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University / School South west Jiaotong University

Academic year 2019-2020

Title of the project Make the community like a sponge inclusive, based on climate change ecological community design

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TECHNICAL DOSSIER

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Authors Yingbiao Xuan, Mei Zhang, Bo Fu
Title of the course Urban Design of Zaoziyang community
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Written statement, short description of the project in English, no more than 250 words

Chengdu is a city with obvious rainy season and heavy rainfall time, so it has a high requirement for the city's rainwater management ability. Zaozi Lane is an important old community in Jinniu District of Chengdu, which lacks consideration of urban microclimate treatment and cultural history. Combined with the requirements of urban development, Zaozi Lane was redesigned based on its internal conditions and surrounding environment. In the design, the relevant knowledge and technology of sponge city are used to treat the rainwater in the landscape green space such as ecological drainage ditch and rainwater garden through filtration, infiltration, discharge and reuse within a short time. Through landscape green space, intelligent landscape facilities, landscape water treatment and other urban microclimate improvement methods, improve the urban microclimate of the community, while affecting the urban microclimate of the whole area; Deeply dig the history of the community, retain the historical culture and humanistic spirit inherited by the community, and integrate culture into landscape and life through landscape treatment. The Zaozi Lane community is redesigned as an ecological and cultural livable community with profound connotations and full charm, which has the ability to deal with the short-term heavy rainfall climate and has some changes to the urban microclimate.

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CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

Barcelona

September 2020

SCHOOL PRIZE



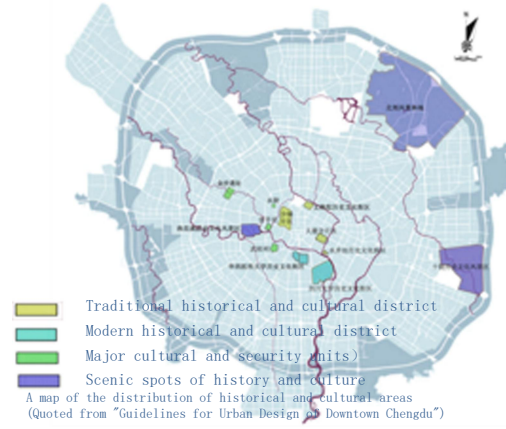
Spatial structure plan of the city



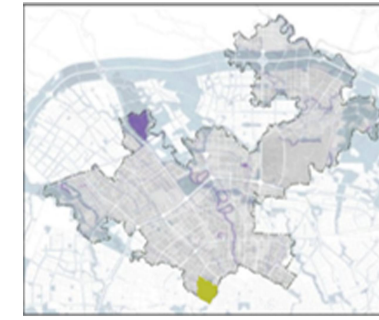
District development plan for the city
(Quoted from Chengdu City General Plan 2016-2040)



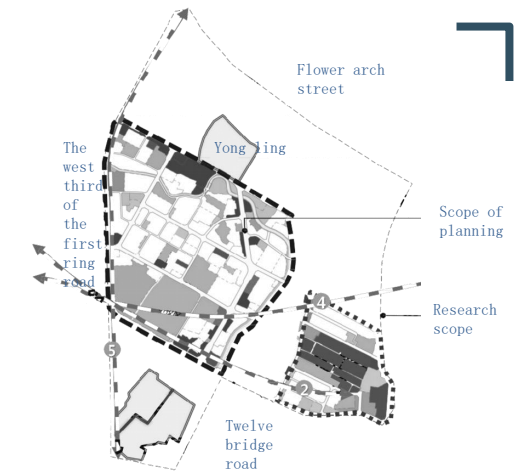
Chengdu Rail Transit Long-term Planning Line Network (2030)



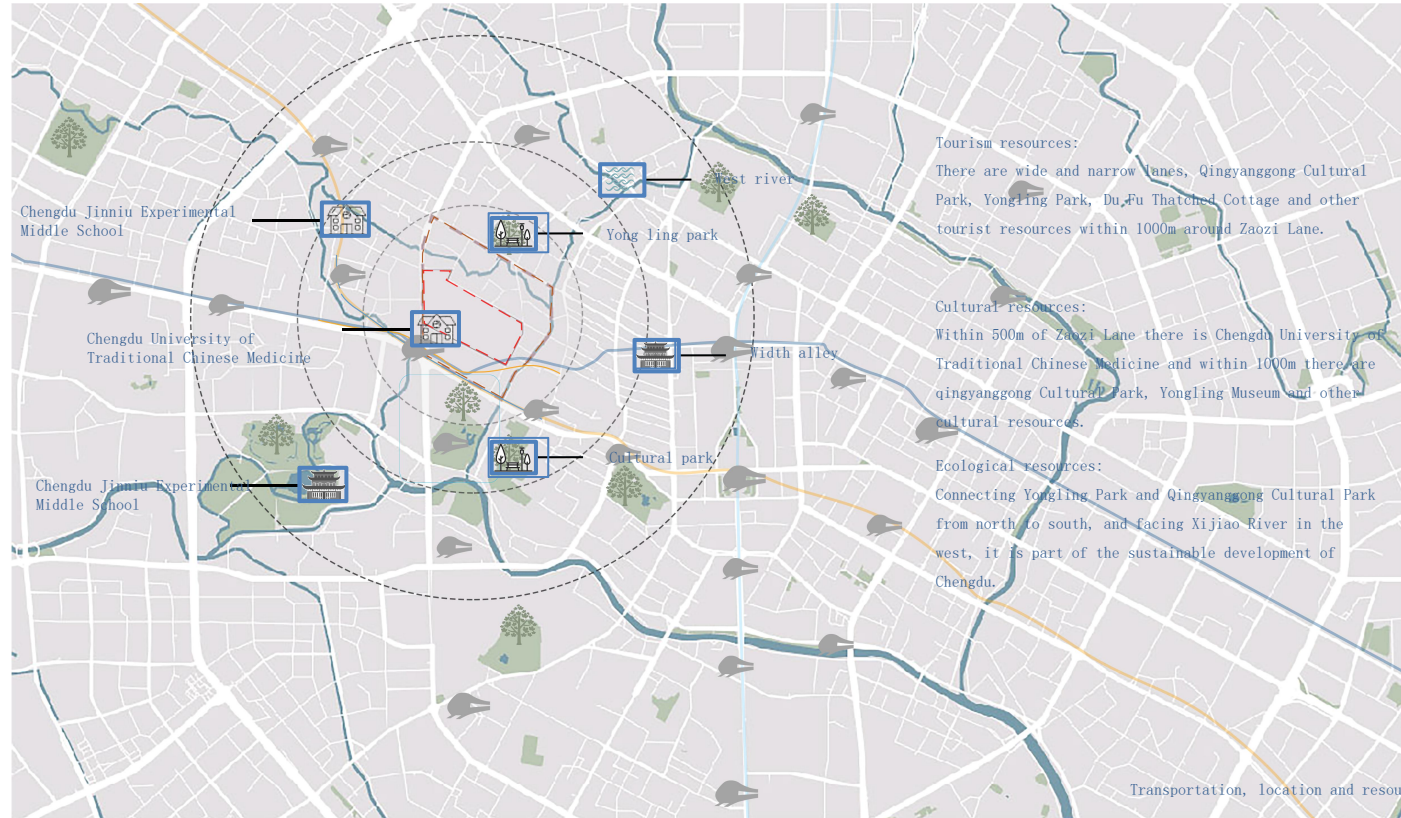
Traditional historical and cultural district
Modern historical and cultural district
Major cultural and security units
Scenic spots of history and culture
A map of the distribution of historical and cultural areas
(Quoted from "Guidelines for Urban Design of Downtown Chengdu")



The urban design scope of Guomihui District



Flower arch street
Yongling
The west third of the first ring road
Twelve bridge road
Scope of planning
Research scope

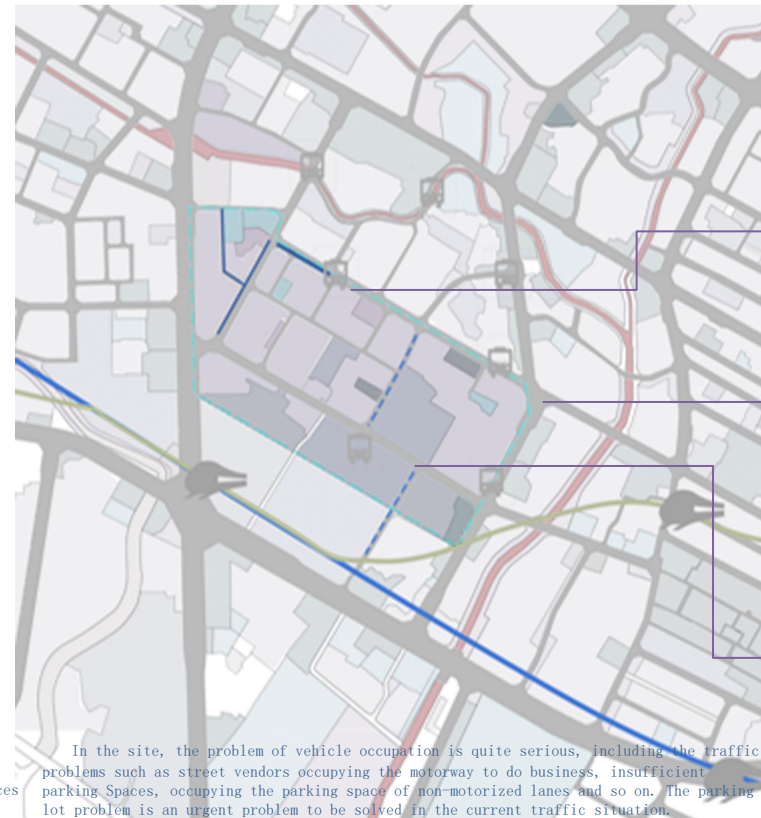


Tourism resources:
There are wide and narrow lanes, Qingyanggong Cultural Park, Yongling Park, Du Fu Thatched Cottage and other tourist resources within 1000m around Zaozi Lane.

Cultural resources:
Within 500m of Zaozi Lane there is Chengdu University of Traditional Chinese Medicine and within 1000m there are Qingyanggong Cultural Park, Yongling Museum and other cultural resources.

Ecological resources:
Connecting Yongling Park and Qingyanggong Cultural Park from north to south, and facing Xijiao River in the west, it is part of the sustainable development of Chengdu.

Transportation, location and resources



In the site, the problem of vehicle occupation is quite serious, including the traffic problems such as street vendors occupying the motorway to do business, insufficient parking spaces, occupying the parking space of non-motorized lanes and so on. The parking lot problem is an urgent problem to be solved in the current traffic situation.



Retailer rice occupies the lane



A motor vehicle is parked improperly

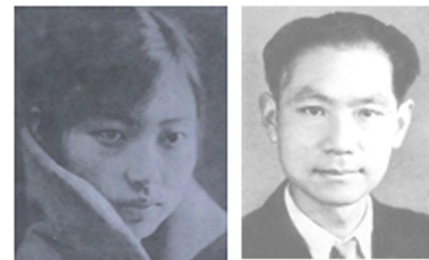


Non-motorized lanes are occupied



The origin of Jujube Lane

Dai Jitao, a veteran of the Republic of China and the Chinese Kuomintang, planted jujube trees beside his mother's tomb, creating the jujube Lane today.



Historical celebrity symbol

Huang Zhiqian (poet, calligrapher, painter) : one of the three outstanding Huang family, modern Shu talented woman

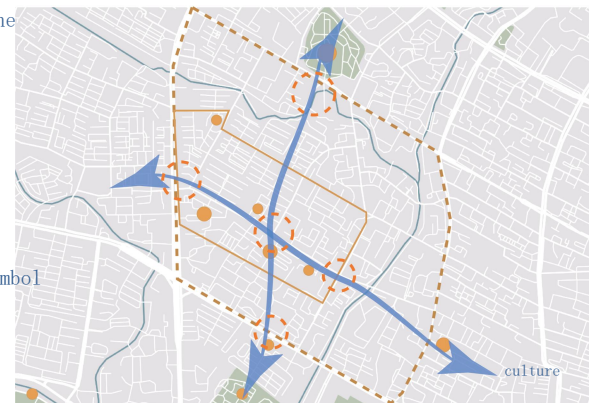
Liu Zihua (astronomer) : To integrate traditional Chinese cosmology with modern astronomical science



Heritage of Traditional Chinese Medicine

Lost classic books of the Bian Que School of Traditional Chinese Medicine (Bian Que Medical Notes) were found in the Han Tomb of Laoguan Mountain in Chengdu, Tianhui Town, Jinniu District.

A figure of human body with small characters engraved along the lines of "heart" and "lung".



Analysis of backview and appearance of items



Enclosed parking lot
Roadside parking lot



Road public space
Open public green space
Residential green space



Industrial base

1. The proportion of traditional commerce and trade is high and low, and traditional commerce is in transformation and transition period
2. Emerging trade models are changing with each passing day, and their development patterns are in a period of innovation and integration.
3. The process of rebuilding the old and building the new is accelerated, and the emerging business and trade industry is in the stage of cultivation and development.
4. The economic benefit of commercial buildings is not high, and the scale and quality are in the period of construction improvement.

A commercial basis

1. The development foundation of business and trade industry is solid, and the popularity of business has gathered.
2. The transformation and upgrading of the traditional business and trade industry has been continuously promoted, with prominent improvement results.
3. Good integration of commerce and e-commerce, outstanding demonstration effect.
4. Community businesses are scattered and scattered, with perfect service functions.





City planning and street planning



- Protective greenbelt
- Medical and health care
- Residential land
- waters
- Protective greenbelt
- Commercial land
- Cultural heritage site
- Land for municipal public facilities
- Cultural and recreational land
- Administrative office space
- External traffic
- Public green space
- Education scientific research

- The car line
- The pedestrian flow
- Site boundary
- The bus line

The building adopts the blue brick style of the Republic of China wind, the color is unified as a whole. The street-facing buildings adopt dark gray, while the functional buildings adopt dark red and light brown, so as to enhance change, avoid monotony, enhance recognizability and at the same time, enliven the street atmosphere.

In this design, ecological roof, micro biological retention pond, basin biological retention pond and urban biological retention pond are adopted to improve the ability of zaozi Lane community to recover and utilize rainwater, prevent urban waterlogging and build a green ecological

Landscape node planning:

The main landscape nodes of the site include four entrances and large urban plot landscape nodes, while the secondary landscape nodes consist of small green Spaces and squares. Under the background of the general planning, the landscape axis is added along the north-south direction by combining the internal node intersection area and important transportation hubs.

Winter: Locust, dragon Java, rose, apricot, peach, rose, Chinese rose, wintersweet, eucommia ulmoides, purple magnolia, peony, green bark, camellia, cycad, kinson Privet, Atractylodes, caryophyta, Gordon eurygordon seed

Autumn: Ginkgo, Mountain magnolia, cedar, Peach, hibiscus, osmanthus, Tallow, silver leaf chrysanthemum, aristolochia, rehmannia root, iris, calamus, lily

Plant allocation

Plants are arranged according to the five elements corresponding to the four seasons. According to the landscape characteristics of the four seasons, traditional Chinese medicine plants are arranged to create the best landscape style of the season. At the same time, plant planting in different plots also corresponds to the recuperation and healing function of human five zang organs.

Guidelines for Street Design

Considering the activities of people in the street, the design and guidance of the street need to follow a certain direction. It is mainly aimed at traffic road facilities, walking and activity space and architectural features to improve the comfortable experience of tourists.



Cultural experience



Carefree life



Slow ecological



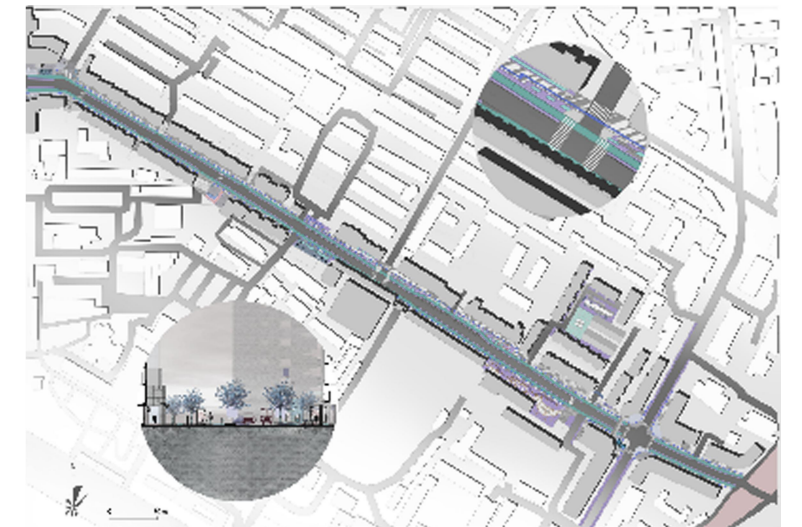
Smart union



Autumn: Ginkgo, Mountain magnolia, cedar, Peach, hibiscus, osmanthus, Tallow, silver leaf chrysanthemum, aristolochia, rehmannia root, iris, calamus, lily

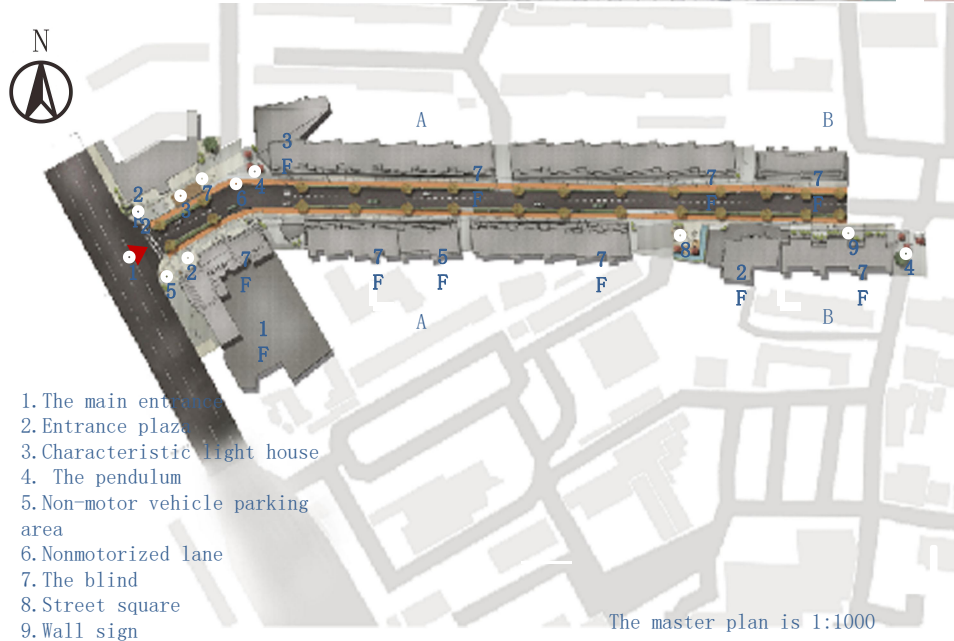
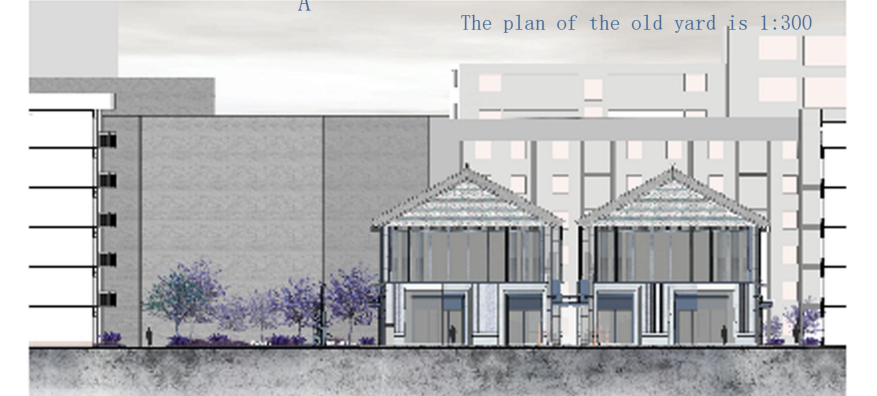
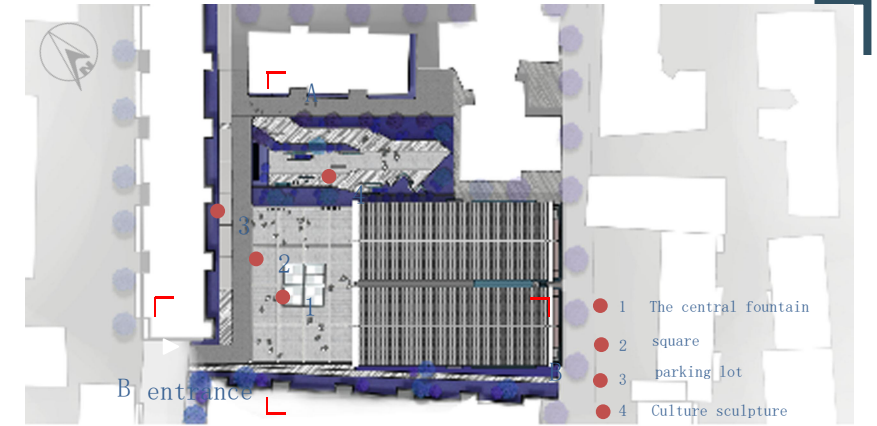
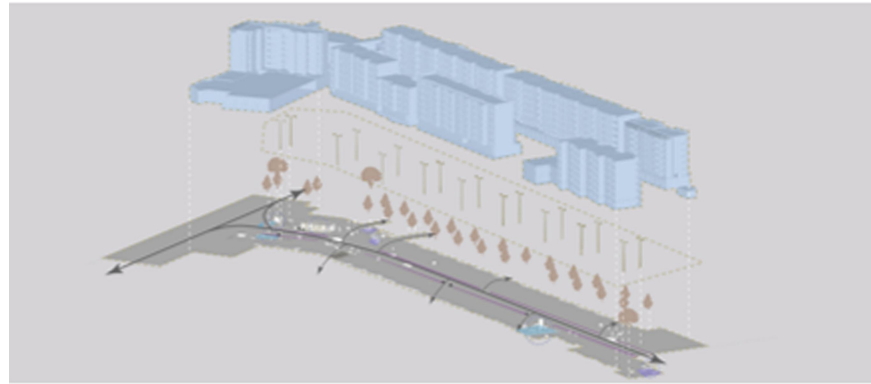
Summer: Radix Puerariae, Jujube tree, Magnolia grandiflora, Pinus tabulaeformis, Pinus tabulaeformis, Meissendrei, Acer Palmatum, Acer palmatum, Acer hybrida, rhododendron hybrida, Pinellia, Red paeony

Spring: Peach, Magnolia, cherry, chrysanthemum, tulip, gentian, foxtail, prunella, purslane, plantain, dandelion

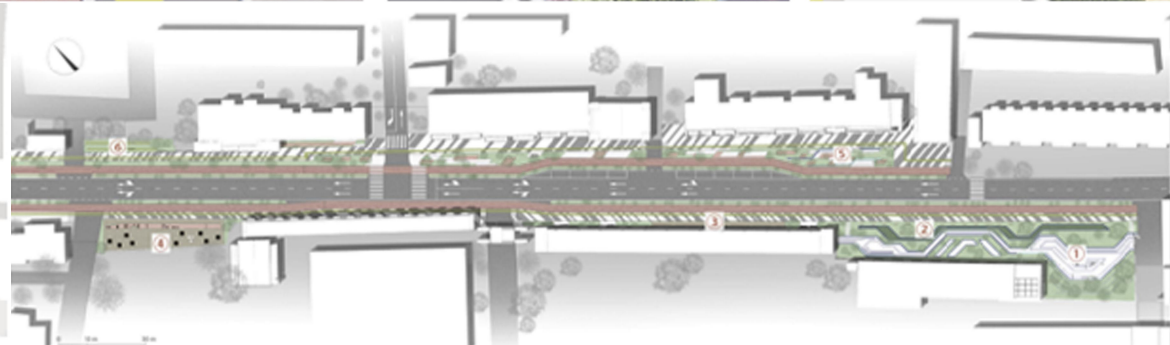


Street design solves the fundamental problem. At the same time, considering the construction of sponge city, there is space on both sides of the street for rainwater garden, which plays an important role in adapting to the urban climate.

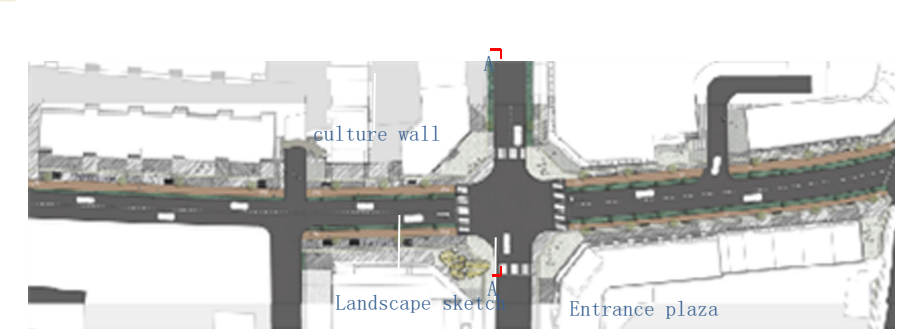
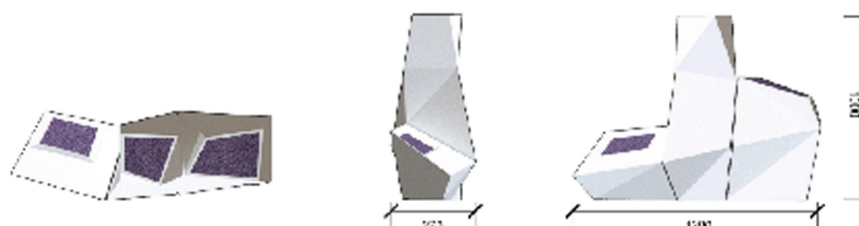
- Let the city be as elastic and inclusive as a sponge.
- Perfect urban flood and natural drainage.
- Maintaining natural landscapes and ecosystems.
- Low cost operation.



1. The main entrance
2. Entrance plaza
3. Characteristic light house
4. The pendulum
5. Non-motor vehicle parking area
6. Nonmotorized lane
7. The blind
8. Street square
9. Wall sign



- ① Recreational venues
- ② Plant cognitive
- ③ History of the wall
- ④ Culture square
- ⑤ Street lounge Green gallery
- ⑥ Culture sculpture



Street level: 1:400

The uncomfortability under the influence of temperature and humidity reflects the microclimate in each district of the block. This device is arranged at each location of the block. By introducing the Internet of Things, it monitors the temperature and humidity around the device, so as to obtain the discomfort of microclimate in each space of the block. Then, through the temperature and humidity regulator, the ambient temperature and humidity can be adjusted to improve the microclimate, improve people's comfort and plant photosynthetic efficiency.

