

Transient Habitat

A Design Strategy and Toolkit for Urban Interim Green Space in Guangzhou

As cities rapidly expand and dynamically evolve, land functions continuously adapt and shift. During this process, certain parcels of land become temporarily idle or abandoned due to financial constraints, changing functional requirements, or adjustments in planning.

Although these lands are already under unified government control, their specific development purposes remain unclear, resulting in long-term wastage of valuable resources. Additionally, these neglected spaces have negative implications for urban environmental landscapes and ecosystems.

To address this issue, the project proposes a design guideline and toolkit for urban transitional green spaces. Leveraging the potential and value of “informal development” landscape projects, this toolkit emphasizes low-intervention design, multifunctionality, ecological sustainability, and interactive experiences. By enhancing the overall effectiveness of urban green spaces, it aims to compensate for the lack of green areas in high-density urban environments.

Furthermore, through sensory interactions, educational programs, agricultural cultivation, and recreational healing experiences, these spaces aim to reconnect urban dwellers with nature, offering innovative insights and valuable lessons for future urban green space development and open space planning in densely populated areas.

- ✓ *Low-intervention design*
- ✓ *Multifunctionality*
- ✓ *Ecological Sustainability*
- ✓ *Interactive Experiences*



Background

LUOGANG STREET

22.67 Square Kilometers

Abundant Natural Resources

Good Natural Ecological Environment

>30 Urban Lost Space

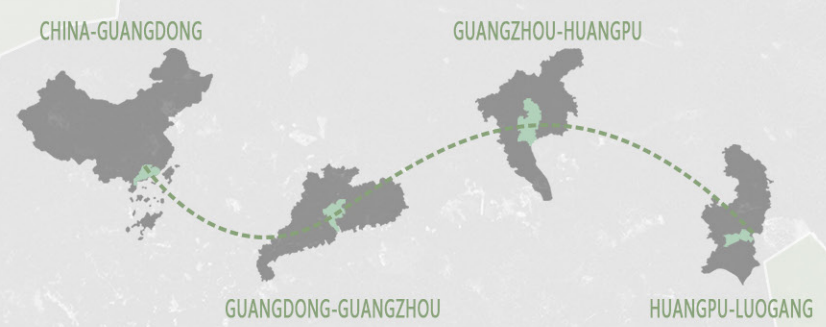
Fragmentation of Land Parcels

Different Properties of Surrounding Land Use

- Site
- Expressway
- Main Road
- Subsidiary Road
- River

LOCATION

The Research Site Is Located In Guangzhou City, Guangdong Province



THE EMERGENCY of IDLE LAND

In the dynamic development of cities, some short-term idle and abandoned land has emerged during the process of transferring new and old functions of land, becoming the "lost space" and "left over space" of cities, leading to waste of environmental resources.

IDLE LAND TYPES



TYPE1:Highway Side

This type of land is close to both sides of the highway and most of it has problems with vegetation destruction



TYPE2:Residential Side

This type of land is close to residential areas, and most of the plots are unmanaged and underutilized, and cannot meet the needs of surrounding residents.



TYPE3:Wasteland

This type of land is in a state of dereliction, close to factories or urban villages. They are not developed and managed, and the trees are overgrown.

Wasteland

Residential Side

Highway Side

Site Analysis



422

questionnaires

67.3 Mins a Day

Average outdoor time

78%

the space quality needs to be improved

63.1% willing to

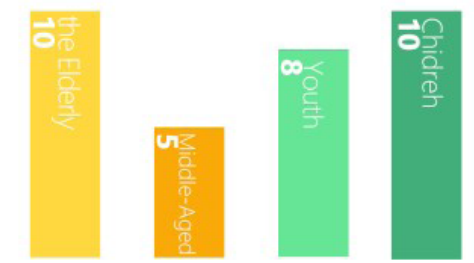
build & manage wasteland



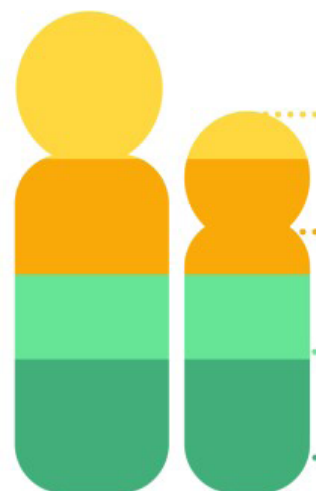
outdoor time /day



Go to parks /month



Community activities /year



31% the Elderly

26% Middle-Aged

16% Youth

27% Children



Site Perception

Design Strategies for Urban Transitional Green Spaces

Challenges

Fragmented Spatial Distribution

Exposed Loess
Ecological Deprivation

Lack of Community Engagement

The potential and value of Urban Transitional Green space

Supporting service value

Provide temporary green and landscape infrastructure in high-density cities.

Instant service value

Set outdoor activity space for surrounding residents to enhance community vitality.

Spontaneous service value

The functions leading by spontaneous plantation do not require large amount of financial investment. This is a double win model to reduce government investment as well as satisfy the various needs of residents.

Strategies

Ecological restoration



Revegetation



Bio-friendly



Rain Gardens

Creating urban habitats to enhance ecosystem services

Informal development



Low
Construction



Zero-waste



Low
Maintenance

Enhancing urban green infrastructure through low-impact, high-quality green spaces

Repairing social networks



Community
Culture



Educational
Culture



Multiple
Culture

Connecting people and nature to enhance the vitality of the community.

Strategy E : Ecological Restoration Design Toolkit

Revegetation



Restoring Naturalness

Rain garden



Micro-ecosystem

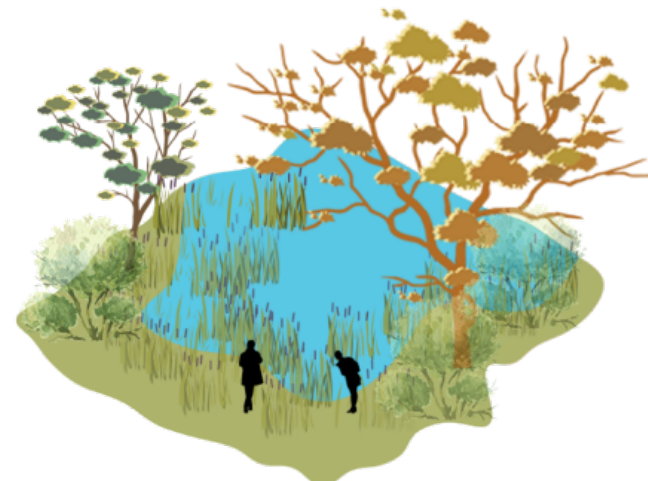
Biofriendly



Migratory Birds Habitat



Color, Five Senses Healing



Rain Garden



City Animal Paradise



Growing Native Plants



Roadside Ditch



Insect Friendly

Create rich vegetation habitats

Trees conserve water and fix nitrogen



Plants that attract insects



Urban rewilding vegetation



Goal

STEP 1 Rehabilitation

The essence of ecological restoration is the enhancement of ecosystem quality.

STEP 2 Carbon sink function

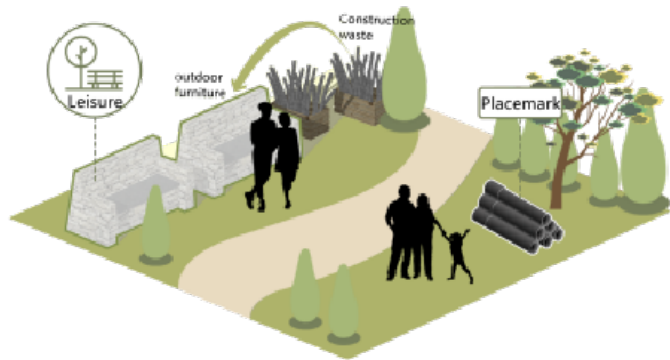
Enhance public understanding and awareness of the functions of carbon sinks.

STEP 3 Radiate

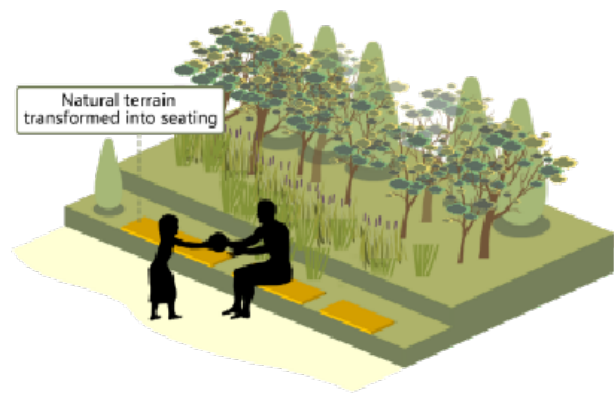
Influencing the overall green environment of the city through vegetation regeneration radiation.

Strategy I : Informal Development Design Toolkit

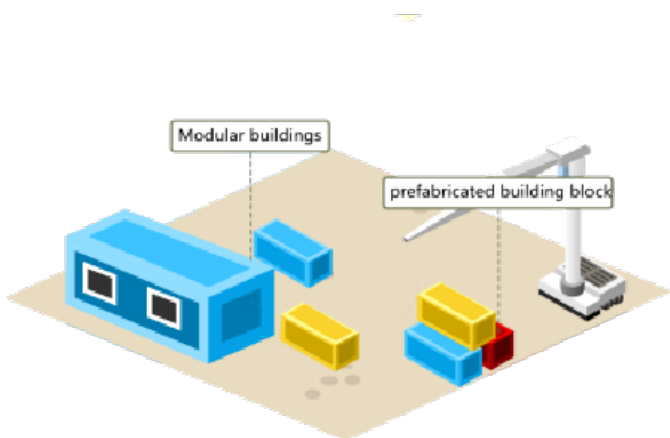
Low Construction



Utilisation of Waste Materials



Adapt to the Terrain

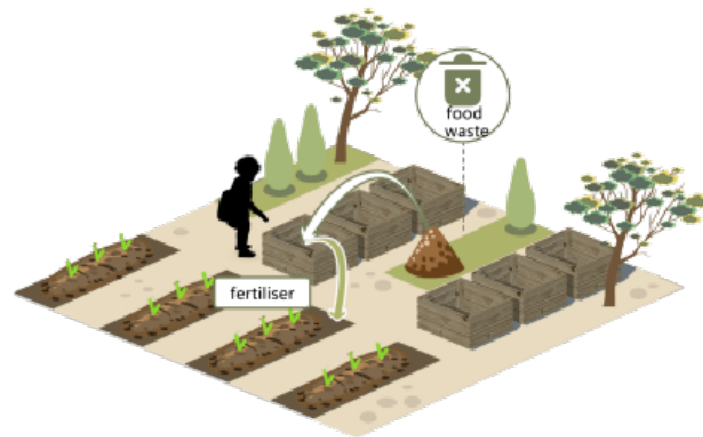


Modular Construction

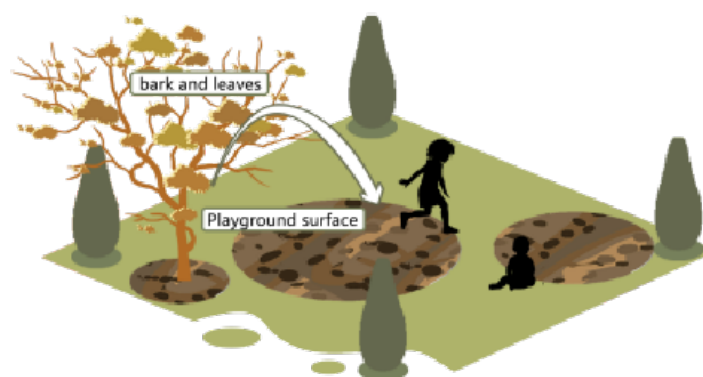
Zero-waste



Recycle

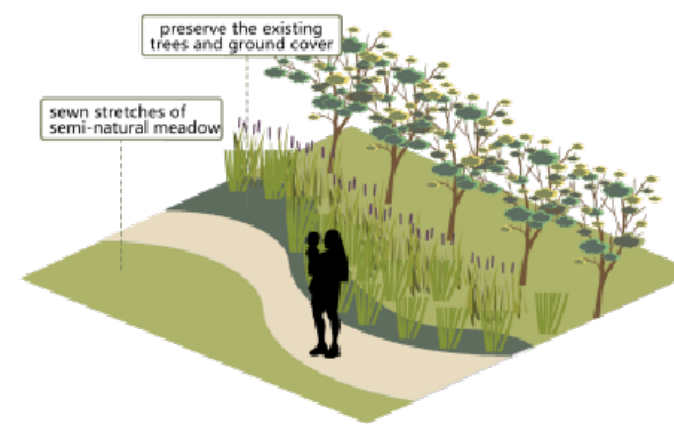


Compostable Fertiliser



Nature Playground

Low Maintenance



Naturalistic Planting



Ecological Cycle



Used-for-nothing Exchange

3 LOW Philosophy

LOW INTERVENTION

Guide natural work,
reduce manual intervention.

LOW CONSTRUCTION

Follow the human demands, Select
practical resources.

LOW MAINTENANCE

Resource planning based on the
concept of sustainable development.

Goal

STEP 1 Low-investment construction

Low-cost plot construction through a
development approach that utilises
waste, adapts to the terrain and builds
modularly.

STEP 2 Circulation

Ecological circulation within the site
through renovation and construction

STEP 3 Value-added

Attracting inputs through the
enhancement of natural and social
values brings economic benefits.

Strategy R : Repairing Social Networks Design Toolkit

Community culture



CO-Construction Garden



Sred Cropland



Places for Leisure Activities

Educational culture



Nature Education



Sketch and Painting



Amusement Playground

Multiple cultures



Exhibition



Weekends Markets and Fairs



Picnic and Tent Camp Gathering

Community Participants

Population



Local Residents



Local Students



Interested Tourists

Demands



Social



Experience



Selling



Intellectual



Farming



Vocational

Goal

STEP 1 Peripheral participation

The participants in this stage are the surrounding residents, who can see and build the site according to their needs.

STEP 2 Expansion

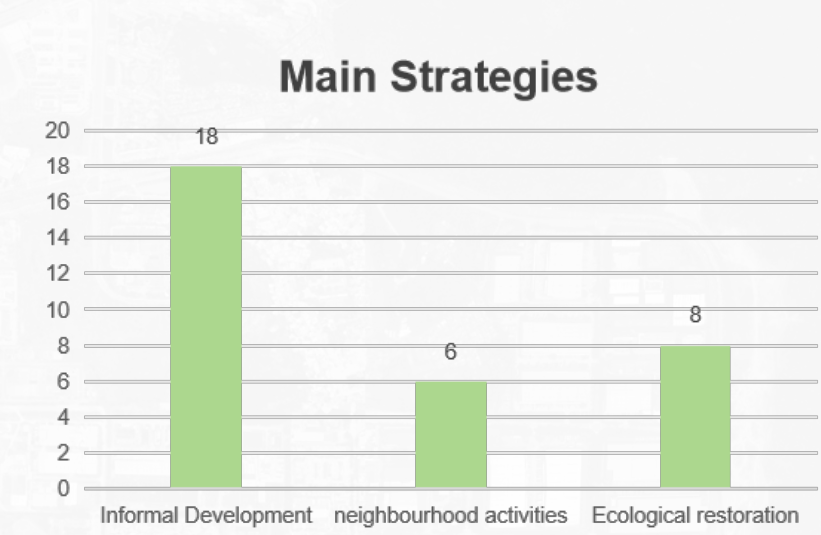
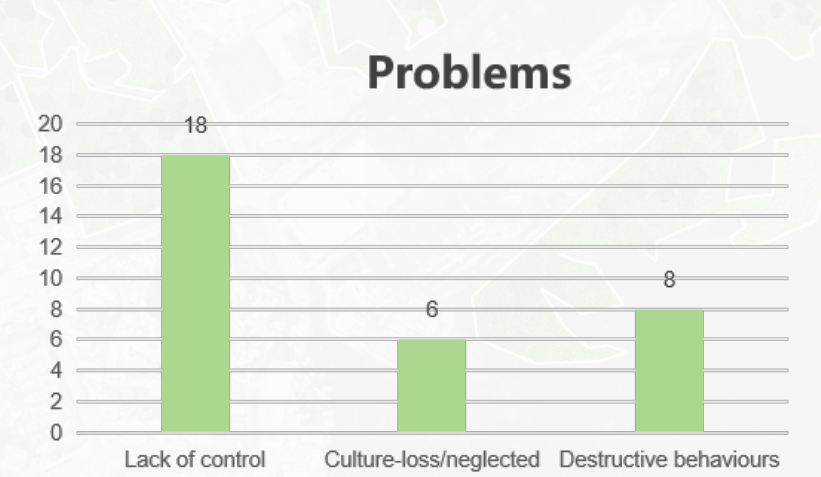
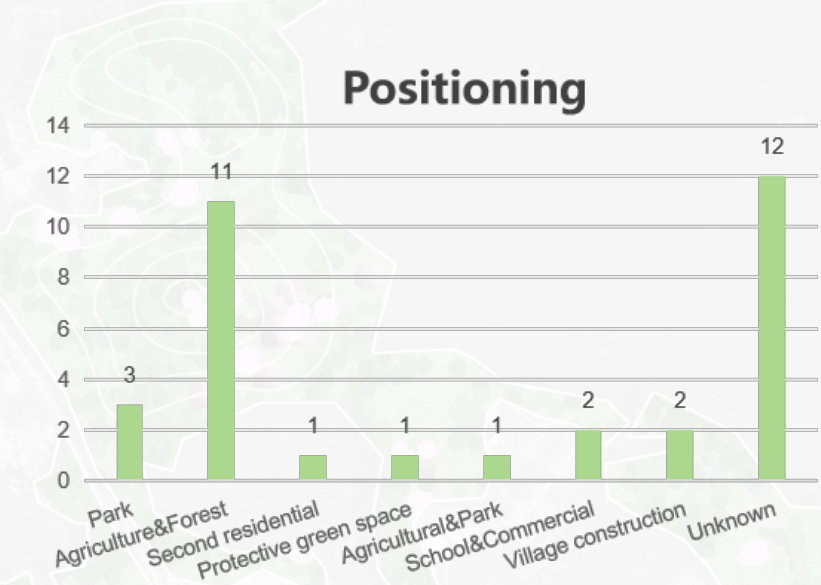
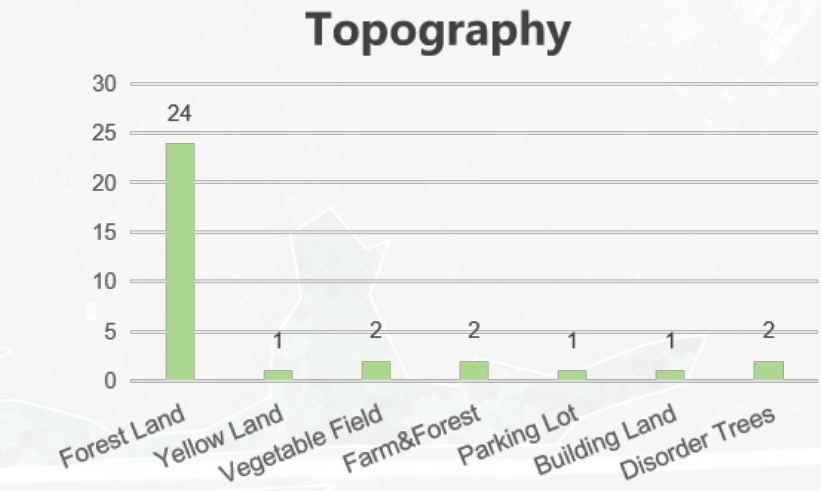
In this phase, it will be more popular and gradually acknowledged by a wider range of people.

STEP 3 Promotion

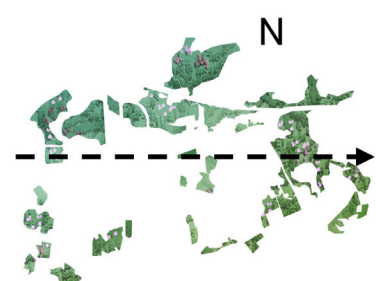
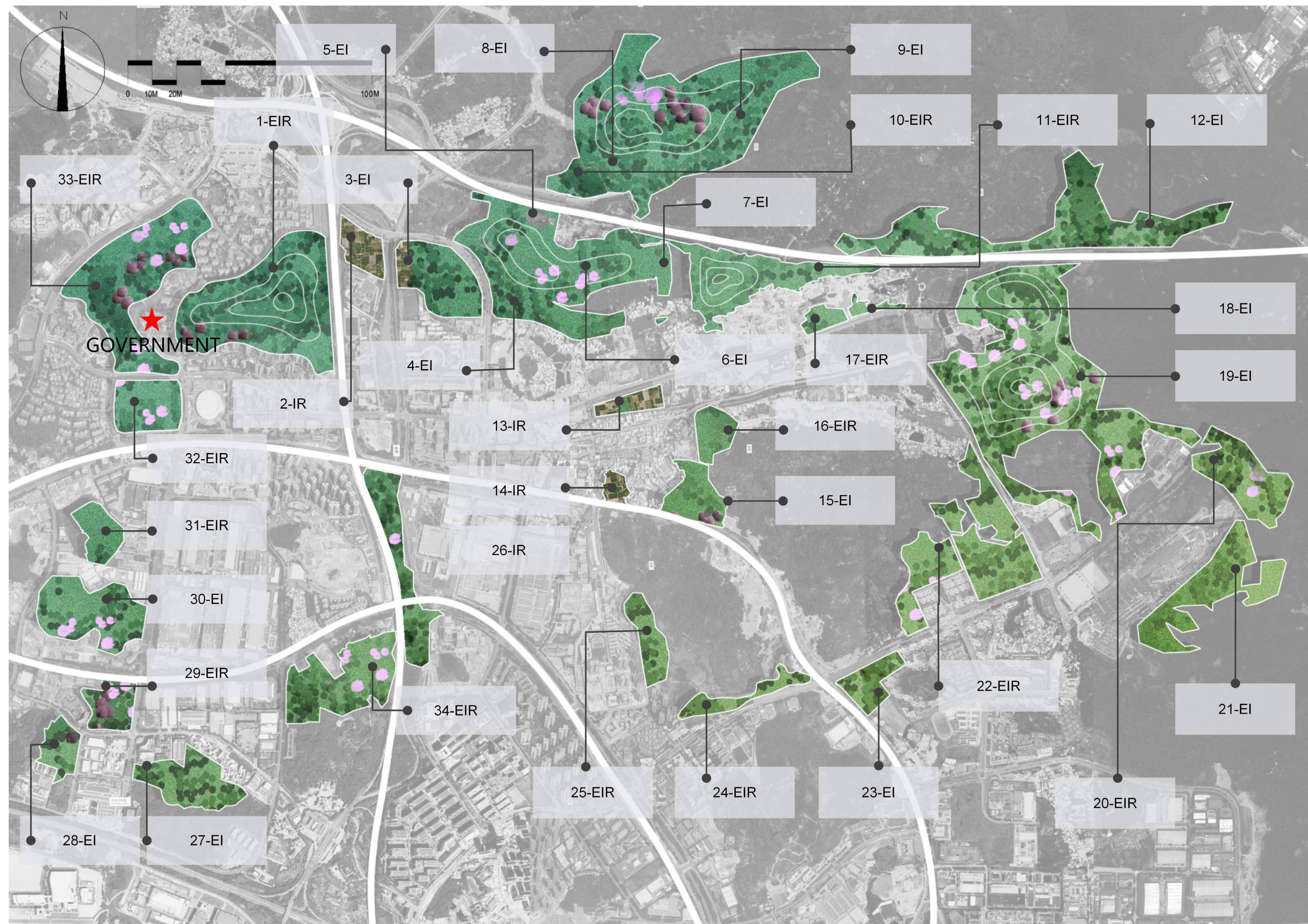
During the final step, it will form a brand mechanism, and cooperate with enterprises for promotion.

Quantitative Evaluation of the Site

Plot	Area/mu	Current Status	Quality of Environment	Frequency of Use	Strategies
1	662.058	Mainly forest land, park built on the southwest side	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div></div>	EIR
2	93.06	Mainly forest land	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div></div>	IR
3	92.314	Mainly forest land, a small part of farmland, slope protection on the side of the highway	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EI
4	218.67	Mainly forest land	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
5	11.038	North neighbor is a highway, east is a transportation bureau, the rest is mountain forest	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EI
6	603.785	Forest land	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
7	38.031	North connected to the highway, rest is forest land	<div><div></div><div></div><div></div></div>	<div><div></div><div></div></div>	EI
8	222.895	Mainly forest land, scattered residences	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EI
9	716.321	Mainly forest land, some farmland, scattered housing	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
10	78.45	South is adjacent to an urban road, the rest is mountain forest	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR
11	368.456	North is adjacent to Ji Guang Expressway, northeast side s Yuyan Academy, south is under construction residential area and several cultural relics protection units, west is mountainous, east is Xiangxue Park	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR
12	511.752	South neighbor is a highway and Xiangxue Park, the rest is mountain forest	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
13	4.077	Located in the interior of the village to be renovated	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	IR
14	41.909	South neighbor is Chuangchuang Avenue, surrounding area is residential	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	IR
15	148.243	Southeast s a sanatorium, west is adjacent to a community, kindergarten, cold storage, hospital, north and east are mountainous forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
16	93.454	North is adjacent to Lihu Road, west is a hospital, east is under construction residential area, south is mountainous forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR
17	48.434	East and north sides are under construction projects, some ancestral lls, south is Xiangxue Avenue, forest land and farmland, east is Xiangxue Park	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR
18	27.073	East and north sides are under construction projects, some ancestral lls, south is Xiangxue Avenue, forest land and farmland, east is Xiangxue Park	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
19	1595.148	North neighbor is Xiangxue Park, west side s an ancestral ll, the rest is mountain forest and farmland	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
20	128.804	Forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EIR
21	359.355	Mainly forest land	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	EI
22	133.462	Forest land	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EIR
23	52.274	South is a residential area	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EI
24	30.343	Forest land	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EIR
25	117.205	Forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR
26	350.08	North side is a new community, west and northwest corners are electronic product companies, south is mountainous, east is Guangzhou Ring Expressway, east of the expressway is a tomb cultural relics protection unit	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	EIR
27	227.108	North is a residential area and innovation park, south is forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	EI
28	94.13	South neighbor is a factory, east side is office land, north is connected to a road, west is forest land	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	EI
29	116.955	Mainly forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	EIR
30	307.65	Mainly forest land	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	EI
31	129.62	Mainly forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	EIR
32	47.909	Forest land	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR
33	19.038	Forest land	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	EIR



Toolkit Selection for Site Design



The site is located in Guangzhou City, Guangdong Province, China, which has a subtropical monsoon climate.



The green spaces within the site are mainly urban green spaces affected by the urbanization process.



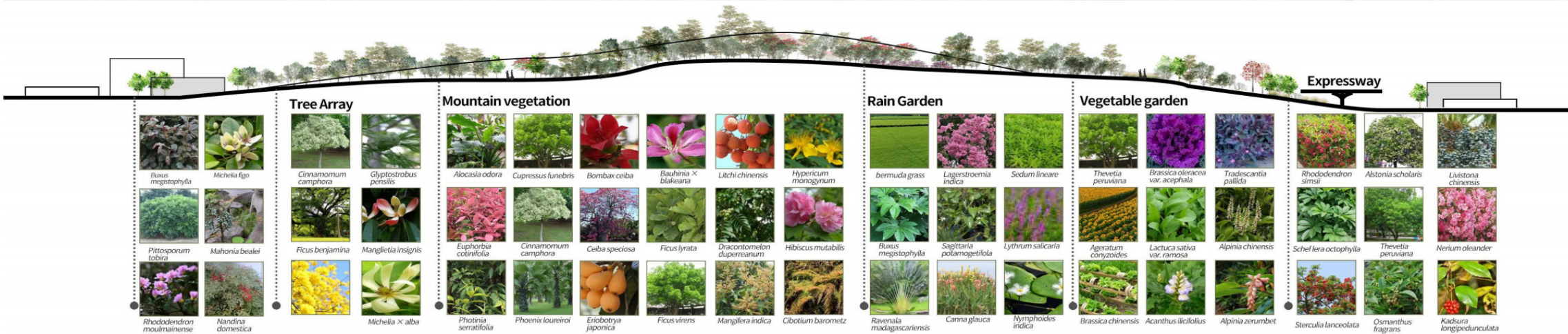
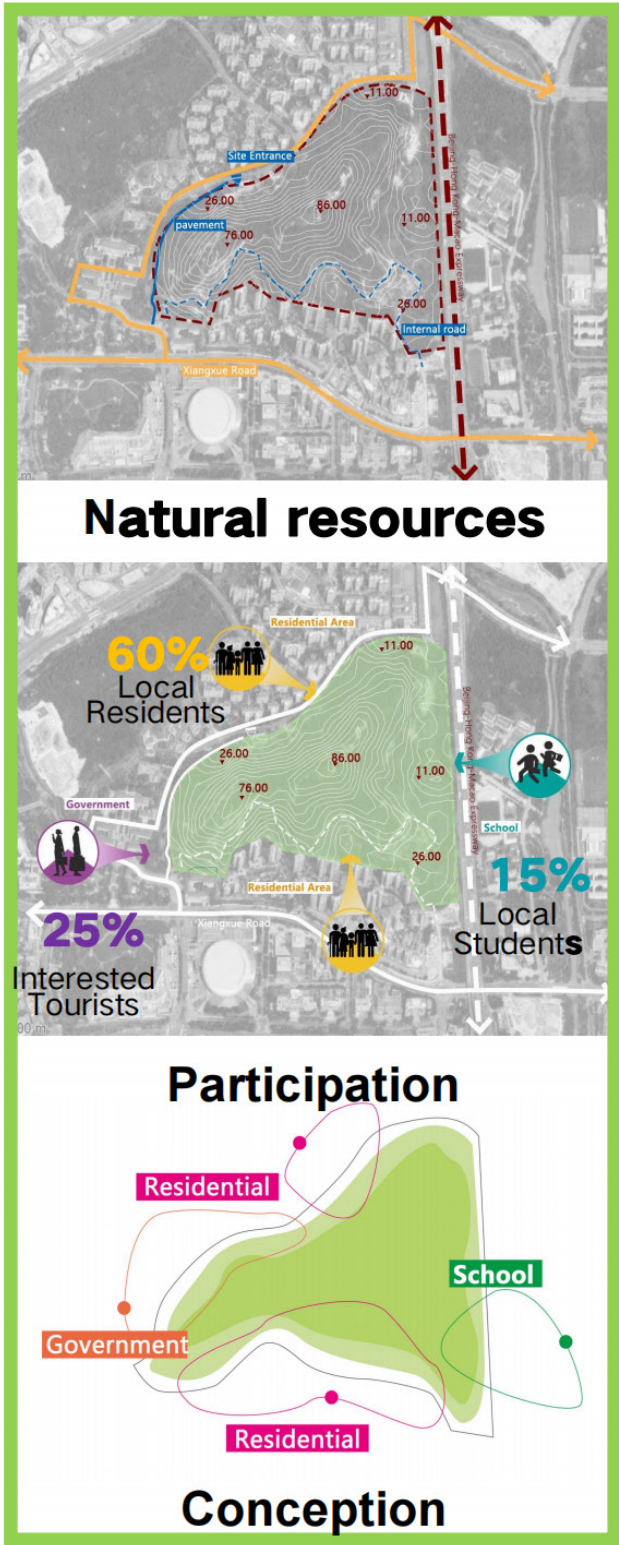
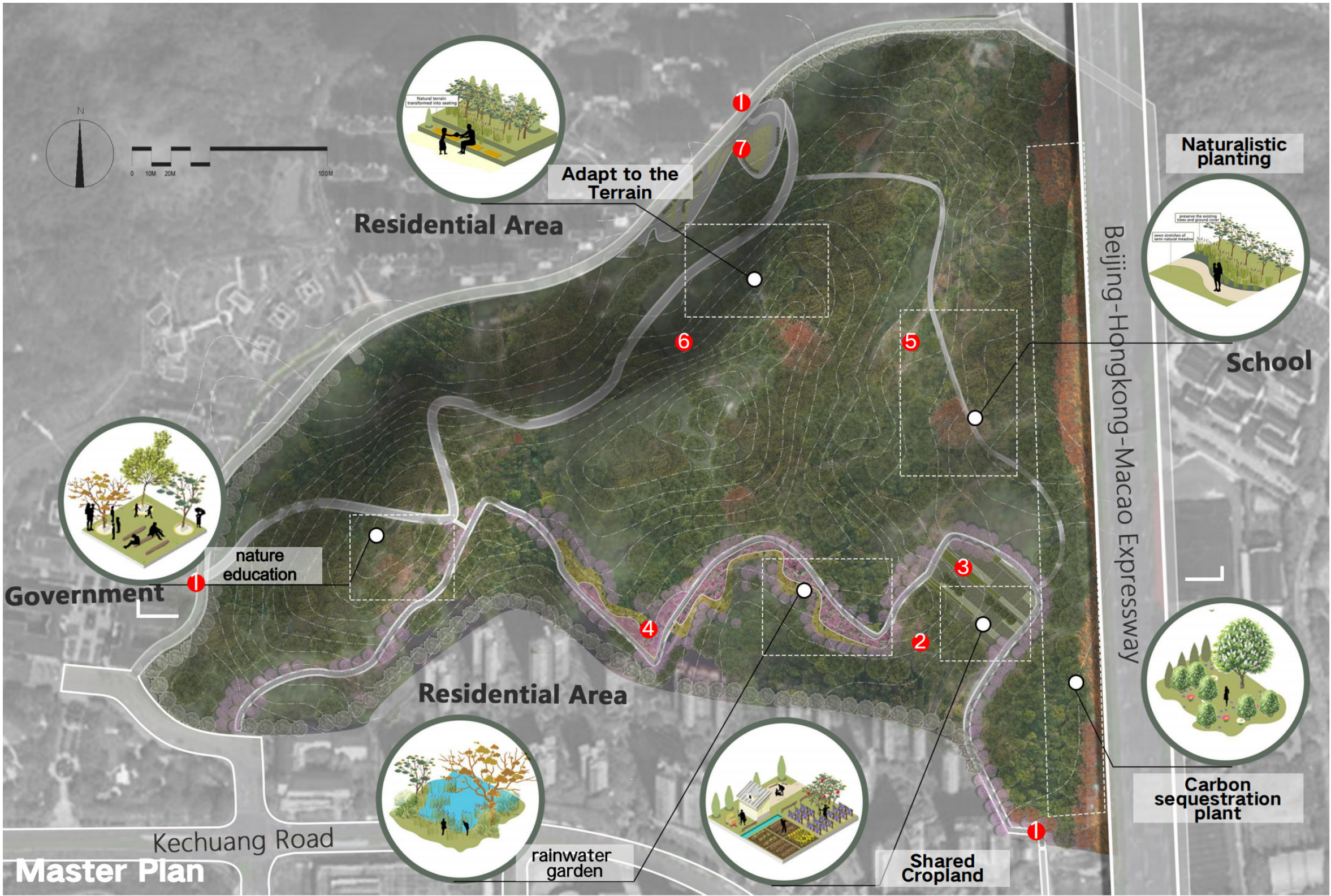
The program selects a layered design of local native characteristic vegetation.



Decentralized urban green spaces form an organic ecological circle.

Legend: 1 (plot number) -X (design strategies), including Ecological Restoration(E), Informal Development (I) and Repairing Social Networks (R).

Application of Type "Wasteland" Site : Shankengding (Plot 1)



- 1 Entrance
- 2 Public Welfare Forest
- 3 Co-constructed Cropland
- 4 Blossoms Ocean
- 5 Bauhinia Forest
- 6 Five Senses Forest
- 7 Culture Plaza

Urban Natural Habitats in High-Density Cities.

• Grow plants for birds nesting

Streptopelia chinensis

Attracting Forest Birds



44.1 Mg C/hm²
Carbon density



2.7°C
Cooling temperature



Forest Ecosystem



Actitis hypoleuc

• Transform stones into Tree pools



• Grow plants to attract butterflies



Evapotranspiration

Sheet Flow

Straining

Sheet Flow

Vegetation Root Systems
Conserve Soil and Water.

Aggregate Base

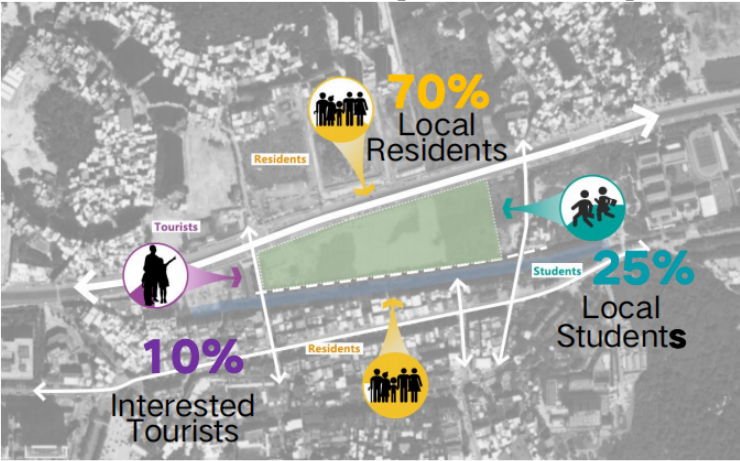
Bioretention Soil Mix

Purifying rainwater, reducing surface runoff, and assisting in urban stormwater management.

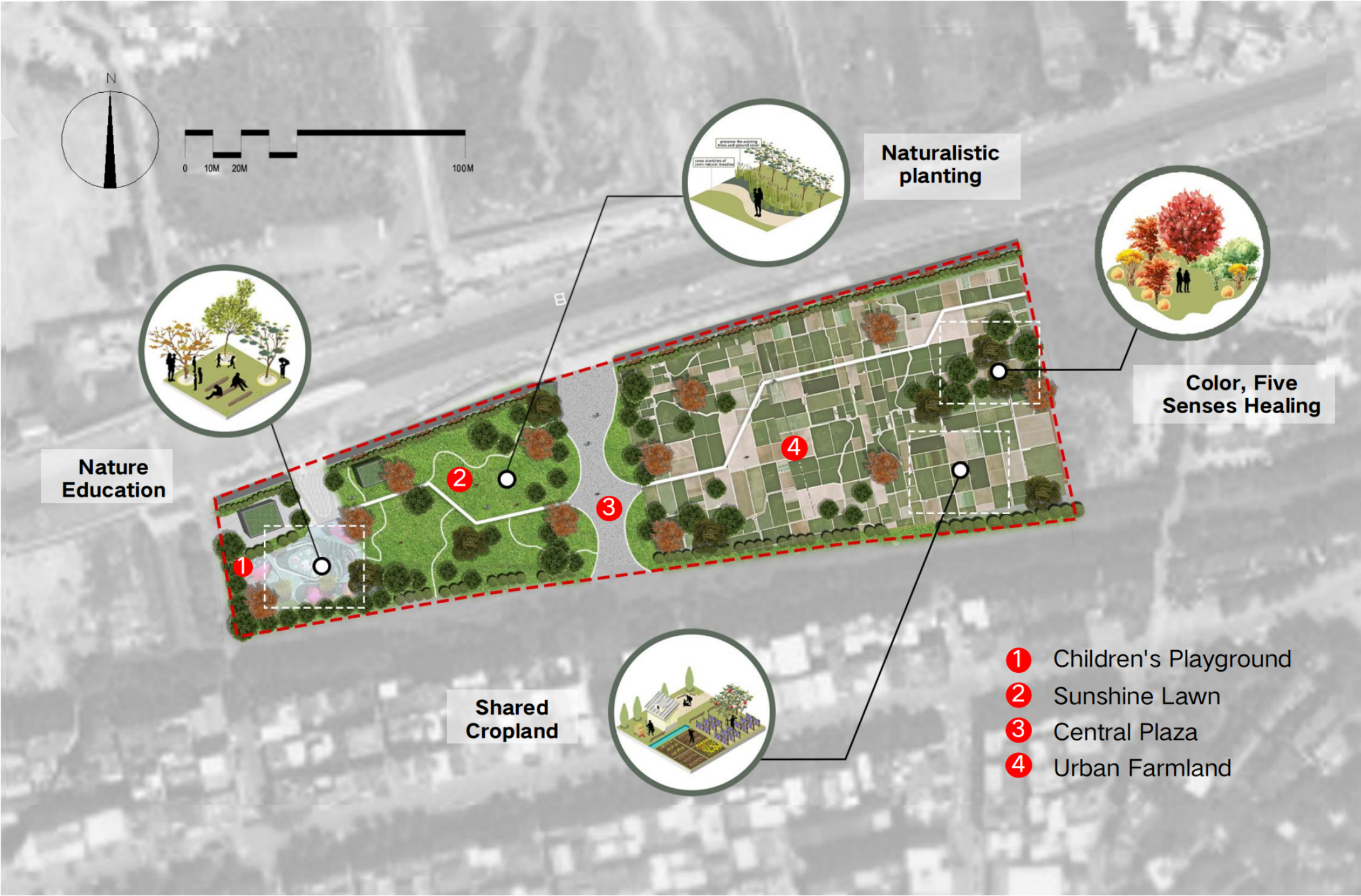
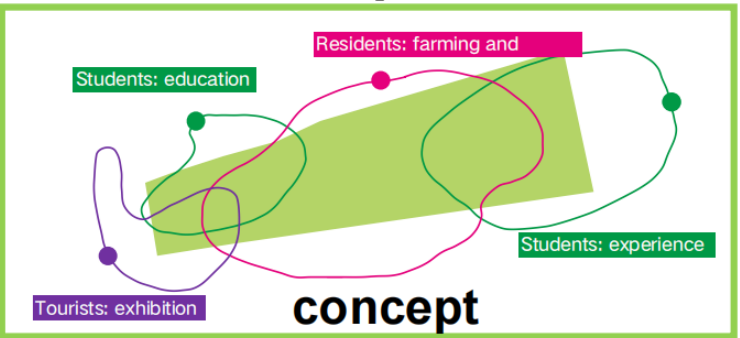
Application of Type "Residential Side" Site : Xiangxue Avenue Farming Garden (Plot 13)



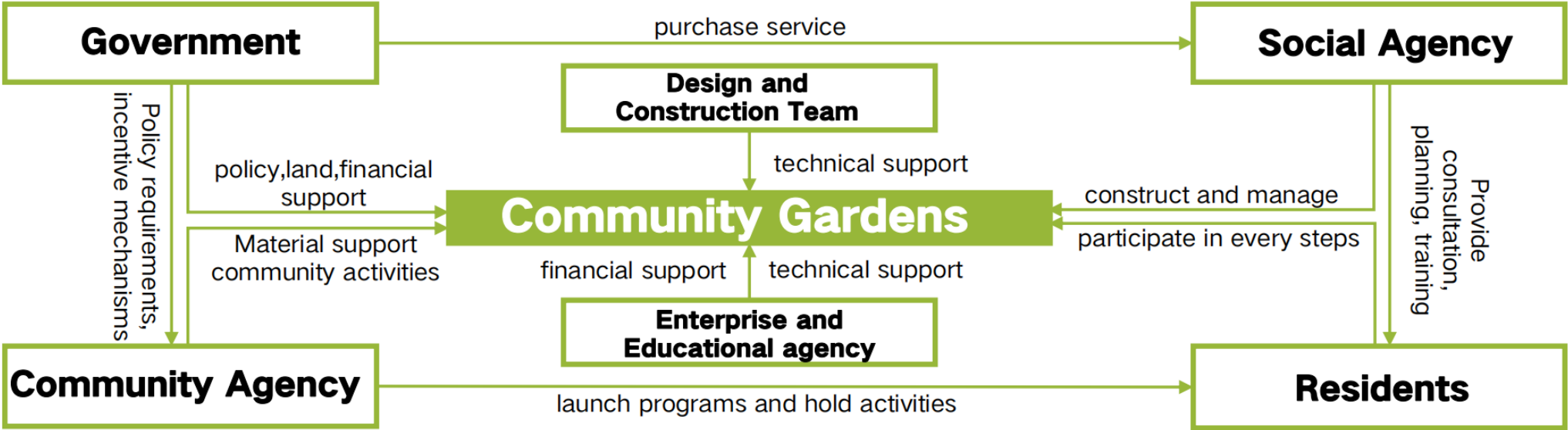
Site and surrounding resources (function)



Participation



With the goal of reshaping the attachment of local residents to the site and community cohesion, focusing on the needs of residents for health, development, and community well-being, and using resident co construction as a means of creation, we aim to create a natural garden that provides biological habitat, sensory interaction, science education, agricultural planting, leisure and healing, and other multifunctional experiences, enhancing residents' sense of happiness and belonging, thus forming a community spiritual connection of "individual social connection garden creation".



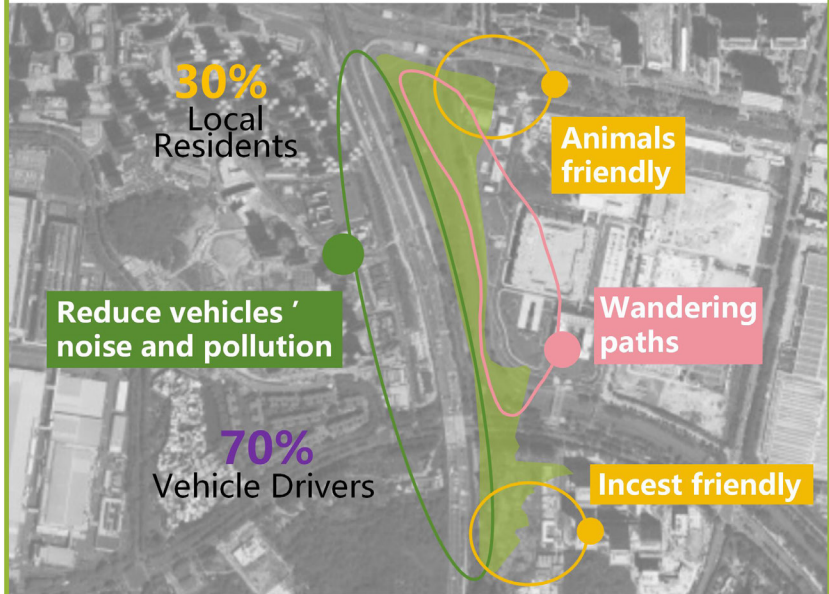


The Interactive System of Harmonious Coexistence Between Humans and Nature.

Application of Type "Highway Side" Site : Plot 26



Site and surrounding resources (function)



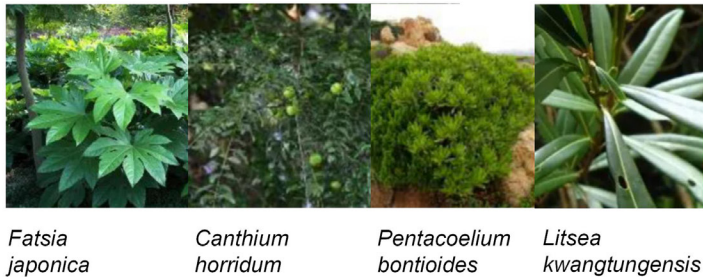
Participation and Concept

Designing concept:

The west side of plot is the Beijing-HongKong-Macao Expressway, and the east side are enterprises and commercial areas. The shape of the whole area is slender and long. In the design, by planting native plants near the high-speed side to isolate noise, absorb dust and pollution, repair the site ecology. Renovate site' s remaining farmland to form a rural area that provides a shared planting experience for nearby residents, and introduce animals and insects to have a good space to activate the vitality of the site.



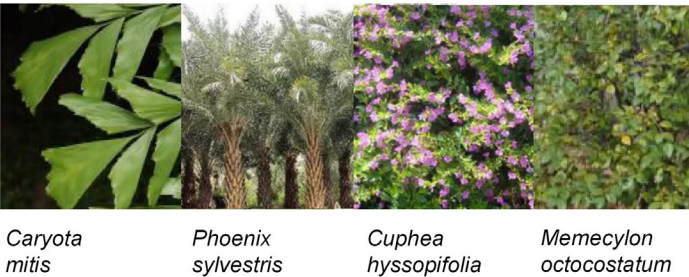
Plants reducing noise

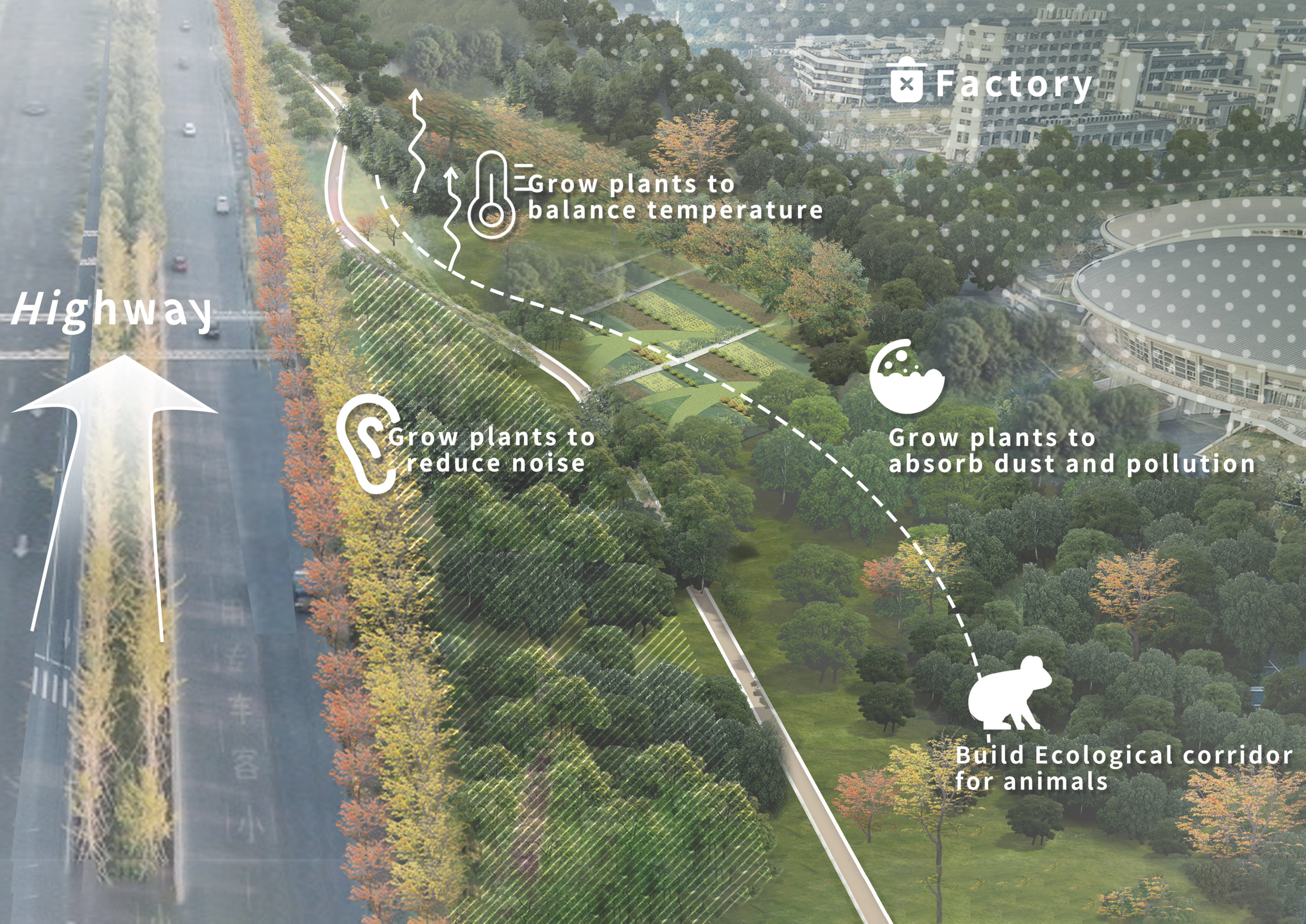


Plants absorbing dust and pollution



Plants balancing temperature





Highway

Factory

Grow plants to
balance temperature

Grow plants to
reduce noise



Grow plants to
absorb dust and pollution



Build Ecological corridor
for animals