Green pulse

Guangzhou Baiyun Mountain Scenic Area landscape corridor

IFLA Asia Pacific Landscape Design Award evaluation materials

—Year 2023—

Item summary

1、Project Overview:
a.Project name：
Integrated Design and Construction of Landscape Enhancement Engineering along the Landscape Corridor and Main Garden Road in Baiyun Mountain Scenic Area.
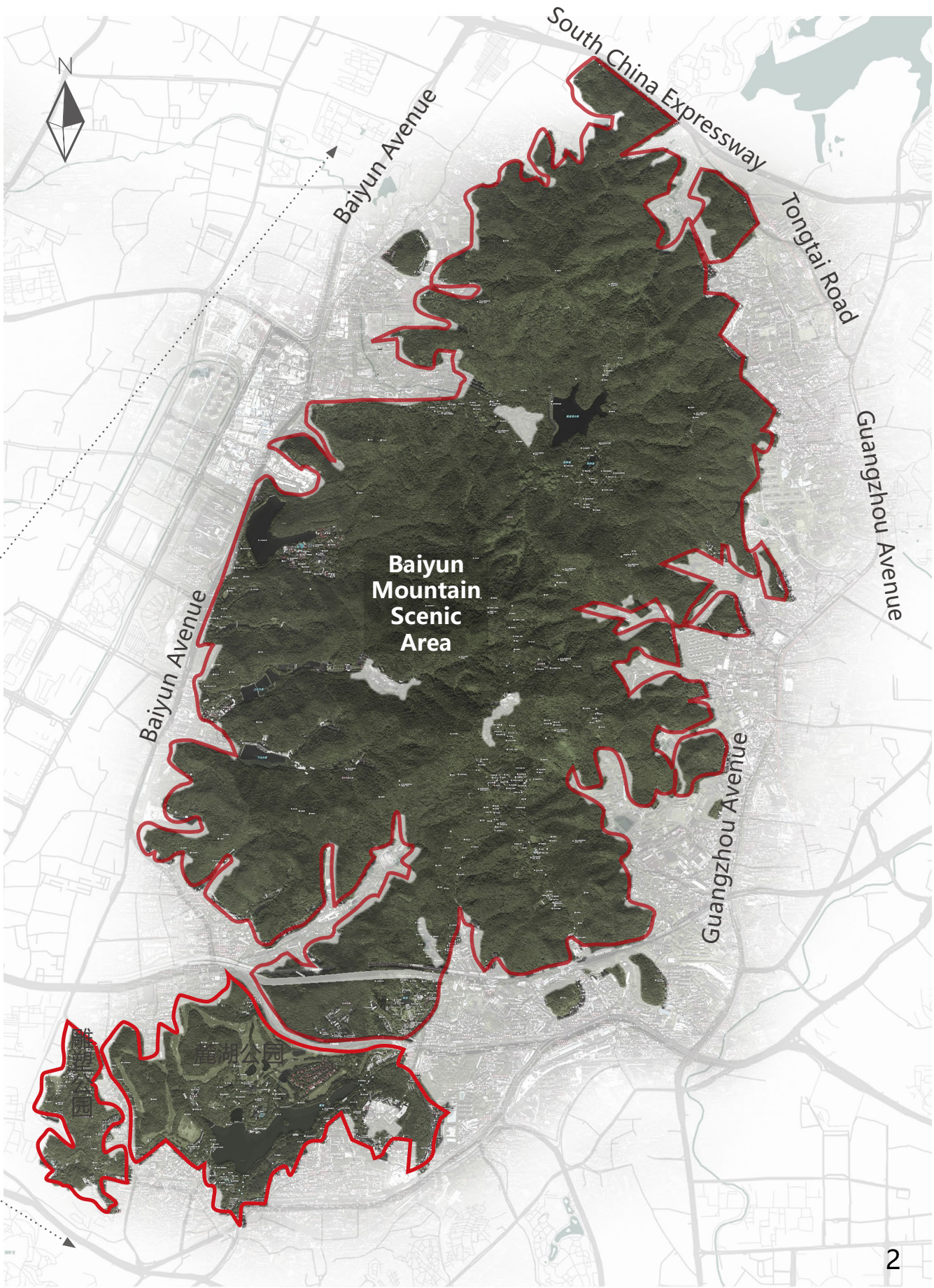
b.Application category:
A. Completed category-1.1 F. Green infrastructure

c.Overview of the Project:
The project is based on the tourist routes and scenic spots of Baiyun Mountain Scenic Area, and aims to upgrade and renovate the existing roads, platforms, greenery, and buildings in the Baiyun Mountain Scenic Area. Mainly optimize the organization of hiking routes, build and renovate tourist trails, and improve the accessibility of scenic spots; Build new infrastructure such as pavilions and corridors, rest platforms, and toilets, and renovate the area to create new green corridors, integrate existing resources, and activate the scenic area.

2、Construction unit:
The Baiyun Mountain Scenic Area Management Bureau of Guangzhou is the management unit of Baiyun Mountain Scenic Area. According to the tourist area, it is divided into seven sub units for territorial management: Luhu Lake, Santai Ridge, Mingchun Valley, Moxing Ridge, Mingzhu Tower, Fei'e Ridge, and Heyi Ridge.

Baiyun Mountain

Location of Baiyun Mountain in Guangzhou

Guangzhou

Baiyun District

Baiyun Avenue

South China Expressway

Tongtai Road

Guangzhou Avenue

Baiyun Avenue

Baiyun Mountain Scenic Area

Guangzhou Avenue

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Item summary

3、 Project context:

Baiyun Mountain Scenic Spot is located in the center of Guangzhou, with a total area of 21.8 square kilometers. It is a national 5A tourist attraction and a national scenic spot. Baiyun Mountain is a famous mountain in southern Guangdong and has been known as the "No.1 Beauty in Yangcheng" since ancient times. It is composed of more than 30 peaks and is a branch of the highest mountain in Guangdong, Jiulian Mountain. The main peak, Moxingling, has an elevation of 382 meters. Baiyun Mountain Scenic Area is an important organic component of Guangzhou's construction of an international regional central city and a landscape ecological city. It is characterized by the South Asian tropical vegetation landscape of "mountain view of the city, city view of the mountain scenery", with the main functions of natural ecological protection and cultivation, leisure tourism, and rich historical and cultural resources. It is one of the old eight scenic spots in Yangcheng. With the increasing scale of the city, Baiyun Mountain has gradually been surrounded by the urban area and fully integrated into the city. It has become a good place for people to rest during their leisure time, attracting more and more tourists to visit. The annual tourist flow of the scenic area is nearly 5 million people, with an average daily passenger flow of 20-30000 people. Especially during important holidays, the maximum passenger flow of the entire mountain reaches 100-200000 people.

In order to promote ecological civilization construction and environmental protection, Guangzhou City strives to provide more and higher quality ecological products for the citizens. After research, a development plan for the "Three Year Environmental Remediation Action for Baiyun Mountain, Luhu Lake, Yuexiu Mountain, and Surrounding Areas to Restore Green to the People Project (2019-2021)" has been formed. It is planned to complete the illegal construction governance, greening, and environmental improvement within the remediation scope by June 2021, as well as the construction of mountain access routes, scenic gate gates, Guangzhou Garden core area, as well as the renovation and improvement of Luhu Park and related villages. The Baiyun Mountain Landscape Corridor project is one of the core projects, serving as a bridge between the entrance and exit of the scenic area and the scenic area. At the same time, there is a serious lack of infrastructure and recreational spaces in the scenic area, which cannot meet the growing demand for leisure activities for citizens and urgently needs to be renovated and improved.

4.Project location：

This project is located in the Baiyun Mountain Scenic Area in Baiyun District, Guangzhou. The scenic area is surrounded by urban main roads and has a convenient transportation network. It is adjacent to the South China Expressway to the north, the Inner Ring Road to the south, Baiyun Avenue to the west, and Tongtai Road to the east, with well-developed public transportation.

5、 Design concept and uniqueness:

The project takes "Green Pulse" as the theme concept, with four major strategies of stitching up the internal road network, reshaping the Baiyun Mountain hiking trail system, activating multiple nodes, and creating three themed hiking trails. It connects the internal hiking trails of Baiyun Mountain, allowing visitors to experience the most beautiful urban forest scenery in a safe and refreshing forest walking system.

The Baiyun Mountain Scenic Area is the "urban green heart" of Guangzhou, and the hiking paths in the mountains are like an active pulse. The pulse of Baiyun Mountain refers to the most vibrant and active activity routes in Baiyun Mountain, and is also a linear urban ecological green corridor that connects the exciting points of pulsation in the Baiyun Mountain scenic area. The theme of "Green Pulse" aims to reshape the city's green heart through the creation of landscape corridors, unleashing a strong and powerful green pulse, driving the surrounding areas, activating the city, and revitalizing the Flower City with new vitality.

a.Systematization: Yunshan all-age friendly walking system construction

——Refine, improve the climbing routes, and open up the all-age friendly walking space structure Itemsummary of Baiyun Mountain；

b.Ecological: according to local conditions with low impact development

——Using RTK technology to accurately locate the current plants, the corridor construction doesnot destroy the original biological habitat.

c.Quality: improve the whole line with point and surface infrastructure

——Improve the rest nodes along the corridor, and improve the quality of public activity space;

d.Intelligent: intelligent management of green building

——Integration of Internet of Things technology and traditional building construction techniques, landscape service is more humanized;

6、 Key points and difficult points of the project:

a. How to deal with the vertical relationship between the construction content and the original terrain;

b. How to reduce the interference of human activities to the natural ecology and build the harmonious coexistence between man and nature;

c. How to improve the natural effect of Baiyun Mountain as a city green heart and scenicspots and historic sites.

7、 Project scale and total investment:

The total area of the project is approximately 167814 square meters, with a total investment of 62.45 million yuan.

Art history ——
Places of interest

Baiyun Mountain Scenic Area has famous scenic spots such as **Huangpodong Reservoir, Pearl Building, Peach Blossom Stream, Moxing Ridge, Guanyun Pavilion, Mingchun Valley, Nengren Ancient Temple, Cloud, Tai Garden and Yunxi Ecological Park**, etc. These scenic spots have witnessed the development history of Guangzhou and formed the overall scenery of Baiyun Mountain Scenic Area.

history

Prehistoric:
Shanbei Huangpo Cave Site

Jin Dynasty:
Ge Hong had make pills of immortality and wrote *Baopu Zi*

Han Dynasty:
The famous general MaYuan led his troops stationed here

Ming and Qing dynasties:
Baiyun Mountain occupies three of the "Eight Scenic Spots of Yangcheng": "Lianquan in Pujian", "Jingtai Monk Returns", and "Baiyun Wanwang"

the period of Counter-Japanese War:
The forest relics of Baiyun Mountain were damaged

the Pre-Qin period:
Master Zheng AnQi lived in seclusion here

Southern Liang:
Jingtai Zen Master Built a Temple

Tang and Song dynasties:
Su Shi, Han Yu and other famous poets climbed this Mountain and poetry recited the poetry

Modern period:
Older generation revolutionaries climbed this mountain

Since the establishment of PRC:
10 reservoirs have been built, highways have been opened up to connect the north and south, and construction has been carried out
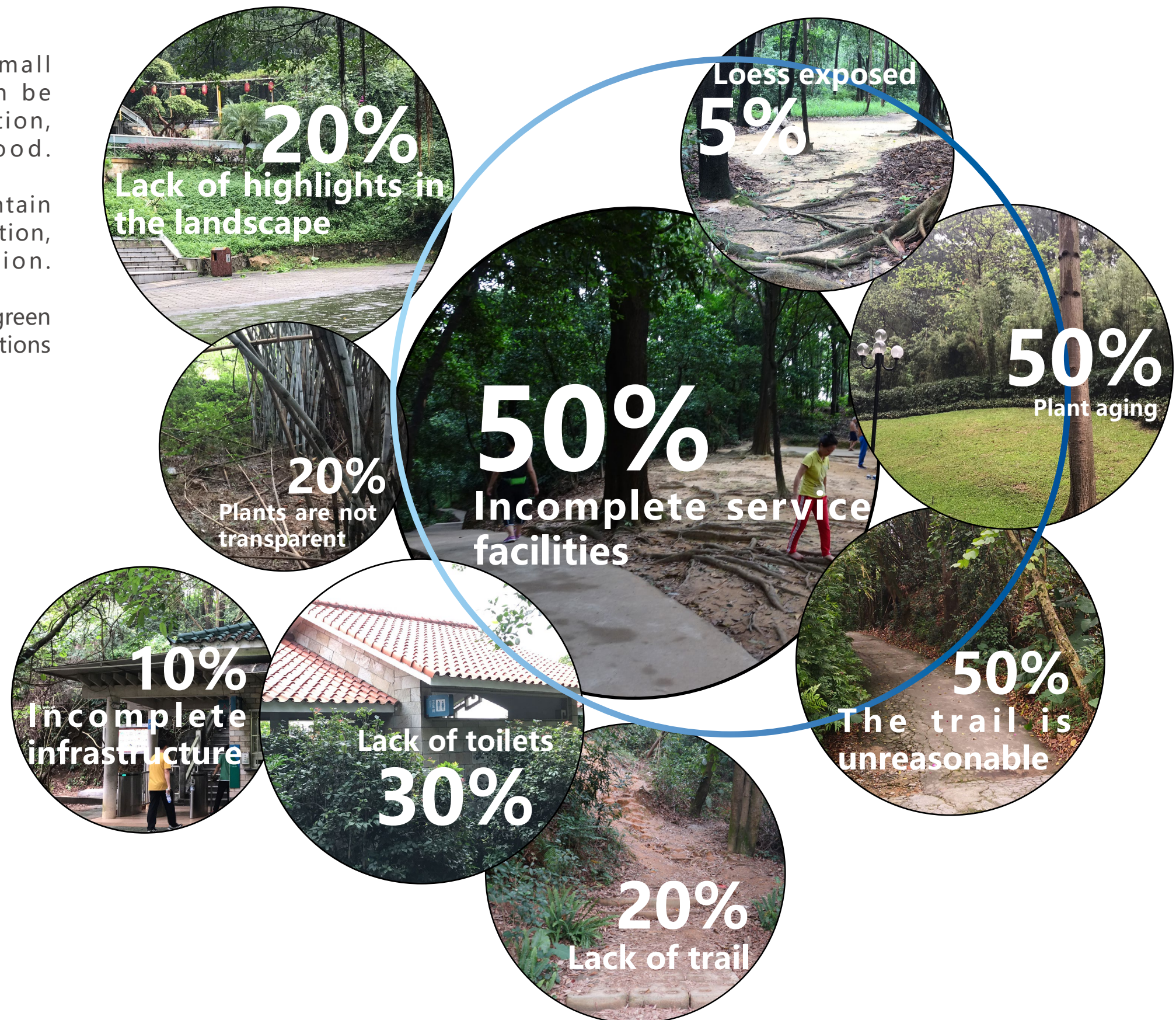
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Current situation analysis

Advantages:

1. Some construction sites only have a small number of miscellaneous trees, which can be easily processed to complete the construction, and the construction conditions are good.

2. The existing road network in Baiyun Mountain is well-developed, with convenient transportation, which reduces the difficulty of construction.

3. The Baiyun Mountain site has a large amount of green space, and there are sufficient and favorable conditions for the relocation of trees in the site.

Inferiority:

1. Incomplete infrastructure, scattered spatial layout, lack of priority and focus, lack of leisure space for people to rest and entertain, as well as space for cultural experience and sightseeing.

2. The accessibility of the hiking trail needs to be improved urgently, and there are situations such as missing or damaged areas that are inconvenient for tourists to pass through.

3. The plants in the project are aging, and the view line of sight is blocked by densely planted plants, which fails to form a transparent natural landscape, and the landscape gallery has poor hierarchy.

20% Lack of highlights in the landscape

5% Loess exposed

50% Plant aging

20% Plants are not transparent

50% Incomplete service facilities

10% Incomplete infrastructure

Lack of toilets 30%

50% The trail is unreasonable

20% Lack of trail

Design vision

Integrated slow road

Only by adding multiple hiking trails and continuously connecting leisure roads can we achieve the preset multifunctional slow walking trail and truly serve the city and citizens.

Viewing Road

The coexistence of Guangzhou city and mountains and rivers is its prominent feature. The Baiyun Mountain landscape corridor echoes the policy of "showcasing mountains and dew", connecting lake water features, mountain greening, hiking trails, and pavilions to form a fully functional open space.

Lifestyle enhancing healthy road

Improving the leisure and fitness environment of residents, enhancing the viewing experience of tourists, and continuously improving people's pursuit of quality of life. As a green, healthy, and ecological way of life, parks and scenic spots have gradually become the preferred destination for citizens' health activities.

Connector

opportunity

lifestyle

GREEN CORRIDOR

riverfront

open space

Ecological Corridor for Diversified Leisure

Implement the policy of returning green to the people and putting people first, while creating unique and diverse experiences such as pacing, walking, and running, making the landscape corridor a new brand construction for Baiyun Mountain Scenic Area.

Excavating featured art road

Increase the exploration and protection of mountain, forest, and lake cultures, pay attention to the development and protection of mountain viewing corridors, lake paths, hiking shortcuts, and forest area paths, and create diverse mountain, forest, and lake landscapes. By utilizing and integrating the current conditions and resources of the site, awakening the memory of the site, settling the texture of the site, and integrating it into the landscape corridor, we aim to create a scenic park with regional characteristics.

design strategy

STITCH
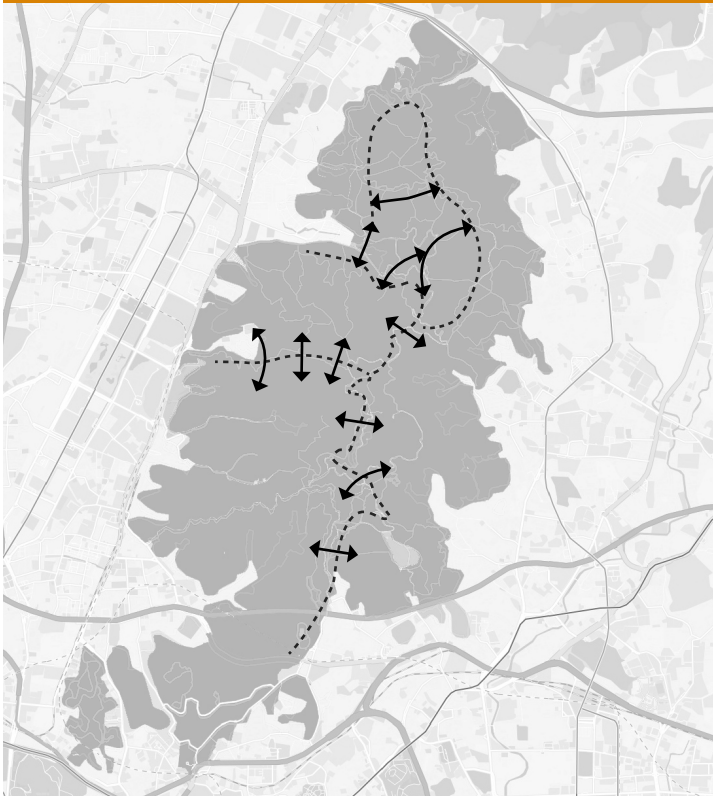
Sewing the internal road network

The Baiyun Mountain road network extends in all directions and has a foundation suitable for walking conditions, but some small roads are dirt or damaged, and the current road network is complex, lacking a visual impression. There are many tourist attractions in Baiyun Mountain, except for famous ones. The scenery along the road is flat and there are no many attractive spots.

REGRNERATE
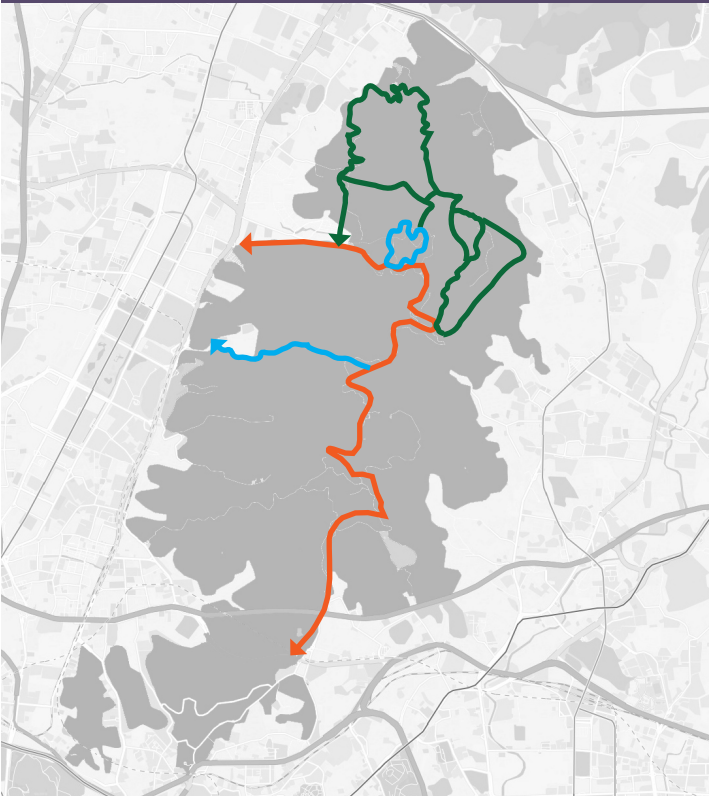
Remodeling the Baiyun Mountain Trail System

Based on the tourist routes and scenic spots of Baiyun Mountain Scenic Area, a new green corridor and supporting rest and service facilities will be built, and some of the original routes and garden buildings will be optimized. The current resources will be integrated to activate the scenic area, creating a comprehensive ecological wilderness, scenic spots, and water viewing scenic area.
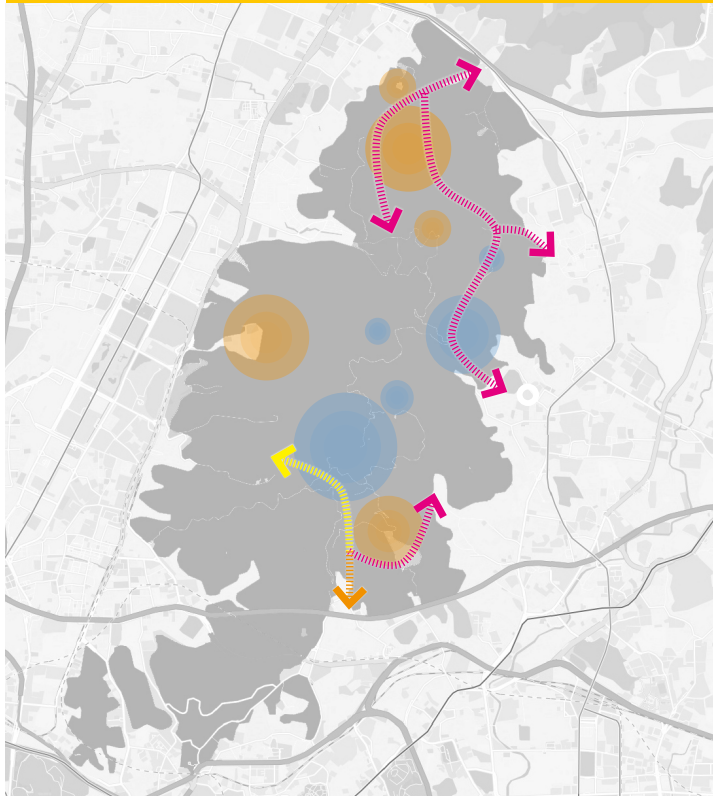
ACTIVATE
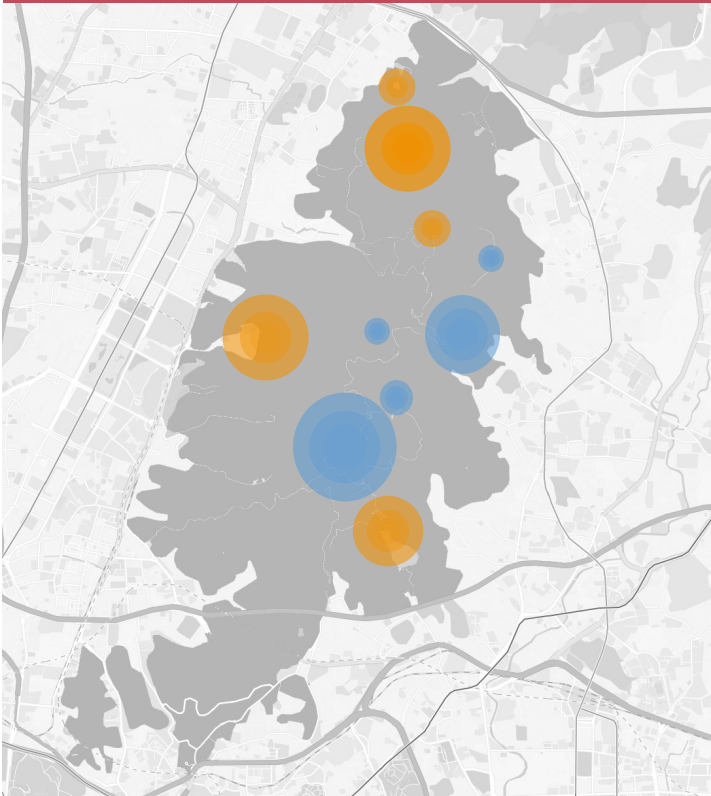
Activate multiple theme nodes

Pugu Plank Road
Baiyun Songtao
Yuntian North Road Convenient Post Station
Shangbeilin Station
......

CONNECT

Three tourist paths linking attractions

Ecological Bridge
——An aerial walkway that is close to nature
Forest diameter
——The unobstructed Yunshan Main Road
Stepping on a green path
——A mountain path for deep sightseeing

Concept deduction

The **only mountain in the center** of **Guangzhou's main city**

Guangzhou Green Heart

The first show in Yangcheng

The First Mountain in Southern Guangdong

Tiannan First Peak

Guangzhou

Baiyun District

Location of Baiyun Mountain in Guangzhou City

Design concept

National 5A level scenic area ..Yangcheng's First Show ...

Urban **Green** Heart. .heartbeat..lease of life...vigour

indolent　leisurely　activity　leisurely　romantic　gentleness

Green pulse

The Baiyun Mountain Scenic Area is the **"urban green heart"** of Guangzhou, and the hiking paths in the mountains are like an **active pulse**. The pulse of Baiyun Mountain refers to **the most vibrant and active activity routes** in Baiyun Mountain, and is also a **linear urban ecological green corridor** that connects the exciting points of pulsation in the Baiyun Mountain scenic area. The theme of "Green Pulse" aims to reshape the city's green heart through the creation of **landscape corridors**, unleashing a strong and powerful **green pulse**, **driving** the surrounding areas, **activating** the city, and revitalizing the Flower City with **new vitality.**

general layout

Combining short-term and long-term phased construction

Recently: Improve the "three path and multi-point" hiking facilities
Long term: Building a "One Ring, One Network, and Multiple Points" Slow Moving System

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a.Systematization: Yunshan all-age friendly walking system construction

Refine and improve mountain climbing routes, and connect the age friendly pedestrian space structure of Baiyun Mountain

On the basis of the original main park road, add a three-way pedestrian friendly system of "Ecological Bridge, Forest Path, and Stepping Path" to supplement the northern tourist path of Yunshan, creating a 1.7 kilometer worry free slow traffic space; Improve accessibility facilities to ensure the travel and entertainment needs of citizens of all ages. Enhance the diversity of walking facilities and create a multi-level walking space.

b.Ecological: according to local conditions with low impact development

Using RTK technology to accurately locate current plants, and constructing corridors without damaging existing biological habitats

During the construction process, RTK technology is used to accurately locate and measure the current plants, and combined with site elevation and slope analysis, the optimal layout direction of the garden road is calculated. At the same time, highly permeable paving materials are selected to ensure the minimum interference of project construction on the site and achieve low impact development.

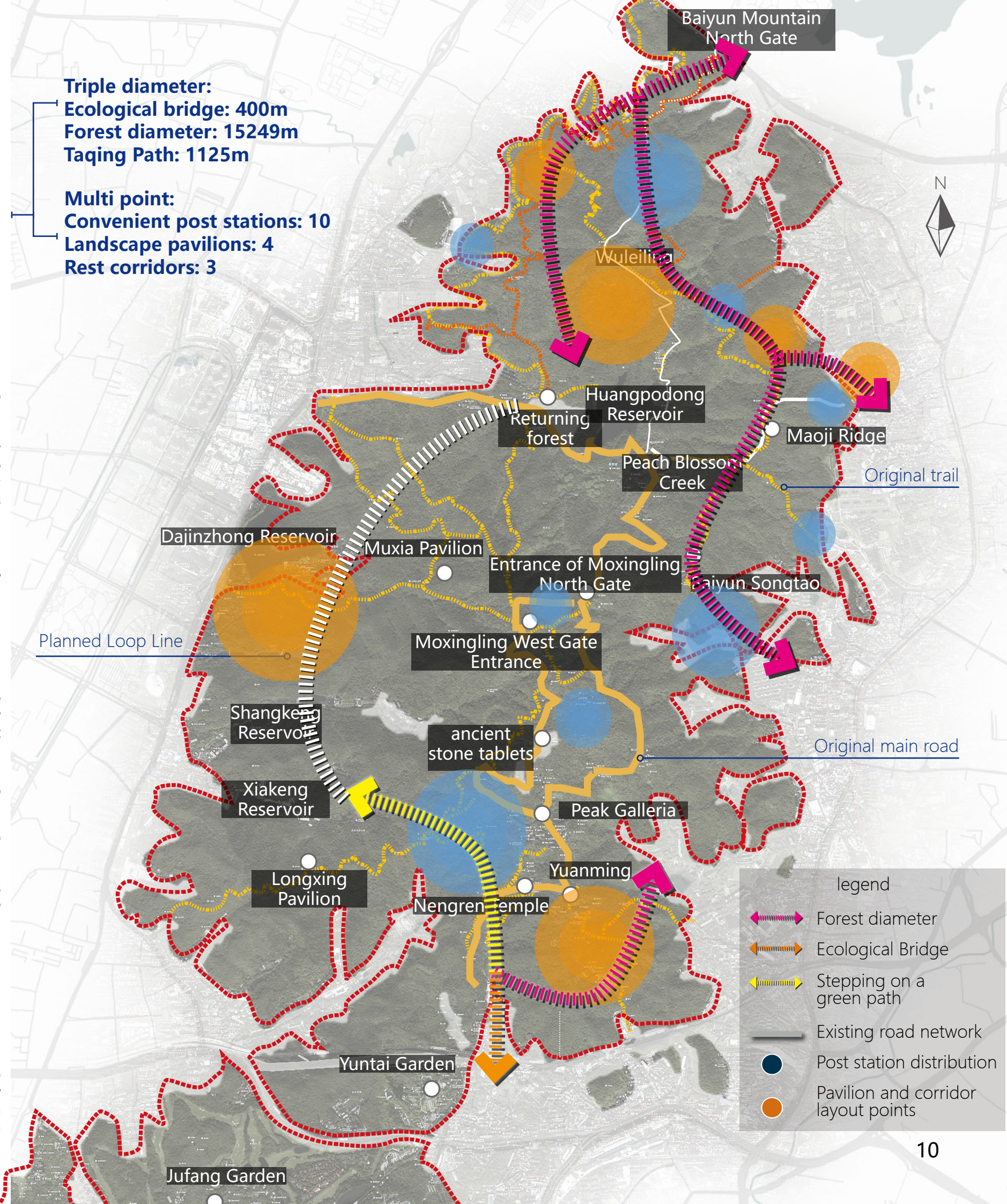### c.Quality: improve the whole line with point and surface infrastructure

Improve the leisure nodes along the corridor and enhance the quality of citizen activity space

Create stop and rest spaces with Lingnan characteristics along the Three Paths and important nodes of the original main garden road, construct high-quality service facilities such as convenient post stations, landscape pavilions, and rest corridors, enhance the recognition and signage of Baiyun Mountain stop points, and form attractive scenic spots.
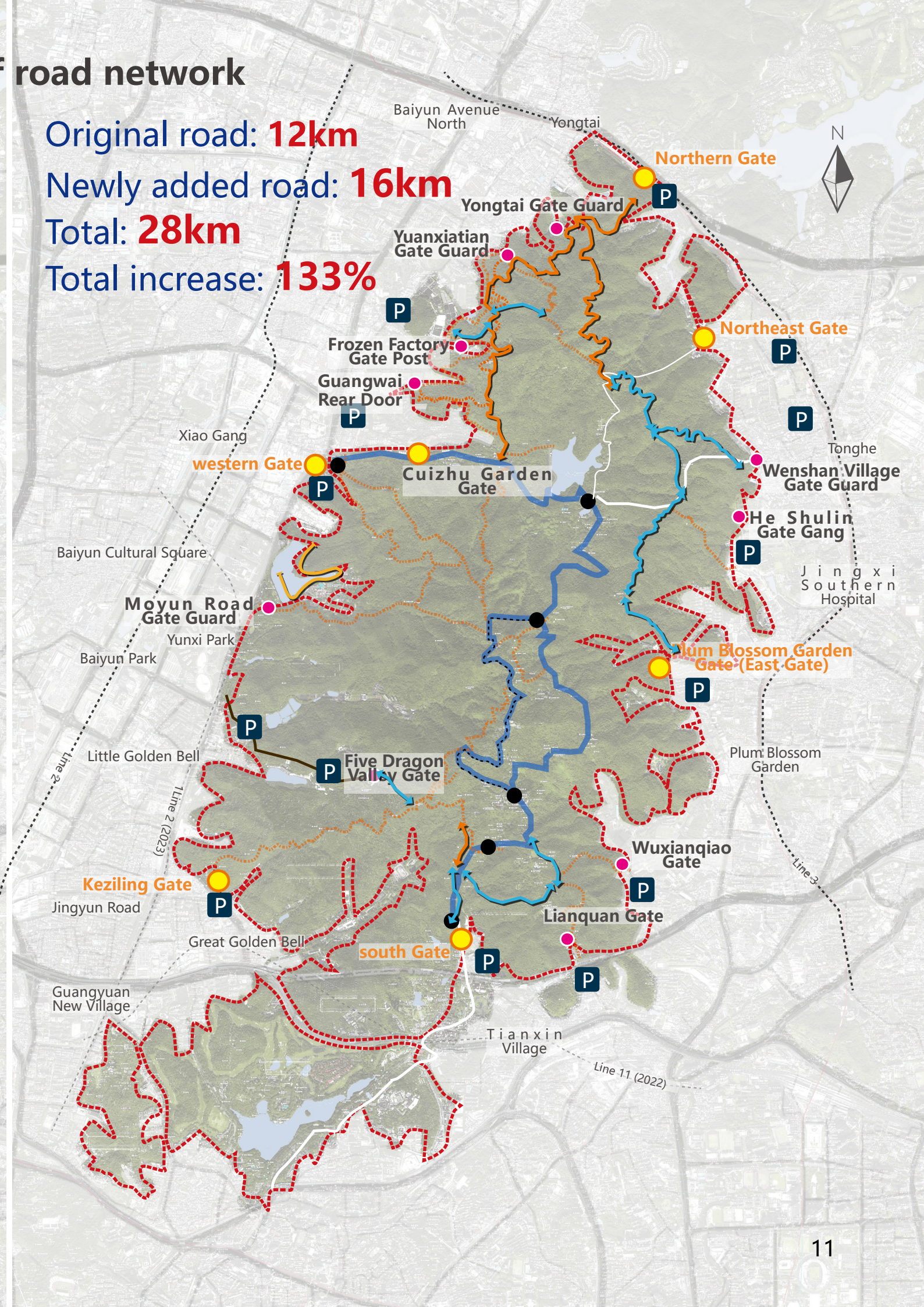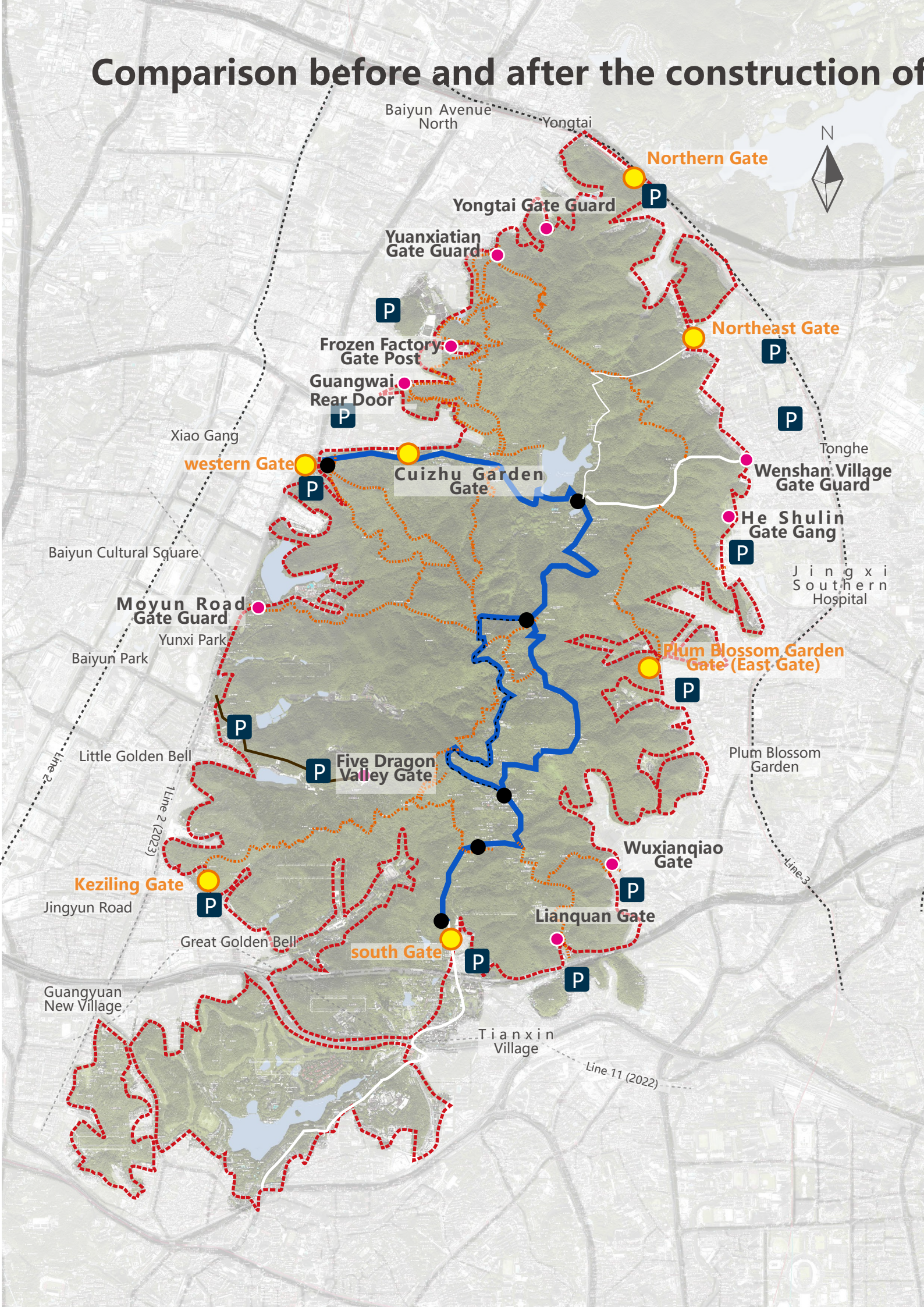
d.Intelligent: intelligent management of green building

Integrating IoT technology with traditional architectural techniques, landscape services are more user-friendly

The park management system and the convenient post station operation system are connected to the Internet for unified management, using Internet of Things technology for scientific and efficient operation management, and reasonably setting up green power generation devices to explore various possibilities of using clean energy in upgrading traditional scenic spots.

Triple diameter:
Ecological bridge: 400m
Forest diameter: 15249m
Taqing Path: 1125m

Multi point:
Convenient post stations: 10
Landscape pavilions: 4
Rest corridors: 3

Baiyun Mountain North Gate

Wuleiling

Returning forest

Huangpodong Reservoir

Maoji Ridge

Original trail

Peach Blossom Creek

Dajinzhong Reservoir

Muxia Pavilion

Entrance of Moxingling North Gate

Baiyun Songtao

Moxingling West Gate Entrance

Planned Loop Line

Shangkeng Reservoir

ancient stone tablets

Original main road

Xiakeng Reservoir

Peak Galleria

Longxing Pavilion

Yuanming

Nengren Temple

Yuntai Garden

Jufang Garden

legend

→ Forest diameter
→ Ecological Bridge
→ Stepping on a green path
— Existing road network
● Post station distribution
● Pavilion and corridor layout points

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Comparison before and after the construction of road network

Original road: 12km
Newly added road: 16km
Total: 28km
Total increase: 133%

Baiyun Avenue North — Yongtai — **Northern Gate**
Yongtai Gate Guard
Yuanxiatian Gate Guard
Northeast Gate
Frozen Factory Gate Post
Guangwai Rear Door
Xiao Gang
western Gate — **Cuizhu Garden Gate**
Tonghe
Wenshan Village Gate Guard
He Shulin Gate Gang
Baiyun Cultural Square
Jingxi Southern Hospital
Moyun Road Gate Guard
Yunxi Park
Baiyun Park
Plum Blossom Garden Gate (East Gate)
Plum Blossom Garden
Little Golden Bell
Five Dragon Valley Gate
Wuxianqiao Gate
Keziling Gate
Jingyun Road
Lianquan Gate
Great Golden Bell
south Gate
Guangyuan New Village
Tianxin Village
Line 2 (2023)
Line 3
Line 11 (2022)

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Realistic view of Pugu Plank Road

Before

After

Night View

Realistic view of roads along Pugu

Before

After

Realistic view of roads along Pugu

Systematization: Construction of Yunshan Elderly Friendly Pedestrian System

Garden Road Greening
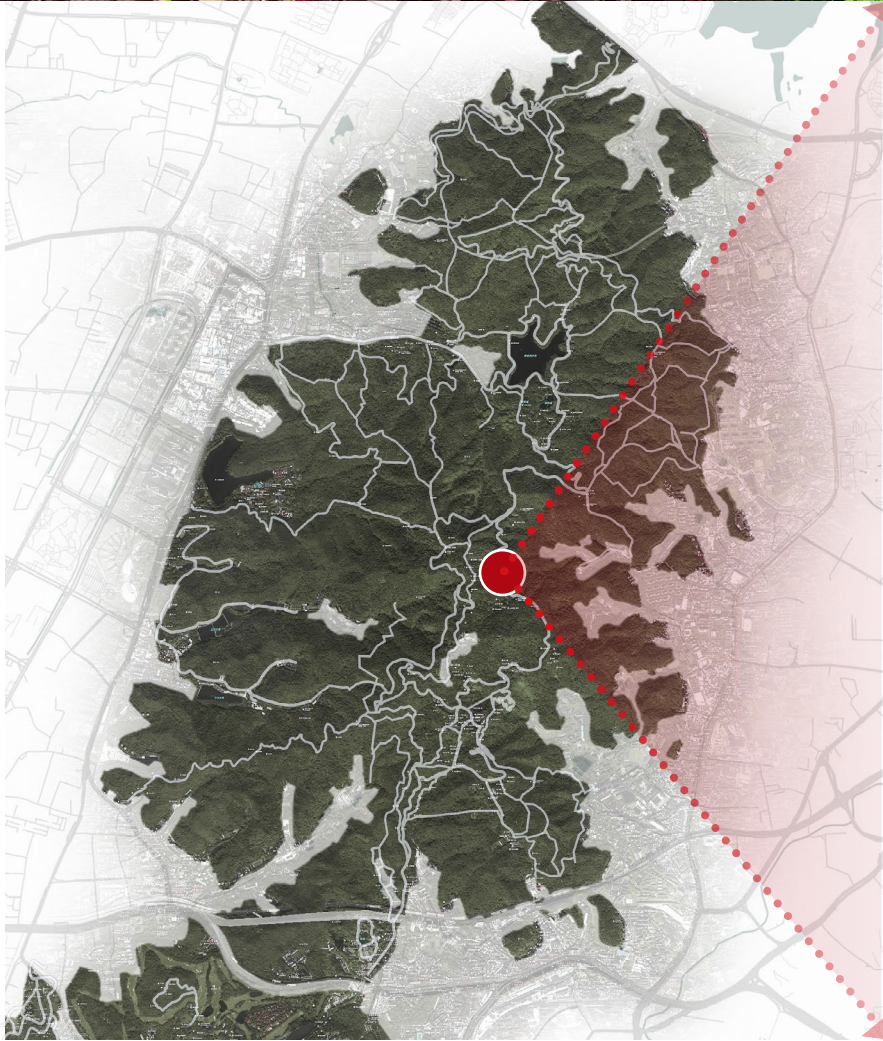
Observation perspective along the way

Realistic view of white clouds and pine waves

Before

After

16

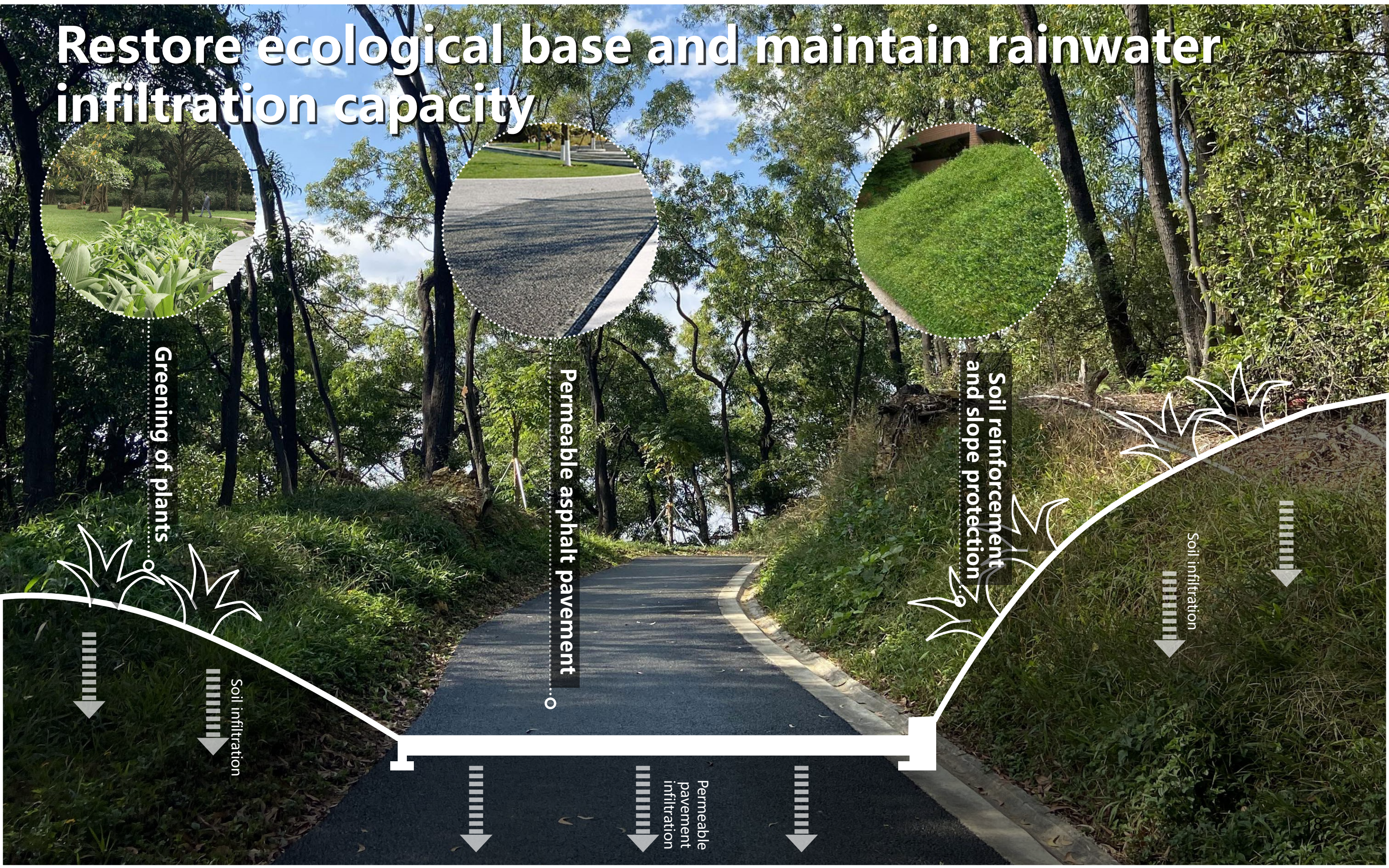# Systematization: Construction of Yunshan Elderly Friendly Pedestrian System

Original roadway

New pedestrian corridor

Not damaging the ecological base

Considering the original terrain

Ecologization: tailored to local conditions and low impact development

Restore ecological base and maintain rainwater infiltration capacity

Greening of plants

Permeable asphalt pavement

Soil reinforcement and slope protection

Soil infiltration

Soil infiltration

Permeable pavement infiltration

Human and animal activity spaces do not interfere with each other and coexist harmoniously

Tourist Sightseeing Corridor

Wildlife passage space

Wildlife passage space

Design of thin columns to reduce damage to mountain soil layers

Using RTK technology to measure tree locations at designated locations to avoid engineering construction affecting tree growth

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Quality oriented: Improvement of infrastructure from point to area throughout the entire line

No. 17 Fire Hydrant Pavilion Corridor

Before

Creating a pleasant resting place

After

20

Intelligence: Intelligent management of green buildings

SOUND ENVIRONMENT INTERACTION

Form sound landmarks in the park and set up sound triggering devices to enrich the park experience; The facilities in the park adopt intelligent interaction design to form a benign interaction between people and the environment and increase the pleasure of sightseeing.

ANGELS EYE

Realize real-time monitoring in the park around the clock.

HIGH-SPEED 5G NETWORK EXPERIENCE

The comprehensive coverage of public spaces provides real-time network access and the convenience of 5G high-speed network, combined with various recreational spaces, to add information network support to the park.

QR CODE INTRODUCTION

By scanning the QR code, the landscape interacts with visitors.

High-speed 5G network experience

QR Code Introduction

ANGELS EYE

Sound environment interaction

Realistic view of Yuntian North Road restroom

Top platform observation of Guangzhou landmarks

A terraced building built against a mountain

Self sensing facilities

Face recognition paper retrieval device

Shangbeilin restroom

Before

Embedded solar photovoltaic panels

Self sensing facilities

After