

Graduation Thesis Proposal Defense



**Techniques shaping the architectural and landscape
design of public spaces in sustainable communities
(using the example china)**

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Object, subject of study, research objectives.

Research Topic 论文主题

Centred on the core perspective of ‘synergistic integration of architecture and landscape’, this research explores sustainable community public space design methodologies tailored to China's national context. It balances ecological optimisation, functional integration, cultural heritage preservation, and all-age accessibility requirements.

Research Objectives 研究目标

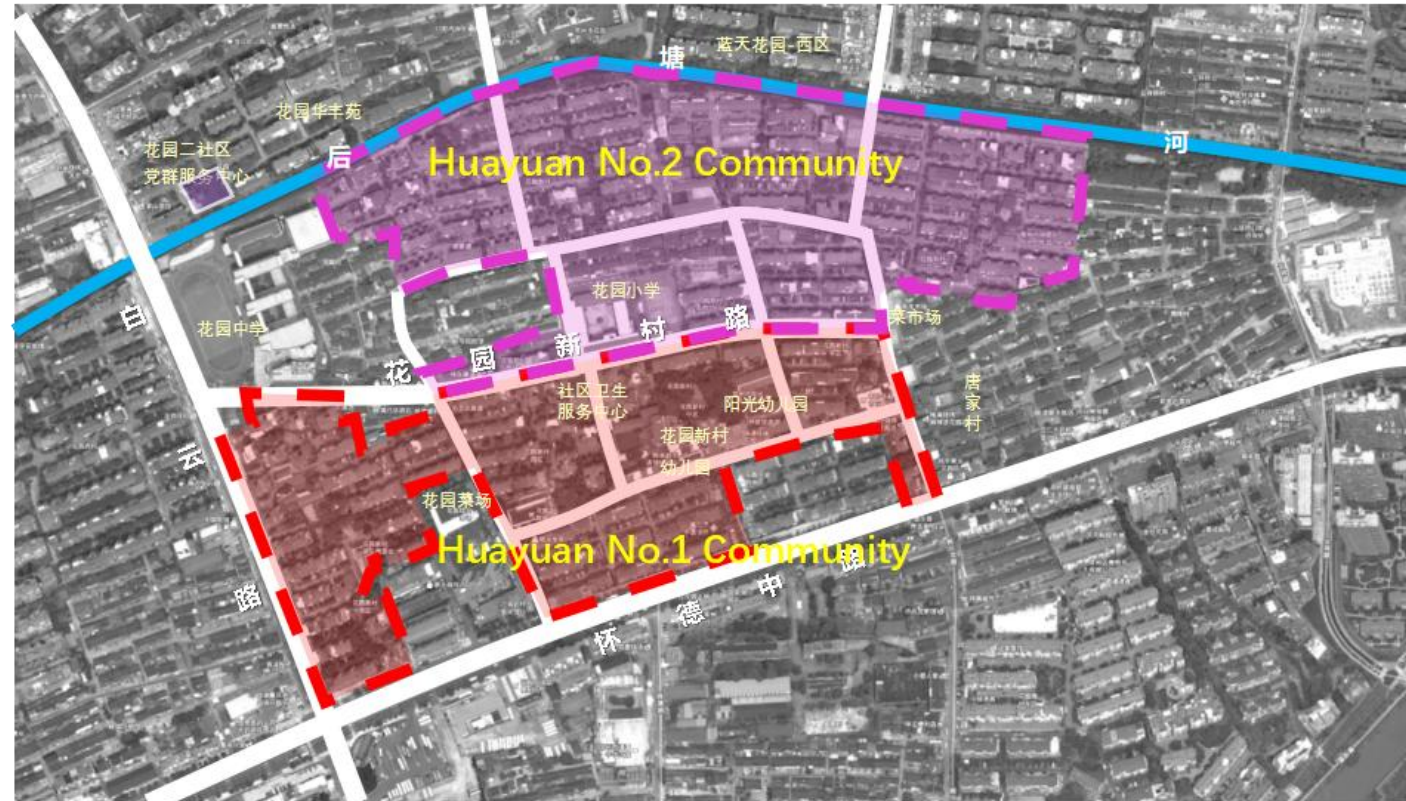
1. To systematise the theoretical foundations and practical experience of sustainable community public space design;
2. To establish a design methodology framework that is scientifically grounded, operationally feasible, and regionally adaptable;
3. To provide theoretical underpinnings and practical guidance for the high-quality development of community public spaces in China.

Research Subject 研究对象

The Sustainable Development of Public Spaces in Chinese Communities: A Case Study of Changzhou Garden, an Established Neighbourhood.

Regional Location:

Huayuan Xincun (Garden New Village) is located in Changzhou City, covering an area of approximately 22.6 hectares and divided into two communities. The design scope of this project is the landscape section.



Concept and research background

Definition and Category

Old neighbourhoods typically refer to urban residential areas constructed some time ago, characterised by ageing infrastructure and declining living standards. They constitute an important part of a city's historical and cultural fabric.

Mechanism of formation

Old neighbourhoods vividly reflect the social landscape, architectural styles and lifestyles of their era. Buildings constructed across different historical periods bear the indelible mark of their time, from their structural design to their decorative details.



Concept and research background

International background

Against the backdrop of global urbanisation advancing towards high-quality development, “sustainable development” has become the core consensus in community building. The quality of public spaces directly impacts residents' sense of well-being and the ecological resilience of cities.

Urban residents' demands for community public spaces extend beyond mere functionality; they increasingly seek emotional fulfilment and personalised experiences. Community regeneration must demonstrate care for residents' emotional needs, adhering steadfastly to a people-centred approach.



Concept and research background

The relevant policies issued by China

Time	Policy Document (Abbreviation)	Policy Focus
2000	Document No. 23 of the General Office of the Central Committee of the Communist Party of China [2000]	Outlined requirements for the construction of community public service facilities
2018	United Nations SUC Sustainable Cities and Communities Guidelines	Providing evaluation criteria and management systems for sustainable cities and communities
2022	Ministry of Housing and Urban-Rural Development Order [2022] No. 48	Launching Pilot Programmes for Complete Community Development to Coordinate the Construction of Vibrant Neighbourhoods
2023	State Council General Office Circular [2023] No. 121	Advancing the Construction of Embedded Service Facilities in Urban Communities and Improving the Community Service System

Concept and research background

The relevant policies issued by China

Time:	Characteristics:
1970s-1980	Social-Oriented Renewal Shifted from large-scale clearance renewal to community-participatory renewal, emphasizing social equity, residents' needs, and historical preservation.
1990s-2000s	Market-Driven Regeneration Under the influence of neoliberalism, emphasized public-private partnerships, economic competitiveness, and city branding.
2010s-2020s	Sustainable Comprehensive Renaissance Integrated economic, social, and environmental goals, focusing on cultural identity, community participation, and ecological sustainability.
2020s-2025	Resilient Smart Urbanism Post-pandemic era emphasizing urban resilience, digital transformation, and inclusive development.

Design Method

Case study method

- Conduct a systematic analysis of community public spaces based on the complexity of their functional content and in conjunction with their site location.

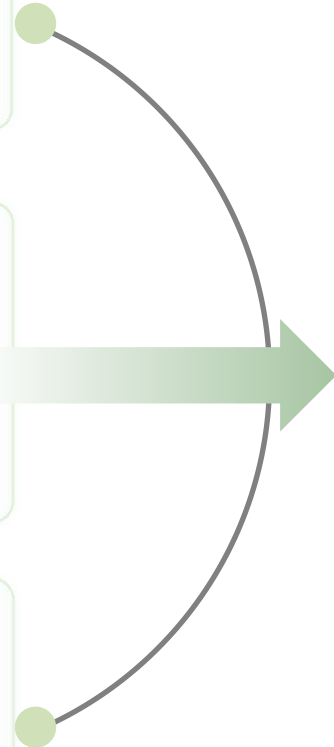
Analogy method

- In the consideration of game space design, to determine the concept and term system of community public space construction under the background of all-age development.

Systematisation and Classification methods

- It clarifies the main types, characteristics and advantages of community public space, and compares and analyzes the gap between the old garden community and excellent cases.

**Design
Result**



Hierarchy of Needs in Sustainable Community Public Space Design



SUSTAINABLE PUBLIC SPACE DESIGN STRATEGIES FOR CHANGZHOU HUAYUAN COMMUNITY

Ecological Weaving

Restore the fragmented ecological base, increase native plant communities, and improve the community's ecological environment.



1

Circulation Reconstruction

Create accessible community health loop, connect functional nodes via landscape guidance.



2

Sustainable Technology

Achieve eco-economic win-win. Use solar PV panels to reduce public energy consumption.



3

All-Age Friendly:

Uphold universal design, ensure all residents equal space access.



4

Inclusive Facilities

Barrier-free and inclusive design, reflect humanistic care and equal participation.



5

Ecological and Resilience Framework

Ecological Restoration

- ◆ Establish a grey-green integrated rainwater management network to restore soil permeability and enhance natural water retention capacity.
- ◆ Increase native planting and vertical greening to improve biodiversity and microclimate regulation.



1

Resilience Design

- ◆ Adopt modular facilities and movable structures to adapt to future functional changes.
- ◆ Reserve "blank spaces" for community-led renewal, supporting incremental optimization.



2

Resource Circulation

- ◆ Utilize renewable materials and low-maintenance landscaping to reduce life-cycle costs.
- ◆ Integrate rainwater harvesting and energy-saving technologies to improve environmental resource efficiency.



3

The Application of Fold-line Design in Sustainable Community Public Spaces

Design Inspiration and Philosophy

Inspired by architectural deconstruction and topography, this approach uses "folding" to transform scattered community spaces into dynamic, multi-functional public areas, addressing land-use efficiency in dense urban settings.



Spatial Perception and Exploration

Continuous fold-lines break conventional layouts, creating sequential, flowing spaces that enhance spatial awareness and stimulate exploration.



Integration with the Environment

The design integrates site topography and ecology, blending landscape structures with the landform to create harmonious, stormwater-resilient landscapes.

Support for All-Ages Inclusivity

Diverse spatial types support physical, cognitive, and social development for all ages, encouraging autonomous activities and intergenerational interaction.



Innovation and Sustainability

Its dynamic form adds artistic expression. Using modular construction and local materials enables easy maintenance and future adaptation, reflecting lifecycle sustainability.

Design Process and Methodology

- Establish parametric models based on site environmental data, generate multiple design options tailored for Changzhou Garden Community, and achieve rapid iteration and performance optimization.

Technical Advantages and Innovation

- Precisely responds to complex site conditions in old communities, efficiently generating landscape structures coordinated with architecture. Data-driven logic ensures spatial performance and construction accuracy.

Spatial Experience and Interaction

- Create dynamic spatial configurations and interactive facilities through algorithmic design, stimulating children's exploratory interest while establishing engaging social nodes for all ages.

Challenges and Prospects

- Need to overcome cost control for special-shaped components and technical adaptation of local construction, exploring feasible approaches to integrate parametric design with localized construction.



Application of Biomimetic Design in Sustainable Community Public Spaces

Design Inspiration

Drawing inspiration from natural forms, structures, and functions to guide innovative design of community public spaces and facilities.

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Drawing inspiration from natural forms, structures, and functions to guide innovative design of community public spaces and facilities.



1

Spatial Form Application

Imitating natural forms such as trees, leaf veins, and honeycombs to design landscape structures and activity facilities that integrate function and aesthetics.

Spatial Form Application

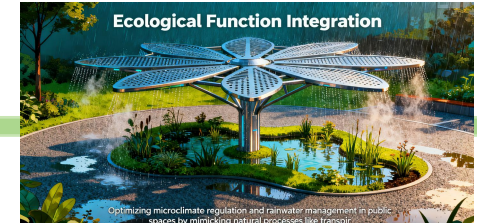


2

Ecological Function Integration

Optimizing microclimate regulation and rainwater management in public spaces by mimicking natural processes like transpiration and photosynthesis.

Ecological Function Integration

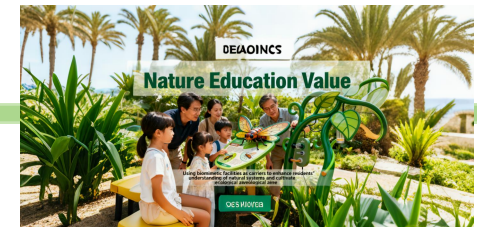


3

Nature Education Value

Using biomimetic facilities as carriers to enhance residents' understanding of natural systems and cultivate ecological awareness.

Nature Education Value



4

Sustainability Practices

Prioritizing renewable materials and low-energy technologies to minimize ecological disruption during construction.

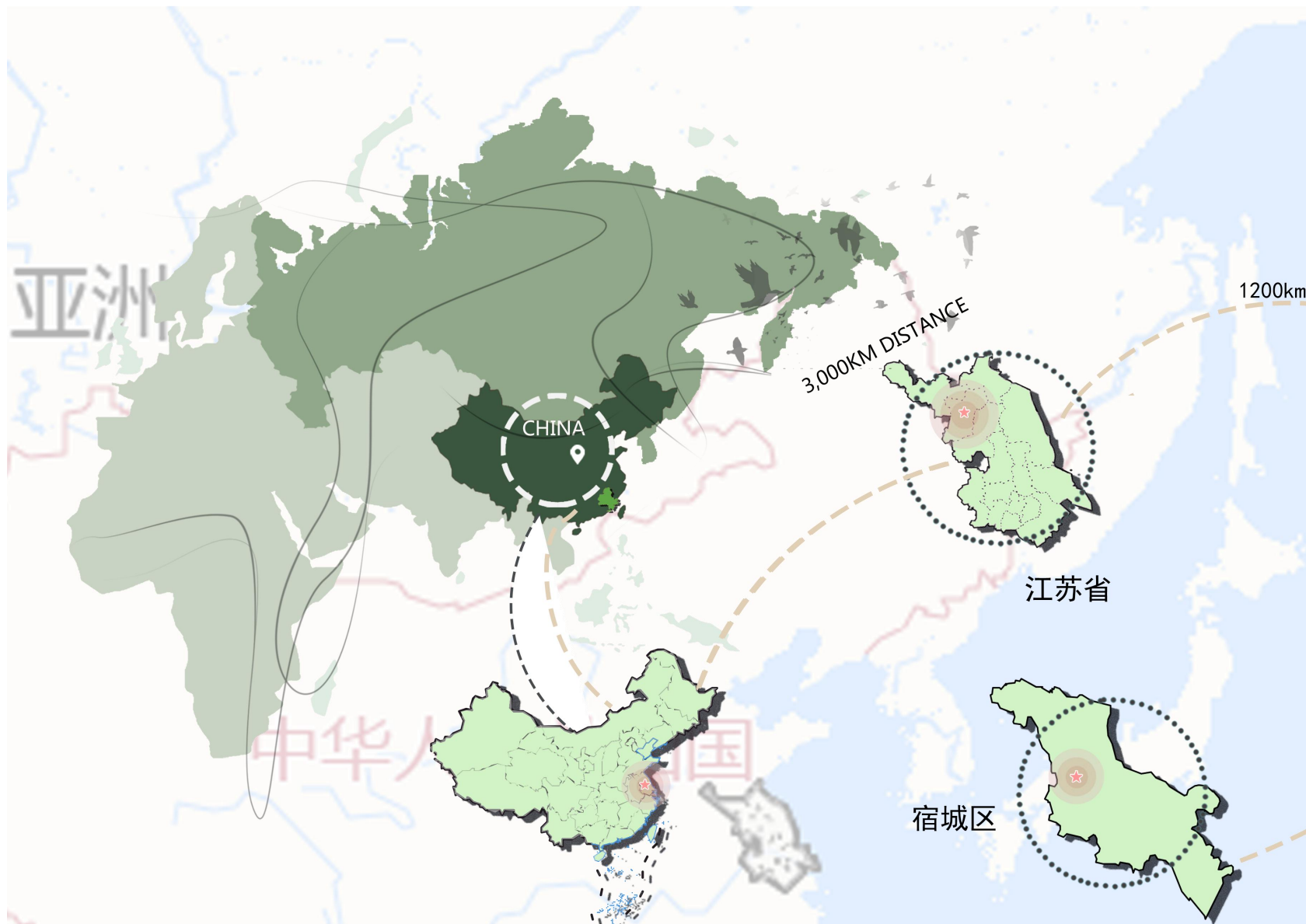
Sustainability Practices

Prioritizing renewable materials and low-energy technologies to minimize ecological disruption during construction.



5

Location Analysis



Current situation analysis



- **Current Road Condition:** The concrete pavement has problems such as damage and cracking, resulting in poor pavement quality.



- **Current Landscape Condition:** The site is simple and monotonous, with overgrown and disorganized ground cover vegetation.

Current situation analysis

Key Node of Huayuan Community – Cultural Square



•Current Situation of the Cultural Square:

There is insufficient resting space in the community square, with a lack of seating facilities.

Additionally, there is a shortage of shaded areas for shelter from the sun and rain.

Planting Schedule Analysis



斑叶薄荷
Mint



金鱼草
Snapdragon



百子莲
African agapanthus



薰衣草
Lavender



络石
Confederate-Jasmine



芒草
Hay

Spring Planting

Summer Planting

Autumn Planting

Winter planting



黑种草
Black grass



向日葵
Sunflower



豆角
Vigna unguiculata



南天竹
Bamboo



银叶菊
senecio cineraria

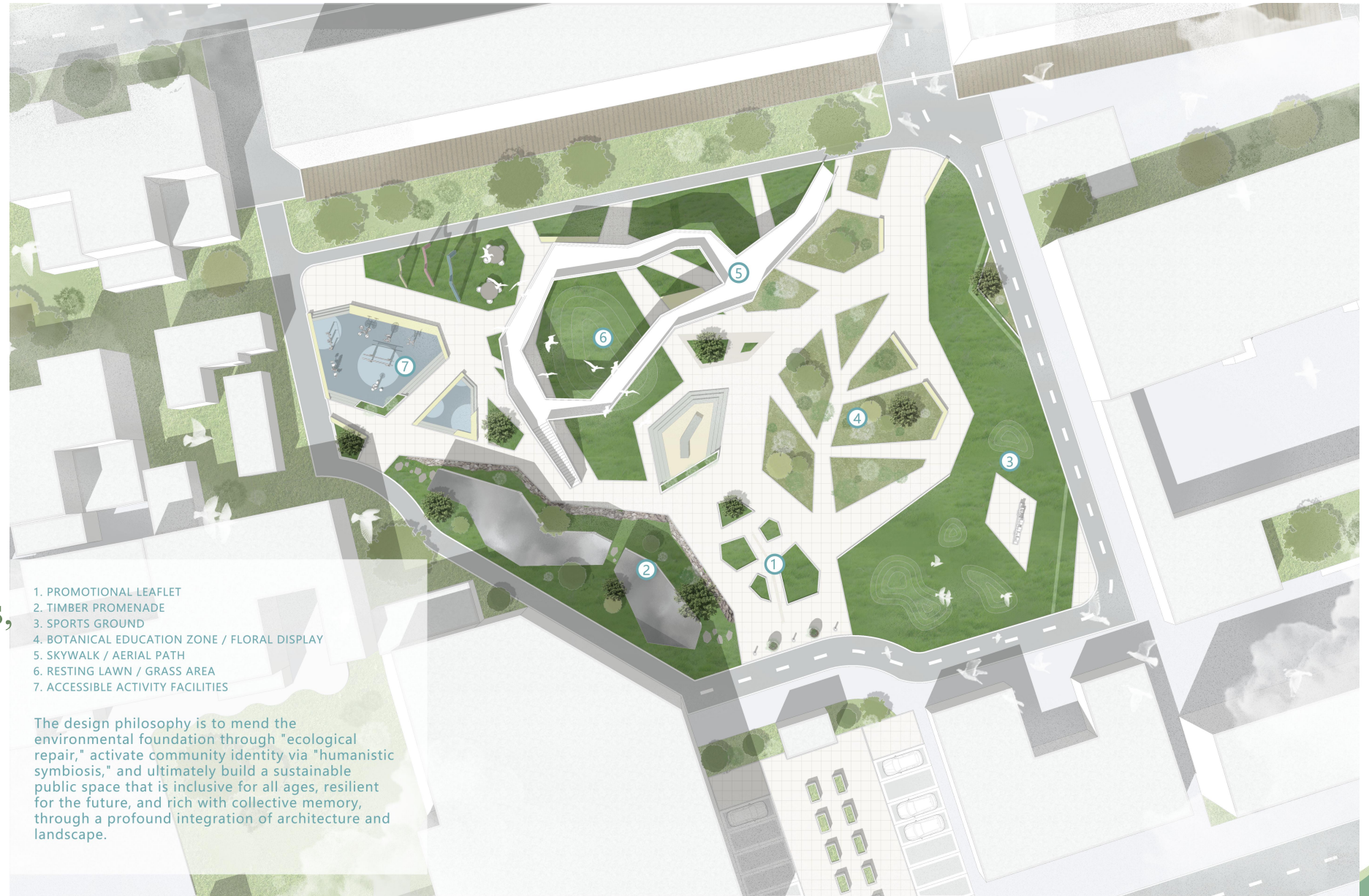


矢车菊
cornflower

Design Plan

Design Concept

The design philosophy is to mend the environmental foundation through "ecological repair," activate community identity via "humanistic symbiosis," and ultimately build a sustainable public space that is inclusive for all ages, resilient for the future, and rich with collective memory, through a profound integration of architecture and landscape.



Design Plan

Schematic sketch



Aerial View Of The Design



Design Renderings



Design Renderings



Design Renderings



Design Renderings



Design Renderings



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**Thank you for your
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