Ding Yufei

Contribution:50%

site analysis,design analysis,birdview drawing



"Urban Villages" in Beijing or other megacities in China has formed an incredible urban scene. On the one hand, it exists to provide necessary spaces for people coming to the city, who have made great contributions for the development of the city. On the other hand, the "village" they are living is becoming an extreme contrast from the modern city they built. The re-development of these villages cannot be only rigid demolishing-rebuilding process. An appropriate re-development always starts from the core: The villagers.

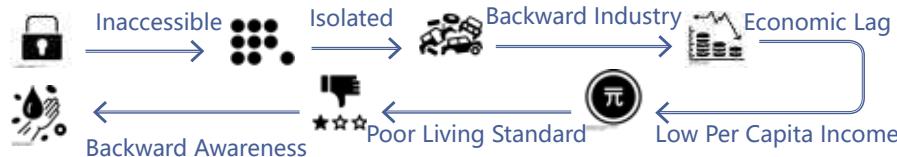
Houqizhuang Urban Village

The village is located in the South fourth Ring east Road, Chaoyang District, Beijing.

It's very convenient for both entering the city and contacting the suburbs.



Backward Economy of Site



Site issues



Suffering from backward industry

The main industry here is vehicle scrapping, causing severe noise and environmental pollution.



Suffering from severe health problems

Too many anaemic newborn babies are born in village, causing severe health issues.



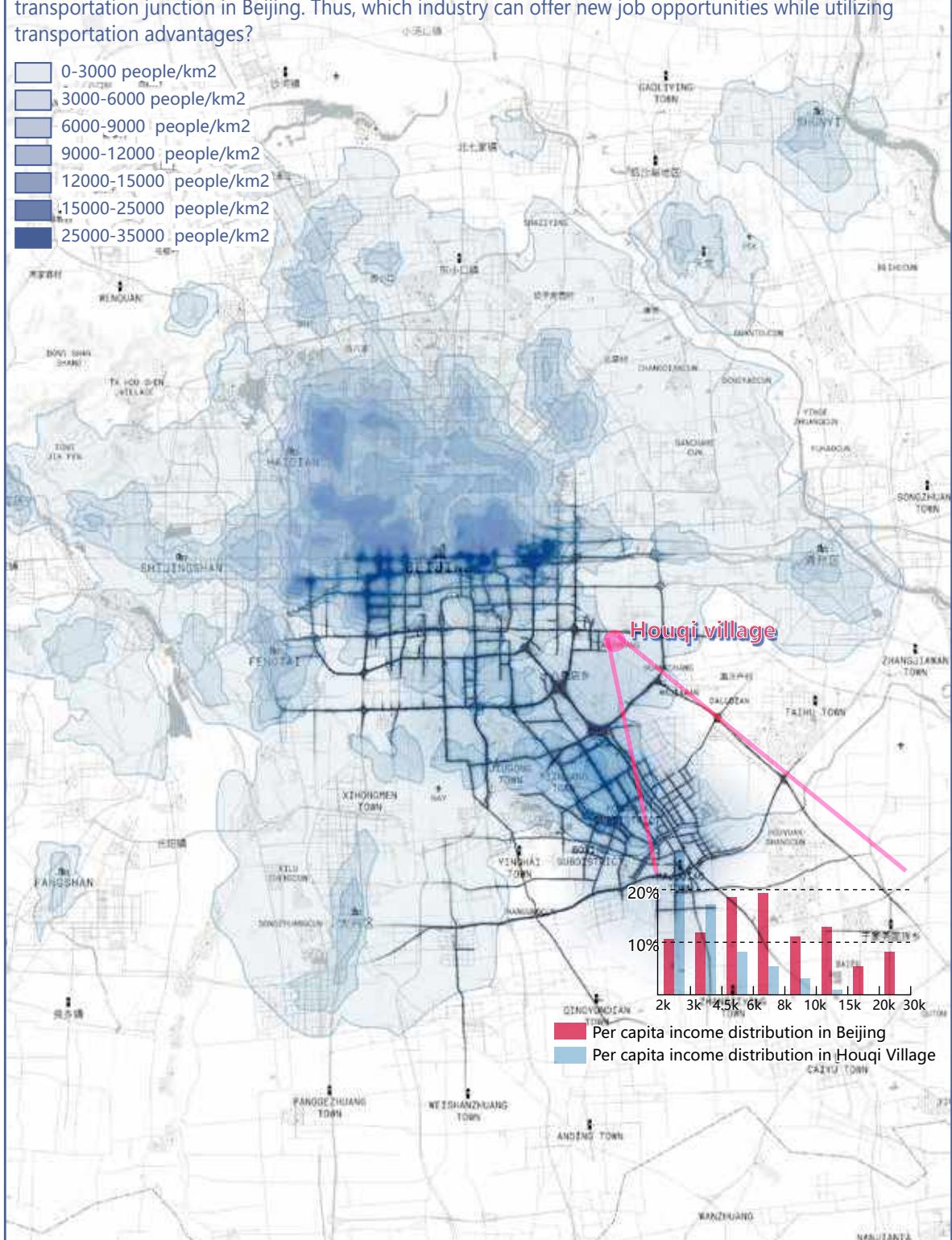
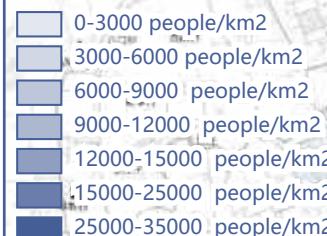
Local Industrial Structure

The site has convenient transportation. Many furniture stores locate around here

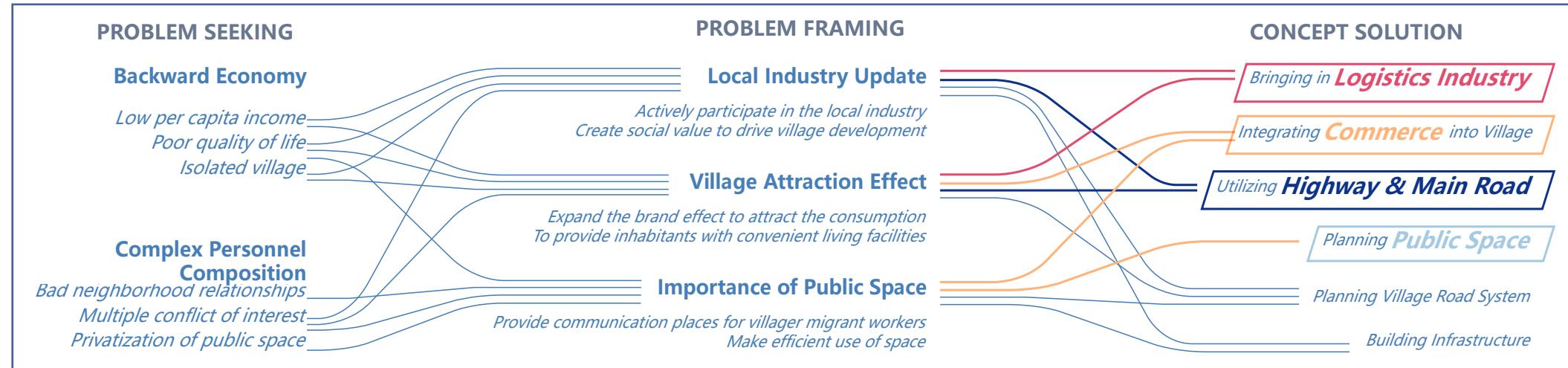


Regional Analysis

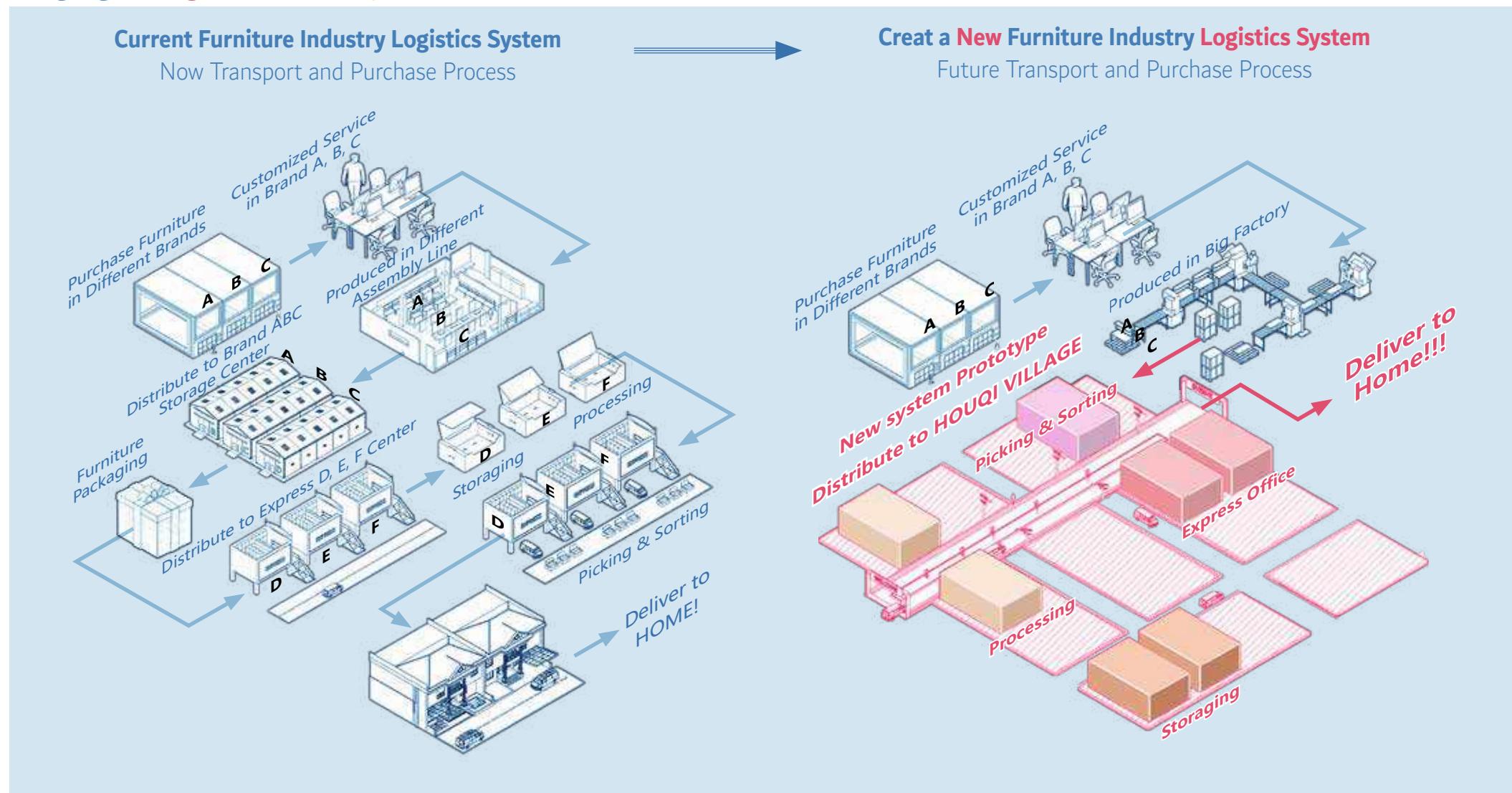
Employment density contour line reveals the employment trend is significantly centralizing, which has inhibited the development of Houqi Village. However, Houqi Village locates in the very place of transportation junction in Beijing. Thus, which industry can offer new job opportunities while utilizing transportation advantages?



System Framework

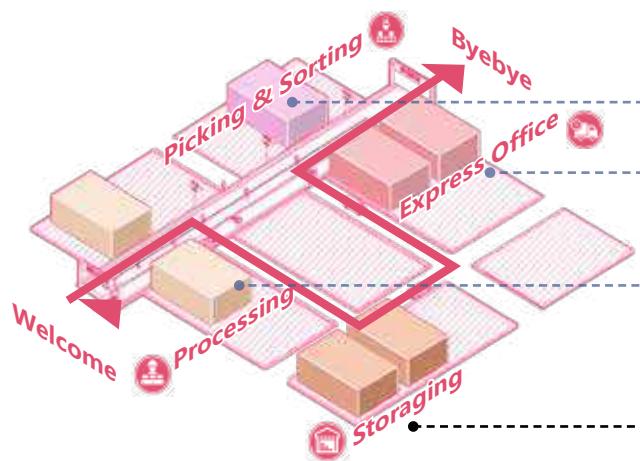


Bringing in Logistics Industry



Bringing in Logistics Industry

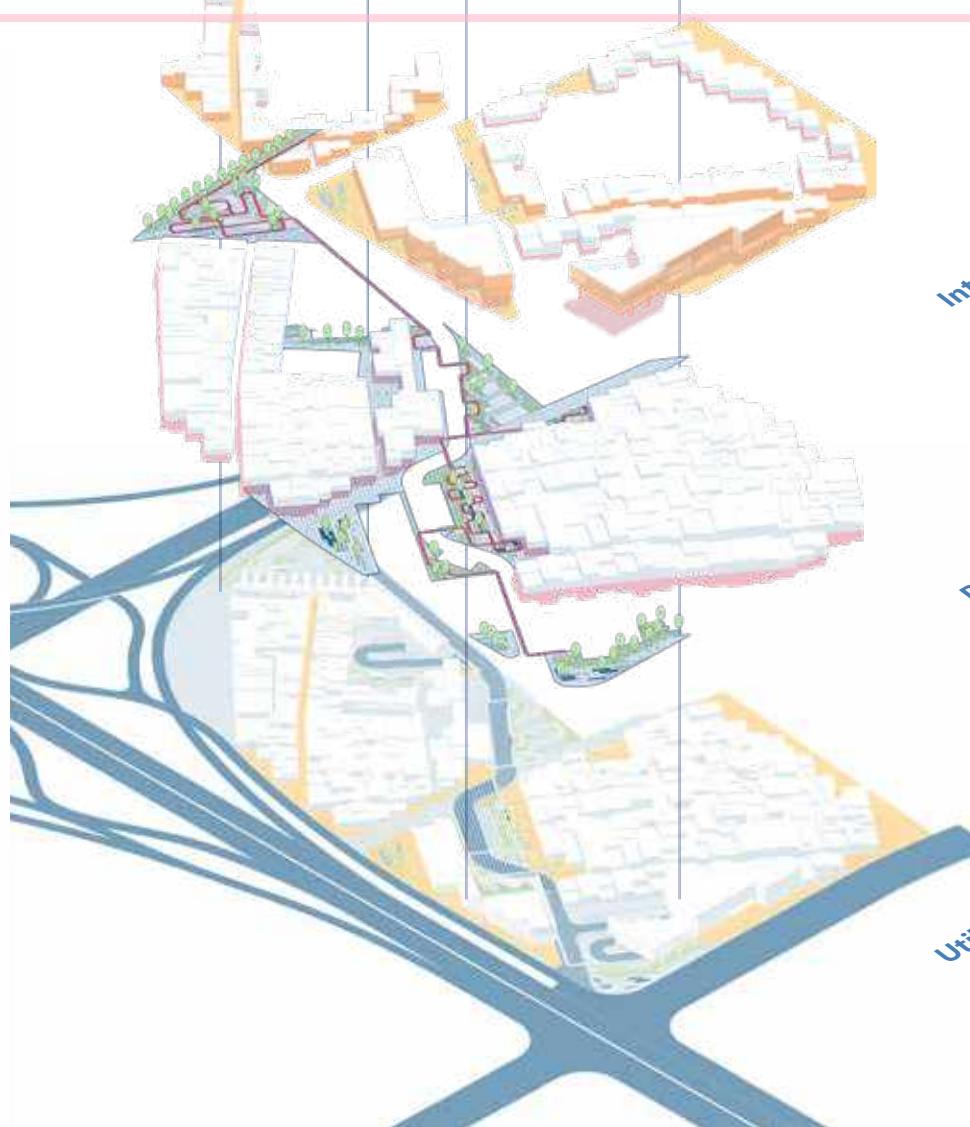
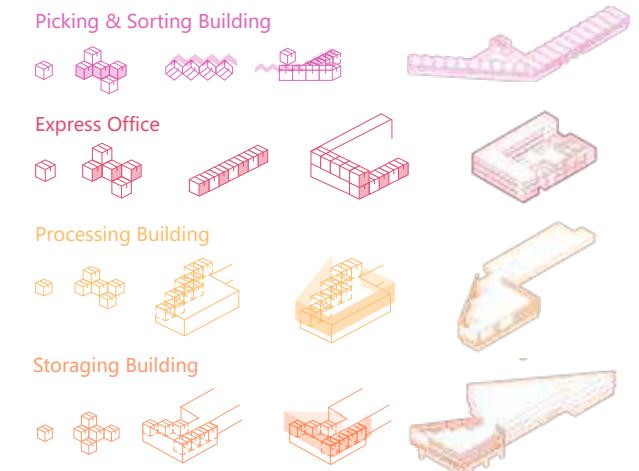
NEW LOGISTICS SYSTEM



CONCRETIZATION



BUILDING ANALYSIS



Integrating Commerce into Village

1. Expand the brand effect to attract the consumption
2. To provide inhabitants with convenient living facilities

Planning Public Space

1. Provide communication places for villager migrant workers
2. Make efficient use of space
3. To provide inhabitants with convenient living facilities

Utilizing Highway & Main Road

1. Create social value to drive village development
2. Expand the brand effect to attract the consumption
3. To provide inhabitants with convenient living facilities

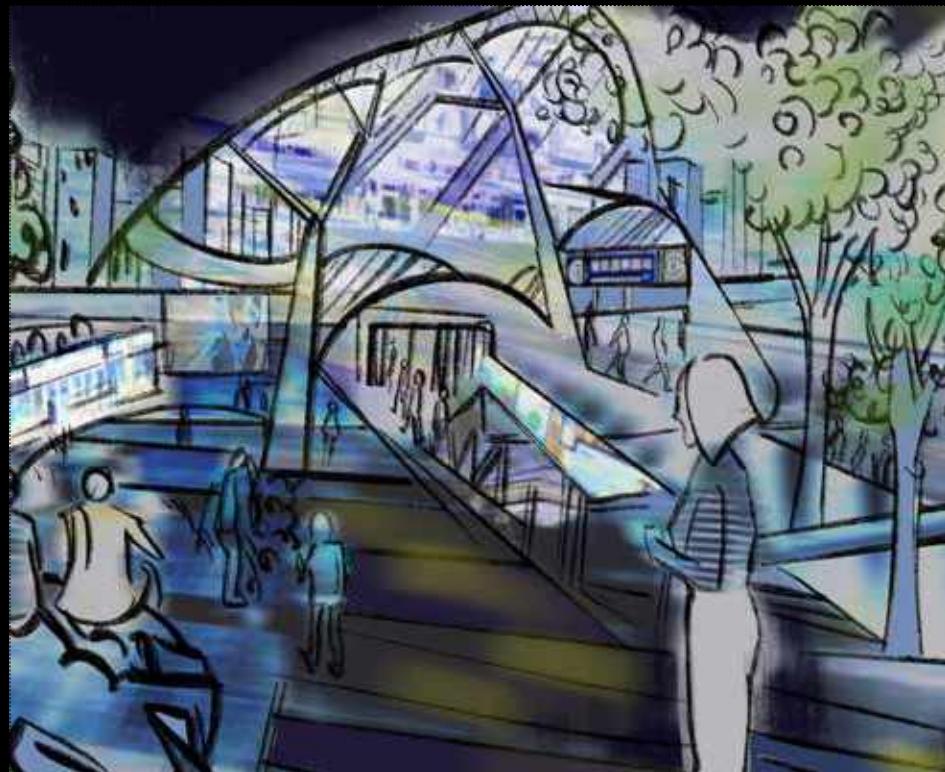
Axonometric Drawing of Houqi Village



Boost Vitality at Night

Deal with the embarrassing situation of unused Shanghai people's park at night

Micro-update of People's Park to improve urban vitality at night



Urban Design and Landscape Architectural design

Group work with Chang Shengran and Li Yi

Location:Renmin Park,Shanghai

Time:2019.08-2020.06

Instructor: Wu Ruohao

Contribution:60%

design concept,mapping,issue analysis,plan,strategy

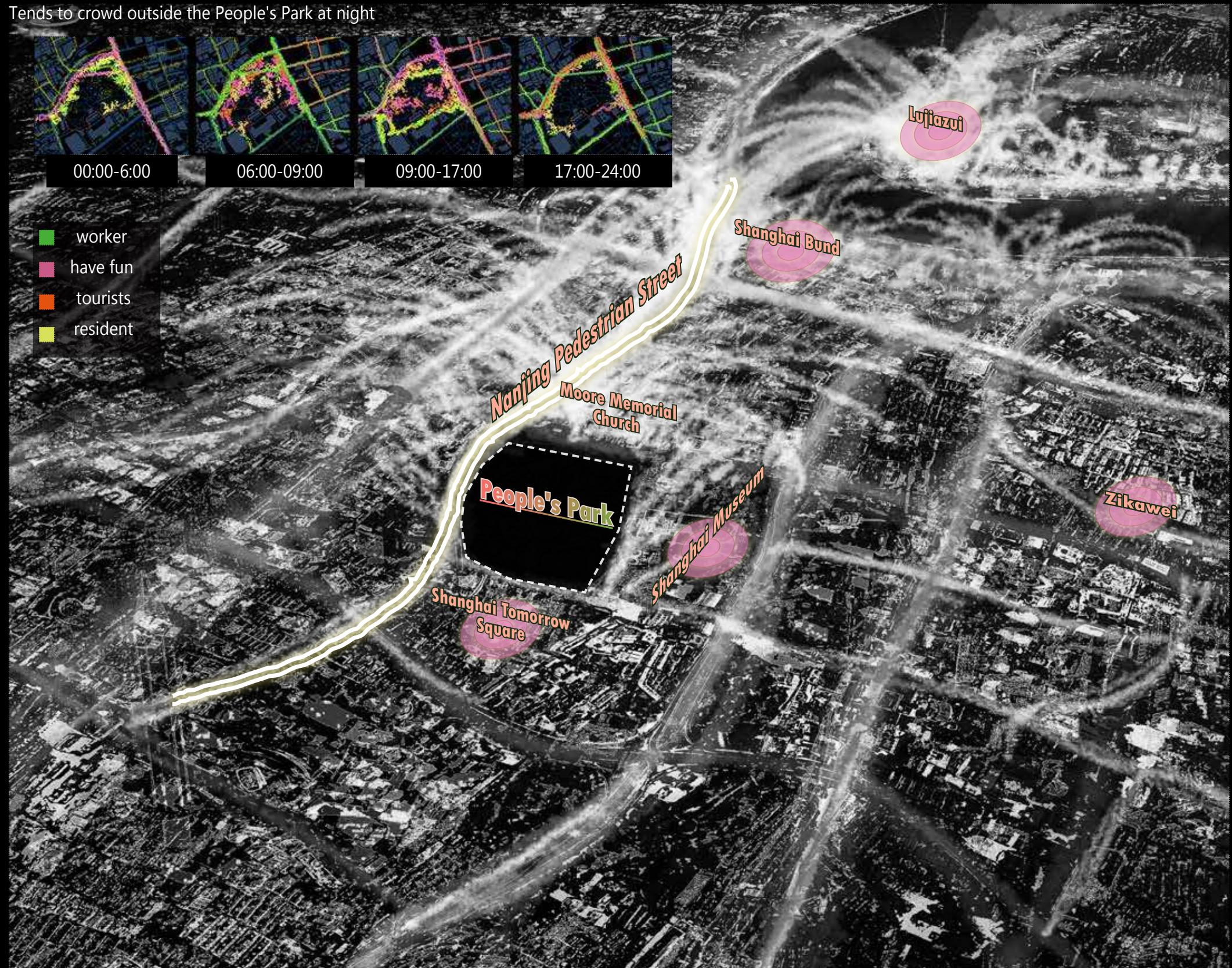
Shanghai People's Park, one of the most popular site, located in the center of Shanghai, is next to Nanjing Road Pedestrian Street. It is surrounded by many ancient architectures and internet-famous shops,which attracts a large number of tourists sightseeing here.

In addition,There are lively blind date activities during the day. However, at night,people are crowded outside the park shopping,dancing,drinking and so on,but the use of the park is low.

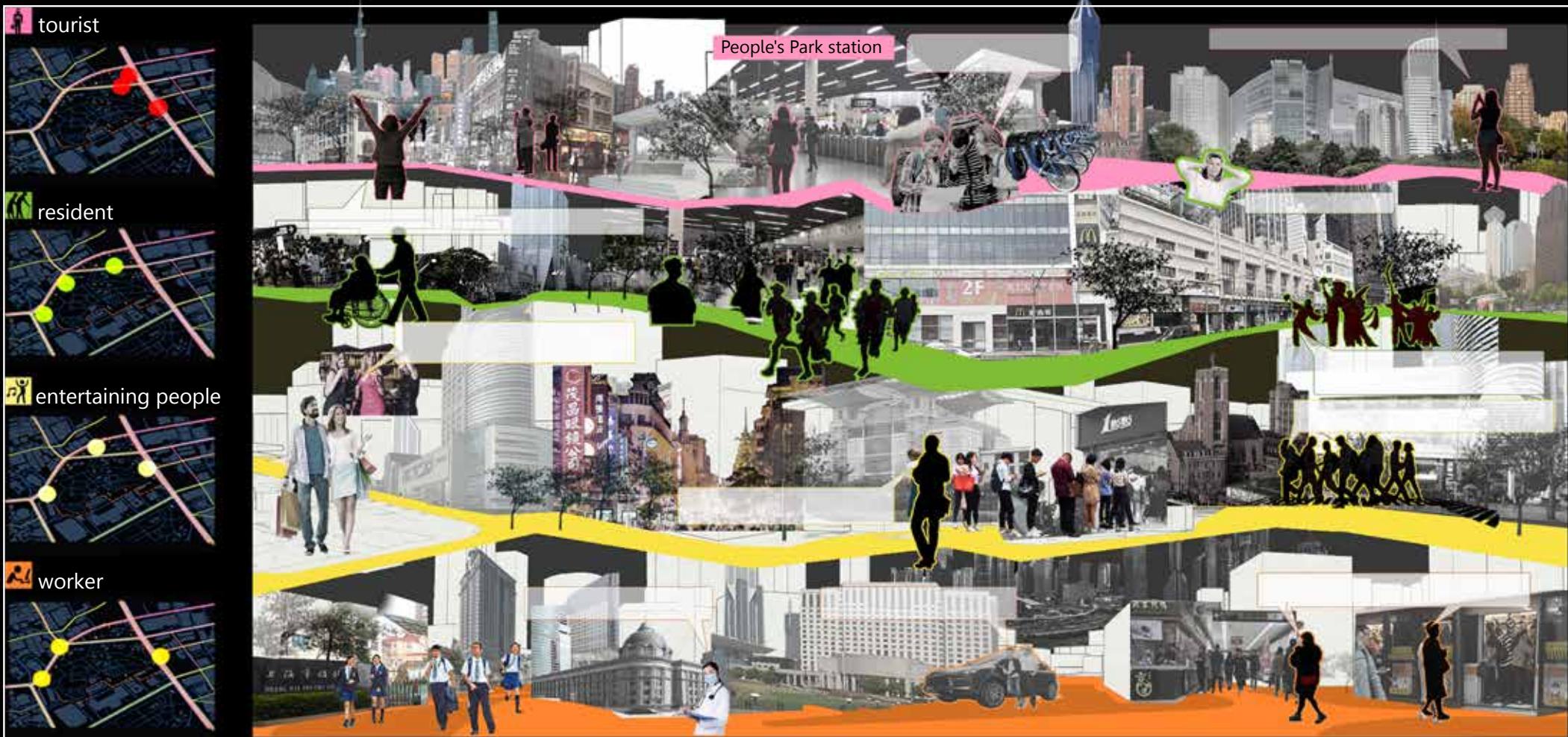
We find out the reason of the low vibrant at night and come up with the idea to boost the nightlife vitality!

Human Flows

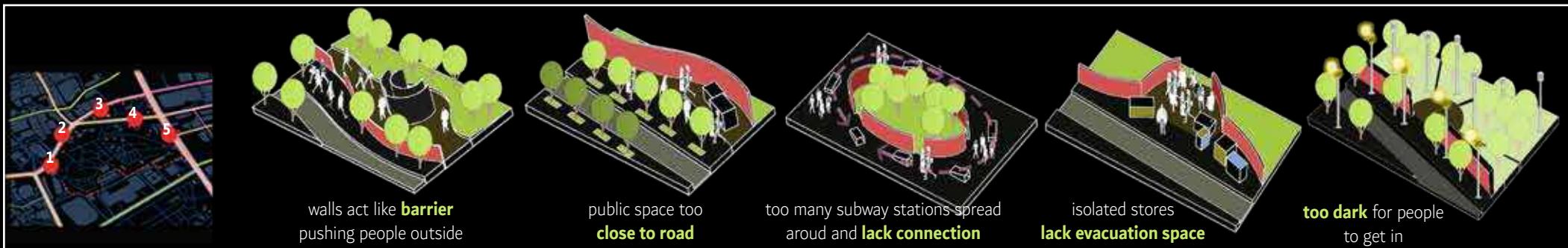
Tends to crowd outside the People's Park at night



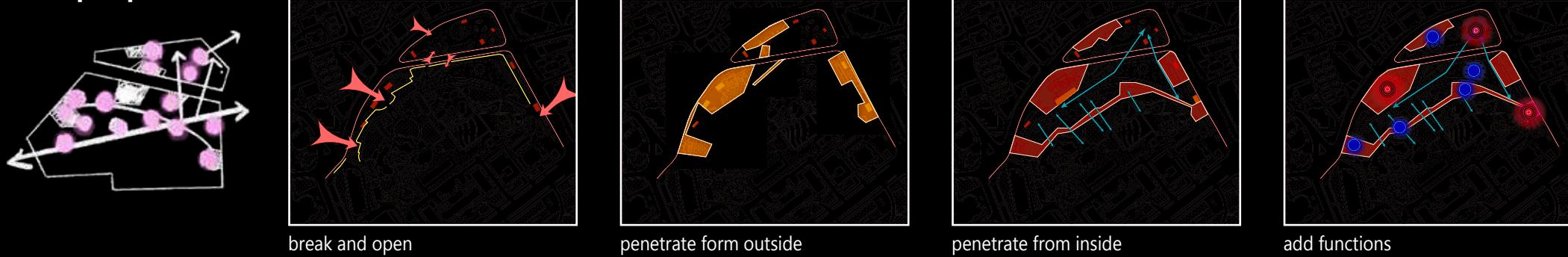
Current Situation Analysis



Problems



Concept: permeable



Master Plan



- | | | |
|---------------------|---|------------------|
| 1 subway entrance | 2 commercial complex | 3 entrance steps |
| 4 lookout platform | 5 underpass lead to Nanjing Pedestrian Road | |
| 6 shady terrace | 7 outdoor cafe | 8 lawn entrance |
| 9 lighting entrance | 10 starry pool | 11 light square |



Reorganize the subway stations, sum them up into one commercial complex.
Make use of the height difference to build an outdoor cinema.



The commercial street in the complex during the day makes shopping easier and ensures that visitors never lost when they find the entrance of the subway station.

Professional Works

National Forest Village Creation

Shengli Village, Harbin Province



Afforestation and beautification method for wetland conservation village. Through spot-like pits and wetlands, Linear river corridor green space and Planar core wetlands construction, build a better wetland village.



Urban road node landscape design

Chengxian Road, Chengde, HeBei Province



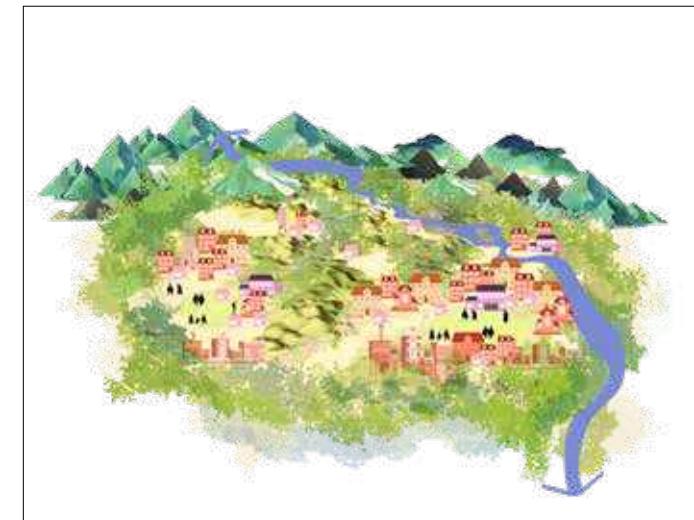
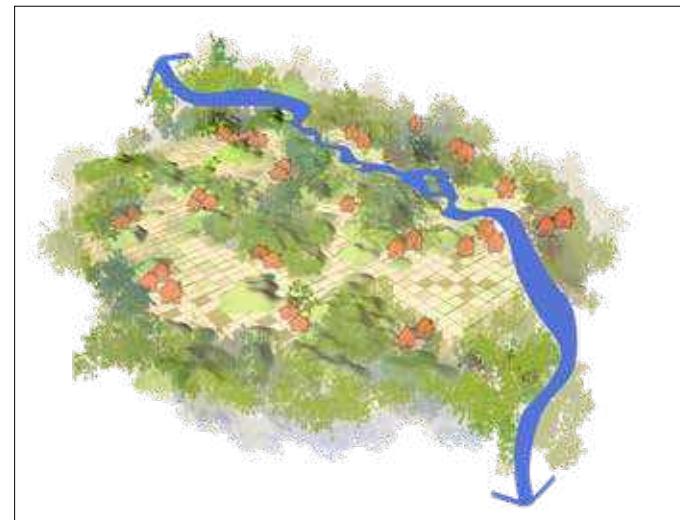
Ecological parking lot design



The strategy and path of ecological restoration

Dongjin district, Chengdu

Relying on the characteristics of hills in the city, integrate the hills, villages, urban landscape together.



Integrate the forest, field, water and courtyard in the whole area
create a multi-dimensional landscape display system.



Combining terrain topography to create a number of specialized parks.



Through a number of city green corridors

Laizhou Greenway planning

Laizhou, Yantai, Shandong Province

scenic greenway plan



current scenic spots mapping

ecological greenway plan



current reservoir/river/ mountain mapping

sports greenway plan



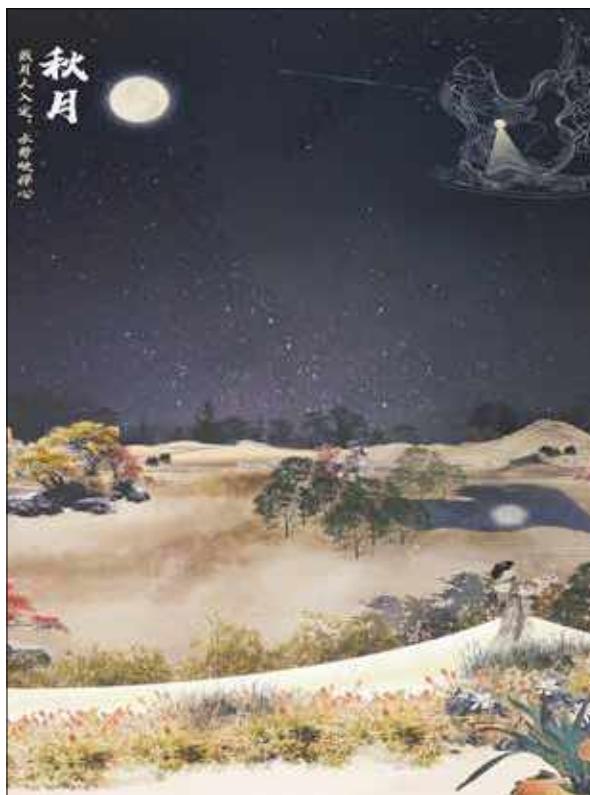
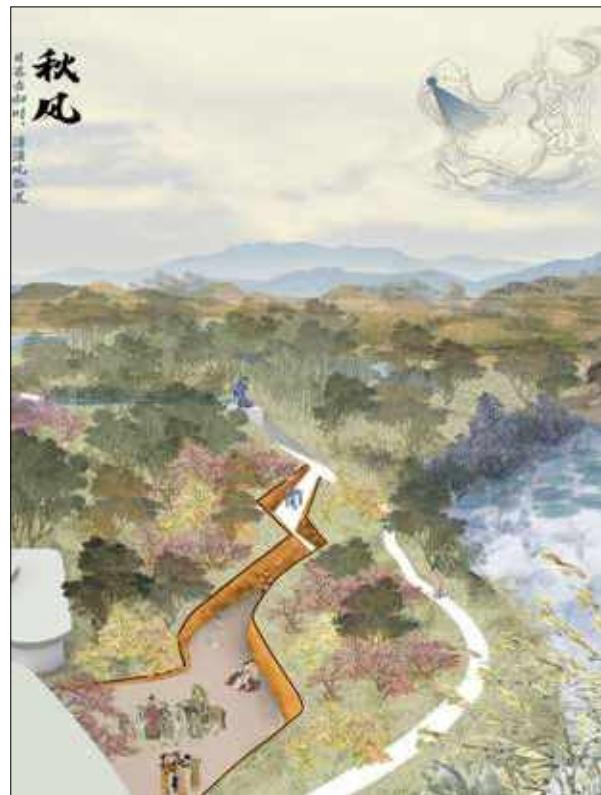
current sporting and entertaining site mapping

Other Works

Four Periods of a day in autumn

Interpret timing into Landscape Node Design.

Won the second prize of CHLSA Design Competition



Agricultural Country Park

Postgraduate graduation design



Agricultural Country Park

Postgraduate graduation design



Other Works

Paintings

- 1 2 Charcoal Drawing Architecture and Landscape
- 3 4 Watercolor lead painting
- 5 Watercolor painting

