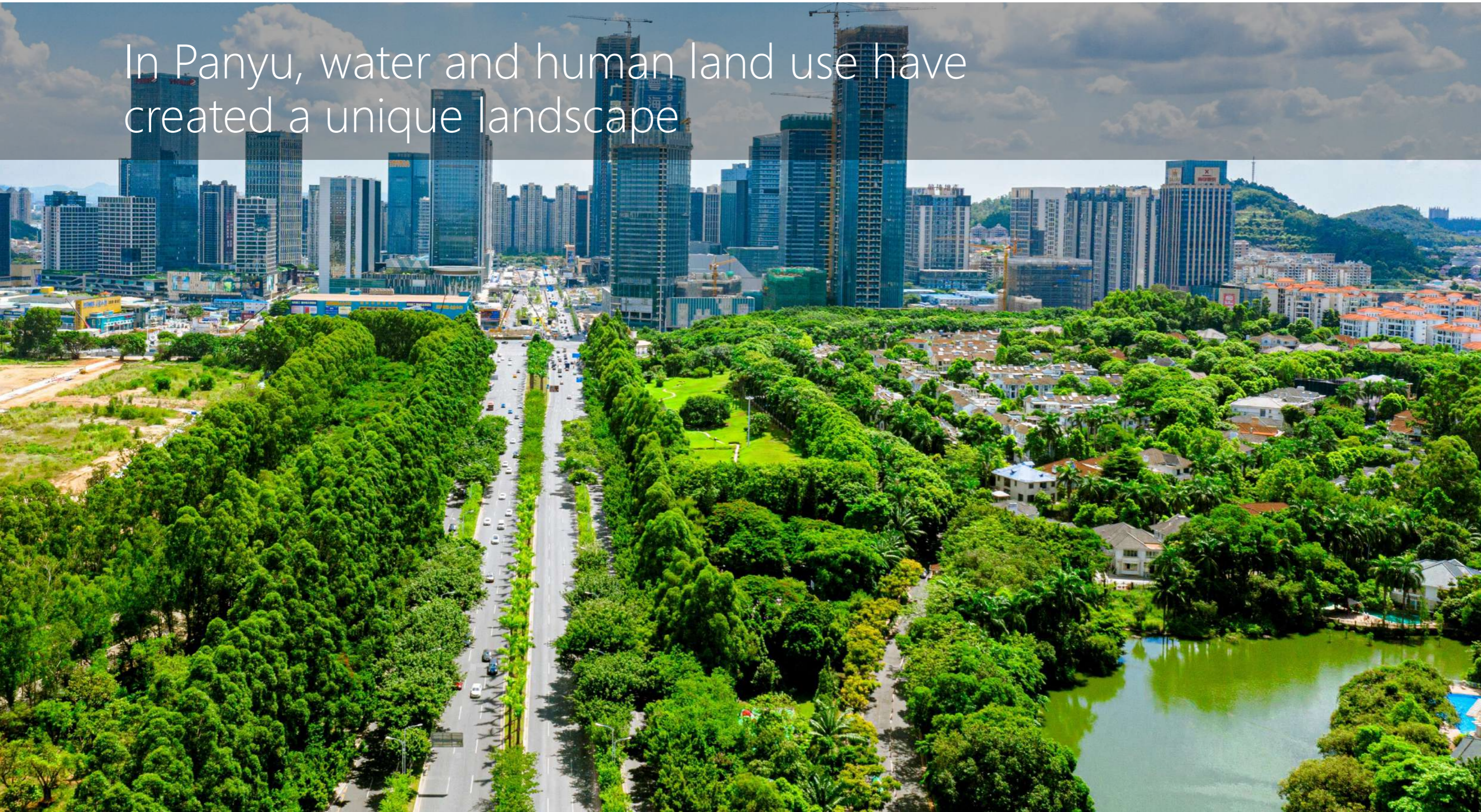


The background of the slide is a map of Panyu, China, illustrating the green infrastructure construction plan from 2021 to 2035. The map features a network of green lines representing planned green corridors and parks, interspersed with a grid of small green dots indicating specific construction sites or green spaces. The map also shows the city's urban layout, including roads and water bodies.

Panyu Green Infrastructure Construction Plan (2021-2035)

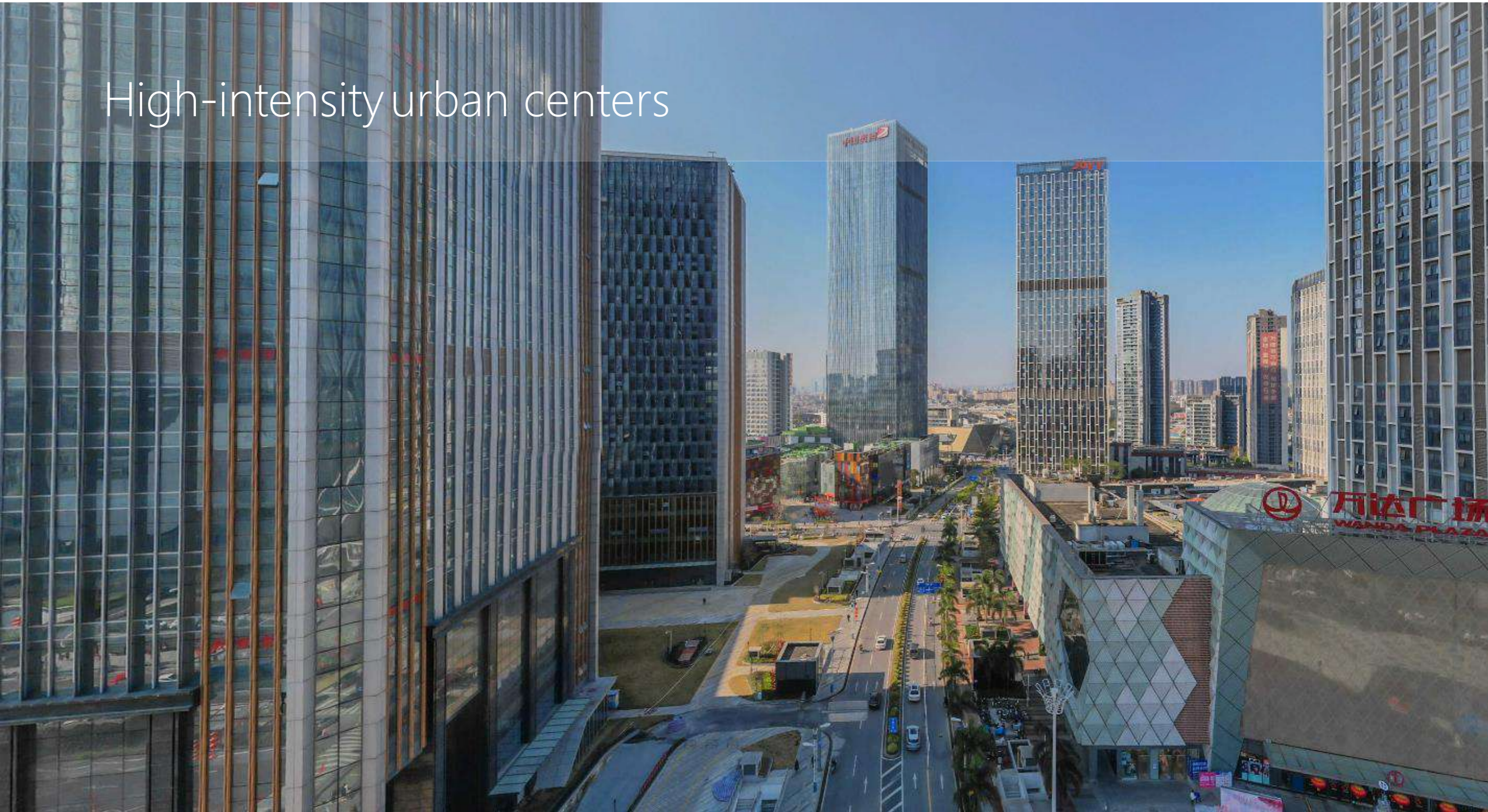
In Panyu, water and human land use have created a unique landscape



Rivers and canal systems



High-intensity urban centers



Newly emerging economic centers



Typical settlement areas



Neighboring areas for agriculture und fish farming



Global Challenges ...



... Challenges for urban development

*How can we best counter the effects of climate change like
floodings or drought?*



source: www.gz-cmc.com



*How can we develop ecological resources
such as clear water and green mountains?*

A photograph of a lush green landscape. In the foreground, there is a dense forest of various green trees. In the middle ground, a small pond with lily pads is visible. To the right of the pond, there is a cluster of tall palm trees. In the background, a hill is covered in dense green trees, and a building with a dark roof is visible on the left side of the hill. The sky is a pale, hazy blue.

How can we protect and develop biodiversity for resilient cities and landscapes?

How can we achieve harmony between structural development and ecology?



How can we make transportation greener and more sustainable?

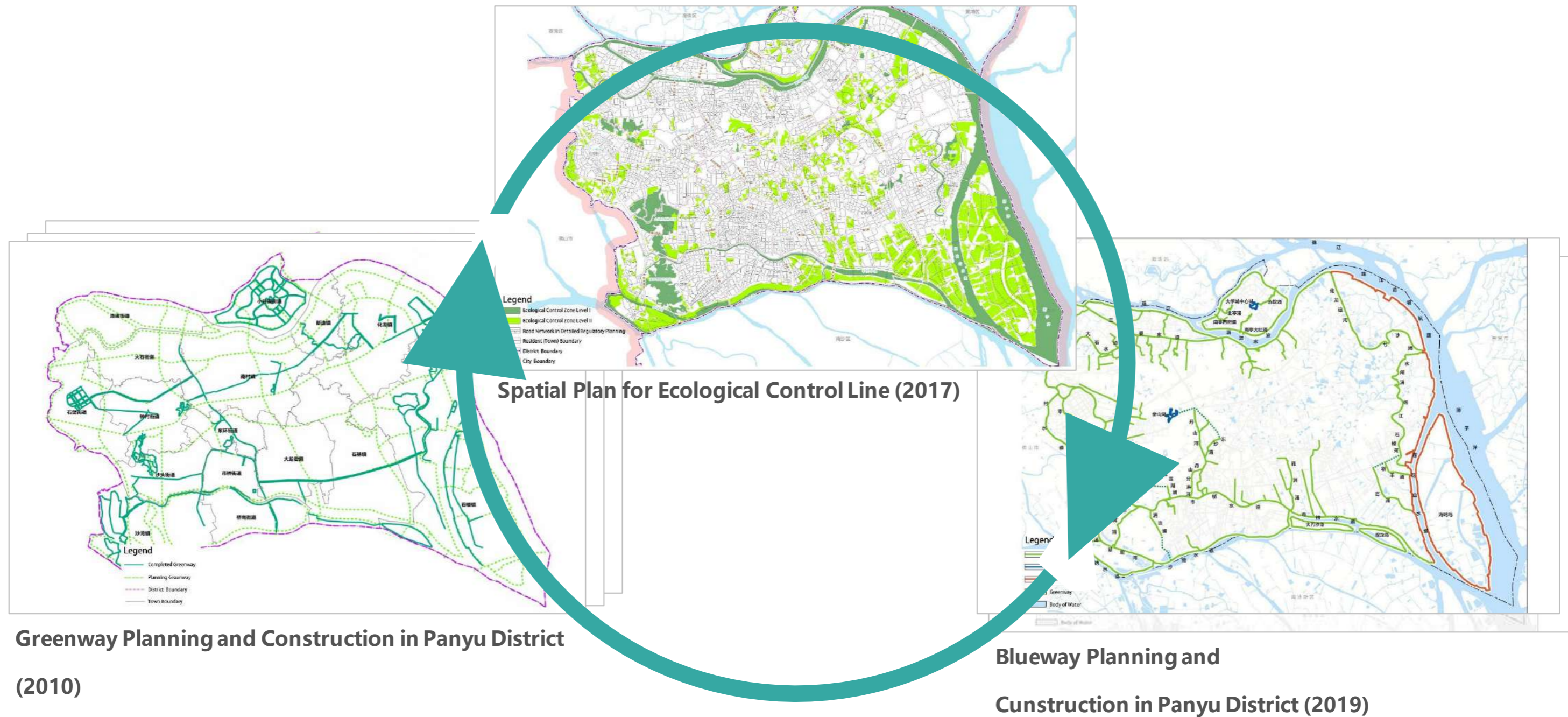




How can green and blue spaces contribute to a attractive and healthy living environment for people?

AND:

How can we coordinate the governance of green and blue spaces in the best way?

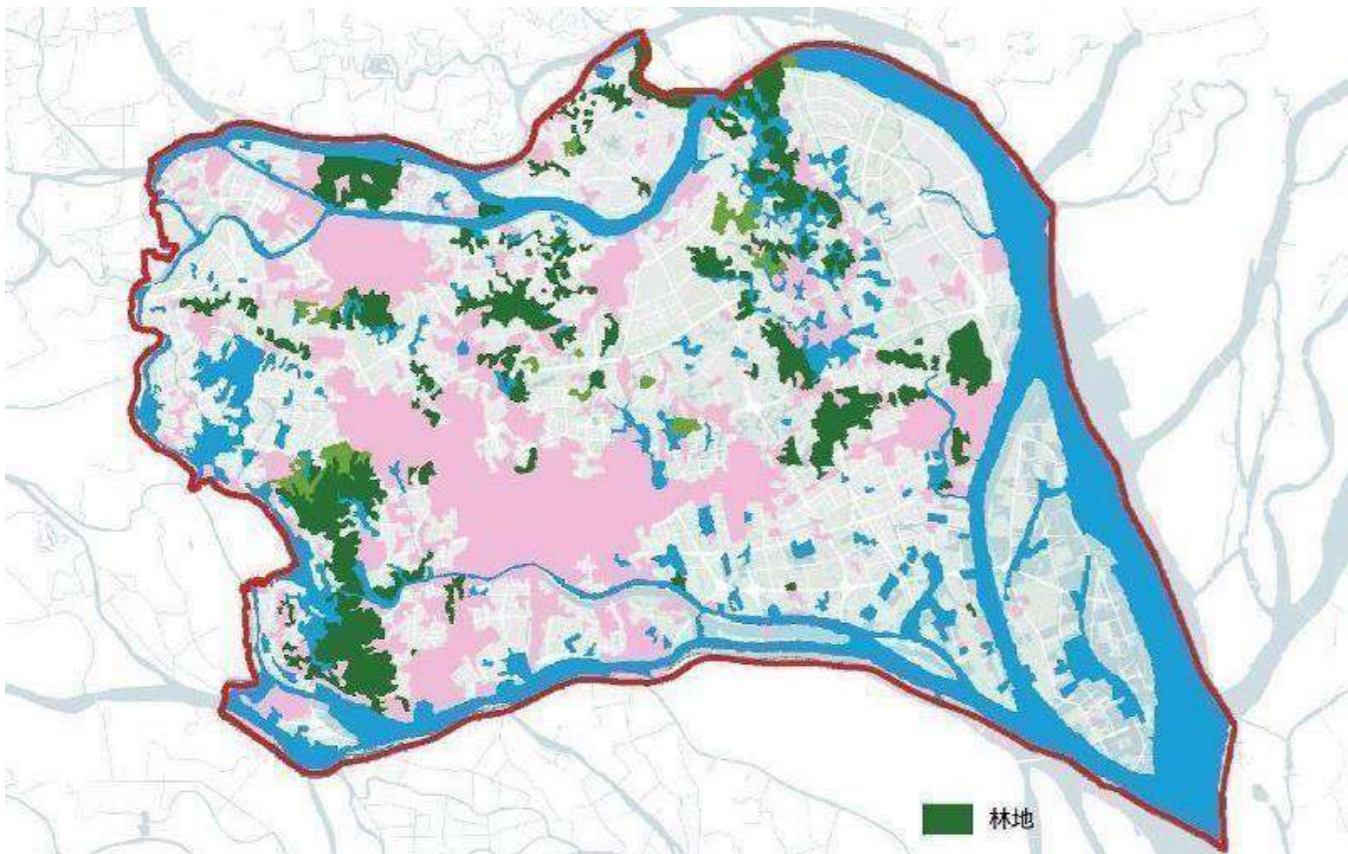


Some quantitative Challenges

Increase in the built-up area,

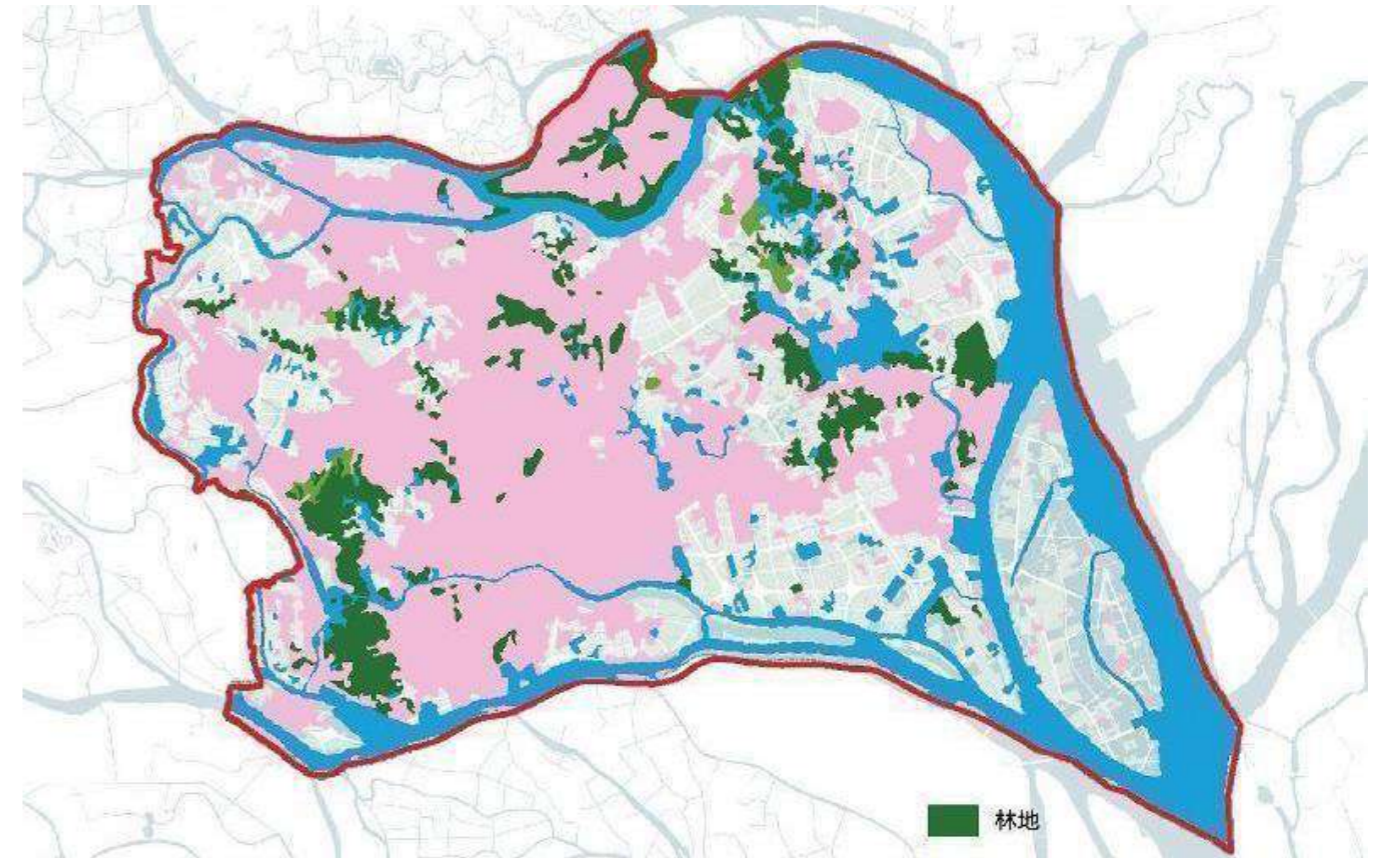


Decrease of undeveloped and ecological space



2000

Pink: built up areas

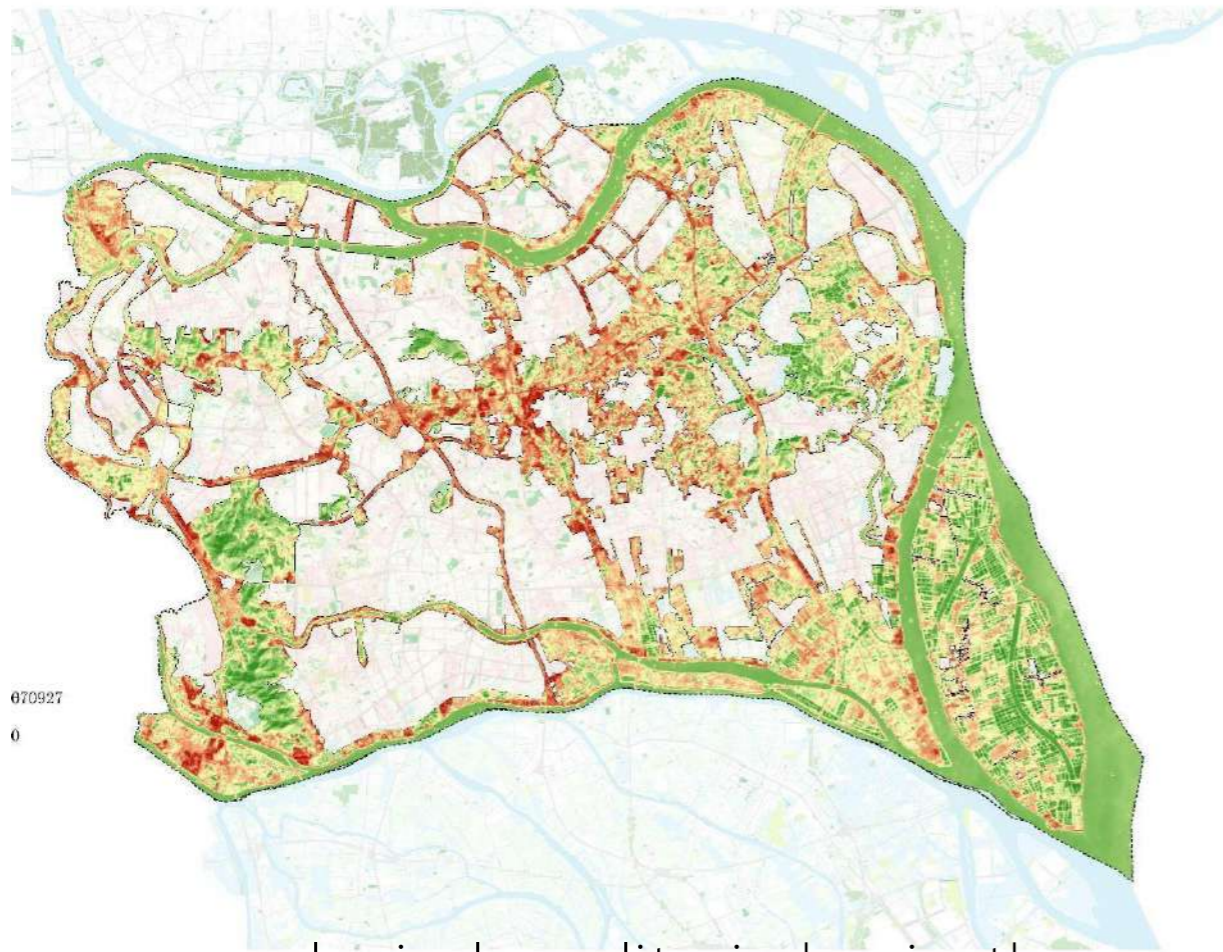


2020

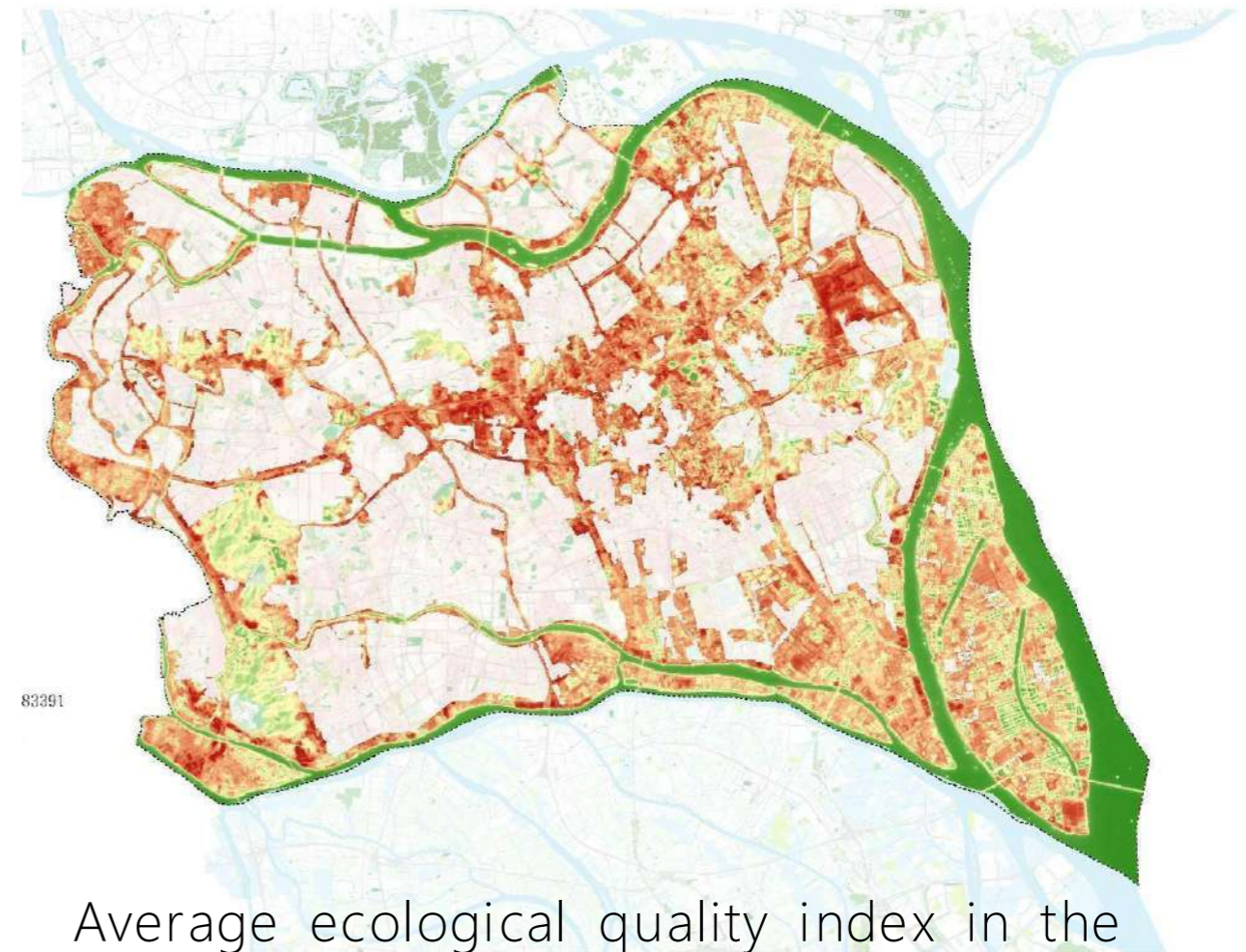
Pink: built up areas

Some qualitative Challenges

Ecological quality index (RESI) decreased



Average ecological quality index in the corridor in 2013



Average ecological quality index in the corridor in 2021

The Concept of Green Infrastructure

EU Strategy for Green Infrastructure

- Provision of food, water and materials
- Climate regulation
- Attractive/healthy living conditions
- Biodiversity



<https://biodiversity.europa.eu/green-infrastructure>

The Concept of Green Infrastructure

Closely linked to the concept of Eco System Services (ECS)

Provisioning
services



Regulating
services



Cultural
services



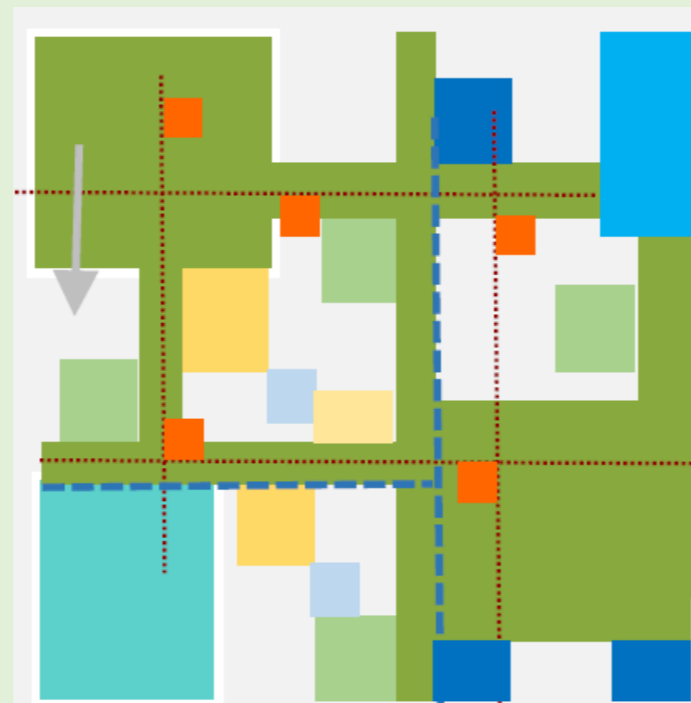
<https://www.eea.europa.eu/signals-archived/signals-2021/infographics/what-are-ecosystem-services/view>

The Concept of Green Infrastructure

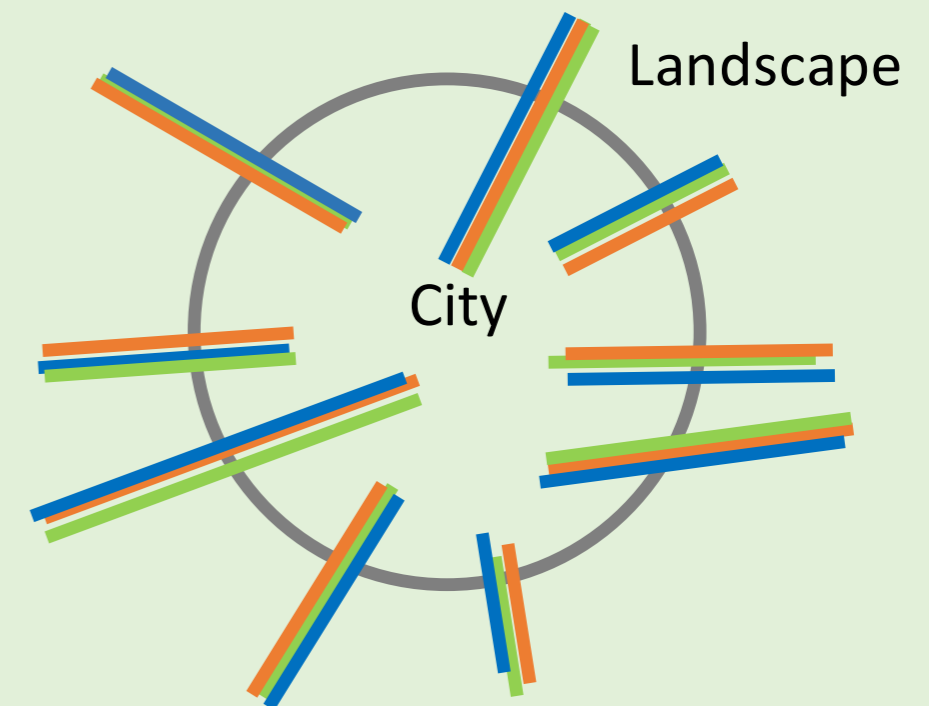
Spatial Structure:

Multifunctional Network

- Corridors
- Core Areas
- Stepping stones



Green-Blue-multifunctional network



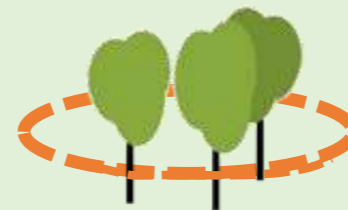
Principle of multifunctional corridors

Planning of Green Infrastructure Concepts

Approaches (Selection)



Enhancing Quality



Protection/Preservation



Nature based solutions



Initialisation



Management



Multifunctionality



Restoration



Sponge city

Planning of Green Infrastructure Concepts

Framework

Good basic data and
Targeted analyses

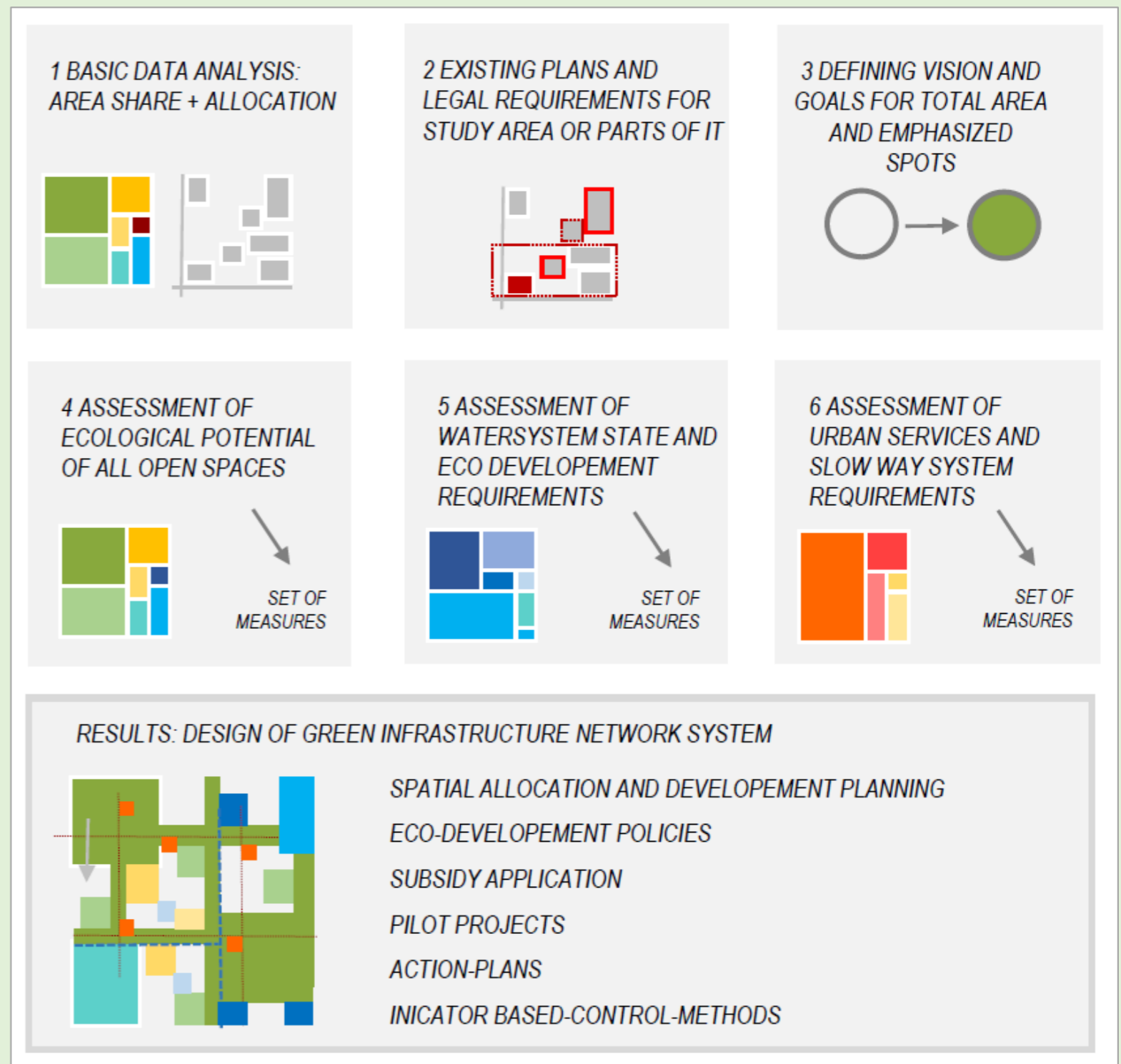
Transparent valuation
methods

Coordinated objectives

Interdisciplinary cooperation

Good communication of
results

Methodology



Panyu Green Infrastructure Construction Plan (2021-2035)

Guangzhou Urban Planning Compilation Research Center

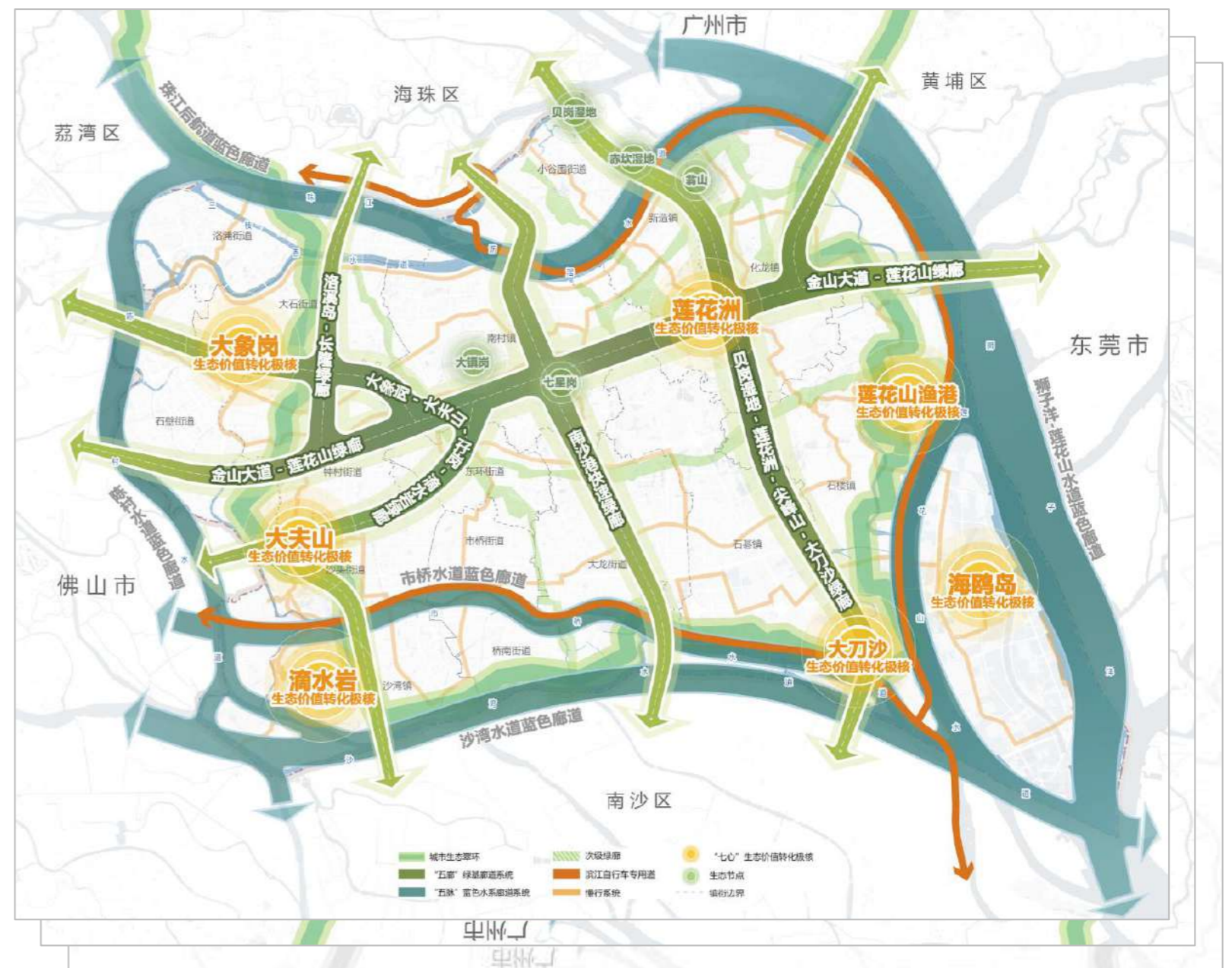
Rehwaldt Landscape Planning and Design (Beijing) Co., LTD

Guangzhou Urban Planning Survey and Design Research Institute Co., LTD

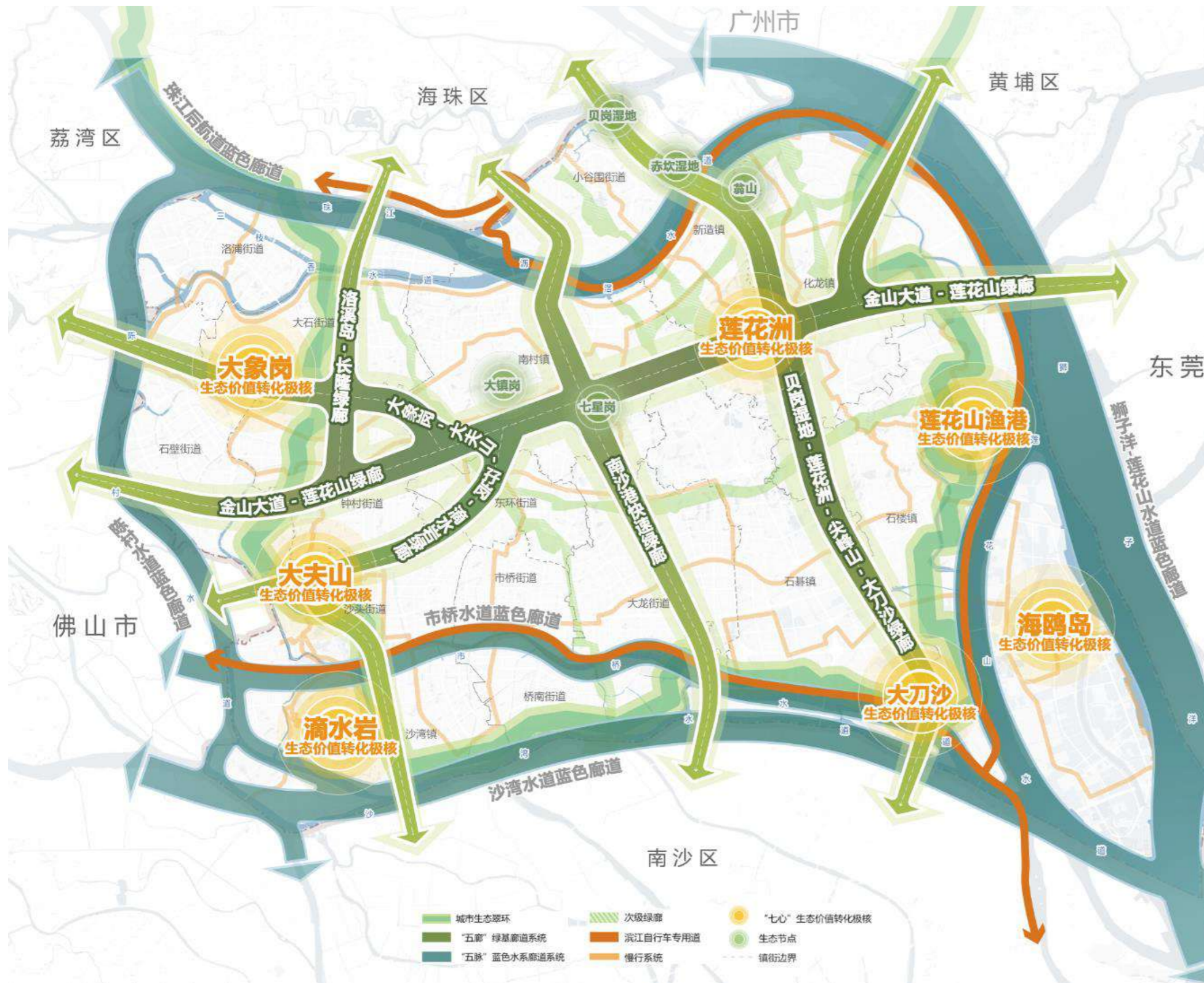
Guangzhou Panyu Urban Planning, Survey and Design Institute Co., Ltd

Content:

- Overall concept
- Thematic concepts
- Actions Planning
- Key area plannings
- Supplementary Tools



Panyu Green Infrastructure Construction Plan (2021-2035)



GI-NETWORK

5 Veins supply the blue system

5 Green corridors connect the network

7 Hearts for ecological transformation

Panyu Green Infrastructure Construction Plan (2021-2035)

3 major strategies and 11 measure groups to promote the implementation of a green infrastructure network

Ecology

Biodiversity

Ecological pattern

Green-Blue Network

Sequest and sink Co²

People

Public open spaces

Park System

Slow-Way System

Agricultural space

Culture landscapes

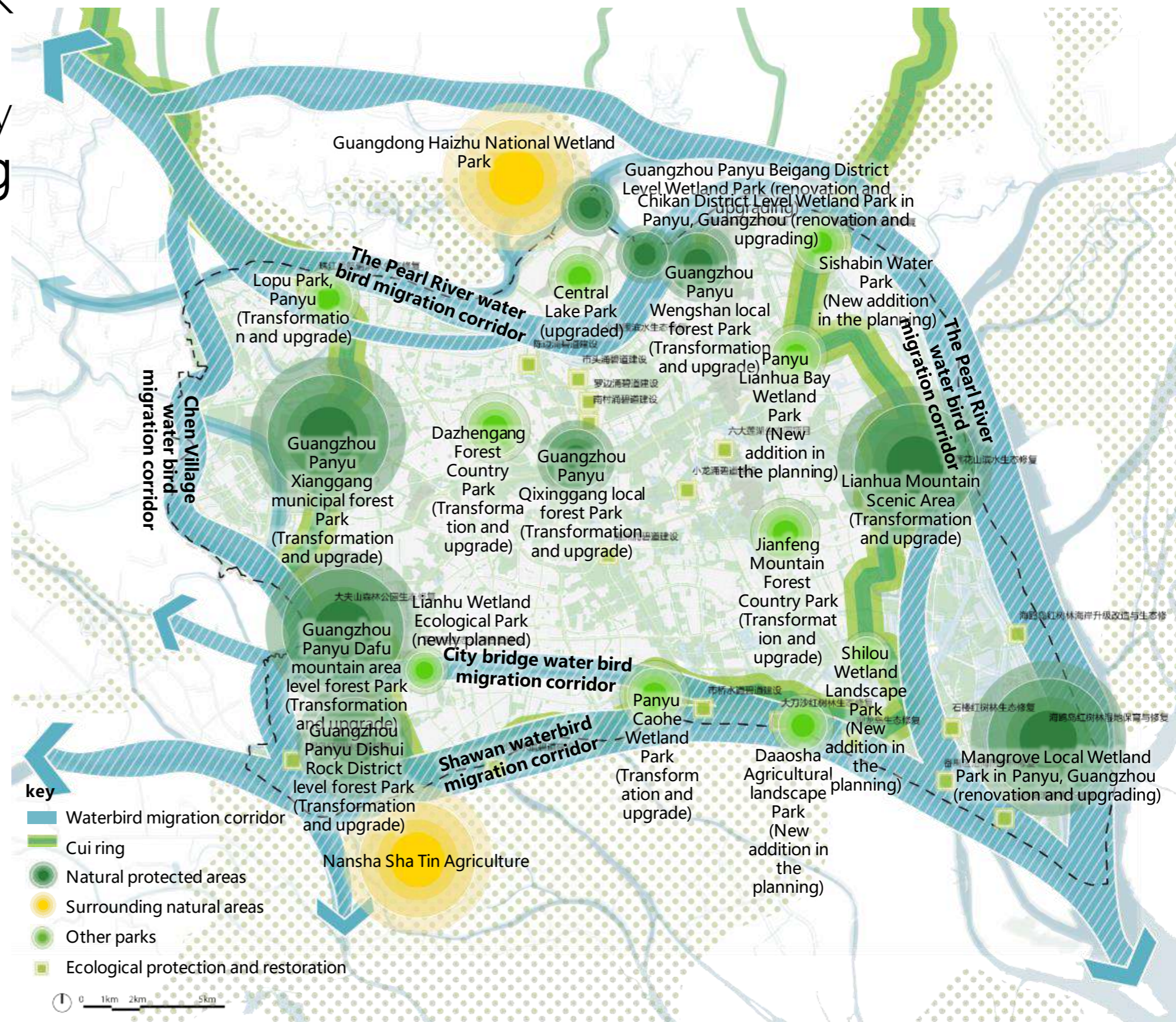
Botanical gardens

Green development
Guidance

Blue - Green Network

Measure group: Biodiversity Eco-Functional Planning

- Ecological Source area
- Green base corridor
- Ecological Stepping-stone planning
- Current reservoir river
- Water safety retention area

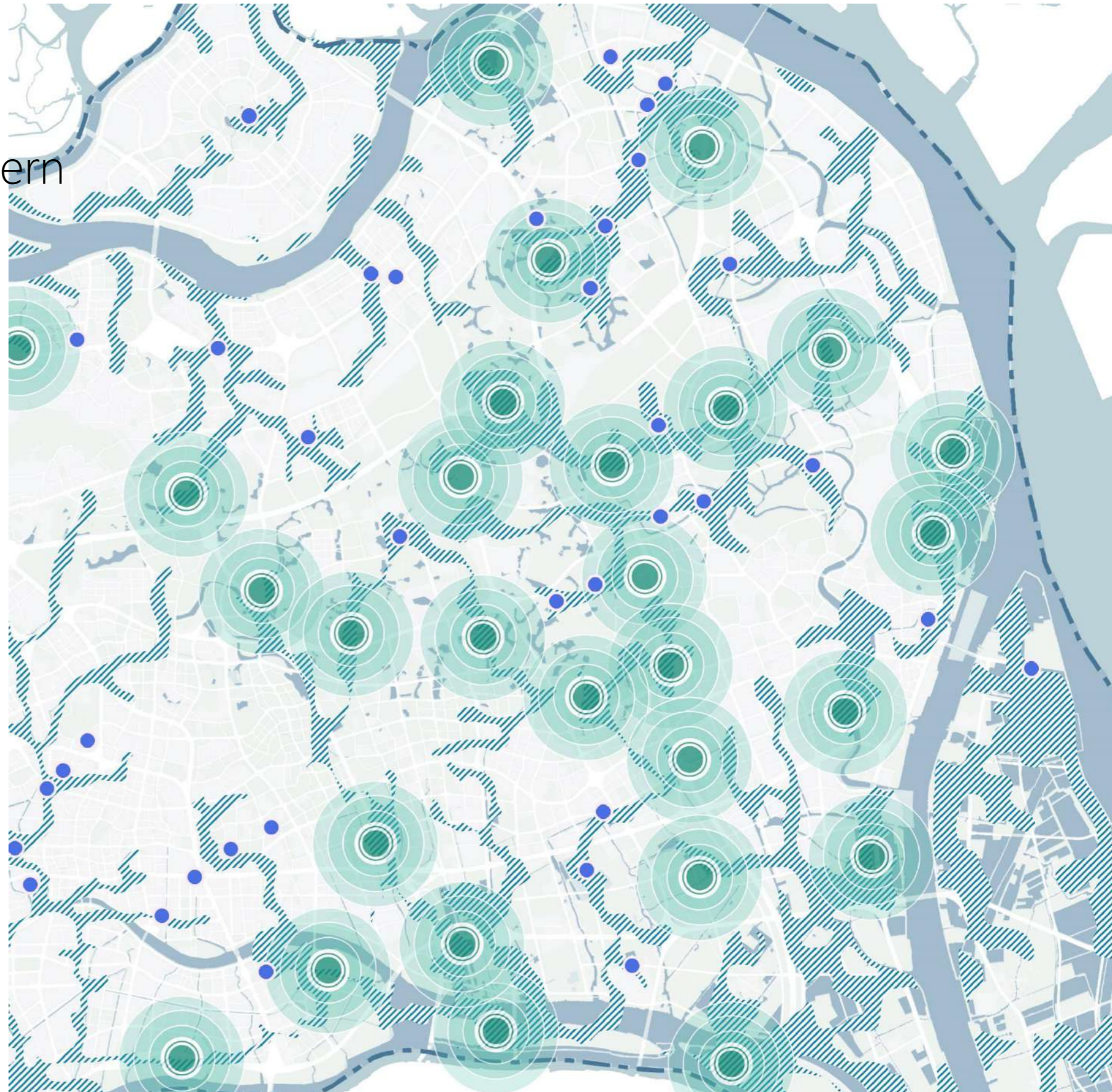


Blue - Green Network

Measure group: Ecological Pattern

Water body development concept

- 17 links for Rivers and channels (river and Chung water system)
- 24 Small micro wetlands
- Wetland Parks
- Urban sponge storages areas

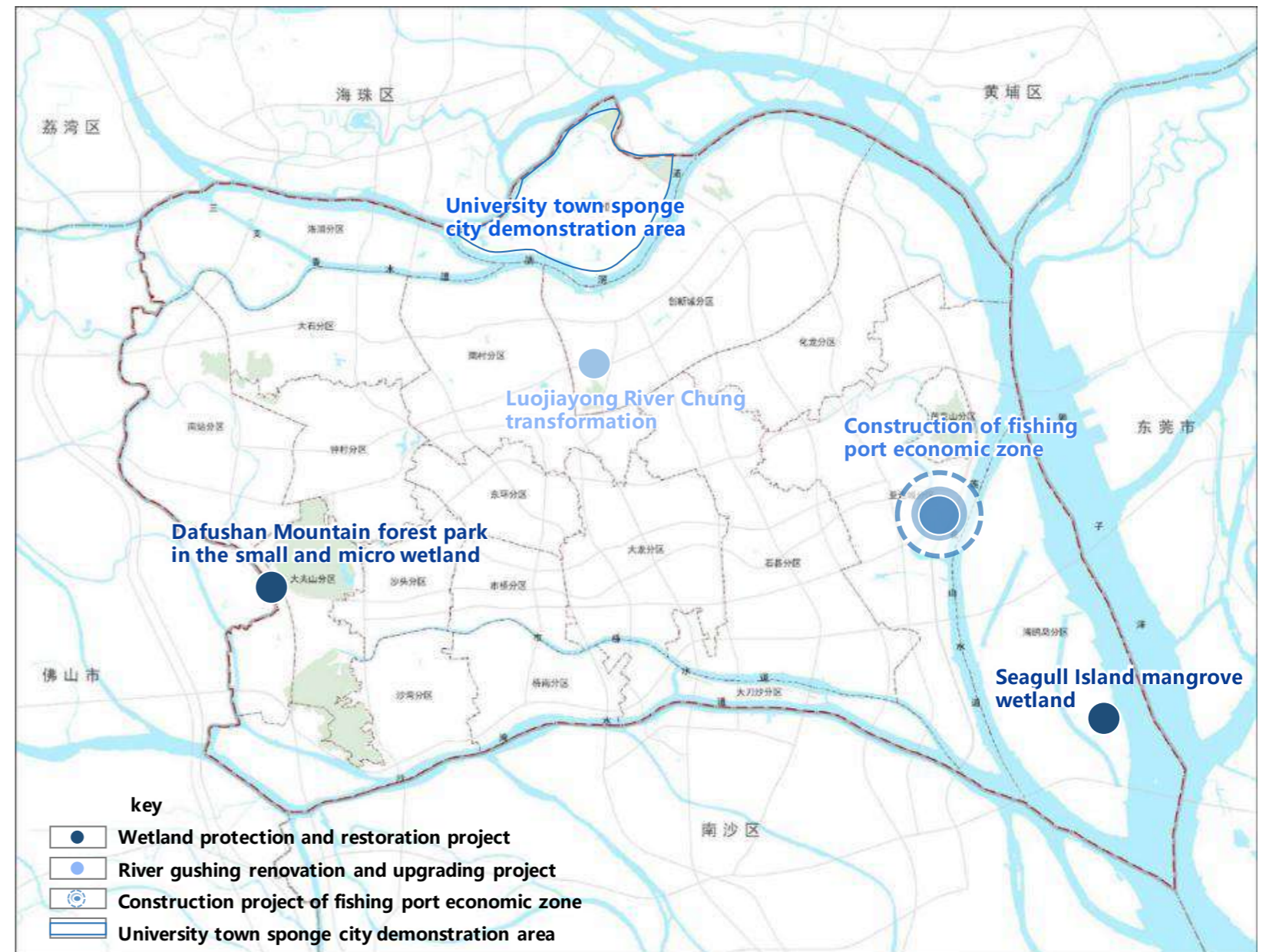


Blue - Green Network

Measure group: Ecological Pattern

Water body development concept

1. Wetland protection and restoration (2 projects)
2. River regulation
3. Construction of the start-up area of the fishing port Economic Zone
4. University City Sponge City Demonstration Area (21 projects)

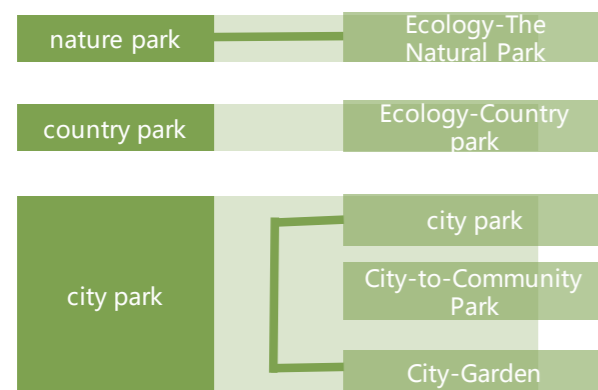


Blue - Green Network

Measure group: People System of Public Parks

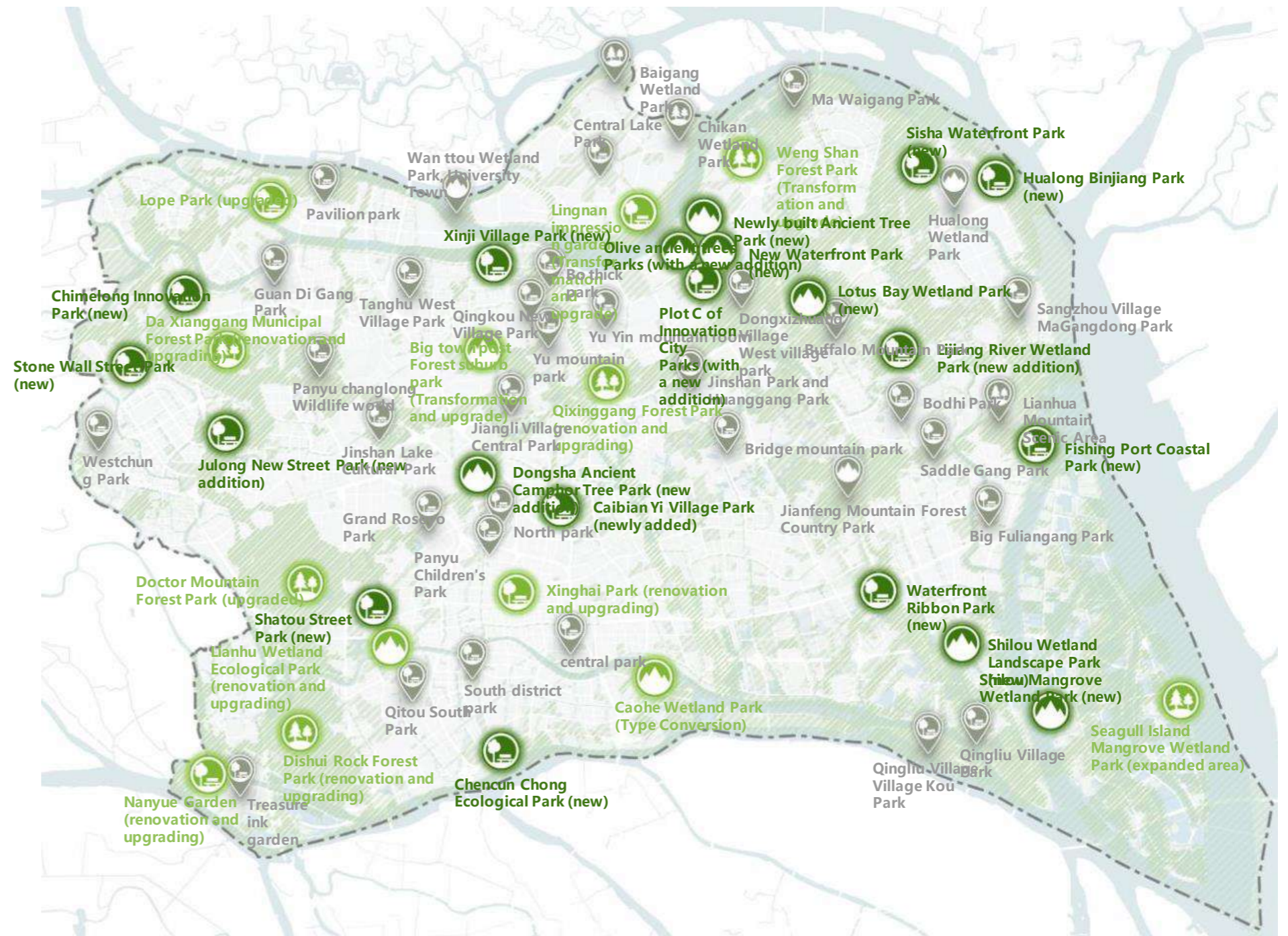
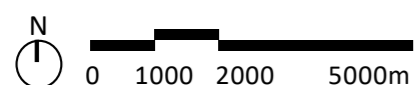
22 new parks planned

13 the public parks will be renovated/improved



key

- Planning to add a new, country park
- Planning for a new, city park
- Transformation and upgrading, the natural park
- Renovation and upgrading, country parks
- Transformation and upgrading, city parks
- Status quo is incorporated, and the natural park
- Status quo for inclusion, and country parks
- Status quo is incorporated, the city park



Blue - Green Network

Measure group: Cultural Landscape

Integrated rural, agricultural and tourism development planning

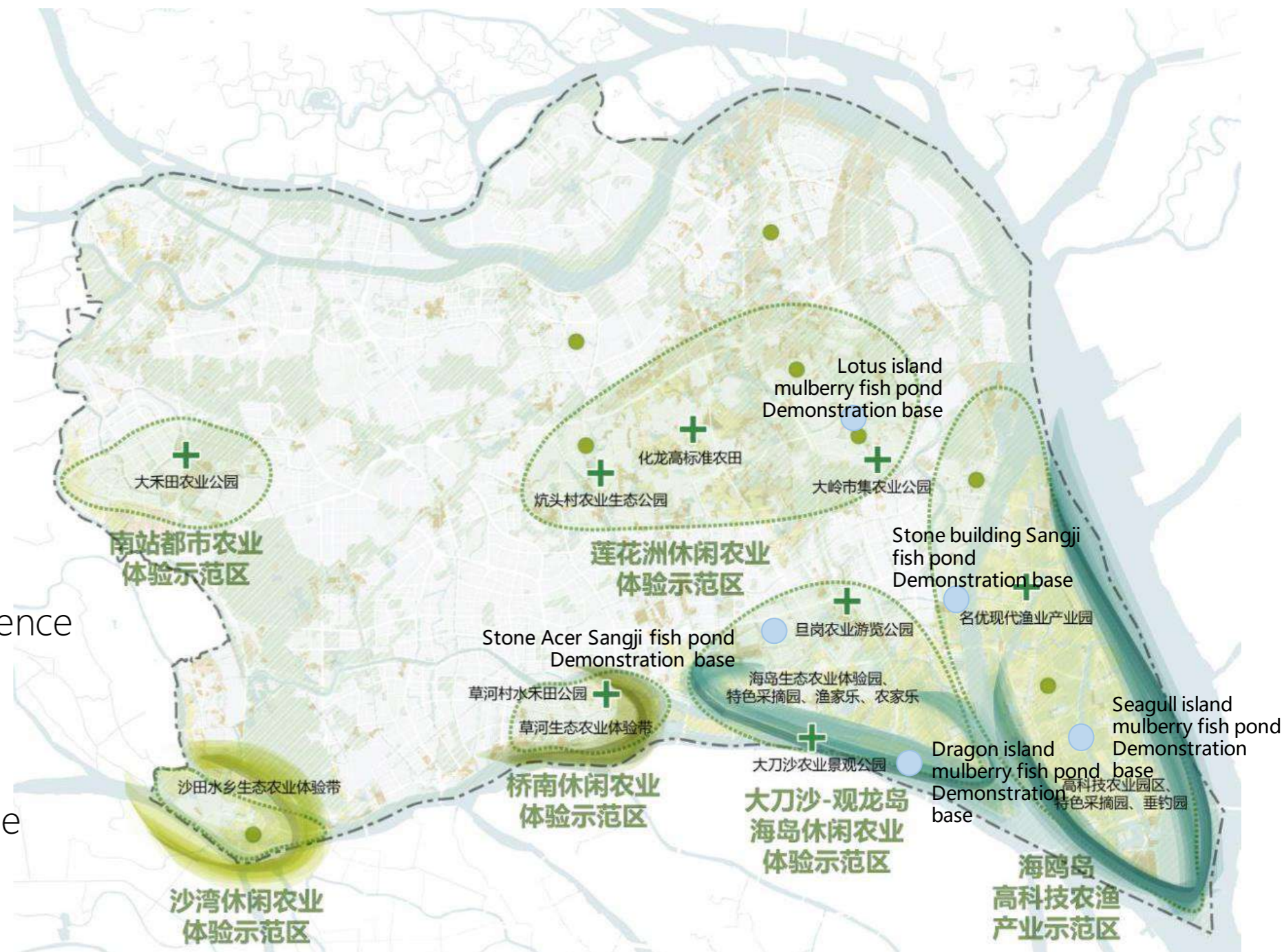
Rural revitalisation

Area consolidation

Sustainable production

Education

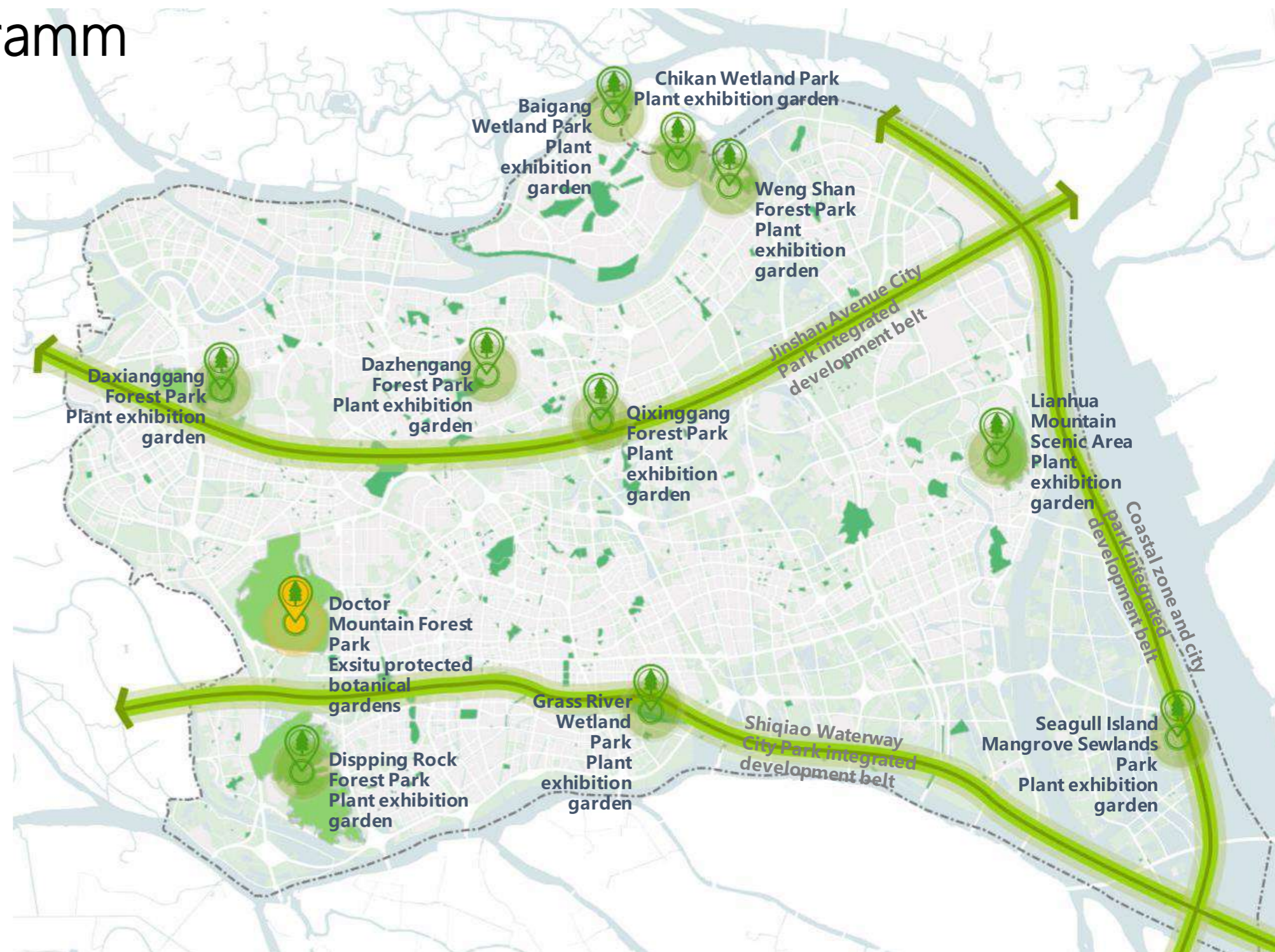
- Agricultural experience demonstration area
- Ecological agriculture experience belt
- Agricultural and fishing characteristic experience belt
- Agricultural park and agricultural display
- Mulberry base fish pond demonstration base



Blue - Green Network

Measure group: Botanical Gardens Botanical Gardens Programm

- 10 special Plant Exhibition Gardens
- Range of „ecological science popularization and recreation points“ combined with urban parks
- Yellow: Southern ex-situ protection demonstration area
- City-park integrated development belt



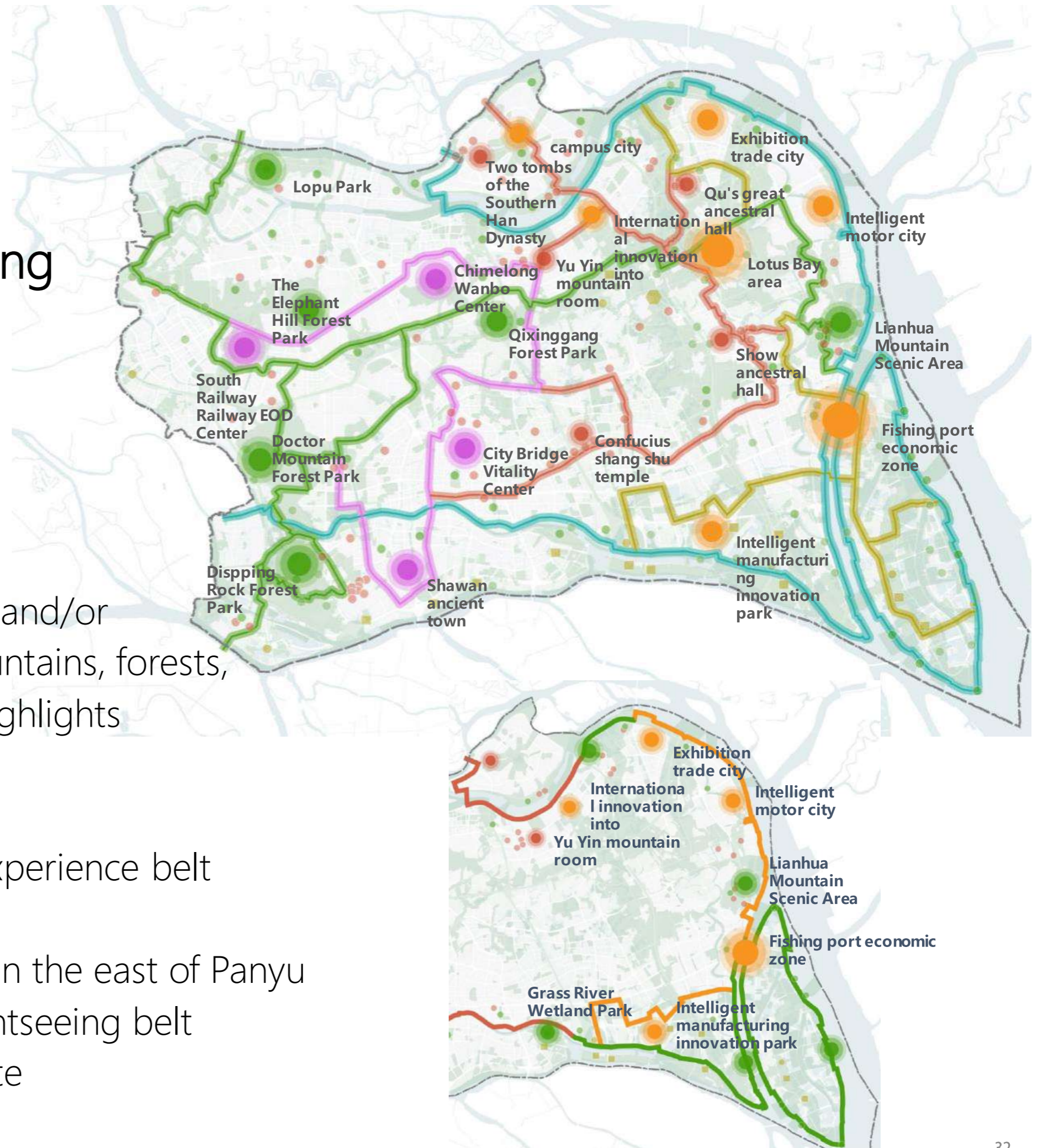
Blue - Green Network

Measure group: People

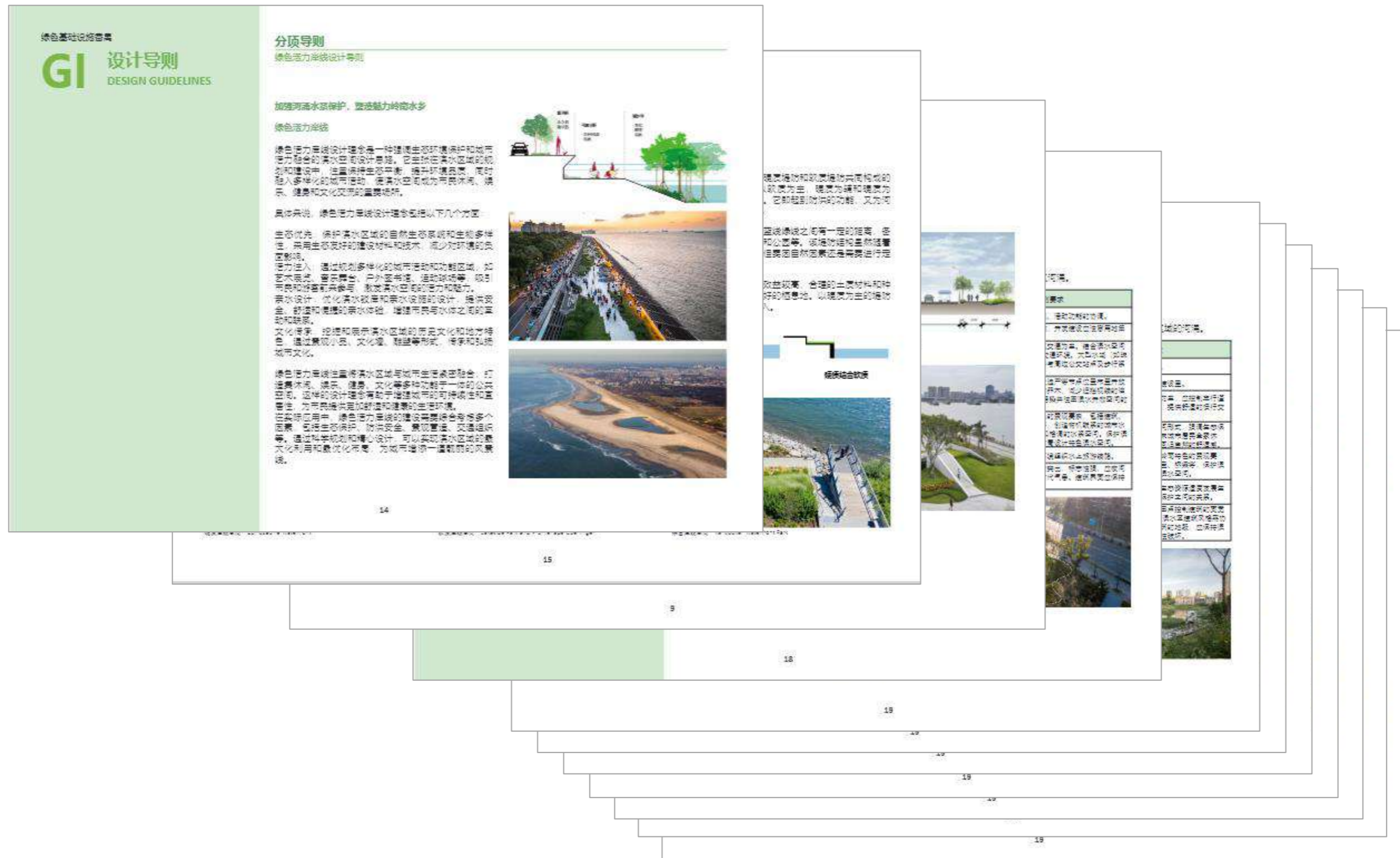
Slow-Way-System Planning

Slow-Way-System for pedestrians and/or cyclists connecting important mountains, forests, waterfront and other landscape highlights

- 84km countryside ecological experience belt
- 40km urban vitality belt
- 57km farmland landscape belt in the east of Panyu
- 47km historical and cultural sightseeing belt
- 115 km riverside experience route



Supplementary Tools: Design guidelines



Comprehensive guidelines for green area projects implementation for authorities and external planners

Supplementary Tools: Indicator System for the Monitoring of Urban Green Spaces

Indicators with which the success of the actions can be measured:

Qualitative indicators

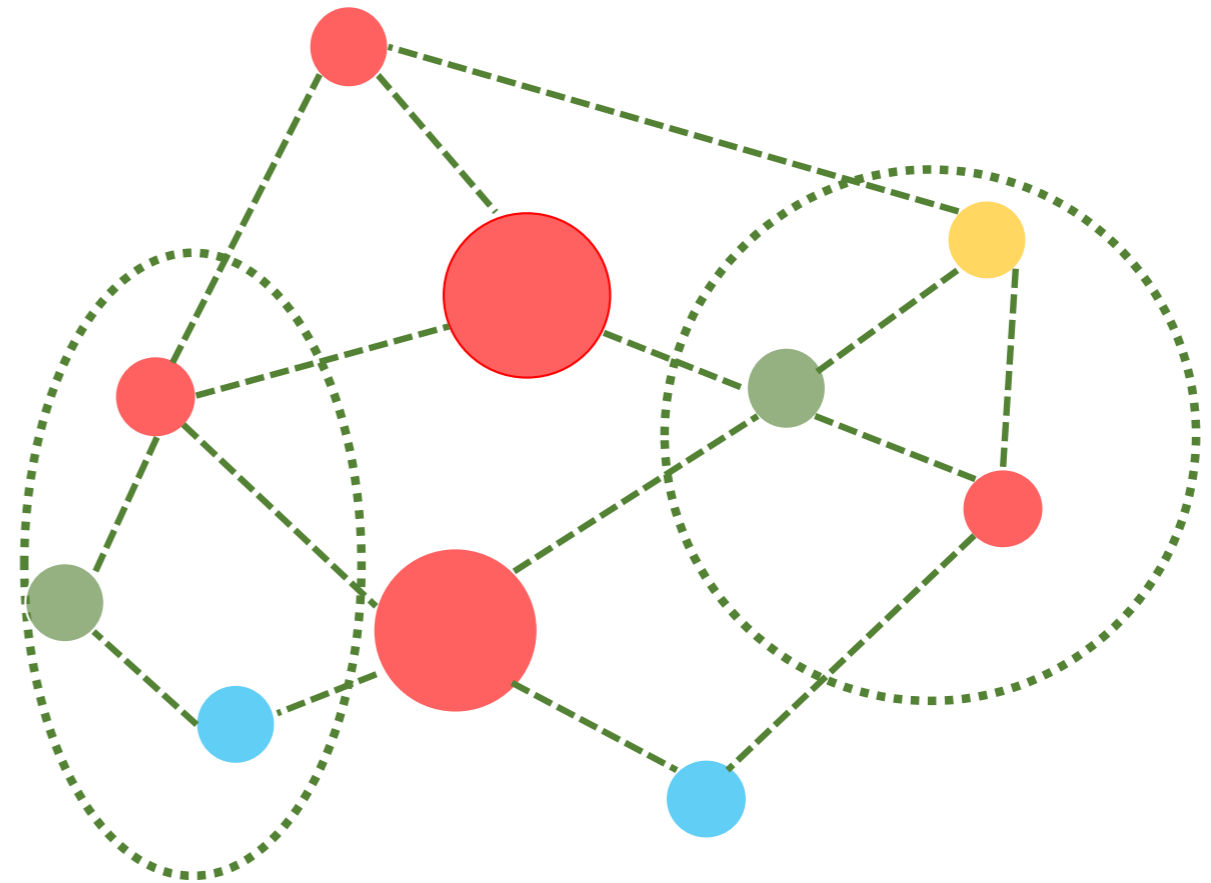
Quantitative indicators

Supply indicators

name	Index item	Indicator attributes	In 2027,	In 2035,	Indicator source
Natural ecological service function	Red line area of ecological protection (km ²)	binding force	43.31	43.31	Master Plan of Panyu District of Guangzhou (2021-2035 (Draft)
	land area covered with trees (%)	binding force	≥7.9	≥7.9	Guangzhou Green Space System Planning (2021-2035)》
	Forest land holdings (hm ²)	binding force	According to the task assigned by the superior	According to the task assigned by the superior	General Plan of Territorial Space of Panyu District of Guangzhou City (2021-2035) (Draft)
	Wetland holdings (km ²)	binding force	According to the task assigned by the superior	According to the task assigned by the superior	General Plan of Territorial Space of Panyu District of Guangzhou City (2021-2035) (Draft)
	Important biological migration corridors	Expectation	3	8	This plan is formulated (The index refers to the Land and Space Ecological Restoration Plan of Guangzhou City (2021-2035)
	The protection rate of wild animals / plants under national key protection is (%)	Expectation	75/80	To be determined according to the relevant special planning	Land and Space Ecological Restoration Plan of Guangzhou City (2021-2035)》
	River and lake water surface rate of (%)	binding force	≥15.03	≥15.03	The 14th Five-Year Plan for Water Supply Development in Panyu District
	River channel greening penetration rate is (%)	Expectation	≥80	≥85	Guangzhou Green Space System Planning (2021-2035)》
	Wetland protection rate is (%)	binding force	According to the task assigned by the superior	According to the task assigned by the superior	Overall Plan of Guangzhou (2021-2035)
People-oriented health	Rain and local absorption rate	Expectation	To be determined according to the relevant special planning	To be determined according to the relevant special planning	Index reference: Special Plan of Guangzhou Sponge City (2016-2030)
	Green land rate in the built-up area is (%)	binding force	≥41.8	≥42	Green Space System Planning of Panyu District, Guangzhou City (2022-2035)
	Green coverage rate of the built-up area is (%)	Expectation	≥45.98	≥46.20	Green Space System Planning of Panyu District, Guangzhou City (2022-2035)
	Park green space, square walk 5 minutes of coverage rate (%)	Expectation	≥49.64	≥75.64	Green Space System Planning of Panyu District, Guangzhou City (2022-2035)
	Park and open space area per capita (m ² / person)	binding force	≥17.53	≥18.10	Green Space System Planning of Panyu District, Guangzhou City (2022-2035)
	The coverage rate of the park green space service radius is (%)	binding force	≥90.38	≥95	Green Space System Planning of Panyu District, Guangzhou City (2022-2035)
	Ten thousand people have a park index (one / ten thousand people)	Expectation	≥0.7	≥0.8	Guangzhou Green Space System Planning (2021-2035)
	Length of green road, greenway, cultural trails and fitness trails (km)	Expectation	1201km	1335km	General Plan of Territorial Space of Panyu District of Guangzhou City (2021-2035) (Draft)
	Length of special bicycle lane (km)	Expectation	-	81	This plan is formulated
	The service radius coverage rate of the slow traffic network is (%)	Expectation	≥75	≥90	The Urban Development Strategic Planning of Guangzhou for 2049
	Park connectivity ratio (%)	Expectation	70	85	Guangzhou Green Space System Planning (2021-2035)
Supporting high-quality development	Number of green and low-carbon industrial parks (ones)	Expectation	≥10	17	This plan is formulated
	Water town cultural node (a)	Expectation	5	9	This plan is formulated
	Green park green coverage rate of (%)	Expectation	20%	30%	This plan is formulated (The index refers to the Evaluation Index System for Pilot Construction of Near Zero Carbon Emission Park in Sichuan Province)

Next planning implementation steps:

- 2 large landmark projects
- 5 Key actions
- 3 Demonstration nodes

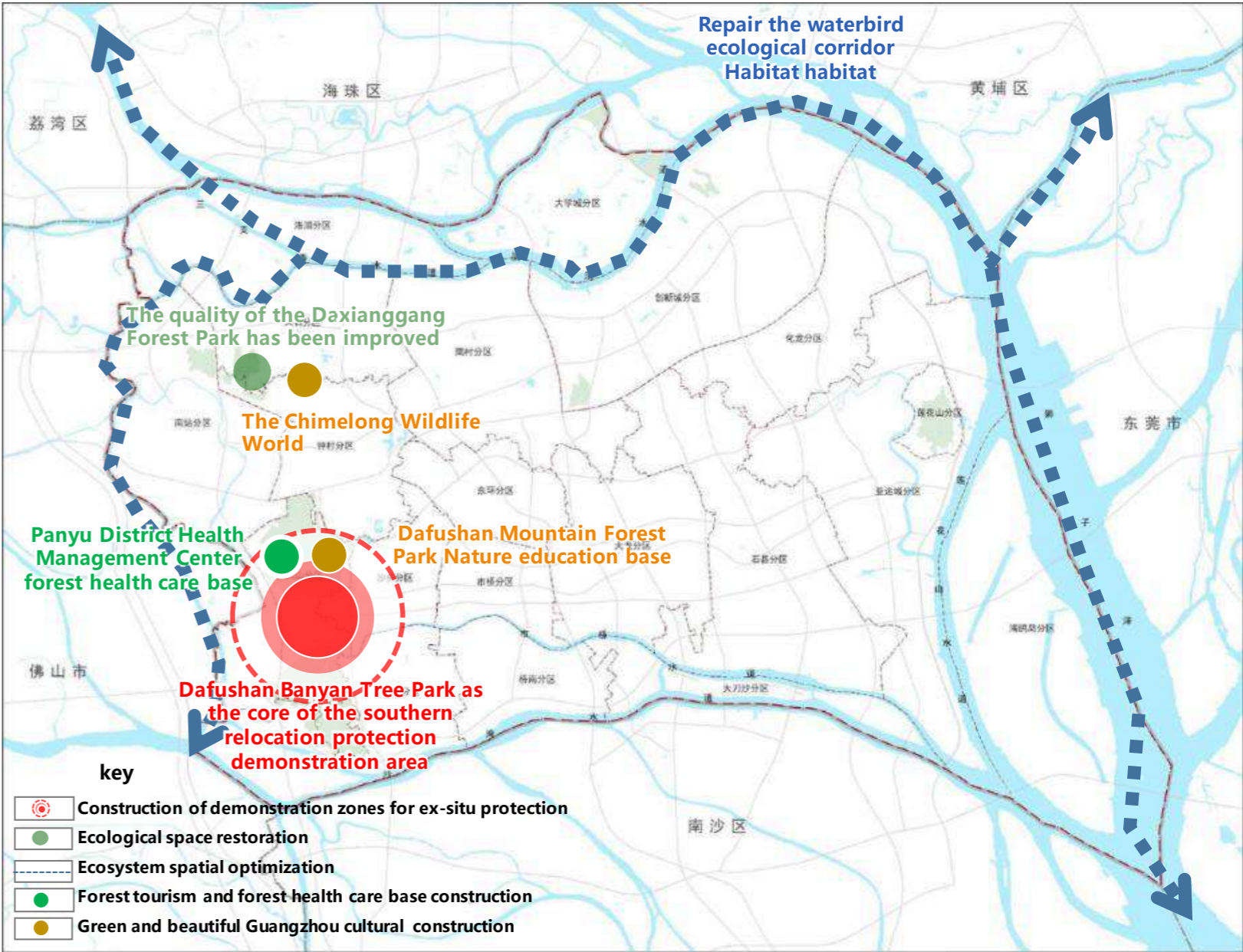


Example:

„Ecological space maintenance plan“

(= Key actions)

- 1. Construction of ex-situ protection demonstration zone (1 project)
- 2. Ecological space restoration (1 project)
- 3. Ecosystem space optimization (area 724.5 mu)
- 4. Construction of forest tourism and forest health care base (1 project)
- 5. Green and Beautiful Guangzhou Cultural Construction (2 projects)



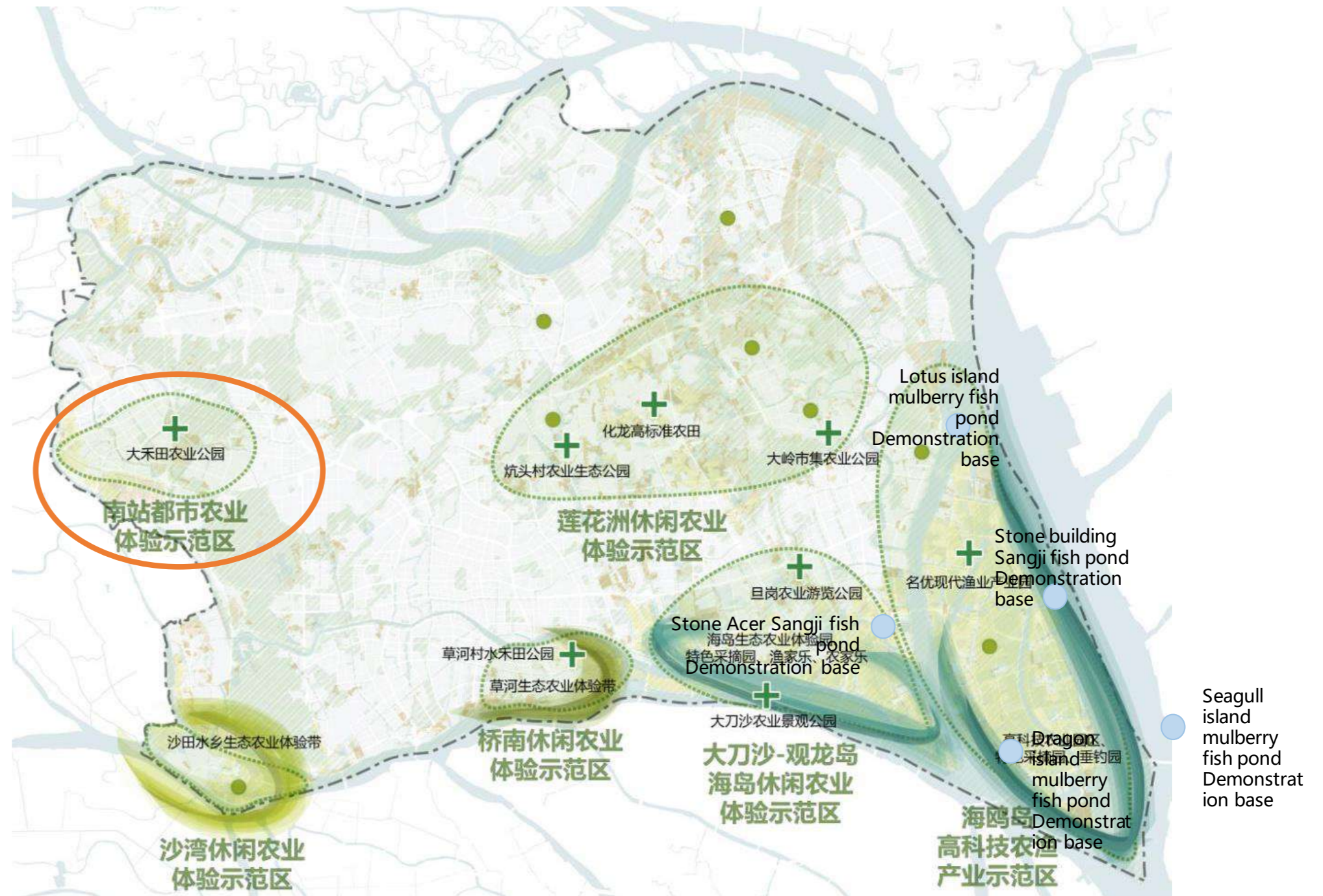
Type of action	Action goal	project name	job description
Action a Ecological space maintenance and education action	Build the South China National Botanical Garden together	1. Construction of ex-situ protection demonstration areas	Establish a southern ex-situ protection demonstration area with Dafashan banyan Park as the core; promote the demonstration of ex-situ protection and application of plants in the same region and climate zone, carry out plant scientific research and popular science, display high-level garden gardening, tell plant stories well and spread Lingnan culture.
	The quality of ecological space was improved and improved	2. Ecological space restoration	The quality of the Xianggang Forest Park will be improved, and the construction of green and beautiful ecology and the construction of a demonstration area for high-quality living circles in the Guangdong-Hong Kong-Macao Greater Bay Area will be promoted.
	Biodiversity conservation and cultivation	3. Ecosystem spatial optimization	The habitat of 724.5 mu of waterbird ecological corridor was restored, and the quality of waterbird ecological corridor nodes was improved by relying on the university town, Lianhua Mountain and Seagull Island.
	Modern benefit to the people forestry cluster development	4, forest tourism forest health care base construction	To build a forest health care base of Panyu District Health Management Center, strengthen the construction of forest health care infrastructure, create diversified health care products, enhance the supply capacity of high-quality ecological products, and accelerate the construction of forest health care base with Panyu characteristics.
	The whole people love the green culture construction	5, green and beautiful Guangzhou cultural construction	The construction of Chimelong Wildlife World, DafMountain Forest Park nature education base 2

Example:
„Dahetian Agricultural Park“
(= Demonstration node)

Part of Integrated rural, agricultural and tourism development planning

Super Agricultural Park
in the core area of the
South Railway Station,
Zhong Village Street

Implementation progress:
Design deepening



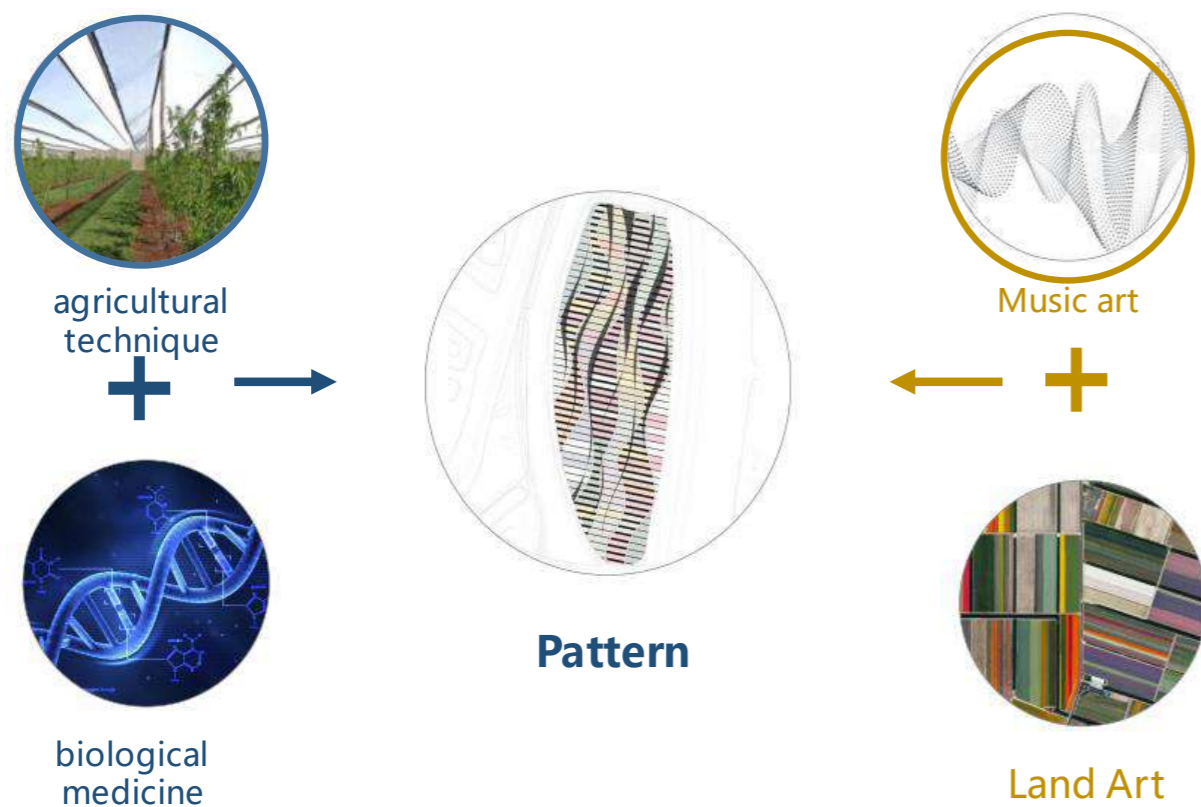
Example:

„Dahetian Agricultural Park“

(= Demonstration node)

Area: 13 hectares

- Demonstration and education
- Presentation of agricultural techniques, Species, raw materials and products
- Interaction of design and cultural techniques



Example:
„Dahetian Agricultural Park“
(= Demonstration node)



Example:
„Dahetian Agricultural Park“
(= Demonstration node)



and learning about future agriculture



Conclusions

Green and blue spaces require **prioritized development**

Green infrastructure is a strategy for sustainable open space-oriented urban development

Green infrastructure planning is a comprehensive planning instrument for the sustainable development of open spaces

Thanks for part 1

PRAGUE, Czech Republic

New Highway Ring Road - Green Urban Ring

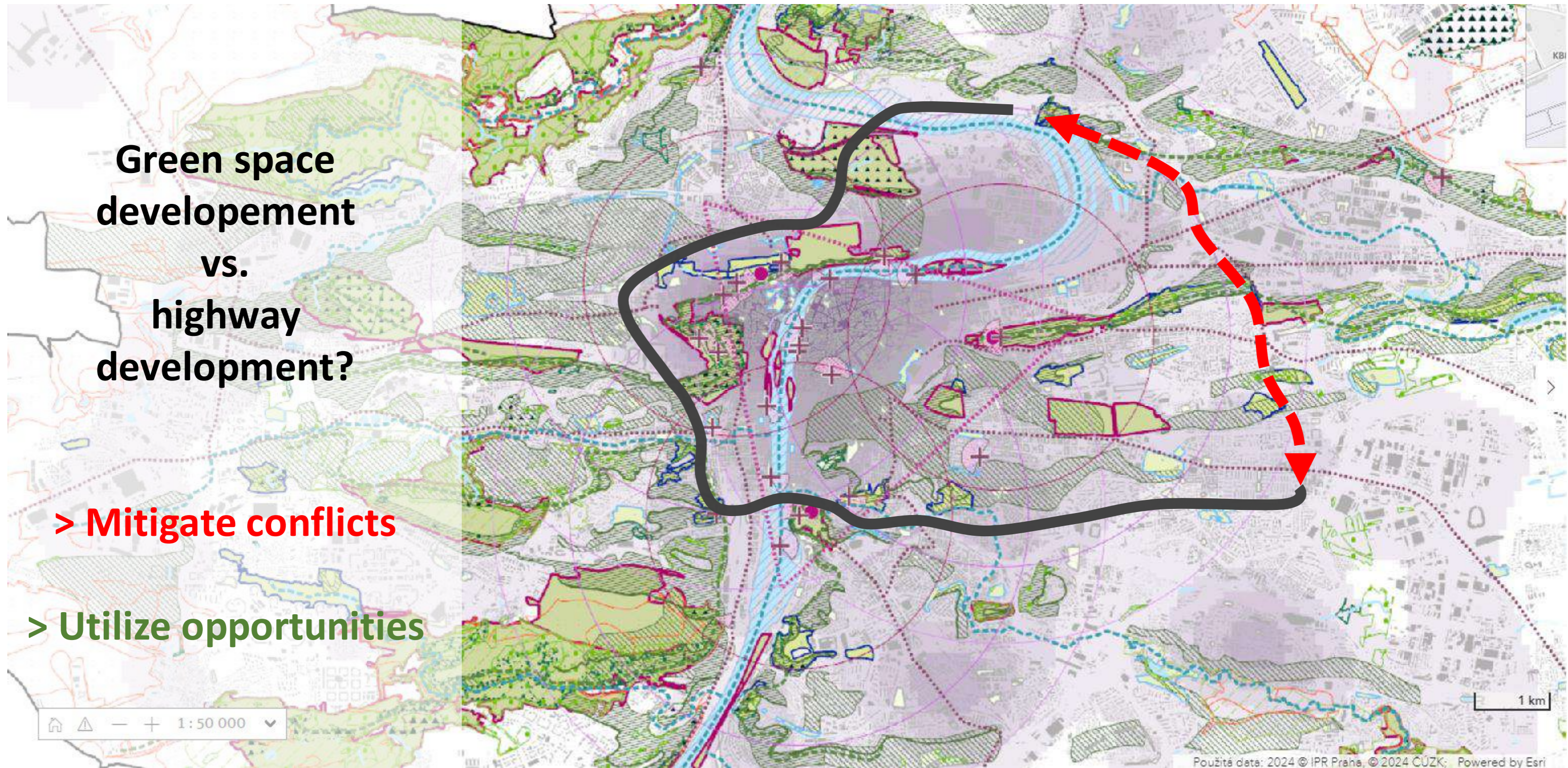
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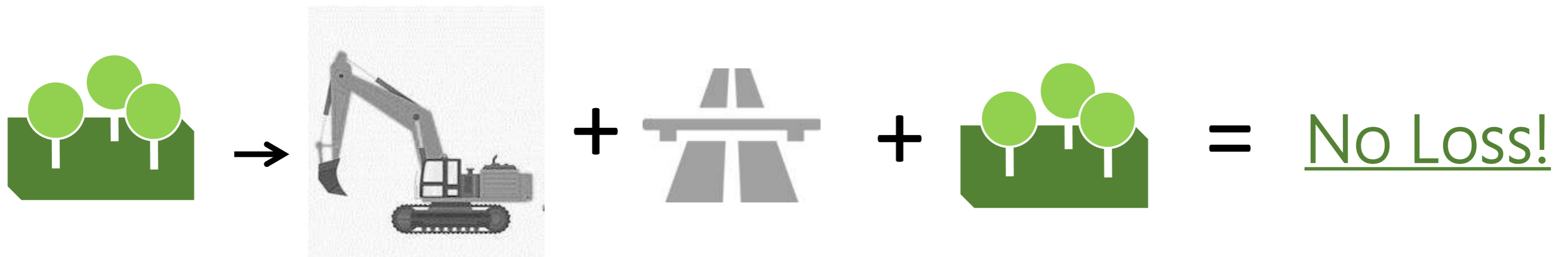
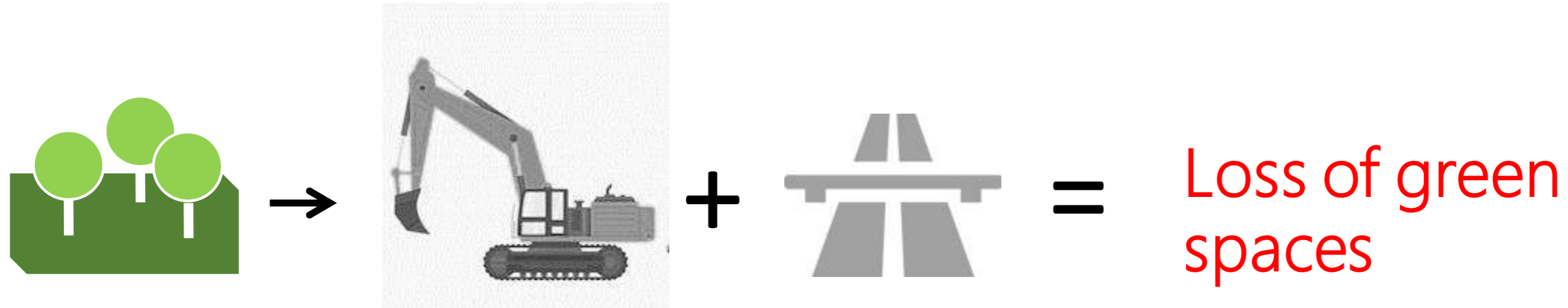
New Highway Ring Road - Green Urban Ring



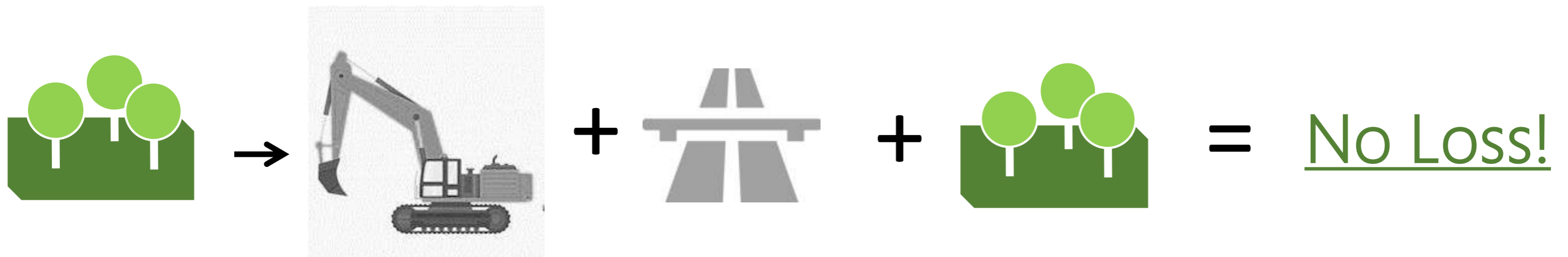
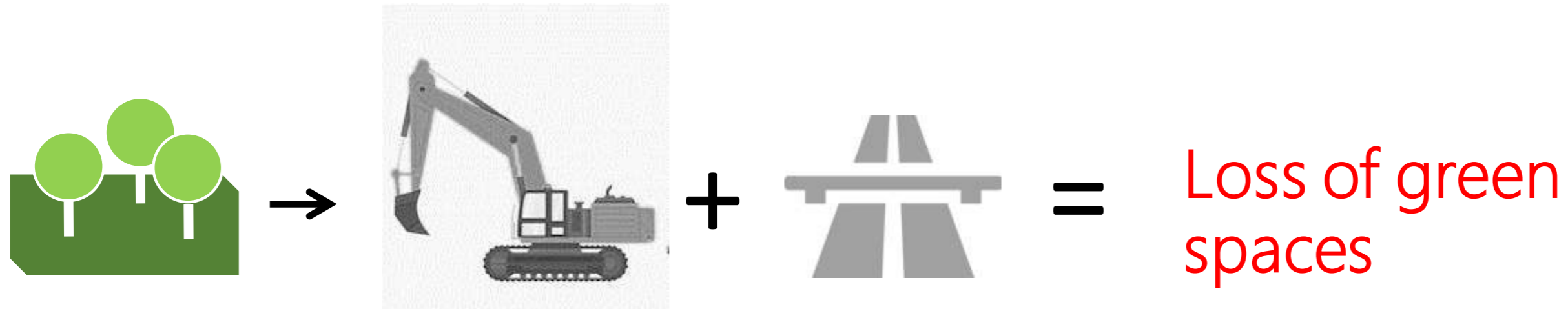
New Highway Ring Road - Green Urban Ring



Idea of Compensation



Idea of Compensation

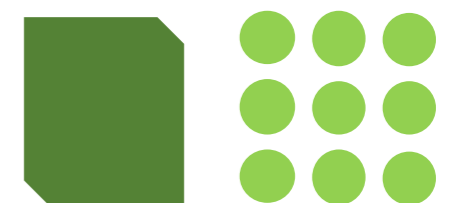


Area Quality



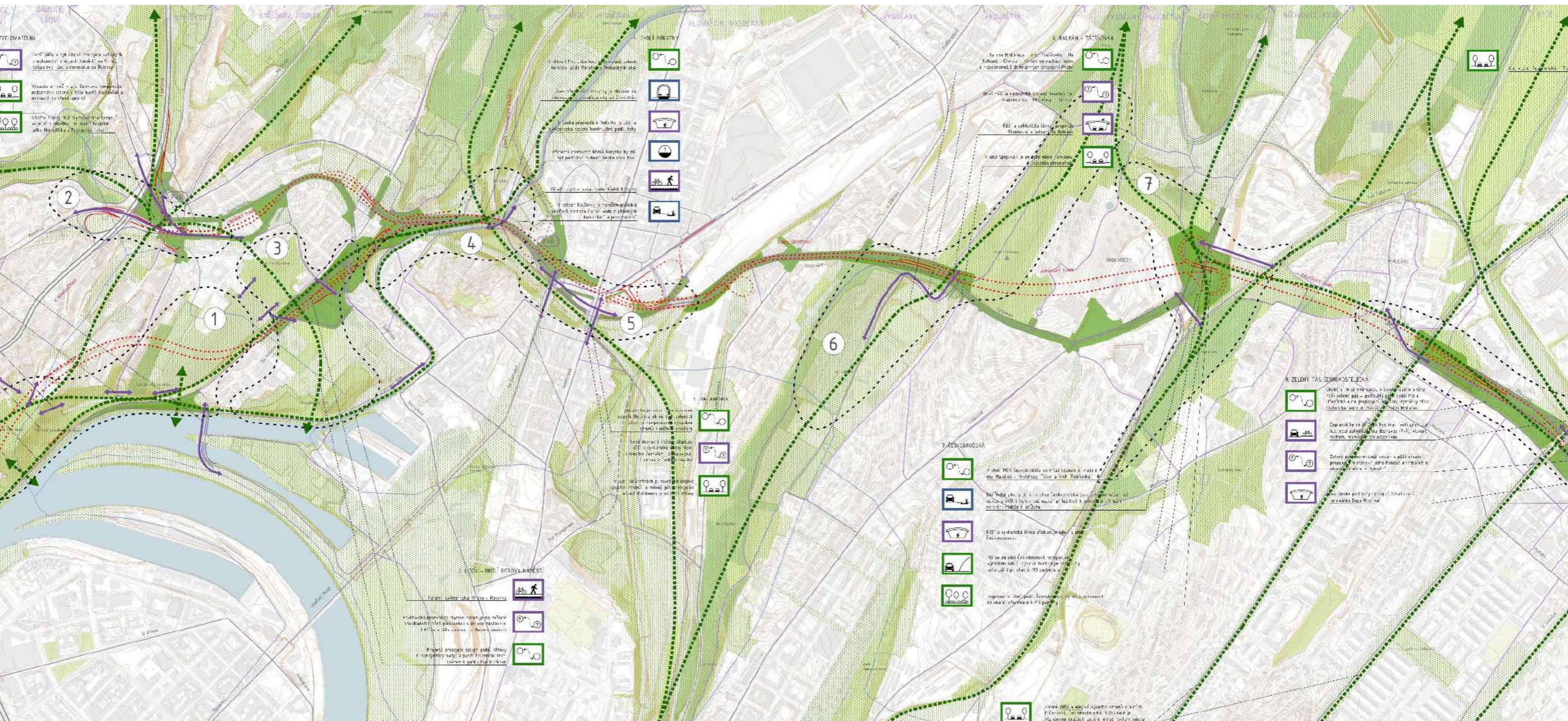
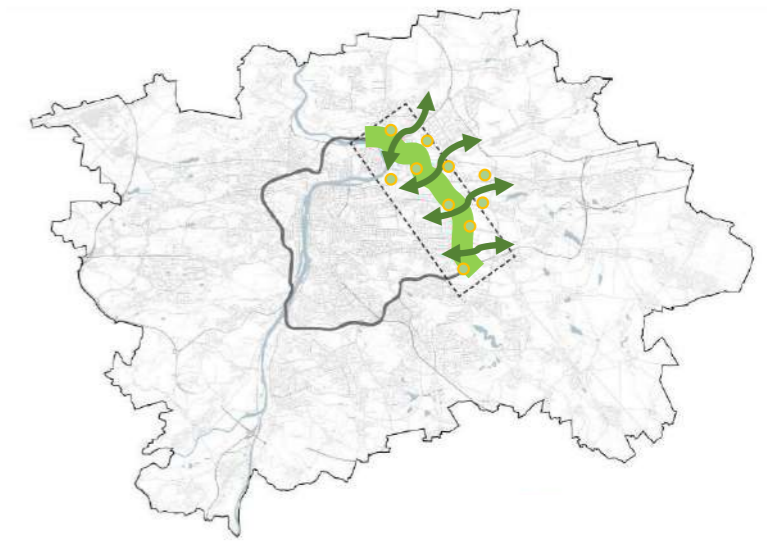
=

Area Quality



Action Plan

Topics: Linking urban green spaces
Biodiversity
Rain water retention
Water system
Also: Bicycle routes







An aerial photograph of a city, likely Dresden, showing a river (Elbe) winding through the urban landscape. Overlaid on the grayscale aerial image are various green and blue landscape architectural plans and conceptual drawings, illustrating proposed park spaces, pedestrian paths, and green corridors. The overlays are semi-transparent, allowing the city's street grid and buildings to remain visible.

Thanks for your Interest!

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