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社会锚点网络视角下的
广州“南城”街道形态演进与更新策略研究

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Study on the Morphological Evolution and Regeneration Strategy of Streets in Guangzhou's "Nancheng" Area: From the Perspective of Social Anchor Network

A Dissertation Submitted for the Degree of Master

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摘　要

“南城”是一个具有特殊形态的历史街区，位于广州越秀区的中心，历史上是广州南城城墙围合的区域。在不同时代自然地理演化、城市设施建设和业态变迁等多重因素的塑造下，这一区域形成了复杂而有机的街巷肌理。南城的演进历史中出现过许多维系公共生活的锚点空间，吸引不同人群的聚集，承载着多种人群的公共生活，面临一些城市问题但也富有城市更新的潜力。

本研究旨在从“社会锚点网络”的视角出发，利用城市形态学为工具分析南城街道系统的演化过程和机制、空间与社会交往的关联以及探索相关实践策略。“锚点”是人类社会中常见的现象，在以往的理论建构与社区振兴实践中，社会锚点与地理空间的关联性已经得到初步讨论，“锚定机构”对当地社区的积极作用已被广泛论证。因此本文主要立足于探索两个问题：其一是广州南城的街道空间与社会锚点关联的关联性问题，在城市的历史演进中存在怎样的相互作用机制；其二是以社会锚点和历史经验为思路，回应南城区域当前面临的城市问题。针对第一个问题，研究通过广州城建史中与南城有关的文献资料，结合城市水系、城墙、马路以及城市现代化等重要历史事件进行分析。观察到街道公共性和锚点的影响力在城市演进周期中存在互相调整达到平衡或失控的现象，论证了南城的街道是构建社会锚点网络的外部空间介质这一观点。针对第二个问题，本文采用历史模式提取、现状分析以及设计策略推演的方式进行研究。提出了以区域中普遍分布的校园作为锚定机构的设计思路，以及“门户”“廊道”“桥接”三种街道空间与社会锚点紧密结合的空间模式。之后，选取了广州市第三中学等三所校园所在的地块进行设计策略推演，提出了“主题周”的校园+社区的锚点活动形式，以及通过弹性策略、视觉策略和互动策略建设街道的设计方法。

总体而言，本研究将历史上的“南城”区域概念重新提取到当代城市问题的研究中，发现了区域中的一些城市形态特征共性，补全了相关研究的不足；并以历史为蓝本提出了一些当代仍能借鉴的空间模式，为锚定机构的社区建设提供了一些新的城市设计思路。当然，本文针对社会锚点的研究更多地处于定性研究与总结归纳阶段，与定量研究、数据驱动相结合的可能性仍有待未来研究完善；提出的方案也是一个立足于现状的推演，一些落地的技术细节仍需未来的实践补足。

关键词：社会锚点理论；锚定机构； 城市更新； 老旧城区；城市形态

Abstract

"Nancheng" is a historical district with a special form, located in the center of Yuexiu District, Guangzhou, which was historically enclosed by the southern city wall of Guangzhou. Shaped by multiple factors such as the evolution of natural geography, the construction of urban facilities and the change of business formats in different eras, this area has formed a complex and organic street fabric. In the evolutionary history of Nancheng, there have been many anchor spaces to maintain public life, attracting the gathering of different groups of people, carrying the public life of a variety of people, facing some urban problems but also full of potential for urban regeneration.

From the perspective of "social anchor network", this study aims to analyze the evolution process and mechanism of the street system in Nancheng, the relationship between space and social interaction, and explore related practical strategies by using urban morphology as a tool. "Anchor" is a common phenomenon in human society, and the correlation between social anchors and geographical space has been preliminarily discussed in the previous theoretical construction and community revitalization practice, and the positive role of "anchor institutions" in local communities has been widely demonstrated. Therefore, this paper mainly focuses on exploring two questions: first, the relevance of street space and social anchors in the Nancheng area, and what kind of interaction mechanism exists in the historical evolution of the city; The second is to respond to the current urban problems faced by the Nancheng area based on social anchors and historical experience. In response to the first question, this paper analyzes the documents related to the Nancheng area in the history of urban construction in Guangzhou, combined with important historical events such as the city's water system, city walls, roads, and urban modernization. It is observed that the influence of street publicity and anchor points adjust to each other to reach balance or get out of control in the urban evolution cycle, and this paper proves that the streets of Nancheng are the external spatial medium for constructing the social anchor network. In order to solve the second problem, this paper uses the methods of historical pattern extraction, current situation analysis and design strategy deduction. This paper proposes the design idea of using the campuses that are widely distributed in the region as anchor institutions, and the spatial mode of "gateway", "corridor" and "bridging" that closely combines the street space with the social anchor. Then, the plots where the three campuses including Guangzhou No. 3 Middle School are located are selected for design strategy deduction, and the anchor activity form of campus + community of "Theme Week" is proposed, as well as the design method of building the street through elastic strategy, visual strategy and

interactive strategy.

In general, this study re-extracts the historical concept of "Nancheng" into the study of contemporary urban problems, and finds some commonalities of urban morphological characteristics in the region, which makes up for the shortcomings of related research. Based on history, some spatial models that can still be used for reference in the contemporary era are proposed, which provides some new urban design ideas for the community construction of anchor institutions. Of course, the research on social anchors in this paper is more in the stage of qualitative research and summary and induction, and the possibility of combining it with quantitative research and data-driven research still needs to be improved in the future. The proposed plan is also a deduction based on the current situation, and some technical details of the landing still need to be supplemented by future practice.

Keywords: Social Anchor Theory; Anchor Institution; Urban Regeneration; Old Town; Urban Form

Contents

Figure List

Table List

Chapter 1 Introduction

1.1 Background

"Nancheng(南 城)" is an important concept in the history of Guangzhou's urban development, which specifically refers to the geographical area enclosed by the outer city wall of Guangzhou established during the Ming and Qing Dynasty. Nancheng area corresponds to the southern part of present-day Yuexiu District. Even though the city walls no longer exist and the architectural functions have been replaced, the urban fabric that is different from the surrounding neighborhoods can still be observed. And one of the distinguishing features of these fabric is the network of streets and alleys. They externally delineate the morphological boundaries between the Nancheng area and other neighborhood, and internally define spatial units of different sizes. The daily public life in the neighborhood takes place in the streets and alleys, or passes between different spaces along the streets. Starting from this phenomenon, the streets and alleys are the intersection of the spatial form and public life of the Nancheng neighborhood, which connects various "anchor" containers that accommodate public activities and people's relationship to form a network system. This system is referred to as an "anchor network" in community studies. The research on the social anchor network in the Nancheng area has the uniqueness of geographical region and physical spatial form, and shows high research value.

1.1.1 Contemporary Background: Old City Regeneration Requires a Model of Regeneration that Respects the History and the Community

China's urbanization process has lasted for decades. Urban design in the contemporary context, as the focus of urban construction has shifted from "incremental" to "stock", has put forward more intensive and refined design requirements to designers[1]. Especially for the old town districts widely distributed in big cities whose contradictory relationships are more complicated, a single, top-down, large-scale design strategy is not suitable for the survival of historical patterns and the benign development of the city. Urban regeneration calls for a synergistic evolution model that respects history and community, and is an organic combination of top-down guidelines and bottom-up regulations.

1.1.2 Realistic Background: Urban Form and problems of Nancheng Area

In the current field of urban studies, the historical geographic concept of "Nancheng" is seldom linked to the real topics it faces. In this study, the geographic scope of the Nancheng area is chosen based on the following background:

On the one hand, On the one hand, the evolution mechanism of streets and alleys in Nancheng can provide inspiration for the exploration of urban space shaping. Guangzhou's historical "Nancheng" area is a series of neighborhoods formed by multiple influences of water system, urban construction and business type, forming a complex and organic street fabric. Taking this area as a study object is a sample to test urban morphology as a theoretical basis to guide the synergistic evolution of urban regeneration. At the same time, it is possible to further explore the design strategy of the same type of old town district.

On the other hand, as a typical old urban area, the Nancheng area faces multiple challenges in urban development. At the level of physical space, high-density development has led to the fragmentation of public space, and the decline of water transportation and some traditional business formats has led to the decline of street vitality, and back streets and alleys have become negative spaces. At the socio-ecological level, Yuexiu District, where Nancheng is located, is the most aging area in Guangzhou (In the seventh census, 22.25 per cent of the population was over 60 years old), and the primary and secondary school facilities are densely distributed, but the proportion of inefficient land in terms of construction intensity, economic benefits and environmental quality is high, and the existing street network is difficult to meet the needs of all-age activities.

1.1.3 Academic Background: Interdisciplinary Innovation between Urban Morphology and Social Anchor Theory

The study methods of urban morphology and building typology help to assimilate the city's historical traditions and deal with the relationship between the old and the new in the regeneration of old cities, classify and discuss complex built environments, and provide theoretical tools for the synergistic evolution and organic regeneration on a small scale, self-organized, and incremental.

However, the traditional research is mostly limited to historical description and typological induction, and lacks the dynamic analysis of the social function of urban space. It is necessary to pay attention to the synergy between spatial attributes and social attributes in future research and practice, and upgrade the concept of "node" that focuses on spatial attributes in traditional urban research to the concept of "anchor" that includes social connections. The theory and practice of social anchors provide a new perspective to reveal that public institutions (such as schools, hospitals, etc.) can reshape the vitality of neighborhoods by stabilizing the flow of people and interacting with the community through the radiation of resources.

There are still some shortcomings in the current research: first, there is a lack of networked perspective, and isolated anchors are easy to fall into "space-society" de-embedding, so it is

necessary to construct a multi-node collaborative anchor system with external spaces such as streets as the medium; Second, the localization practice is insufficient, and it is still necessary to verify whether the Western theory is suitable for the complex property rights and mixed functions of China's high-density neighborhoods. Future research needs to integrate morphological tools and social anchor network analysis to explore the activation path of streets as "public life transmission interfaces".

1.2 Purpose and Significance of the Study

1.2.1 Objectives

This study aims to achieve the following objectives: first, to reveal the law of historical evolution: by analyzing the evolution process of the street form of Nancheng from the city wall period to the post-city wall period, and to summarize the interaction mechanism between its spatial structure and social anchor network, and to refine the typical street patterns. The second is to verify the relevance of the theory: combining case studies and field research, this paper demonstrates the hypothesis that street space is the "spatial medium" of the social anchor network, and reveals its central role in condensing public life and transmitting community values. The third is to put forward the renewal strategy: use the unique resources of the community to form an anchor institution, combine the historical experience and current problems, design the public life system and the public space system, and form a generalizable method for the construction of the social anchor network of the historic district.

1.2.2 Significance

This study has the following academic significance: at the level of theoretical expansion, this study attempts to construct an analytical framework for the correlation between street space and public life in historic districts by integrating social anchor theory and urban morphology, so as to supplement the research gap on the mechanism of social anchor network in old urban areas in China. At the level of method innovation, the historical evolution analysis is combined with contemporary design deduction, and the research path of "historical experience-reality verification" is proposed, which provides a methodological reference for the renewal research of historic districts. At the level of case deepening, this paper focuses on the typical sample of Guangzhou Nancheng, systematically sorts out the dynamic mechanism of its street morphological evolution, and accumulates empirical materials for the morphological research of historical districts in Lingnan area.

At the same time, this study also has the following practical significance: at the level of strategic guidance, a renewal strategy with educational institutions as the anchor point and a

spatial model of "gateway-corridor-bridging" are proposed, which provides operational design guidelines for the refined renewal of Nancheng and other historic districts; At the level of community activation, through the design of the linkage mechanism between the campus and the community, the revival of public life in the historic district is promoted, the sense of belonging and cultural identity of residents is enhanced, and the sustainable development of the community is promoted. At the level of heritage protection, the street is used as a medium to integrate historical memory and contemporary functions, explore the symbiosis path of new and old spaces, and provide new ideas for the living protection of historic districts.

1.3 Definition of the Core Concepts of the Study

1.3.1 Guangzhou's "Nancheng"

Historically, the Nancheng city was the outer city in relation to the main city of Guangzhou, China during the Ming and Qing dynasties. The Nancheng City used to developed a thriving commerce based on the water system. In the Song Dynasty, the area along the river outside the walls of the sub-city(子城) was already populated with streets for trade and commerce. In the Ming Dynasty, this area was formally constructed within the walls of the city. And in the Qing Dynasty, Manchu soldiers entered the main city and moved some Han and Hui people, together with their government offices and army camps into the Nancheng city. The Nancheng city as a whole was more open and richer in business than the main city[3]. Under the multiple effects of natural geography, urban construction activities, and changes in the dynamics of urban development in different eras, its internal streets and alleys show a complex and organic structure.

1.3.2 Social Anchor

The extension of "anchor" means "fixed" and "attractable", and "social anchor" refers to the universal existence in human society, which can provide a carrier of identity for social individuals, and use this as a base to form stable social connections in daily life. For a long time, the importance of social anchors has been focused on by different fields. Aaron Walter et al. provide a clear conceptualization of social anchors in Social Anchor Theory. In this theory, social anchors are defined as any institution that supports the development and maintenance of social capital and networks at the community level and provides an attachment for the collective identity of that community. They may take various forms, including schools, sport teams, corporations, natural structures or cultural events.

1.4 Scope of the Study and Object of the Study

The main object of this study is the street system in Guangzhou's "Nancheng" area, and from the perspective of the correlation between social anchors and street space, we will explore the spatiotemporal evolution process of streets and their shaping mechanism on public space.

1.4.1 The Spatiotemporal Scope of the Study: Guangzhou's "Nancheng" and its Spatial Evolution

Corresponding to its historical concept, the Nancheng area in this study covers the area of Yuexiu District, Guangzhou, from Renmin South Road (人民南路) in the west to Donghaochong Elevated Road (东濠涌高架路) in the east, and from Dade Road (大德路) - Danan Road (大南路) - Wenming Road(文明路) in the north to Yide Road (一德路) - Taikang Road (泰康路) - Wanfu Road (万福路) in the south. (Figure 1- 1). In the context of this article, unless otherwise specified, the term "Nancheng" refers to the same geographical area that has developed from history to the present, and "Nancheng area" is used to refer specifically to the same geographical area in the modern period after the demolition of the city wall of the Republic of China.

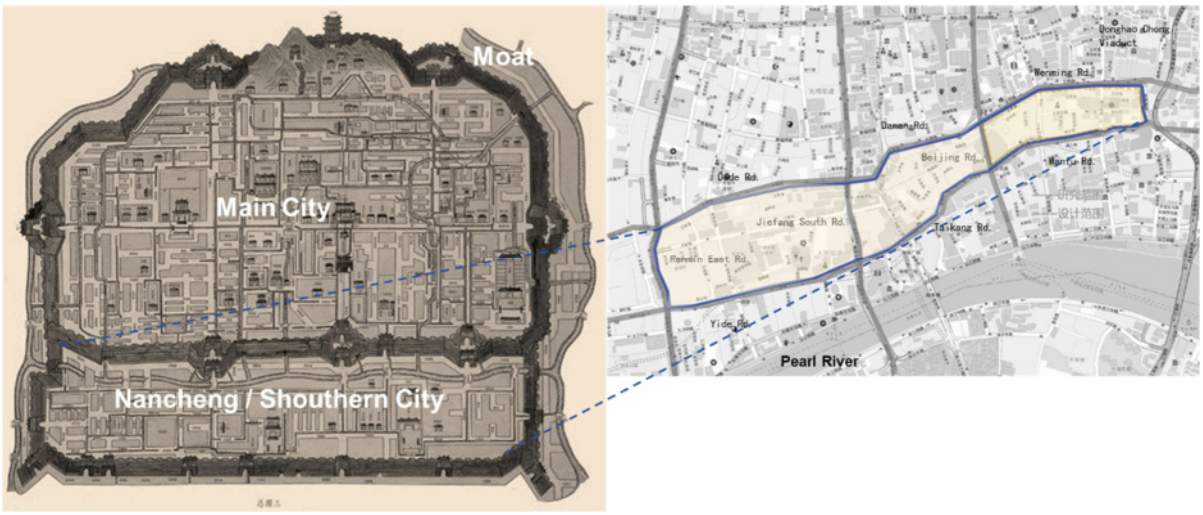


Figure 1- 1 Spatial Scope of the Study
（Source: Adapted from "Guangzhou Chengfang Map" (《广州城坊图》)and Present-Day Map）

In order to completely study the evolutionary cycle of the Nancheng area from its origin, development, stabilization to reconstruction, the time frame of this study for the spatial evolution starts from the Song Dynasty to the present day. Due to the southward shift of the Pearl River bank and artificial land formation, the spatial area corresponding to the present-day Namcheng has been gradually formed into land and constructed as a market only since the Song Dynasty.

1.4.2 The Material Object of the Study: The Network of Streets and Alleys in the "Nancheng" of Guangzhou

Morphologically, the study will focus primarily on sub-streets or alleys within neighborhoods and the systems they comprise to other streets that play a role in constructing public space and generating anchor connections (Table 1- 1).

Streets, together with plots and buildings, are the three main material objects of urban morphology [2]. The " inherited outline" view in urban morphology suggests that streets formed in the early stages of urban development often have a long history of being used, and have an important influence on the subsequent morphological evolution of the city (e.g., the plot division and the arrangement of buildings along the street). In addition, the direction and scale of some streets and alleys are inherited from the natural geographic elements or infrastructures in the early stages of urban development, and even if these elements no longer exist, their traces can still be precipitated through the streets. Therefore, streets and alleys can be important historical clues to study the evolution of urban form.

At the urban level, as part of the urban transportation network, the material and information flows of various public spaces rely on this carrier to establish connections. At the neighborhood level, the arrangement of streets and alleys directly affects the architectural and place organization of the plots on both sides. At the micro level, there are various ways of dividing and utilizing the streets and alleys (road surfaces, street edges, and interfaces on the street). Therefore, streets and alleys can be important clues for the study of public space and public activities.

Table 1- 1 Schematic of Existing Street Types in the Nancheng Area
(Source: Author)

Historical streets and alleys	Alleyways leading to the interior of building clusters	Loop for large buildings	Other streets that have a shaping effect on public space
			 .....

1.4.3 Theoretical Perspectives of Research: The Relevance of Social Anchors to Street Space

In order to discuss the relationship between public life in the neighborhood and the spatial containers that carry public life, this paper introduces "social anchors" as the main research perspective. In the observation, it can be perceived that the social anchor of Nancheng is intertwined with the public life of its streets, the street space inherited by history, and the common memory of the neighborhoods. This study will use the street as a clue to discuss these connections and propose corresponding ideas for community regeneration.

In previous urban studies, the relationship between streets and publicness has been widely discussed, and there is some overlap with the social connection mapped by social anchors. The street is also the most commonly distributed external space in the city, forming a network system in the city, and the network system composed of social anchors also carries various urban public life. The relevance of street space to social anchors is a topic worth exploring.

1.5 Technical Pathway

1.5.1 Study Methods

1.5.1.1 Field Research

Conduct a field study of Guangzhou's "Nancheng" area, focusing on the street network within the neighborhoods, recording the interface, scale, entrances and exits, surrounding businesses, public nodes and other characteristics of the street space, initially evaluating the walking experience and neighborhood vitality, and grasping the impact of the streets and alleys on the city's public space, public interfaces, and public life, while at the same time At the same time, the spatial patterns and activity patterns with anchor point attributes are extracted.

1.5.1.2 Literature Analysis

To analyze the temporal and spatial sequence of the evolution of streets and alleys, their historical motives, and the rationality, problems, and development potential of the existing patterns by combining historical maps and literature on the urban history of Guangzhou's "Nancheng" city. Collect literature on urban morphology and street patterns, summarize their commonalities and development dynamics, and provide academic theoretical basis and innovative points of focus for the research. Compare the street planning and urban design cases of historic districts to understand the focus and mode of operation of the design strategy, and to provide reference for the design proposals of street remodeling.

1.5.1.3 Deductive Inference

Through field research and literature analysis, we summarize the interaction patterns

between the street system and the urban form as a whole. From the perspective of urban planning and business shifts, we summarize the future development dynamics of the area, qualitatively and quantitatively deduce the further evolution of the street system, and give the idea of promoting the regeneration of public space based on the enhancement of the vitality of the neighborhoods by taking the remodeling of the street system as a clue.

1.5.2 Study Framework

This study will be conducted along the following lines. After introducing the basics of the study in the introduction, a research overview is conducted in Chapter 2, where the hypothesis of the correlation between social anchors and street space is presented by combing the construction of social anchor theory and the practice of revitalizing neighborhood space using anchor facilities. In order to test this hypothesis, the object of study needs to be analyzed in terms of a historical cycle spanning boom and bust. In order to conduct a historical study, the analytical tools of urban morphology as well as existing historical research findings in the South Side area need to be evaluated.

Starting from the historical evolution, Chapter 3 analyzes the causes of the current spatial patterns in Nancheng, the street space patterns and social anchor patterns that have appeared in history, and summarizes the laws of their historical evolution and the mechanism of their development dynamics. The hypotheses proposed in the previous section are verified through the comparison of different periods. At the same time, from the perspective of urban renewal practice, we summarize the characteristics of the current evolutionary cycle of the Nancheng area, and summarize the main contradictions in the renewal path.

Starting from the current situation of the Nancheng area, Chapter 4 identifies potential anchor facilities and design scope in accordance with the major conflicts summarized in the previous section, combining the current situation research with the planning study report to determine the basic design conditions. Within the defined design scope, in-depth analyses at more meso and micro scales are conducted to extract the spatial form of the streets and the potential public life system, which form the basis of the urban renewal strategy.

Chapter 5 is about the implementation of the urban renewal strategy of "building a network of social anchor points". Using the typical anchor spaces, main anchor facilities and design scope summarized in the previous section, we will discuss the realization path of the strategy in terms of public activity planning and spatial patterns, and demonstrate the feasibility of its implementation through real-life scenarios. Finally, the main conclusions drawn from this study, outlooks and unresolved issues will be summarized (Figure 1- 2).

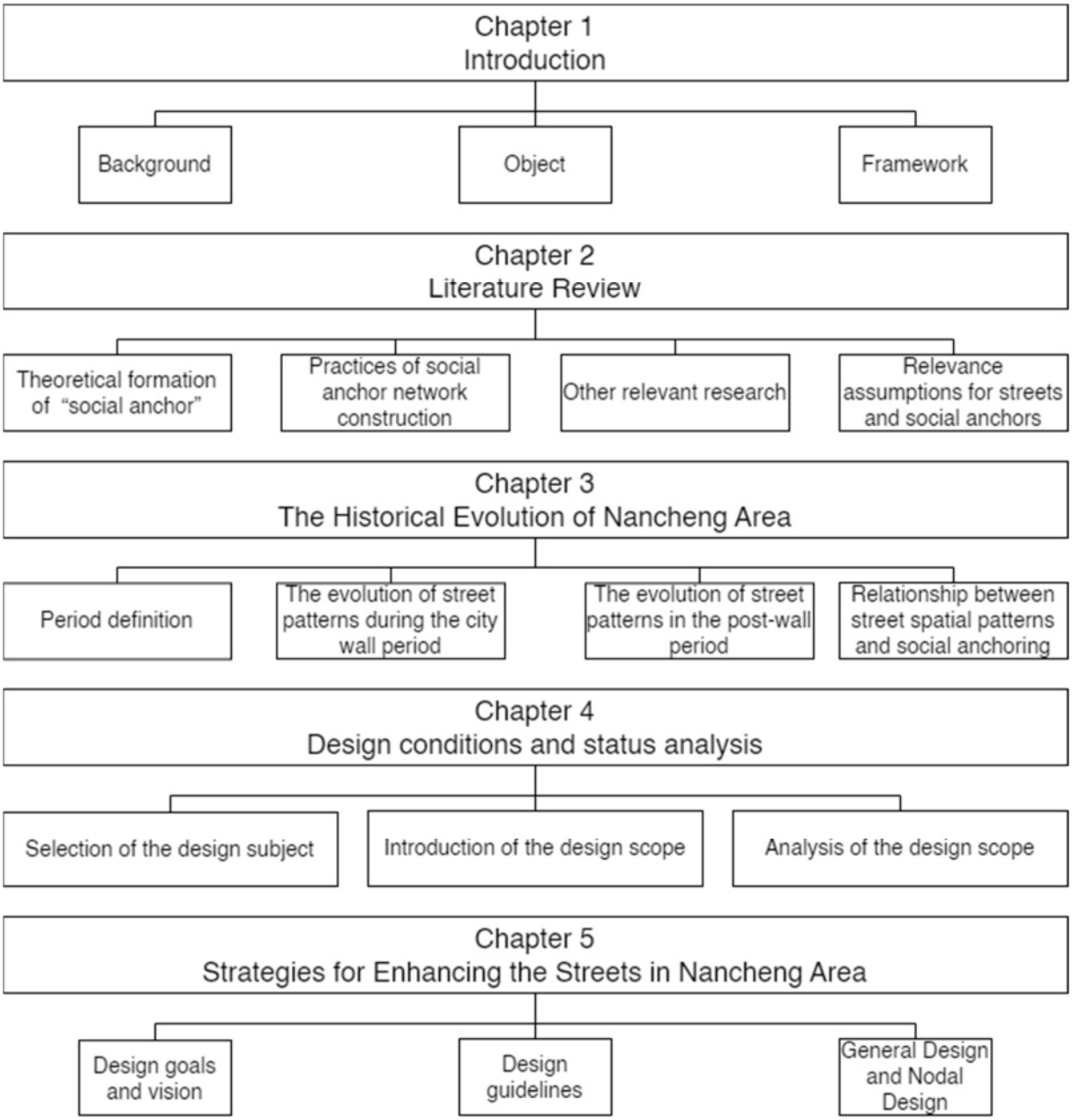


Figure 1- 2 Study Framework
(Source: Author)

Chapter 2 Literature Review

In this chapter, we will first analyze the construction of social anchor theory and derive the basic analysis method of social anchor theory. After that, we will analyze three typical cases of neighborhood revitalization in aboard and China from the perspective of constructing the "social anchor network", and extract the working paths from the perspective of operational efficiency and historical memory that can be used as a reference for this study. By summarizing the theory and practice, this chapter will propose a hypothesis on the correlation between spatial form and public activity in the context of the social anchor theory, and discuss the method of verification through historical and morphological studies. The chapter will also evaluate the analytical tools of urban morphology and the existing historical research findings in the Nancheng area for use in the historical evolution study that follows.

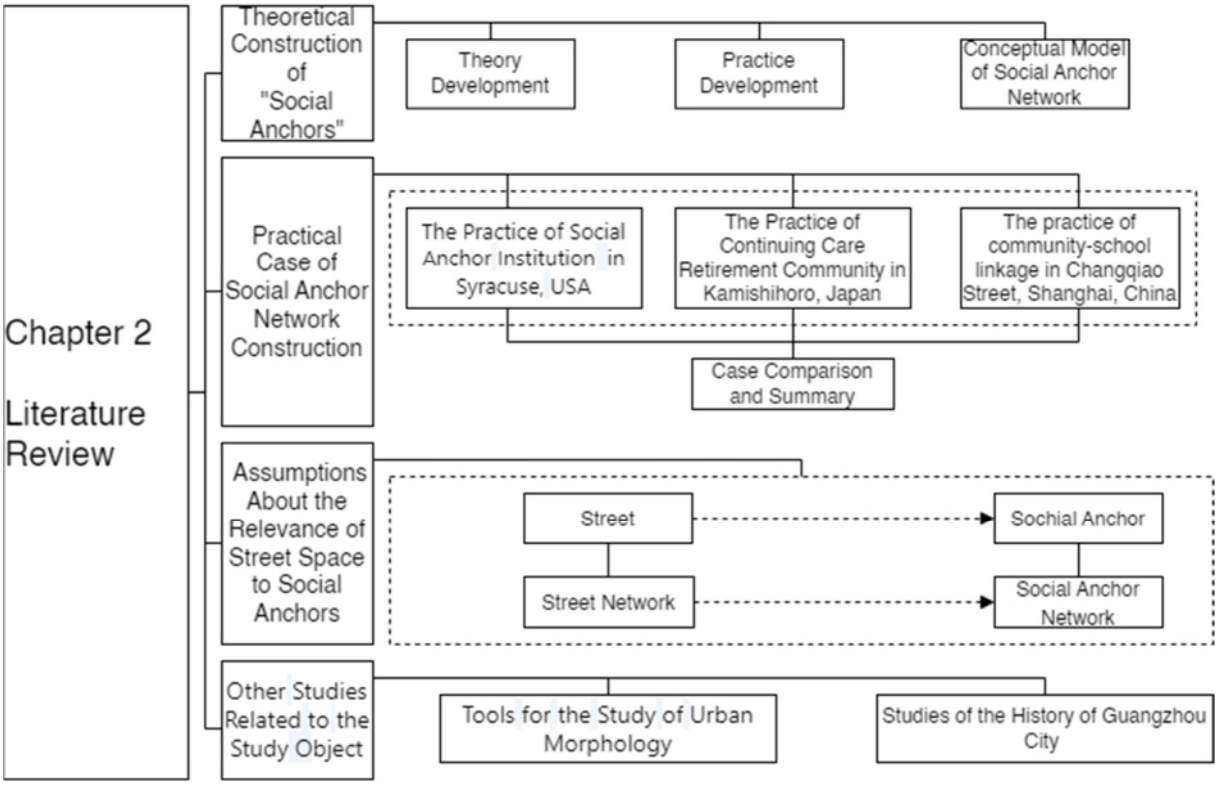


Figure 2- 1 Chapter 2 Structure
(Source: Author)

2.1 Theoretical Construction of "Social Anchors"

The "anchoring effect" is a common psychological phenomenon in human society, which is manifested in excessive emphasis on previously obtained information when making decisions. The anchoring effect was first observed and theorized by Tversky and Kahneman[4]. These concepts were later moved to the field of social studies and urban studies to discuss the impact of public space or public activities on social behavior. "Social anchoring" refers to the ubiquity

in human society, which can provide a carrier of identity for social individuals, and use this as a basis to form stable social connections in daily life.

Starting from the phenomena of public life, a number of studies have revealed the role of anchors in social connections. For example, Horton and Reynolds' (1971) work on the spatial structure of the city describes the places that individuals come into contact with in their daily activities as activity spaces, and individuals are influenced by the spatial structure of the city to change their behavior and daily activities in the community[5]. Goodsell (1997) discusses the phenomenon of public buildings (especially government buildings) as social anchors from an architectural perspective, arguing that public buildings and architecture "offers at least a stable creation for some common, communal meaning"[6].Wood and Thomas (2005) propose that in some cases, cultural elements such as music, food, or local festivals may become the social backbone of a community[7]. Miller (2005) and Carrasco et al. (2008) emphasized that social individuals have activities with spatial scope and temporal duration, and that social communication paths interact with spatiotemporal structure, and the research based on spatiotemporal network structure needs to be combined with social network structure and social anchors[8][9].

At the same time as the theoretical construction of social anchors, the practice of using this phenomenon for community building is also underway, and the "Anchor Institution" is the most representative practice from this perspective, which first appeared in the United States in the 60s of the 20th century. The term "anchor agency" was coined by the Aspen Institute in 2001 to refer to an organization that has a significant presence in a place, often with the following characteristics: being a large employer, the largest local purchaser of goods and services, controlling a large area of land, and/or owning relatively fixed assets; Tie to a specific place through their mission, history, physical assets, and local relationships[10]. Examples include joint activities by local authorities, the National Health Care Facility (NHS Trust), universities, trade unions, large local businesses, the community and voluntary sectors, and housing associations. At the same time, anchoring institutions, guided by the principles of community wealth building, can play a decisive role in establishing and strengthening local economic ties. The task of anchoring institutions is to consciously deploy institutions to strengthen local communities, especially those inhabited by people who face historical and other barriers to economic opportunity, based on local long-term economic forces[11].

Over the past fifty years, higher education and medical institutions (known as "EDs and MEDs") have become the most common anchor institutions[12] with more mature practice paths. For example, the West Philadelphia Initiative, a collaboration between the University of

Pennsylvania and surrounding communities, has compiled its community revitalization models into a toolkit, which has been replicated by higher education institutions in the United States and other countries[13]. In recent years, there have also been some anchor institutions that have become more involved in community wealth building, such as the Cleveland Model in the United States and The National Organisation for Local Economies in the United Kingdom. In these practices, the use of social anchors (anchor institutions) is not implanted in isolation, but is systematically and multi-layered in local public life and urban space. This study refers to a similar line of thought as "building a network of social anchors".

On the basis of phenomena, research and practice, Walter et al. proposed the Social Anchor Theory, and used a conceptual model to show the interaction between social anchors, social individuals, and social capital (Figure 2-2). The theory states that in any given community environment, there are social institutions that are used to anchor social networks, thus putting the community and its network in context. In this reconceptualization, a social anchor is defined as any institution that supports the development and maintenance of social capital and networks at the community level and provides attachment to the collective identity of that community. They may take many forms, including schools, sports teams, companies, natural structures, or cultural activities. In order to be social anchors, these institutions must allow for the development of social capital in the form of bonds or bridges, providing various members of the community with a point of contact across racial, gender, and other demographic boundaries, and providing community members with some form of uniqueness or identity. Anchors must enhance or build a sense of community, trust, or reciprocity in a social network[14].

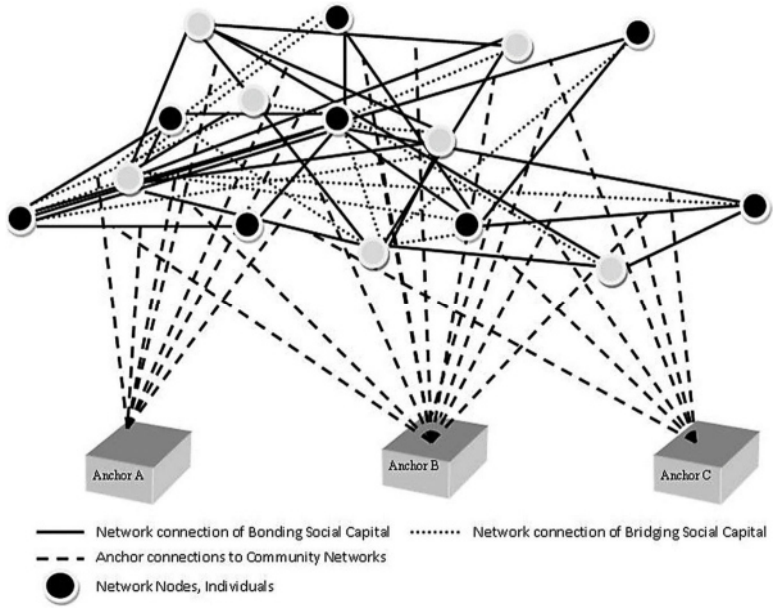


Figure 2- 2 Conceptual Model of Social Anchor Network
(Source: Reference[14])

2.2 Practical Case of Social Anchor Network Construction

2.2.1 The Practice of Social Anchor Institution in Syracuse, USA

The U.S. was one of the first countries to improve communities through anchor institutions, most notably colleges and hospitals (known as "EDs and MEDs"). As one of the largest employers in the city, the university's model as an anchor institution has been practiced in many parts of the United States.

Syracuse is a major city in the heart of New York State, located in the northeastern corner of the Great Lakes. As a traditional industrial city in the "Rust Zone", its history and the breadth and depth of its inherent assets are widely recognized by the community. Like other cities in industrial decline, some neighborhoods face poverty, unemployment, and the disposal of industrial remains. The university is located on the west side of the central area of the city, and the early urban renewal caused the university to be physically isolated from the community, and the accumulated assets of the university were not effectively connected to the community (Figure 2- 3).

Figure 2- 3 Location Analysis of Syracuse, USA
(Source: Using Google Maps as the Basemap)

Based on the above background, Syracuse University has developed a vision called "Scholarship in Action", which uses the university's professional resources to help the community achieve the goal of crossing the physical and social “Berlin Wall”. The series of measures focuses on Near West Side, Syracuse's oldest neighborhood, which currently faces

poverty and high crime rates and high vacancy rates. Key spatial strategies include:

Establish corridors that cross the boundaries between the university and the urban community. Sexually separated from downtown by Interstate 81, and to strengthen its connection to the rest of the city, the university has partnered with a wide range of community groups, government agencies, businesses, nonprofits, and arts organizations to create The Corridor, which connects the university to theaters, museums, galleries, shops, restaurants, and parks, as well as leading to the underdeveloped urban area, the Near West;

Utilize industrial and urban heritage to embed node facilities at the boundary between schools and communities, and use historic sites to shape new landmarks. For example, at the junction of the Near West Side neighborhood with the city center, where poverty is high, an old warehouse at the end of the corridor was renovated into the university's academic center (The Warehouse). Refurbishment of old corporate facilities into a complex (Case Supply Building) to accommodate community pro bono services, communications, education, small business and lifestyle services;

Use public art to decorate industrial relics and transform "barriers" into "portals". For example, the artist communicated with the community by painting a wall painting (A Love Letter to Syracuse) on three train trestles in Near West Side.

Acquire vacant land for non-profit housing development, attract returning residents and new artists, and renovate old buildings to become community incubators.

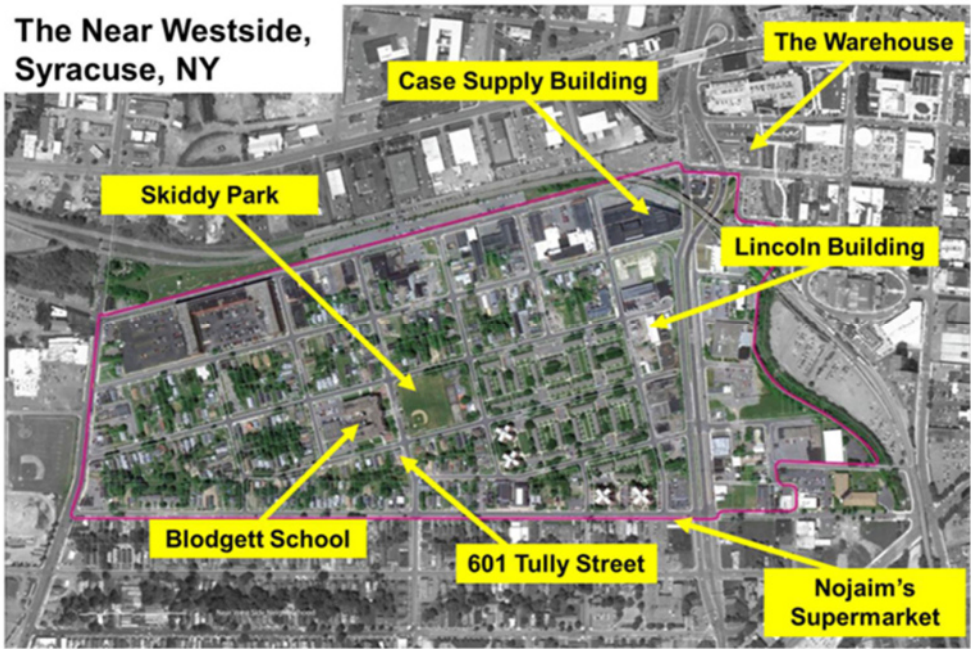
The implementation of these strategies relies on extensive collaboration between the community, universities and various social groups. Initially started with small events and meetings in the community, and then led by the Near Westside Initiative, a non-profit organization led by the community and universities, in partnership with foundations, corporations, nonprofits, governments, and other institutions of higher education. In addition to the above-mentioned construction activities, the action also includes a large number of community public event planning, such as:

Colleges and universities cooperate with the community to carry out teaching and research, such as promoting community-based architectural design workshops and holding international competitions for community green housing to realize the flow of knowledge resources;

The Say Yes to Education Foundation, a nonprofit organization dedicated to increasing high school and college graduation rates, was formed. Relying on universities to carry out community education, including parent schools, middle schools and summer camps, to realize the flow of educational resources and improve the overall quality of community residents. At the same time, the organization also provides legal assistance and social security to families;

With the help of artists, opportunities for high school students to participate in community transformation, etc.

The strategies that can be used as references for this study include: establishing spatial corridors, activity bases, and introducing activities into the community, as a "relay space" for anchor institutions; Resolve the physical and identity boundaries between anchor institutions and communities, emphasize the two-way participation of both communities in community affairs, and strengthen the scope of influence and subject status of anchor institutions; Introduce community landmarks that combine urban landscape heritage and public art to give full play to the cohesive value of community memory.



a) Map of The Near Westside

b) The Renewal of Train Trestles

c) The Renewal of Case Supply Building

Figure 2- 4 Key Spatial Strategies
(Source: Reference[15])

2.2.2 The Practice of Continuing Care Retirement Community in Kamishihoro, Japan

Kamishoro is an agricultural town located in the northern part of the Tokachi region of

Hokkaido, Japan, and the urban area is mainly distributed on both sides of National Highway 273, and the road network extends in a square grid and radial pattern from the national highway as a baseline (Figures 2-6). The jurisdiction has superior natural resources, but it faces the problem of population loss and aging. Therefore, the town has adopted the concept of "Slow City", which promotes urban development while utilizing these local resources, with the concepts of health, environment, tourism, childcare and education.

The strategy of urban development is the practice of the " Continuing Care Retirement Community" policy under the national policy of "Regional Revitalization" in Japan. The core concept of the urban development strategy is to alleviate urban diseases, promote population migration, and revitalize the local community by making full use of local resources, replenishing local population and municipal funds, and building communities that are friendly to a variety of people, including the elderly.

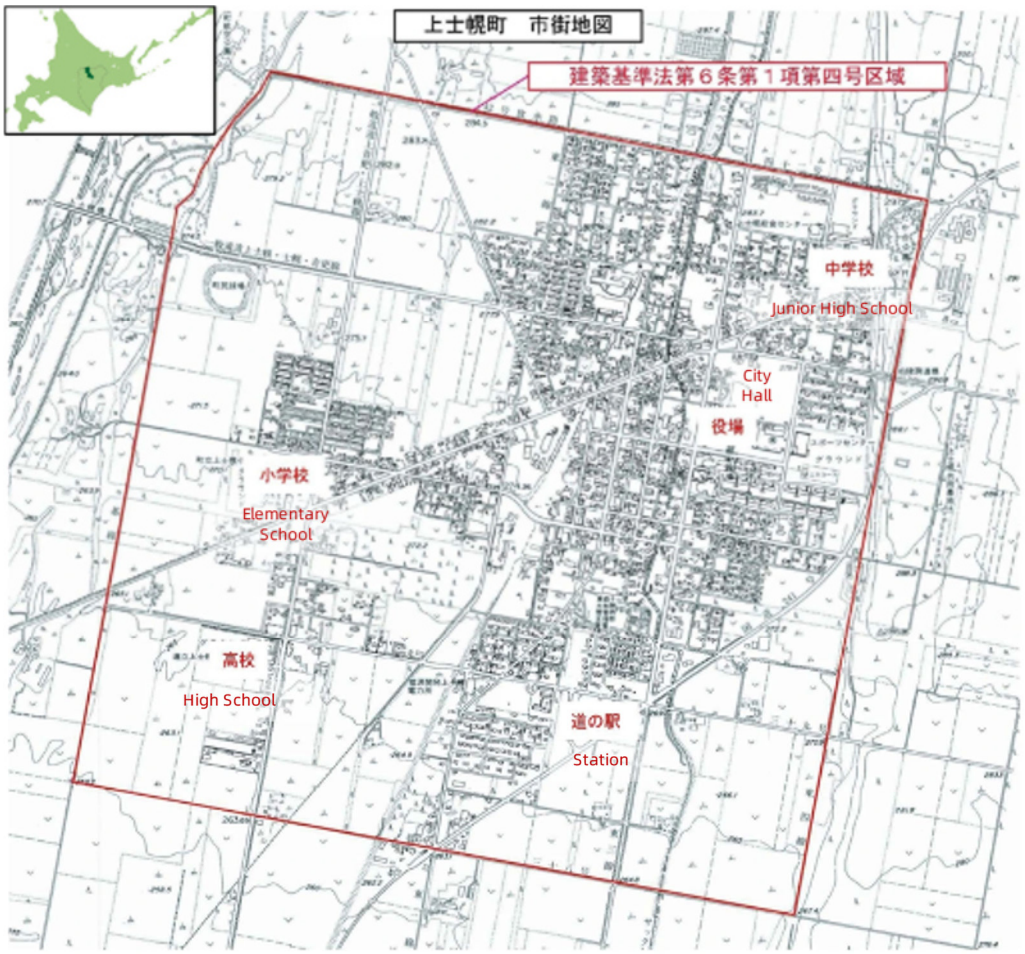


Figure 2- 5 Location Analysis of Kamishihoro, Japan
(Source: Reference[16])

The policy is borrowed from the continuum continuing care retirement community (often referred to simply as the "CCRC model") in the United States. In addition to the health, medical,

nursing and residential functions provided, it also focuses on the needs of the young and energetic elderly for elderly care, and explores the aspects in which these elderly people can continue to contribute to social value, adding the functions of community communication, social participation, and multigenerational co-creation, and emphasizing the close connection with the advantages of local resources[17].

In terms of the spatial form and design of the town, it emphasizes the reshaping of the town center and the optimization of the living network, so as to achieve the goals of functional agglomeration, pedestrian-friendly, and diversified integration. The central axis of the town is National Highway 273, and the city government wants to change the status quo of its "invisible border" that is difficult to pass through. The redevelopment plan will be centered around the city hall and will achieve a pedestrian-friendly "compact town" effect by increasing public transportation and relocating public facilities. The public spaces that residents need to do their daily lives are concentrated in the 200-metre inner circle, and other important public spaces such as schools will also be relocated inward. At the same time, a number of pedestrian-friendly open spaces and activity sites have been added around the town hall, making residents willing to walk within 400 meters of the town hall (Figure 2- 6).

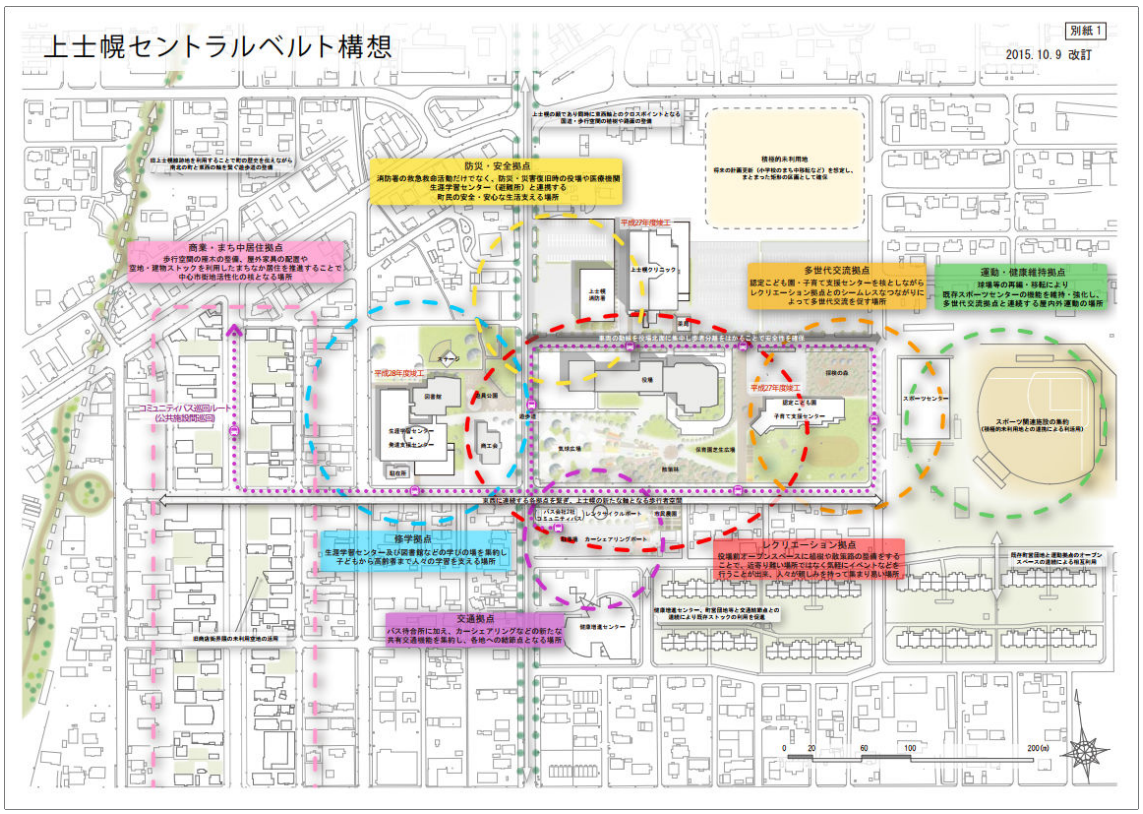
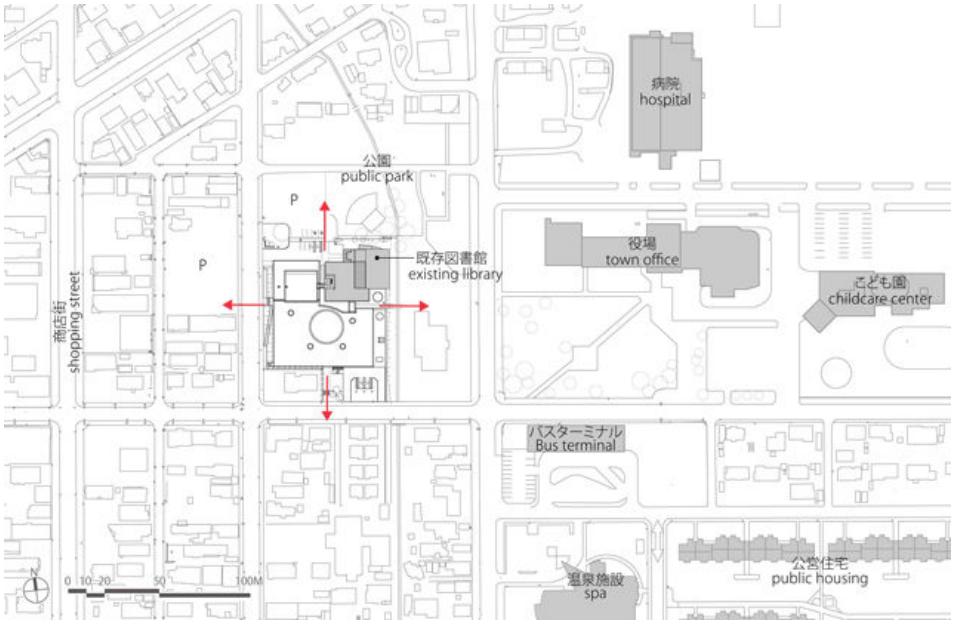


Figure 2- 6 Town Center Planning in Kamishoro
(Source: Reference[18])

Three new facilities are planned around the city hall: a square, a station, and a lifelong

learning center. Among them, the Lifelong Learning Center is a core base for promoting intergenerational exchanges, and through the network construction and functional integration of surrounding facilities, it will create synergies and make it function as a "new urban node". The project will integrate four facilities in the town (a lifelong learning center, a school nursery school, a development support center, and a center for the elderly) and expand the existing library. Since the city hall, children's park, shopping street, and residential area are located in close proximity to the site, entrances and exits in four directions are set up to improve the convenience of citizens. The interior is surrounded by a cross-passage that converges around the circular flat playground in the center of the building. By carrying out various activities along the "promenade", you can confirm each other's activities and create a sense of wholeness (Figure 2- 7).



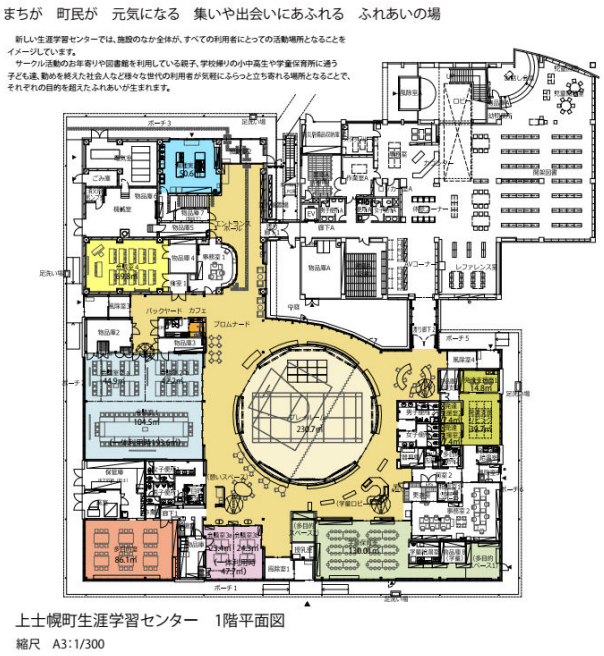


Figure 2- 7 The Design of Kamishoro Lifelong Learning Center
(Source: Reference[18][19])

The strategies that can be used as a reference for this study are: mobilizing people of all ages and types to participate in community affairs, using the method of activity participation to form social anchoring, and taking "realizing the value of life" as a part of the spiritual construction of the neighborhood; Make use of the concentration of bases and public facilities to create an intensive pedestrian life circle, and create a cohesive community center and activity axis in the spatial form.

2.2.3 The Practice of Community-School Linkage in Changqiao Street, Shanghai, China

Changqiao Street is located in Xuhui District (Figure 2- 8) under the jurisdiction of downtown Shanghai, close to the regional center and facing the Huangpu River. The street is the most populous residential community in Xuhui District, showing obvious aging characteristics. The economic level of Xuhui District is relatively developed. The main urban functions within the street are residential, green space and public education. The urban form in the area is dominated by open blocks, and most of the texture inherits the workers' new village since the founding of the People's Republic of China, with a row-column layout of buildings, and public nodes are arranged along the road network, with clear hierarchies.

Changqiao Street is an area with dense educational resources in Xuhui District, with many primary and secondary schools, kindergartens and special education institutions in the district. With the brand of "Harmony Education", the street closely combines school education with community resources through the "community-school linkage" project, creating a diversified community education ecosystem. The project gives full play to the role of social anchors in terms of software facilities (event planning and community protocol) and hardware facilities (spatial design and form planning), and relies on the unique public space of the community to build an anchor network, which effectively enhances the vitality of the neighborhood.

Figure 2- 8 The Location Analysis of Changqiao, Shanghai, China
(Source: Author)

In terms of event planning and community conventions, the project relies on public education, an advantageous resource in the community, to connect the activities of a variety of people. This not only improves the quality of the educational activities themselves, but also uses the activities as a link to expand the degree and scope of community participation and improve the effectiveness of community governance. These activities include:

Create a brand of "School Education Street", hold regular "Humanistic Walk" activities, and promote exchanges between different subjects such as general education schools and special education schools, primary education and secondary education;

Promote the linkage of "home, school and society", and open parent schools to achieve collaborative education. At the same time, we promote community participation in multiple directions with the family as a link: let students participate in community affairs, understand parents, and cultivate civic awareness; Invite parents to discuss educational and community issues to understand practical issues and increase autonomy; Strengthen horizontal communication between families through activities on common topics, and integrate new families who have been attracted to educational resources to settle down in a "society of acquaintances".

The formation of a lifelong learning resource sharing circle of "Changqiao Street + 33 residential learning points + N schools or regional units", the campus and community provide

lifelong learning space for the elderly, which not only ensures the physical and mental health of residents, but also introduces traditional culture into the campus and gives full play to the social value of the elderly group.

In terms of spatial design and form planning, the community mainly follows the "Shanghai Street Design Guidelines" and the positioning of children and the elderly, and arranges pocket parks, complex facilities, activity sites along public places and activity paths, and optimizes the design of street interfaces. For example, small children's activity spots have been set up in 32 residential areas, starting with community cultural centers, and collaborating with public spaces, including the Shanghai Botanical Garden.

In the renovation of the Fourth Village of Changqiao (Figure 2- 9), the community planner system was introduced as a bridge of communication between multiple parties, emphasizing community public participation, and a number of micro-renewal measures were completed[20]. The renovation proposes the overall structure of "three parks and one ring" to form a continuous slow traffic space in the community center. The road system uses blue asphalt to connect the east gate to the south gate of the community, separating motor vehicles and sidewalks, and adding road signs and wayfinding maps to facilitate different groups of people to quickly locate their destinations3. Interactive landscape renovation activities, such as community garden construction and community creation streets, such as spontaneous horticultural planting, are proposed to achieve the joint participation of students and the elderly[21].

The strategies that can be used as references for this study are: emphasizing the connecting role of primary and secondary education in a variety of urban populations, playing an educational role, enriching the spiritual world of the community, and promoting the participation rate of self-governance activities.

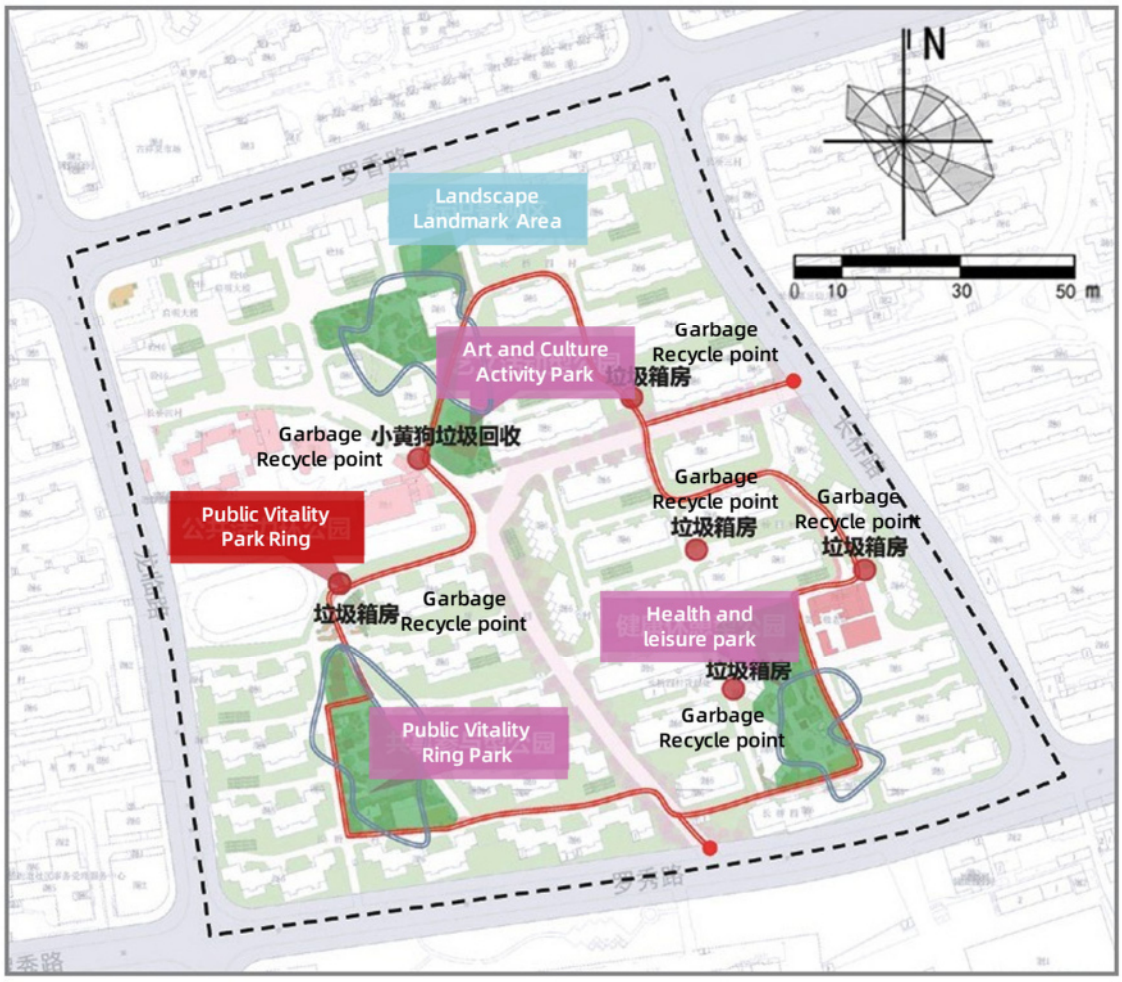


Figure 2- 9 The Regeneration Model Diagram of the Fourth Village of Changqiao
(Source: Reference[20])

2.2.4 Case Comparison and Summary

The above three cases demonstrate the possibility of building a network of social anchors in different regional contexts, providing a variety of solutions in terms of software facilities (event planning and community protocols) and hardware facilities (spatial planning and form design). Since this study also needs to face complex urban problems, some specific reference points can be extracted by comparing the similarities and differences of the specific strategies in the above cases (Table 2- 1):

Table 2- 1 Comparison and Summary Among the Cases
(Source: Author)

Case	Background	Common Points of Strategy	Differences of Strategy
The Practice of Social Anchor Institution in Syracuse, USA	Declining industrial area in city where the economy is underdeveloped and the security needs to be improved	● Take advantage of educational resources ● Emphasis on multi-level group participation ● Eliminate physical and hierarchical boundaries Establishment of communication base facilities	Give play to the economic and intellectual traction role of expert institutions (university).
The Practice of Continuing Care Retirement Community in Kamishihoro, Japan	Agricultural towns facing population loss and ageing		Give play to the agglomeration role of urban centers, and use education to activate the social value of the elderly population
The Practice of Community-School Linkage in Changqiao Street, Shanghai, China	Old community in the city center with advantageous educational resources		Exemplary primary and secondary education to promote community participation at the family level

2.3 The Reference Significance of Social Anchors for Urban Regeneration

2.3.1 The Core Advantages and Practical Value of the Anchor Institution

The core of the practice of "anchor institutions" is to reveal the deep coupling relationship between public institutions and community development. Anchor institutions such as schools, hospitals, and cultural facilities can provide multiple empowerments to communities due to their functional stability, crowd aggregation, and resource radiation. For example:

Anchor institutions form stable consumer demand through teachers, students, medical staff, visitors and other groups, drive the upgrading of surrounding commercial services, and provide economic activation;

Agency-led public activities (e.g., community education, cultural festivals) can enhance

residents' sense of belonging, repair neighborhood ties weakened by urban renewal (Syracuse's Near West Side Initiative, which aims to improve the quality of local communities and reduce crime rates), and create social cohesion;

Through functional sharing (such as the opening of campus sports facilities) and visual interaction (such as the artistic interface of the wall), the institutional boundary space transforms the closed "institutional island" into a "vitality generator" of community public life. Compared with the traditional renewal model of "point implantation", the theory and practice of social anchors pay more attention to the spatial synergy and value mutual feeding between institutions and communities, providing an "endogenous" renewal path for historic districts to achieve spatial value-added.

2.3.2 The Necessity of Constructing a Network of Social Anchors and its Spatial Response

The above cases all emphasize the systematic use of social anchors, that is, the construction of social anchor networks in public life and urban space. The scope of radiation and service efficiency of a single anchor organization to the community are limited: its influence is usually limited to a 5-10 minute walk to the living circle, and it is difficult to cover the global needs of complex neighborhoods; At the same time, the isolated anchor point is easy to be de-embedded from the existing spatial structure, and falls into the failure state of "there is an institution but no network". Therefore, the renewal practice at home and abroad has gradually shifted to the strategy of "anchor networking", and the system is empowered through a variety of spatial responses:

The first is topological association: using the street as the medium to connect multiple anchor points to form complementary nodes such as "campus-community center-pocket park", and expand service coverage through linear public space (e.g. Kamishihoro, Japan, connects the city hall, lifelong learning center, and residential area with National Highway 273 as the axis);

The second is functional synergy: different anchors form a functional network through differentiated positioning to meet the needs of people of all ages and multiple classes, for example, the educational anchor focuses on cultural activities, the medical anchor focuses on health services, and the anchor set around the administrative center forms community cohesion;

The third is the superposition of time and space: through the design of theme activities, shared time planning, flexible space utilization, etc., the anchor network can dynamically adapt to the rhythm of community life in the time dimension. The street space plays a dual role in this process: it is the "structural skeleton" of the anchor network, facilitating the flow of resources

through accessibility optimization; It is also the "occurrence interface" of social communication, which catalyzes informal interaction through scale, business format and landscape design, and finally realizes the triple coupling of "spatial network-social network-functional network".

2.4 Assumptions about the Relevance of Street Space to Social Anchors

From the phenomenon and theoretical construction of social anchors, it can be found that there is a correspondence between geospatial and social anchors, and previous studies have begun to pay attention to the interaction between social networks and geospatial networks. From some community improvement practices with the idea of social anchors, it can also be found that they all emphasize the role of public space as social anchors, and the street is one of the most common and important external spaces. Therefore, we can infer that there is a strong correlation between street space and social anchors, and the characteristics of street space network and social anchor network overlap to a certain extent.

This assumption is mainly based on literature and other regions, whether such a phenomenon also exists in the Nancheng area still needs to be analyzed in combination with the history and current situation, and the specific role relationship between street space and social anchors also needs to be summarized regionally according to the actual situation.

2.5 Other Relevant Basic Studies

2.5.1 Tools for the Study of Urban Morphology

In order to describe the spatial characteristics of streets in different historical periods and under different development conditions, it is necessary to use some methods of urban morphological research. Urban morphology is the study of the form of human settlements and the processes of their formation and change. The objects of material analysis in urban morphology can be collectively referred to as urban fabric, including street patterns, plot patterns, and architectural patterns[2], and streets have always been the key research objects in urban morphology. Classical urban morphology can be broadly divided into the Conzen School in England, the Versailles School in France, and the Muratori-Caniggia School in France. Founded in 1994, the International Symposium on Urban Morphology (ISUF) provides a platform for different schools of urban morphology to exchange and learn from each other, and promotes the study of contemporary urban morphology into a new era.

In the contemporary study of urban morphology, the tradition of the Conzen School has a far-reaching influence, and the research using its analytical methods is more active. In his analysis of the urban plan of a town, Conzen identified three basic elements: streets, sites(plots), and buildings, with streets dividing the plot and site plots forming the basic unit of analysis.

Another concept, the " Inherited Outline ", proposes that streets, as an important means of land division and real estate boundaries, can remain unchanged in the long-term development and change, which has a long-term limiting effect on the urban form and has a profound impact on the future of the city[22].

With the advancement of science and technology and the increase of interdisciplinary exchanges, some research trends have emerged in the field of urban morphology using mathematical theories and methods for quantitative analysis, and streets are also an important research topic and an object for data quantification. The most representative quantification method related to street patterns is the Space Syntax created by Hillier since the 80s of the 20th century[23]. At the city scale, Spatial Syntax is most commonly used in the analysis of street patterns, that is, streets are regarded as nodes in a network system, and the intersection of streets is regarded as edges in a network system. Spatial syntax has been widely tested in urban planning research and practice, but it has also caused some discussions and questions, such as whether the length of streets can be ignored in different scale scenarios, and whether streets should be combined with buildings and blocks.

2.5.2 Studies of the History of Guangzhou City

2.5.2.1 Maps and Local Chronicles

The historical and geographical information related to the city of Guangzhou, as well as the important urban construction activities of each period, are recorded in the chronicles and maps of various historical periods, which are the first-hand information for this study. Among them, the city maps, traffic maps, meridian boundary maps, and satellite image maps of the more recent period, which have appeared since the end of the Qing Dynasty and have been surveyed and mapped by scientific methods, have recorded relatively accurate morphological element information, which will be the focus of reference in this study.

Among the local chronicles related to Guangzhou, the Guangzhou Chengfang Chronicles(广州城坊志) compiled by Huang Foyi during the Republic of China period records the historical events in the old city of Guangzhou by place names and the names of streets and alleys[24], which is very helpful for the important historical events in the origin and development of historical streets and alleys involved in this study.

Among the maps related to Guangzhou, the "Map of the Territory of Guangzhou(广州府境图)" contained in the Yongle Encyclopedia (永乐大典) is probably the earliest surviving map of the city of Guangzhou, which shows the city walls, the city gates, the official offices, and the main streets, reflecting the urban form of the area before the southern city wall was fully

established[25]. The Map of the City and Entire Suburbs of Canton, which was first surveyed and mapped by the American cartographer Vrooman in 1860, was one of the first maps in the history of Guangzhou to be surveyed and mapped by Western scientific methods, marking the names of places, government offices, and main streets[26], which has important reference value for studying the street and alley forms of Guangzhou in the late Qing Dynasty.

During the Republic of China, the Guangzhou City Map(广州市图), compiled in 1918, reflected the urban situation before the city wall was demolished, and used the figure-ground form to express the plots and streets[27]; Based on the city in 1928, the 1947 revision of the Joint Table of Special Maps and Sheets of Guangzhou(广州市专门图幅联合表) also reflects the urban situation after the demolition of the city wall and the Urban Improvement Movement in the form of the figure-ground[28], and the two can be compared with each other to analyze the impact of a series of urban construction activities such as city wall demolition and road construction on the urban form. In addition, the 1927 Survey and Mapping of the Police Precinct Map of Guangzhou City(广州市经界图) is accurate to each plot of land, which can reflect the land use and architectural form along the street, and is of great reference significance for the study of public facilities as social anchors[29]. The Latest Road Map of Guangzhou(广州市最新马路全图), surveyed and mapped in 1937, focuses on the roads that have been built and the roads to be built in the urban area during the implementation of the third phase of the road project of the Republic of China[30].

After the founding of the People's Republic of China, the 1959 Aerial Image Map of Guangzhou City was expressed in the form of the relationship between images and maps, reflecting the urban construction in the early days of the founding of the People's Republic of China[31]. The Atlas of Streets and Alleys of Guangzhou, published in 1992, was a reference material for the urban form at the end of the last century and the beginning of this century, aiming at the problem of identifying the names of new streets and old alleys in the context of urban renewal at that time[32].

2.5.2.2 Studies on the History of Urban Construction in Guangzhou

1） Historical Geography and Urban Mobility

Zeng Zhaoxuan's Historical Geography of Guangzhou is a monograph on the historical development of Guangzhou from the perspective of geography[33], which is an important reference for the study of urban history and urban morphology.

The formation of the Nancheng area has a lot to do with the changes of Guangzhou's urban water system, and the natural and artificial waterways can be used as a clue to explore the

evolution of its streets. Wu Qingzhou discussed the functions and benefits of water conservancy construction in ancient Guangzhou in "Urban Water Conservancy in Ancient Guangzhou"[34]. Liu Wei discussed the relationship between urban water system and macro urban development from the historical perspective of the Qin, Han and Ming dynasties to the Ming and Qing dynasties in " Study on the Relationship between Urban Canal-system of Ancient Guangzhou and City Development"[35]. Guan Feifan's Study on Six Veins Drainage in Guangzhou City traces the drainage system "Six Veins Canal", which began to be built in the Song Dynasty, to explore the specific functions and spatial patterns of water conservancy facilities, as well as their relationship with urban forms, including the Yudaihao, which is closely related to the Nancheng area[36]. From these papers, it can be found that the water system plays an important role in shaping the spatial direction and traffic function of the street, and should be analyzed as an important spatial element.

2） Business Development and Urban Transformation

In The Evolution of Guangzhou's Urban Form, Zhou Xia analyzes the characteristics of urban space in stages: ancient and modern, from the perspective of urban morphology[37]. Feng Jiang's "Transformation of Guangzhou: From a Provincial Capital in the Late Qing Dynasty to the First Modern City int he Republic of China" focuses on the late Qing Dynasty and early Republic of China, and discusses how the municipal government transformed the traditional provincial city into China's first modern city through municipal reform, the introduction of Western planning concepts, and the modernization of the transportation system[38]. Huang Sujuan's "“From Provincial Capital to Modern City: Real Property and the Change of Urban Space in Guangzhou" also focuses on this period, but discusses more specific changes in property rights and business forms, which has great reference value for studying the public life of Nancheng streets during this period[39]. Huang Huiming's "Study on The Characteristics of Urban Morphological Transformations and Development Mechanisms: A Case Study of Guangzhou since 1949" is based on the space of the old city in the more recent period, and the summary of its research methods and development mechanisms can provide a certain reference for the southern city area in this study[40].

The urban formation and even the evolution of the streets in the Nancheng area are greatly influenced by the regional business format, so it has formed a freer and market-oriented urban fabric that is different from the inner-city pattern. Zhao Yipeng's "Urbanmorphologic evolution of Gaodi Street in Guangzhou from the late Qing Dynasty to the Republic of China" discusses the formation of the Nancheng City in the Song Dynasty, focusing on the spatial pattern and

morphological evolution of Gaodi Street in the central block of Nancheng in early modern times from the perspective of neighborhoods and alleys, and the evolution history of Xudi, a settlement in Gaodi Street, and emphasizes the role of commerce in it[3]. Sun Xiang's "Research on Residential Planning in Guangzhou during the Republic of China" introduces the important urban construction activities of Guangzhou during the Republic of China, and conducts a morphological analysis of some neighborhoods[41], which can be used as a reference for the evolution of streets and alleys in this period. Zhang Jian's "Morphological Analysis of Historic Area of Guangzhou" analyzes a typical area in the old city of Guangzhou, and provides a perspective of the combination of material form elements and social dynamics for the evolution of the three morphological levels of streets, plots, and buildings, which not only clarifies the specific dynamics of the evolution of the urban fabric, but also provides information support for possible planning and protection[42].

2.6 Summary

Starting from the concept of "social anchor", this chapter sorts out the existing main research results according to the two paths of theoretical construction based on phenomena and theoretical development driven by practice. Then, this chapter analyzes three cases of neighborhood improvement using "social anchor network" in Syracuse in the United States, Hokkaido in Japan, and Shanghai in China, and summarizes the similarities and differences of their design strategies to provide reference for subsequent research. Based on the above phenomena, theories and practices, this chapter puts forward the hypothesis of the correlation between street space and social anchors, and determines the idea of verifying it in combination with the evolution history of Nancheng area. Finally, this chapter summarizes some research tools related to spatial evolution and spatial feature analysis, as well as literature related to the Nancheng area of this study, as the basis for the analysis in the subsequent chapters.

Chapter 3 Historical Evolution of the Nancheng Area

This chapter will analyze the historical evolution of urban form in Nancheng in chronological order, combining documentary and cartographic information, and focusing on the discussion of its street form and street public life. At the same time, these analyses will be used to summarize the historical evolutionary patterns of the Nancheng area and the corresponding developmental dynamics mechanisms in each period, to distill the main social anchor patterns in each period, and to make judgments about the current evolutionary cycle in which the Nancheng area is located and its characteristics. Finally, the correlation between street space and social anchors will be discussed, and typical spatial patterns combining street space and anchor facilities will be distilled from the morphological level.

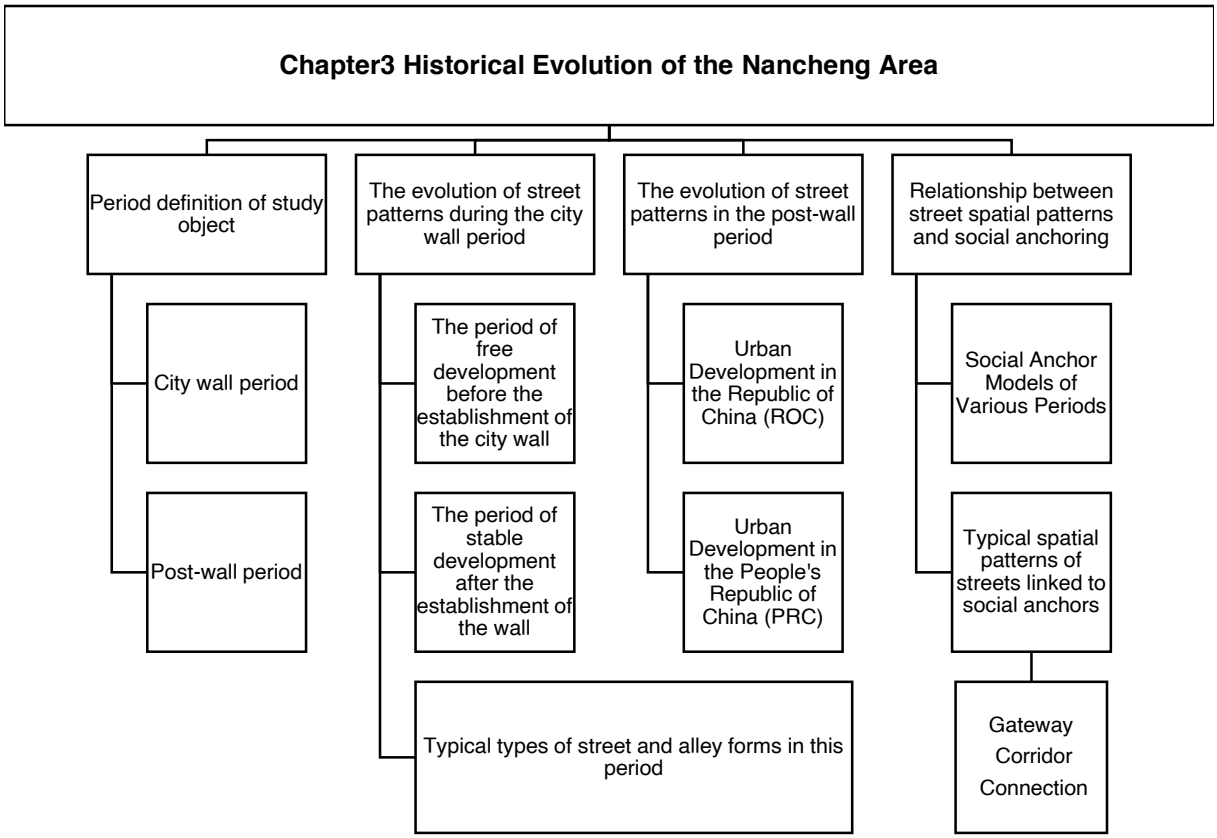


Figure 3- 1 Chapter 3 Structure
(Source: Author)

3.1 Period Definition of Study Object

Since the Song Dynasty when it surfaced on the surface of the Pearl River to form land, the Nancheng area has been influenced by a variety of dynamics in its more than 1,000 years of evolution, and has shown different development characteristics at different stages of development. In order to illustrate more clearly the influence of important events under different historical periods, it is necessary to define the evolutionary process in stages.

In terms of defining the boundaries of the scope, the origin of the term “Nancheng” points to the physical boundaries of the Ming and Qing Dynasties, i.e. the city walls. In the case of Nancheng, the city wall is the material object most directly related to the concept of “city” and the key factor influencing the character of its internal street development. The main street pattern shaped by the city wall makes the South City area still clearly recognizable in the urban fabric more than 100 years after the wall was removed.

From the perspective of historical geography, the City Wall reflects to some extent the landscape pattern of a particular historical period. For example, the geographical conditions of the area where the city wall was built needed to be relatively stable; the functions of defense, transportation, and drainage inside and outside the city wall needed to be surrounded by the moats, which made it easy to take advantage of the natural water system. These geographic features also affect the formation of streets and alleys, so the construction of city walls and the formation of streets and alleys have overlapping conditions.

From the perspective of urban construction, the urban development trend of ancient Guangzhou was also basically based on the city wall as the core, gradually expanding and developing[37]. Several major expansions of the city wall in Guangzhou's history occurred in the context of urban expansion, with high-value out-of-town areas gradually incorporated into the city wall for protection, and the demolition of the old city wall was also mainly motivated by the need to develop space and transportation. Therefore, the events of city wall changes can be used as a time node to mark the peak of urban construction and the sudden change of internal and external conditions.

Starting from the cycle of generation, stabilization and reconstruction of street forms, the development process of the city wall and the evolution process of streets show a certain correspondence. In the period when the city wall was not yet established, the streets developed freely and formed the main streets in the advantageous geographic locations; after the market formed a certain scale, the establishment of the city wall provided protection while limiting the pattern of the streets, making its form enter into stabilization or even stagnation; after the demolition of the old city wall, the closed pattern was broken, and the street and alley forms within the city ushered in the reconstruction again.

To sum up, the establishment and dismantling of the city wall is an important historical event corresponding to the geographical concept of “Nancheng”, which not only marks the large-scale urban construction activities in different periods, but also influences the organization of streets within the city. The existence of the walled city of Nancheng defines a period of free development, stabilization, and reorganization of the street pattern. In the Song

Dynasty period, prior to the establishment of the wall, the territory of Nancheng consisted of the newly formed riverbank, and the streets developed naturally in a gradual and parallel manner roughly along the southward movement of the riverbank. The city walls were built during the Ming Dynasty to protect the emerging commercial area in the southern part of the main city, and at the same time to declare that this area would be included in the scope of official city administration. The city walls were dismantled during the Republic of China (ROC) period in a campaign to "tear down the city and build roads", as the old urban pattern could no longer adapt to the needs of modern urban development.

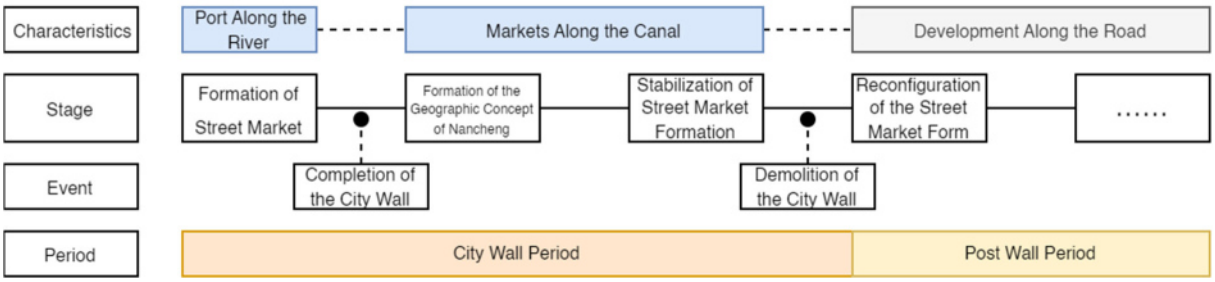


Figure 3- 2 Historical Period Division Based on the City Wall
(Source: Author)

Based on the above understanding, it can be found that with the demolition of the city wall as the boundary, the street pattern of the southern city is in two relatively independent evolutionary cycles with different developmental dynamics and conditions (Figure 3- 2). In both cycles, the streets and alleys experience the same: ① the initial growth of the form generated by the new city construction activities; and ② the cycle of local plots after the stabilization of the form framework. The first cycle emphasizes the limitation of boundaries, and the overall trend is convergence, cohesion and closure; the second cycle emphasizes the ongoing process, the dissolution of boundaries, and the overall trend is integration and outreach.

In the following, the first cycle is referred to as the "City Wall Period" in a broad sense, including the period of free development before the wall was built and the period of stable development after the wall was built; The latter cycle is called the "Post-city Wall Period", which includes the modern urban improvement period in the Republic of China after the removal of the city wall, and the modern urban renewal period after the establishment of the People's Republic of China.

3.2 The evolution of Street Patterns during the City Wall Period

Since the founding of Guangzhou, due to the natural accumulation of river sediments and artificial activities such as paddocking, the sandbars in the Pearl River have gradually developed into riparian plains, and the riverbanks have gradually expanded to the south[35]. Due to the

convenient transportation and land leveling along the riverbanks, the outline of the city also "lived by the water" and developed continuously to the south. At the latest in the Northern Song Dynasty, the riverbank land developed from sandbars was already created in the area of the later Nancheng area, and covered the whole Nancheng area south of the range when the new city wall was built in the Ming Dynasty.

Figure 3- 3 Pearl River Shoreline Changes
(Source: Reference[43])

The construction of city walls in the core city of Guangzhou has a long history, dating back as far as the Nanyue Kingdom of the Qin Dynasty (3rd century BC). The ruler at that time initially established the royal city (Ren Xiao City, 任嚻城) in the area of present-day Cangbian Road, and subsequently expanded it into Zhao Tuo City(赵佗城) with a circumference of ten li[1]. During the Three Kingdoms period, it was partially expanded on the basis of Ren Xiao City to form Buyu City(步骘城). During the hundreds of years from the Three Kingdoms to the Tang Dynasty, the area of the city wall was not expanded on a large scale, but residential and commercial areas were formed outside the city wall. During the late Tang and Five Dynasties periods, a peak in Guangzhou's urban construction[44], the Southern Han Royal City(南汉王城) continued to expand southward, and the practice of building a new city to the south of the main city to protect the emerging commercial area emerged. As the saying goes, "a city is a place of

[1] "Li(里)" is a Chinese length unit. In the Qin and Han Dynasty, one li is about to be 415.8 meters.

regular trade"[45] the city walls were built to protect the concentration of wealth and power.

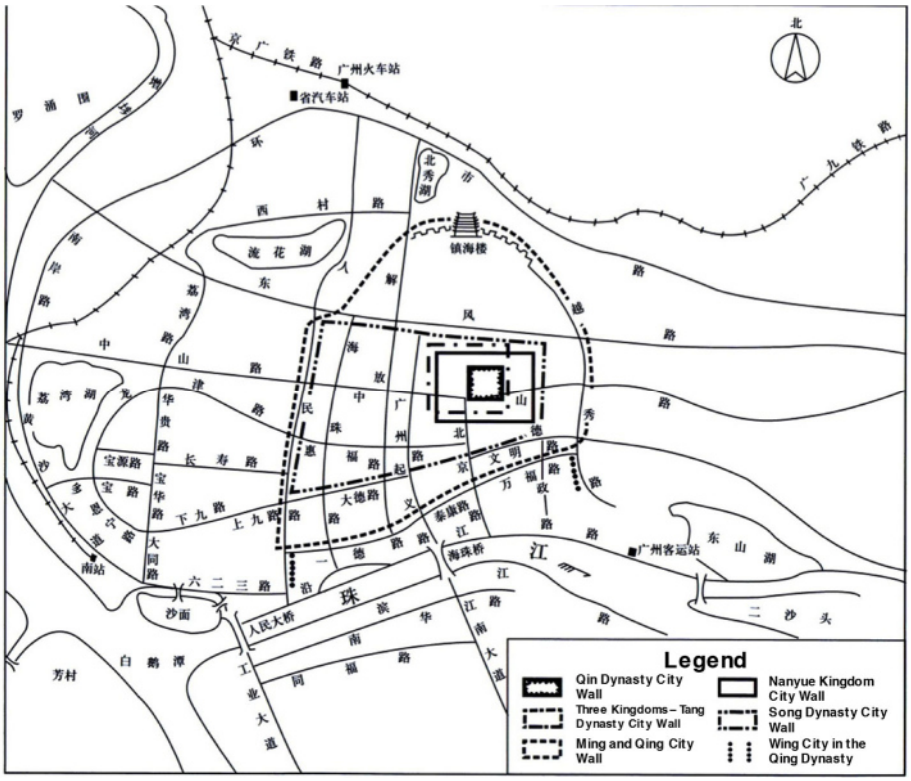


Figure 3- 4 Changes in the City Walls of Ancient Guangzhou
(Source: Reference[46])

3.2.1 The Period of Free Development before the Establishment of the City Wall

Depending on whether or not the riverbank in Nancheng area was formed, the city wall period can be further divided into two periods. The former period covers the period from the establishment of Guangzhou in the Qin and Han dynasties to the Northern Song Dynasty, while the latter period begins with the movement of the Pearl River bank to the area of present-day Jade Moat(玉带濠) during the Northern Song Dynasty and ends before the establishment of the city wall in the Ming Dynasty.

During the former period, although the "Nancheng" did not yet exist in a geographical sense, some of its morphological features can already be found in the urban evolution of the previous generation. Some clues to the pattern of street utilization can be observed in the close relationship between the city of Guangzhou and its water system. Such patterns were iterated over and over again in the riverbank advancement, and eventually reproduced, interpreted and precipitated in the streets of the southern city. Each expansion of the city's contours (mainly composed of city walls and city canals) also set the pattern of the city in the next phase, and served as the framework and base for the growth of the city's morphology in the latter period.

In the latter period, which is the focus of this study, the movement of the riverbank swept across the entire area of "Nancheng". Considering that the Chinese meaning of "Nancheng"

is “Southern City”, at this time, the land bearing the “Southern City” had been gradually formed, but the “city” of the “Southern City” had not yet been established. These lands are more precisely the land outside the southern walls of the main city. The urban fabric grew freely under changing boundary conditions. The north bank of the Pearl River during this period was dominated by a number of freely developed commercial ports along the river, which gradually evolved from wharves to specialized commercial streets.

3.2.1.1 The Period before the Formation of the Riverbank

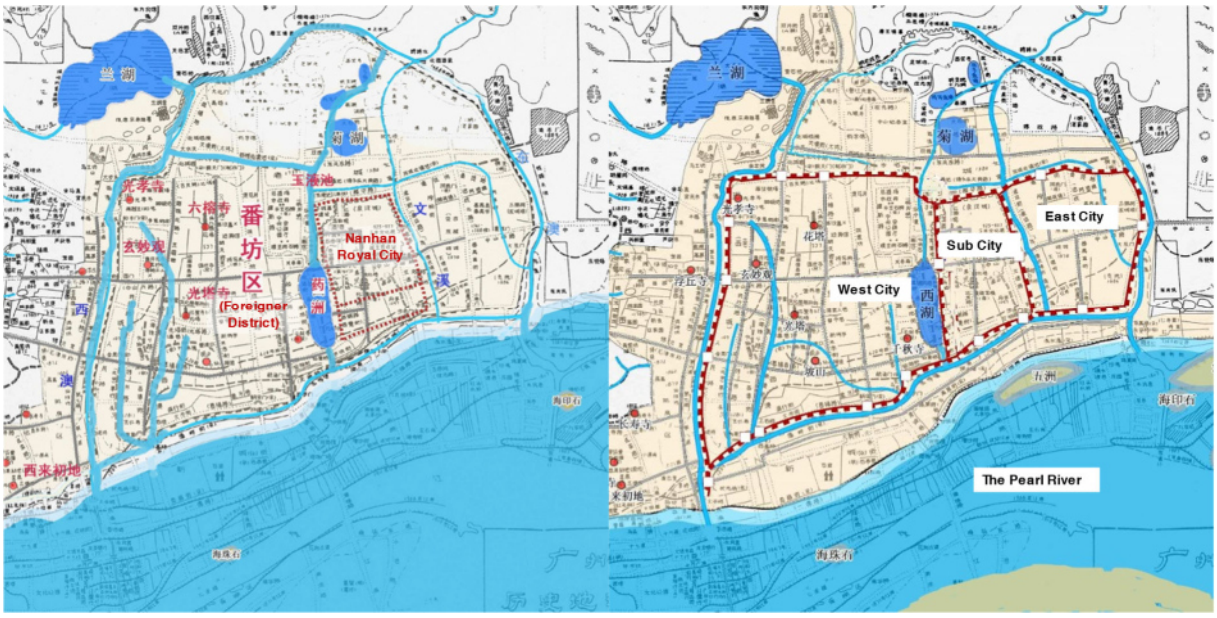
According to Zeng Zhaoxuan's examination in the Historical Geography of Guangzhou, the river bank in the Tang Dynasty had developed to the area of present-day Huifu Road and Wenming Road. During the Southern Han Dynasty, the southern wall of the main city reached the riverbank[33]. At the latest, in 1101 of the Northern Song Dynasty, Jade Moat was excavated as the inner canal, and the land in the south of the main city already had a certain scale. Prior to this, Guangzhou's urban development in the functional layout presents certain commonalities: the north for the political core (such as the Nanyue Kingdom Palace City, South Han Palace City), the south and the periphery of the residential and commercial areas; emphasize the close connection with the water system, the city's boundaries are defined by the water system, the city's main lines of communication by the waterway from the outside conveyed into the core. The superposition of these two commonalities naturally points to a street pattern dominated by commerce and transportation.

Due to the wide surface of the Pearl River in ancient times, the wind and waves were very high, before the construction of artificial embankments, centralized, long-term and large-scale trading activities were not suitable to be carried out along the riverbanks. It was often necessary to resort to sheltered harbors (e.g., inland lakes such as Orchid Lake (兰湖) and Chrysanthemum Lake (菊湖), and headlands in the southern foothills of the Po Mountain, etc.) first. The waterways leading to the sheltered harbors (Xi'ao Canal (西澳), Yuexi Creek (越溪), etc.) also served the function of short-term mooring and became important commercial areas first.

At that time, among the moats flowing into the Pearl River, Xi'ao Canal (also known as South Moat) had the most favorable location conditions, going westward upstream to merge into West Moat, and then up to Orchid Lake, and southward into the sea with a promontory, which was conducive to ships to avoid the wind. Therefore, the Po Mountain Quay of the Three Kingdoms period to the Southern Han Dynasty and the Foreigner District (蕃坊区) of the Tang Dynasty were all located near the estuary of West Moat, belonging to the land southwest of the

city. The Foreigner District was the most prosperous foreign trade center in Guangzhou at that time, the main landing place for foreign merchants, and also had the function of housing for foreign merchants. The West City of the later generations was also built on its basis. The planning of the Foreigner District had the characteristics of a pre-Tang city, with streets divided into a square grid, built and managed as “Fang” units, and the center of the district was inner moat, which was connected to the Pearl River, with quays set up along the coast, and trading was subject to a certain degree of municipal management(Figure 3- 5a).

At this time, the "Nancheng" area described in this study had not yet formed land from the surface of the Pearl River. However, the trend of urban development in the past was to gradually expand to the south, and the southern boundary of the city wall in the past generations followed the riverbank, and used the newly formed riverbanks with suitable hydrological conditions to build harbors and access to the city's inner moats. These new harbors also moved southward, and with the harbors and inner moats as the base, the trade area developed horizontally or vertically.



a) Southern Han Dynasty b) Song Dynasty

Figure 3- 5 Location of Major Urban Water Systems and the Pearl River Shoreline before the Construction of the Nancheng City Wall
(Source: Reference[35])

3.2.1.2 The Period from the Time after the Formation of the River Bank to the Time before the Formation of the City Wall

During the Northern and Southern Song dynasties, with the accumulation of sediment from the Pearl River and the artificial reclamation of land, the riverbank moved southward at a faster rate, and the shoreline swept the entire extent of the present-day Nancheng area (Figure 3- 5b). Different generations of the shoreline can be recognized from the long east-west streets that

have survived to the present day: in the early Northern Song Dynasty, the riverbank was still in the line of Xiguan Canal – Jade Moat, and by the end of the Southern Song Dynasty, it had already developed to the area of Yide Road and Wanfu Road[47]. From the distribution spacing of these streets, it can be seen that the movement of the riverbank was accelerating.

The movement of the riverbank was accompanied by the expansion of the city wall as the physical boundary of the city. There were basically two modes of expansion of the city walls in ancient Guangzhou: either in the overall expansion of the boundaries of the existing walls, or in the addition of walls to the original walls to encompass the newly formed urban areas[1]. In the Song Dynasty, the West City and East City were expanded on the basis of the Southern Han Royal City. The establishment of the three cities in the Song Dynasty made the area within the city wall expand unprecedentedly, and basically laid down the east-west boundary of Guangzhou City in the Ming and Qing dynasties. The western boundary of the three cities is the West Moat, the eastern boundary is the East Moat, the south of the southern city wall facing the Pearl River, backed by the city gate, the transportation location is very superior. So, the river bank between West Moat and East Moat has become a new commercial area and dock area, which also determine the east-west boundaries of Nancheng City later on.

"Guangzhou's canals bordering the sea, foreign ships arriving from the sea suffered from the frequent danger of typhoons. Shao Ye excavated the city moat to moor ships to avoid the danger of typhoons."[48] Out of the need for ships to avoid the wind, Shao Ye, the governor, presided over the construction of Jade Moat, which connected the east and west of the city, outside the southern city wall in 1011. In 1210, Yanchi City(雁翅城)[2] began to be built on the basis of the east and west walls of the Three Cities, and directly reached the riverbank. Since then, the urban pattern of the Nancheng has taken shape in the expansion of the city outline. The evolution of the street pattern during this period can be interpreted from the following perspectives:

1） Water Lanes and Commercial Ports - Evolution of Streets Associated with Water Systems, Commercial-Centered Neighborhood Organization

"Rivers are like alleys, and water systems form a network." [49] In the previous generations of urban development, the city of Guangzhou had already established an inextricable link with water systems. The naturally and artificially formed waterways and lakes served urban functions such as water supply, defense, fire prevention, flood and tide protection, and

[1] The latter model was adopted for the establishment of the southern city in the Ming Dynasty, and was similar to the purpose of building a new city in the Southern Han Dynasty.
[2] A type of wing city. There are only two city walls, east and west, which resemble the wings of wild geese.

gardening [37], and transportation was one of the most important functions. In terms of foreign trade, ancient land transportation is inconvenient, the provinces rely on waterways to transport large quantities of goods, overseas imports from the Pearl River (also known as “Zhuhai” at that time) ashore, their further distribution is inseparable from the port and inner moats. In terms of internal connection, various blocks between cities also relied on large and small water networks connected by boats.

Water transportation was the key to the development of Guangzhou's commercial markets during the Song Dynasty[36], which is a major external driving force in shaping the network of streets and artificial waterways. It can be considered that the water system is a special kind of street in ancient Guangzhou, and due to its prominent role in trade and transportation, many land blocks are also centered on the water system to radiate and provide various service functions. At the same time, during this period, the southward movement of the riverbank constantly updated the location of the first-line wharf, and the attributes of some streets were also constantly iterated on the first line closest to the riverbank, first becoming a wharf for ships to dock, and then as the first stop for goods to go ashore, and developing as a warehouse and market. For example, the Maima Street (the street selling hemp) in the south of West City was formed in the late Southern Song Dynasty, and after becoming a riverbank, it was first a market selling woven nets and hemp rope, and then it was derived from a stall selling imported daily necessities, such as oil stalls, fruit stalls, vegetable stalls, fish stalls, etc.; Another example is the Gaodi Street(高第街) in the south of the Sub City, which was built as a market pavilion on the riverbank, and became a market for daily necessities very early, and later became a place where wealthy merchants lived in Gaomen's mansions. They are all long east-west streets parallel to the riverbank, which intuitively reflects the general direction of the riverbank at that time.

It is worth noting that the commercial district of Nancheng has also undergone some new changes on the basis of generally inheriting the model of the previous generation. The establishment of the Jade Moat provides an extra-long haven across the land between the East and West Moats, and the north-south moats between the East and West Moats all merge into the Jade Moat and then enter the Pearl River through the East and West Moats. This breaks the previous model of commercial districts that need to rely on the north-south direction of urban development in depth. At the same time, the face width of the Nancheng City corresponds to the sum of the face width of the Three Cities, and there is no city wall and longitudinal water network in the middle, so it is more inclined to be connected into a whole in the east-west direction. On the one hand, this forms a continuous commercial interface that spans multiple

blocks, and the orientation of the buildings is more reasonable, which is conducive to the mixing of commercial buildings and residential buildings. On the other hand, the construction of areas outside the city was relatively free, and the market atmosphere since the Song Dynasty no longer emphasized the separation of commercial activities from residential areas. "There is a ghost market on the seaside, which opens in the midnight, closed when the roosters crow.” The description in "Panyu Miscellaneous Records" reflects that there is no strict management of the fang market (坊市) in Yanchi City[53]. From Foreigner District in the West City to moat bank in the Nancheng City, a natural transition from "Fang Market" to "Street Market" has been formed.

2） Beneath the City Outline - the Street Grid Corresponding to the Inner City

In the middle of the Southern Song Dynasty, Yanchi City was built, but the whole city wall has not yet been built. This area is not completely free to develop, and it can be seen that it is obviously influenced by the pattern of the inner city:

The first is the focus on the distribution of business cores. In terms of the functional layout of the three cities in the Song Dynasty, West City was the largest and was built on the basis of Foreigner District in the Tang Dynasty, and the water transportation conditions of Xi'ao Canal and West Moat were also relatively superior, so the commercial accumulation of this area was also stronger; The northern part of the Sub-City is the administrative district, and the southern part is the commercial and residential area; The eastern part of the city is the residence of officials and landscape gardens. Corresponding to the streets of Nancheng: It can be seen that the distribution distance of the east-west long street in the western section of Nancheng, which is opposite to the West City, is significantly larger than that of the middle and eastern sections. This indicates that the sedimentation rate of the riverbank was faster in the south of West City at that time, and it may be that the prosperity of commercial activities in West City brought greater space demand, and the intensity of artificial bank enclosure activities was greater. The western section was one of the first commercial centers in the south to be developed. The middle section of the Nancheng area opposite the Sub-City corresponds to the commercial center of the inner city with double gates, and the shoreline is also relatively tortuous and suitable for setting up quays along the river, so although the depth is not as good as the western section, there are also prosperous commercial streets like Gaodi Street; Corresponding to the positioning of the administrative center of the inner city, the trade management agency Shiboting(市舶亭) was also set up here. The eastern section of Nancheng, which is located opposite to East City, mainly relies on East Moat and Qingshuihao Moat to transport salt and grain to the area of

today's Cangbian Road, and the block has a stronger official color. For example, the current Dongheng Street is the former site of Song Shanchuan Altar, and the area around the current Qingshuihao Street is the outlet of Qingshuihao connecting to the Pearl River[1], as a wharf where salt ships were concentrated, was one of the inner harbors of Guangzhou in the Song Dynasty[47]。

The second is the spatial counterpoint connection with the inner city. This connection is characterized by highlighting the status of the city gates. Due to the existence of the city walls, the land connection between the inside and outside could only pass through the city gates, so most of the city gates were set up directly to the main roads in the city, and the most important city gates were also located on the T-shaped road network. The road leading to the city gate in the Nancheng area can be regarded as an extension of the inner-city order, and it is naturally an important arterial road, which together with the long street in the east-west direction forms the pattern of the street network in the Nancheng area. Judging from the " Map of the Territory of Guangzhou (广州府境图)" in the " Yongle Encyclopedia (永乐大典)" in the Hongwu period (Ming Dynasty), before the establishment of the complete city wall of the Nancheng City, these roads into the city already existed and were marked as official roads[25]。 Together with the roads along the shoreline, they form the post road system in the southern part of the city[51]。

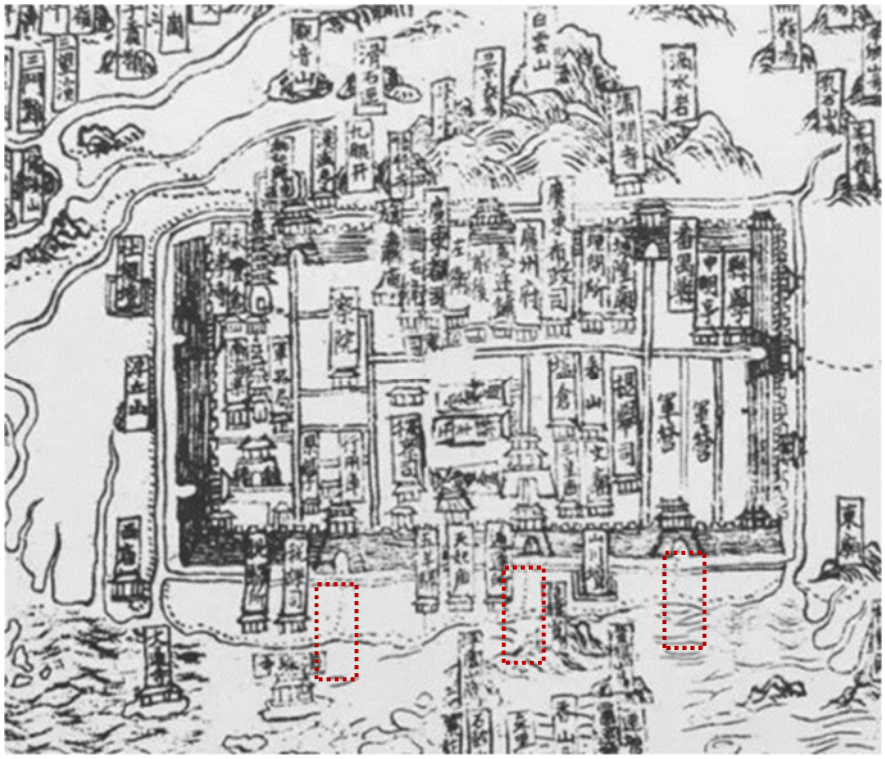


Figure 3- 6 The Road to the City before the Construction of the Southern City Wall
(Source: Based on references[25])

[1] The Qingshuihao Moat in the Song Dynasty was different from the current Qingshuihao Street. Qingshuihao Street is an east-west street that intersects with Qingshuihao Moat in the middle, which may be the bank of the Qingshuihao Moat that flows into the Pearl River.

The street organization of this period has strong physical and geographical features (Figure 3- 7). The change of the banks of the Pearl River has created space for the expansion of the city and the formation of new business districts, and the organization of the main streets has also followed the direction of the riverbank. In the dynamic change of the Pearl River bank, streets are generated in parallel. This is very different from the T-shaped streets of the inner city, which is a heavy ritual system[3]. It is difficult to verify the division of secondary streets and land plots because the southern part of the city has not yet been formally incorporated into the city management (i.e., within the city walls) during this period, but according to the gradual change of the shoreline, it is speculated that this area is still dominated by east-west long streets, and the longitudinal streets are in a subordinate position, and the depth of the plots is not large. In addition, this freer, continuous market form may also be due to the development of commercial culture after the middle of the Tang Dynasty, which broke the structure of the closed market system.

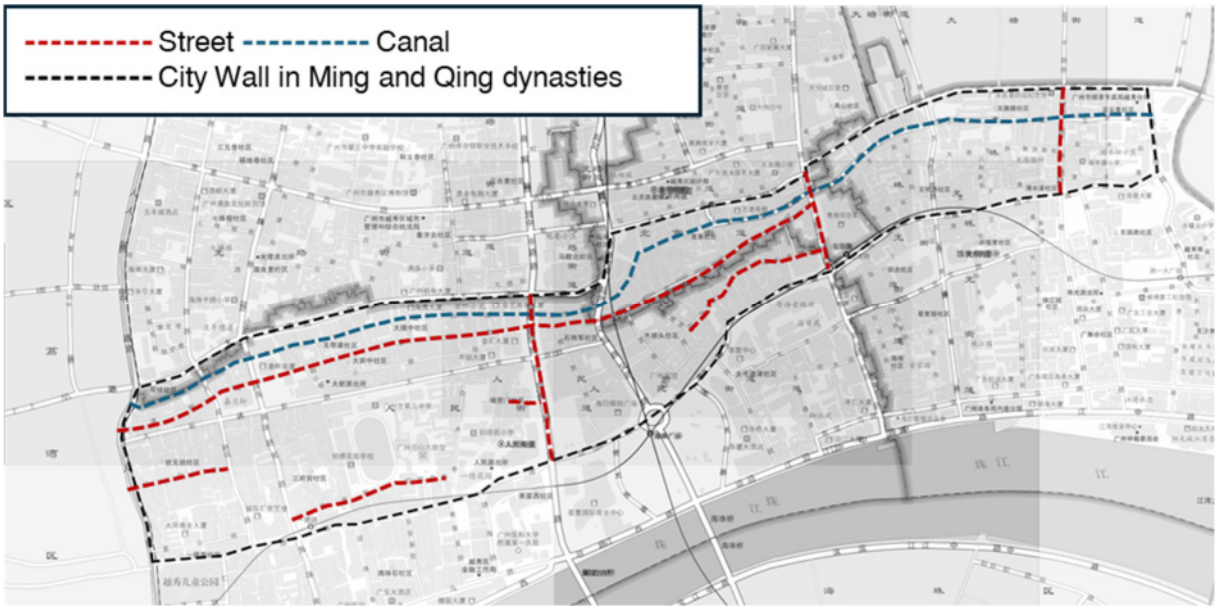


Figure 3- 7 Projection of the Main Street before the Construction of the Nancheng's City Wall on the Map of the Present City
(Source: Author)

The city of Guangzhou did not develop greatly in the Yuan Dynasty, and only the Song Dynasty city walls, which were destroyed in the war, were repaired. The riverbank of the Yuan Dynasty moved about sixty or seventy meters to the south, about the line from Wanfu Road, Taikang Road to Yide Road. At the beginning of the Ming Dynasty, the three cities of the Song Dynasty were integrated, and the status of water transportation in the city was weakened, and the commercial center was transferred from West City to Xiguan(西关) and Nancheng, so the

commercial market in Nancheng became more prosperous.

3.2.1.3 Typical Street Morphological Types of this Period

The main street pattern of this period consisted of long east-west streets and straight north-south streets. Most of the east-west long streets follow the direction of the riverbank, and are relatively similar in form, but slightly different based on the difference in function and formation order. The north-south straight street emphasizes the connection with the city gate.

1） East-West Water Port

An east-west waterport is a street formed directly by the riverbank (Figure 3-8a）。 The water port is functionally integrated with wharves, shops and temporary storage, and reflects the rugged characteristics of the shoreline in form, such as Mupaitou Street (木排头) and Shuimuwan Stree (水母湾). "Bay", "headland" and "sandbar" are ideal nodes for the distribution of water ports, which are not only the shore line, but also provide a certain degree of shelter from the wind. In addition, the artificial waterway, Jade Moat, can also be regarded as a special type of street. In the early days, the Jade Moat was very wide, and as a water transportation artery, there were some quays and warehouses distributed along both sides of the moat, which were close to the type of water port in form and function, but could build a double-row architectural interface.

2） Service Street Parallel to the Waterway

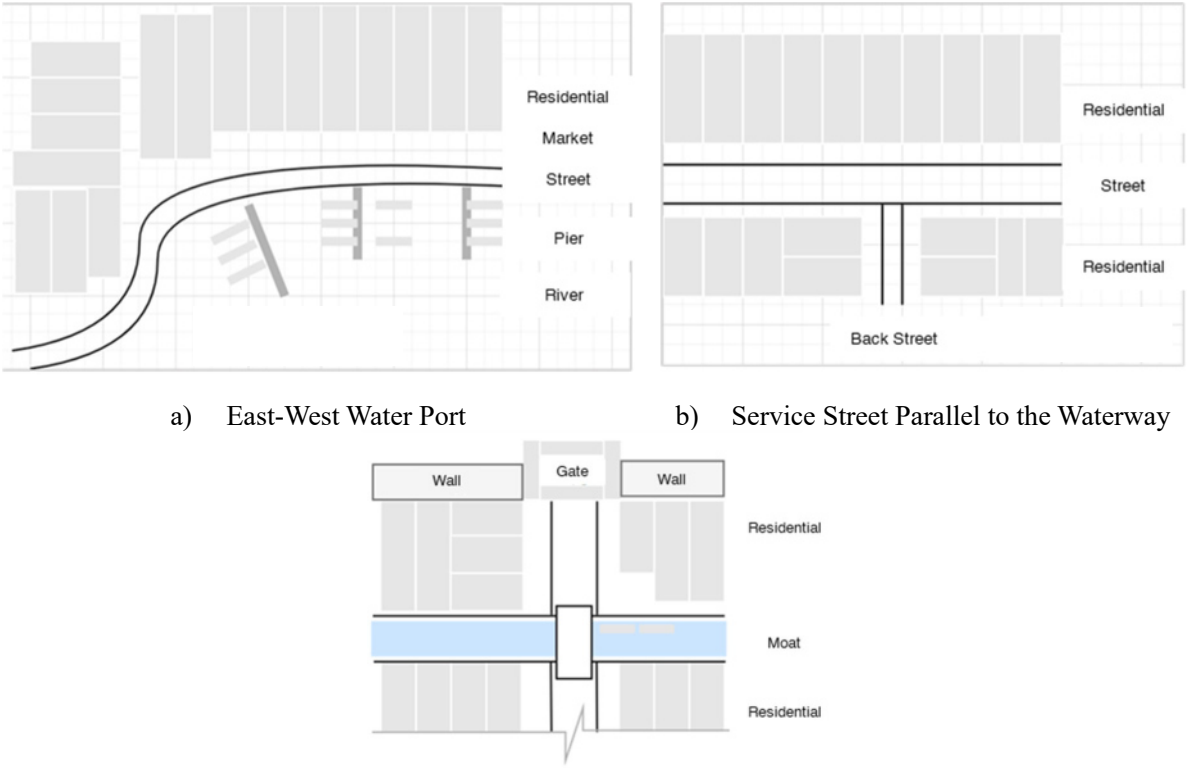
Service-oriented streets are often located behind the banks of the waterway, and functionally integrate shops and warehouses, such as Gaodi Street behind the Pearl River Water Port, Haopan Street(濠畔街) behind Jade Moat, (Figure 3-8b). Buildings can be arranged on both sides of the street, which is more advantageous for commercial activities, and some commercial activities that cannot be accommodated by the water port will be transferred to these streets. Due to the abundant land, it is also possible to integrate buildings such as residences, guild halls, and management offices. Due to a certain amount of manual planning, the streets are generally flatter in form. As the riverbank continues to move south, the land on the waterfront side of the port can be used to build houses, forming two rows of shops as a service street. A new water port has been formed along the river.

3） Access to the City

The access to the city refers to the street on the outside of the city wall that directly connects with the city gate (Figure 3-8c）. The city gate was an important node of communication between the inner and outer parts of the city. In the free development stage

before the construction of the city wall in the south of the city, at the latest before the expansion of the city at the beginning of the Ming Dynasty, the streets connecting to the city gates (Guide Gate(归德门), Zhengnan Gate(正南门), Dinghai Gate(定海门)) had already been formed, and extended to the Pearl River. The urban pattern of the early Ming Dynasty was generally inherited from the Song Dynasty, and the location of the three city gates was basically the same as the location of the East city, Sub-City, and West City gates of the Song Dynasty, and the streets outside the city may also be inherited from the previous generation. According to Lai Zhenhuan's "Weizi Tablet Tower Collection(未子碑楼辑存)", in the Zhelin Mutiny(柘林兵变) in 1564, the people in the south of the city were congested into the city from the Xiaoshi Street(小市街) to take refuge[52]. This shows that this street was already an important way into the city before the Nancheng city was completely walled. In addition, Subo Alley(素波巷) is also a straight street outside the Subo Gate in the West City of the Song Dynasty.

The emergence of streets in this period not only has a certain spontaneity, but also reflects the boundary characteristics of the urban center and the hydrological conditions, which is in line with the expansion law of the urban periphery. The resulting typical street pattern will be inherited by the next period.



a) East-West Water Port b) Service Street Parallel to the Waterway

c) Access to the City

Figure 3- 8 Typical Street and Alley Morphology before the Construction of the Nancheng City Wall (Source: Author)

3.2.2 The Period of Stable Development after the Establishment of the Wall

Due to the isolation of the city and the inconvenience of transportation, the Guangzhou government of the Ming Dynasty merged the three cities of the Song Dynasty in 1370. However, the land south of the city has been rich, and only the Yanyi City is protected, and there is no defense along the water, and it has been repeatedly rebelled[52][53]. It was not until 1564 that the rebels attacked the provincial capital along the waterway, and the residents of the south of the city suffered greatly, and the government began to build a complete southern city wall on the basis of the Song Dynasty Yanchi City in 1565. Since then, the southern city area was officially incorporated into the city management, which is called “Nancheng”. The city wall of the Nancheng spanned the Ming and Qing dynasties, existed for more than 300 years, and was demolished together with the main city wall in 1918 after the establishment of the Republic of China due to the need to build a modern city.

This period was a period when the Nacnehng’s urban form was stable or even stagnant: the city walls restricted the free development of the city, and the pattern of the main streets was basically fixed; The functional attributes of the city are further enriched on the basis of commerce, and the secondary streets and inner alleys are still in dynamic development due to the continuous division of the plots. Due to the restrictions of the city walls and the increase in the population of the city, the space became crowded, the streets and alleys became narrower, and the city canals began to silt up; Due to the shift of commercial centers and the development of land transportation, various businesses in the city have also declined after reaching their peak.

It is worth noting that with the further southward movement of the riverbank, the development of the urban form outside the Nancheng city also followed a similar path: new wharves and commercial areas along the river were formed outside the Nancheng city during the Ming and Qing dynasties, and the Qing government also adopted the method of adding "Wing Cities(鸡翼城)" to provide some protection. In the eastern part of the Nancheng city, for defense needs, a new moat "Yudai River(玉带河)" was dug to separate the city wall from the newly rising sandbar. The riverbank was still expanding southward, but at a slower pace, and it was not until the construction of the causeway in the late Qing Dynasty that the riverbank south of Nancheng stabilized.

3.2.2.1 Within the City Walls - the Agglomeration, Differentiation and Mix of Urban Functions

After the completion of the south city wall, there are two corner towers in the east and west to show the two counties of Nanhai(南海) and Panyu(番禺); and there are four city gates in the south, a small gate in the east and west, and four of the inner city wall in the south, a total

of ten city gates in the walls. The city gate is the node connecting the inside and outside of the city, the new city and the old city, and largely determines the organization of the urban network within the wall[54]. The Nancheng city as a whole presents a grid form composed of east-west commercial long streets and north-south city gate straight streets. The east-west commercial street is basically inherited from the Song Dynasty. City gate straight street is an avenue that intersects with the city gate, following the road leading to the river bank into the city, and connecting to the T-shaped main street of the inner city, which is the only way to connect the inner and outer cities, and is of a high level. For example, the Dananmen Straight Street (now the southern section of Beijing Road), which connects Danan Gate and Yongqing Gate, and the small Xiaoshi Street that connects Guide Gate, all follow the existing urban axes[1]. After the overall street framework is determined, its specific characteristics and the differentiation of secondary streets can be interpreted from the following perspectives:

1） Agglomeration

As the Ming Dynasty integrated the three cities and eliminated the separation between the three cities, the land connection within the main city was strengthened, while the water connection to the outside was weakened. Originally, the commerce of Song West City was transferred to Xiguan and Nancheng, and Nancheng, as the commercial center of the province, appeared the phenomenon of industrial agglomeration. There are multiple reasons for the agglomeration: first, the city wall restricts the connection between the Nancheng and the Pearl River, and can only be through the Jade Moat; Second, the inner city was closed, and the Nancheng city became a window for external contact, and commerce was transferred to Nancheng; Third, the space in the city is limited and needs to be redivided. Therefore, the commercial format is concentrated in the Jade Moat of Nancheng.

The agglomeration phenomenon is mainly manifested in the following aspects: at the macro level, high-value, transportation-oriented business forms are concentrated in this new city with a balance between convenience and defense; At the mesoscopic level, the core commercial interface occurs in one or more major streets and waterways, and the infrastructure and interior of the block are arranged and served around them, which has a strong spatial orientation. At the lower levels, the land is integrated to accommodate the development of the business format, which is reflected in a local circulation of plots, which in turn affects the secondary street units. This centrality is based on the premise of business activity, and when

[1] Beijing Road runs from the Southern Han Royal City in the north to the ancient city wall, which was also the traditional administrative center of ancient Guangzhou.

external conditions change, the pattern of lagging development can be problematic.

2） Differentiation

Around commercial development, streets and alleys have also produced a certain functional differentiation. These functions can also be identified from the public aspect: one is a completely public commercial street for all citizens, flanked by a commercial interface composed of evenly spaced shops; One is the service street, which is used only by a limited group of residents, leading to the storage area of the block, the common residential area, and the private settlement belonging to a specific clan.

3） Mix

Although the Nancheng city was built with a complete city wall, it was not merged with the main city like most ancient Chinese cities, indicating that at the beginning of construction, the planning of urban functions was different from the inside and outside, and the commercial attributes of the Nancheng city naturally needed stronger external connections. The Qing Dynasty pursued a policy of Manchu and Han segregation, and Nancheng complied with this need and retained the layout of separation. After entering the Qing Dynasty, the government moved into the Han government office, set up Han and Hui military camps, and established religious sites in the Nancheng city, embedding many mixed functional modules into this area. The common plot, as one of the sources of the collage form, is also a relatively stable inheritance structure in addition to the street.

Another mixed phenomenon is that the community organizations in the southern city present a mixture of "street market" and "fang market". On the one hand, the continuous commercial long street breaks the boundaries of the block, which is an urban form that is conducive to maximizing commercial advantages. On the other hand, limited by the capacity of grassroots governance, each block is composed of a number of independent and autonomous units (e.g., li and fang), which are separated from all-weather public activities for all citizens.

3.2.2.2 Beyond the City Walls – the Relocation of Urban Formats

Business behavior has always pursued efficiency, just as the Nancheng City has replaced the West City as the commercial center, when the internal and external conditions change, the business center is also constantly shifting to a more favorable location.

During the Ming and Qing dynasties, there were multiple reasons for the commercial relocation of Nancheng: First, the hydrological conditions of the Pearl River improved. In the change of the riverbank, it has changed from "sea" to "provincial river", and the wind and waves have been greatly reduced; The construction of the causeway also provided convenience for

boats to be berthed on the riverbank, so the wharf of the Qing Dynasty could be set up on the side of the Pearl River. The second is the rise of the Thirteen Factories of Xiguan, which has become the foreign trade center of South China and even the whole of China. Third, the urban problems in Nancheng are becoming more and more prominent, and it is no longer suitable to be the center.

At that time, in addition to the original foreign shipping area, dock area, and commercial area, Nancheng also formed a wealthy merchant residence and guild hall area, and the commercial agglomeration also brought prosperous financial and entertainment activities. The bazaars (regular markets) in the south of the city include Xinqiao Market and Xiaoxin Street Market.

。Nancheng has a deep commercial accumulation since the Song Dynasty, in addition to shops and warehouses, there are also some merchants' clan settlements here, among which the Xudi(许地) of Gaodi Street is the most. The plots of land used to were purchased and merged by different clans, and eventually formed a neighborhood dominated by the Xu clan in the Qing Dynasty, and the streets leading to these plots were actually transformed into internal streets owned by the family. However, with the increase of the population within the clan, the outward development was restricted, and the plots of each house in the Xudi became more and more detailed, eventually forming a high-density, tree-like network fabric. This also represents the development trend that most of the land plots in Nancheng can only be subdivided inward after the large street grid is finalized. In addition to subdividing inwards to accommodate more residential units, residents of Nancheng are also trying to occupy street and waterway space for residential and commercial use.

Nancheng is not the only commercial center in the history of Guangzhou. Since the Three Kingdoms to the Tang Dynasty, although the walls of Guangzhou have not changed significantly, the scope of the city has expanded to a large area outside the walls. The Foreigner District in the west was the place of residence of foreign merchants after landing, and it was also an important place for foreign trade, and by the Qing Dynasty it had become the center of gravity of commercial and urban development - Xiguan. Xiguan has a more advantageous geographical location, construction space and trade conditions, and took advantage of the establishment of the Thirteen Factories, after the middle of the Qing Dynasty, it gradually replaced the central position of Nancheng, and even became the foreign trade center of the whole of China.

Xiguan is directly connected to the Pearl River, and the land is vast, which is convenient

for the layout of north-south waterways and streets, which is conducive to the development of commercial interfaces; There is no restriction on visitors and space by the city wall, which is conducive to free trade, facilitates the construction of handicraft machine rooms, and attracts foreign people to settle down. At that time, the Nancheng city was confined to the city wall, with small space, mixed functions, and silted waterways, and the elements of the rise of the commercial market had gradually been lost, and the relocation of commercial functions could not be avoided.

Historically, Nancheng was a relatively free, market-like area, far from the ceremonial pattern of the inner city. However, after the Qing Dynasty rulers entered Guangzhou, they demarcated the inner city to be ruled by the Manchus, and moved the Han government office, Han military camp and Hui military camp to Nancheng, and adjusted the positioning of Nancheng. The entry of government offices and religious buildings has embedded a lot of huge land in Nancheng, making the southern city enter a complex collage state both in function and form.

3.2.2.3 The Boom and Fall of Urban Waterways

The most important waterway inside the walls of the Nancheng city is the Jade Moat, which was once the moat and haven in the southern part of the three cities of the Song Dynasty. In the Song Dynasty, the Jade Moat was already very prosperous along the line, and the Ming Dynasty became the only inner moat in the Nancheng city, but it gradually became shortened and the water transport declined. During the Ming and Qing dynasties, merchant ships could still sail in by the tide, and because of the convenience of shipping, a large number of shops, warehouses, wharves, entertainment venues, etc. were distributed along both sides of the Jade Moat, so that Nancheng which had been isolated from the river bank still formed a prosperous market along the canal. Haopan Street was one of the most prosperous streets at that time, with very rich text descriptions, and had the reputation of "greater than Qinhuai(秦淮)"[53]. The longitudinal street between the north and south gates and along Gaudi Street are also areas with high commercial vitality in the south of the city.

Due to the increasing development of land streets, the decline of the status of water transportation, and the relocation of commercial centers, the waterways in Nancheng no longer have the main function of bulk trade transportation, and only circulate some small commodities and supplement land transportation. Most of the waterways have gradually become narrower due to the construction cover and silting, and some parts are no longer usable, and the traffic function of South Moat and Qingshuihao Moat has been further lost.

In general, the city wall brought a stable pattern to the urban form of the Nancheng city, but also caused a lack of development space, the urban fabric gradually became crowded and cluttered, and the tree-like characteristics of the secondary streets and alleys became more obvious.

3.2.2.4 Typical Street Morphological Types of this Period

During this period, the new changes in the form of streets and alleys can be interpreted by the construction of city walls. First of all, the construction of the city wall restricts the tendency of most streets to extend freely, and the status of the streets associated with the city gate is prominent. The north-south main street from the city gates (hereinafter referred to as City Gate Straight Street) became particularly important during this period. Secondly, as the space of urban development and the pattern of the main street have been fixed, some local morphological transformation is the focus of attention in this period.

1） City Gate Straight Street

It evolved from the road into the city and served as the main road connecting the inner and outer city in the urban pattern of the city wall period. City Gate Straight Street has a complete public character, and the street grade is the highest in the Nancheng area, which is an extension of the inner city ritual pattern and has certain administrative significance. The interfaces on both sides of the street sometimes exist as commercial interfaces (e.g., the Xiaoshi Street leading to Guide Gate), but rarely open up alley doors to the interior of the block. Parallel to City Gate Straight Street, there are some streets that cross the large-depth plot and intersect with a number of long east-west streets. They also provide important service functions for the city, which may be developed from multiple alleys connected each other, or the boundary of a complete plot (Figure 3- 9a).

2） Inner Alley

Compared with the previous period, there have been no decisive changes in the morphological characteristics and organization of the east-west commercial streets, but it can be found that these streets are often directly connected with many secondary alleys from maps drawn up in recent times. This is what distinguishes these long streets from City Gate Straight Street, that is, they serve as transitional structures between public and semi-public spaces in the urban fabric. In this structure, the characteristics of the "street market" and the "fang market" can be observed side by side: represented by Gaodi Street, the long street is dotted with shops, guild halls, and government offices, as well as entrances to the lower alleys and high gate mansions. At the same time, these subordinate streets and alleys of commercial streets show

some morphological differentiation (Figure 3- 9b）：

i I-Shaped Alley and T-Shaped Alley

The I-shaped alley is the simplest form of building unit organization leading to the interior of the block plot. The lane is connected to one or two superior streets, and street gates can be set up at the entrance of the lane to facilitate public security management. The main alley is staggered fishbone or grid type extending out of the branch alley to meet the needs of the north-south orientation of the building, and the staggered branch alley entrance reflects the defensive characteristic. When the I-shaped alley is not enough to meet the rear row of buildings, further development to the depth of the plot will produce a T-shaped alley. Most of the junctions with the upper streets are equipped with alley gates and street gates, reflecting that this is a public space that only belongs to the internal units.

Most of the property rights of the buildings in the two types of alleys are owned by the general public, and these buildings are roughly the same grade, with similar forms such as width and depth. Most of these neighborhoods, known as "Jeifang (街坊)", have a community nucleus – the Street Temple. The street temple is a real estate invested by the neighborhood fund-raising, and the various community self-governance activities around it are called "temple discussions". Depending on the economic level of the neighborhood, the size of the temple varies[55][56].

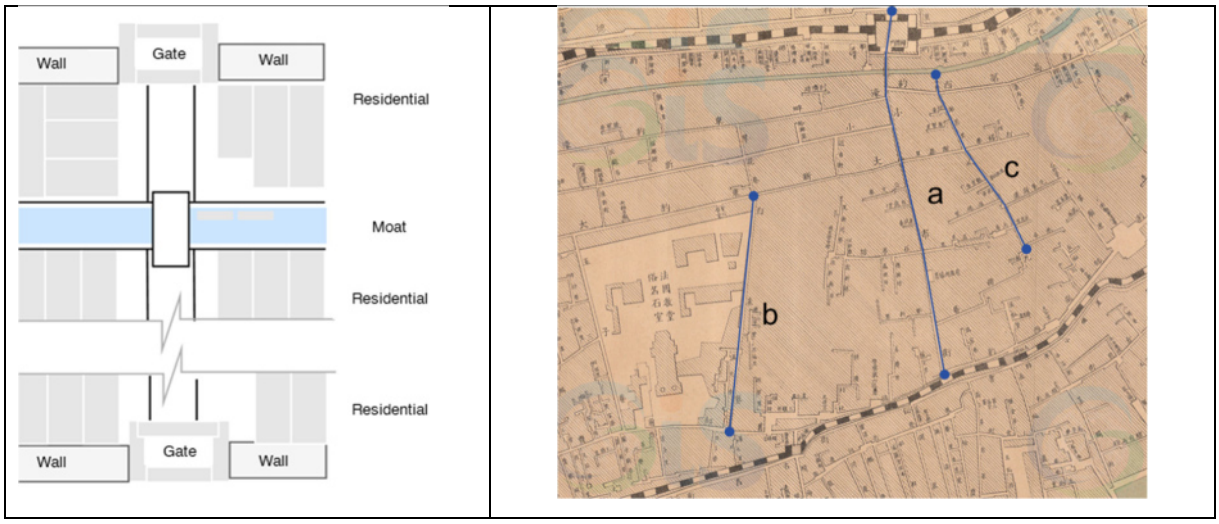
ii Tree-Shaped Inner Alley

The tree-shaped inner alley is also located in the interior of the block, which is due to the fact that the same surname is gathered by the people, and represents the Xudi of Gaodi Street. After the big clan bought and merged a number of adjacent small plots, they built their own temples, guild halls, and residences, which have strong private attributes. The tree-shaped alley also has a defensive character. At first, these plots continued the fabric of the original purchase, and were uniformly planned to form a grid. However, with the development of the clan (population increase and subdivision), the internal units of the plot no longer adopt an equal and unified plan, but are based on the tacit understanding of each house in the clan, making a gradual and disorderly division, and finally presenting a tree-like street and alley form. This reflects the characteristics of private real estate, but also shows the difference in status. Corresponding to the street temple, the center of family building and deliberation is the ancestral temple.

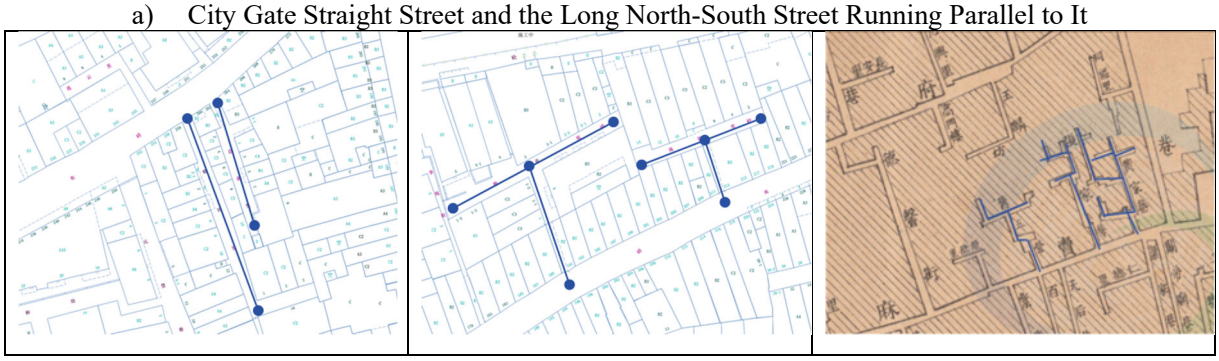
3） Inner Moat Water Alley

Streets that run along urban waterways and are used to carry water and goods, which have a certain height difference from the water surface, and sometimes a certain amount of space is required as a loading and unloading platform. It is distributed along the Jade Moat, especially near the bridge (Figure 3- 1c).

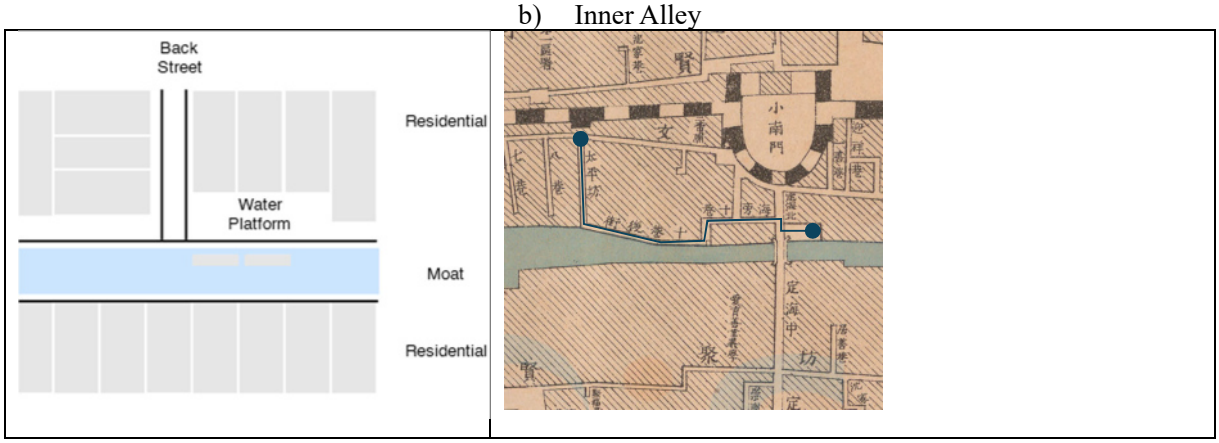
From the above analysis, it can be found that after the completion of the city wall, the physical boundary of the region, the internal street trunk lacks the basis for change, and the main driving force for the evolution of street and alley morphology is the local plot cycle.



a) City Gate Straight Street and the Long North-South Street Running Parallel to It



b) Inner Alley



c) Inner Moat Water Alley

Figure 3- 9 Typical Street Morphological Types after the Construction of the Nancheng City Wall (Source: Self-drawn with reference to the 1908 "Map of Guangzhou")

3.3 The Evolution of Street Forms in the Post-City Wall Period

The City Wall Period was a period of stability, in which the changes of streets and alleys were concentrated in secondary streets and semi-public spaces, and it was also a period in which "street markets" and "fang markets" existed side by side. After the completion of the city wall, the driving force of morphological evolution was small and scattered, which was mainly manifested in the "self-opening streets" of the new population in the city and the repair of urban problems.

In contrast, during the post-city wall period when the walls were demolished, the southern city area changed from the main street to the alleys in all directions. With the intervention of government and market behavior, the main body of "open streets" is no longer limited to local residents, and the form of "open streets" has also made many changes for modern cities. In the context of the dissolution of borders, the land ownership, community organization and street pattern inherited from the city wall period are bound to collide with the new urban construction, and finally shape into a more integrated and complex urban form.

During this period, the evolution rate of street and lane forms was also uneven, and the peak of urban construction can be divided into two cycles: one is the period of "urban reform movement" from the early Republic of China to the 30s of the 20th century, and the other is the period of rapid renewal and development from the founding of the People's Republic of China to the beginning of the 21st century.

3.3.1 Urban Development in the Republic of China (ROC)

3.3.1.1 " Demolition of City Walls and Construction of Roads " - the Breaking of External Boundaries

The city walls of Nancheng were demolished during the Urban Improvement Movement of the Guangzhou government of the Republic of China (1918), and "demolishing the city and building roads" was one of the core propositions of this movement, which clearly expressed the need for transportation development, and the road would replace the location of the city wall to provide the impetus for the modernization of the city. The demolition of the city and the construction of roads had a far-reaching impact, and the external conditions began to reshape the street pattern of the Nancheng area which used to be stabilize or even stagnate.

In 1930, the Guangzhou Municipal Public Works Bureau summarized the initial experience of the Urban Improvement Movement and compiled the "Implementation Plan of Guangzhou Municipal Public Works Affairs" to guide the subsequent construction. From the plan, it can be seen that the planning of the city's trunk road network and inner streets and alleys

at that time can be divided into two parts: ① Use of the city wall foundations, Moats and canals built new roads and bridges; ② Widening of existing important inner streets. Starting from the technical level of street construction, the Regulations also stipulates the size and cross-sectional form of the new road, the scale of the inner street widening, and the setback requirements of the buildings facing the street, etc., taking into account the various details of the implementation of the plan. On the basis of the "Implementation Plan of Guangzhou Public Works Affairs", the road planning has been implemented relatively well, laying the foundation of the road backbone network in the post-city wall period. It can be seen from the "The Latest Road Map of Guangzhou" (Figure 3- 10) from the 20s of the 20th century that the road system in Nancheng is relatively complete and very close to today's road pattern.

Figure 3- 10 Roads in the Nancheng Area in the 20s of the 20th Century (Yellow)
(Source: Refer to the "Latest Road Map of Guangzhou")

From the perspective of accessibility and traffic flow, the public reshaping of the street pattern of Nancheng is reflected in the following levels: ①The architectural interface adjacent to the city wall, which was originally a negative back of the building, has been reversed after the wall is demolished and the road is built, becoming the part of the whole block that is most closely connected with the peripheral city and has the highest commercial value – the Qilou Street(骑楼街); ②Some of the original arterial roads were widened due to road construction, and the grade of the roads was strengthened, and more traffic flow further activated the public nature of the building interface on both sides; ③It is a secondary road connected to the road,

similar to the road that was historically connected to the waterway, and became a "branch" facing the main traffic line. In addition, the government has also led the clearing of some abandoned streets into public land. Due to the construction of roads, the existence of some existing streets and alleys has become unnecessary and has been used for other urban development.

3.3.1.2 "Temple property transformation" - the Collapse of the Internal Organization

If the " Demolition of City Walls and Construction of Roads " broke the closed state of the outside of the neighborhood, then the " Temple Property Transformation " tried to dismantle the closed organizational form of the neighborhood during the city wall period, and achieved the unified and efficient management of urban life by eliminating the existence of community autonomy material[55].

Due to the limitation of the administrative power of the Qing Dynasty government, the grassroots level was divided into neighborhood units, and the gentry of each unit acted as intermediaries for autonomous management. The material form of self-management is the street gates and street temples of the neighborhood. The government of ROC first dismantled the street gates to facilitate transportation, but after being hindered by the neighborhood organization, it weakened the organization by selling or demolishing the temple property built by the neighborhood. After the neighborhood organization was broken, the residents' lives were truly integrated into the city, and they accepted unified administration and enjoyed various municipal services, which was objectively progressive. However, the exclusive public space and community identity of the neighborhood have also dissipated with the demolition of the street temple.

3.3.1.3 Other Urban Construction Activities in which the Government and the Market Participate

The street planning of Urban Improvement Movement is also reflected in the living space, and the construction of civilian buildings and collective housing has some local influence on the streets and alleys of Nancheng area.

The old city's temple property transformation and the demolition of the old government office have provided new plots for urban construction, and the government of ROC has attracted real estate companies to build a number of model collective residences through investment promotion. Collective housing is a small group of experimental houses, usually built by wealthy overseas Chinese businessmen and government bureaucrats, and is mostly low-rise villa buildings in Western style. Unlike naturally formed dwelling units or tightly packed "li" units, they use more space-aligned herringbone lanes and no street gates in the main lane. It takes into

account both public and private, reflecting a clean and elegant modern urban style. In the name of the place, various "new streets" are often used to distinguish them from the old neighborhoods.

Civilian buildings are to provide affordable housing for groups of migrant workers with lower incomes, such as intensive " Commoners' Palace ". The Commoners' Palace in Nancheng is on the north side of the middle section of Gaodi Street, and the north façade faces Jade Moat. The branch road of Gaodi Street, Gaodi New Street, should be a new alley for the Commoners' Palace.

In terms of the urban water system, in the campaign to demolish the city and build roads, the southern section of West Moat in the west of Nancheng and the Taipingsha estuary in the southeast of Nancheng have been filled in as culverts, and roads have been built on them, namely the present-day Renmin South Road, Dezheng South Road and Haizhu Square. It is worth noting that the non-governmental organization "Qinghao Public Group(清濠公所)" was an important social force at that time and was widely involved in urban construction affairs . On the one hand, this reflects that the waterways (especially the waterways of Xiguan) still have a certain traffic status during ROC, and on the other hand, it also reflects the serious siltation of the waterways.

A series of modern urban construction during ROC period aimed to transform Guangzhou, a thousand-year-old city, into an international metropolis adapted to modern urban life in a short period of time, bringing a new atmosphere to the streets of the old city, which had almost stagnated development: many roads were widened into convenient and accessible roads, and Qilou Street became a prosperous commercial business card; The barriers of closed neighborhoods were broken down, and community life was transformed into a new order. However, the urban reform movement was put on hold due to the outbreak of the Anti-Japanese War, and the city was also destroyed in the war.

3.3.1.4 Typical Street Morphological Types of this Period

The main driving force for the evolution of streets and alleys during this period was the dual disintegration of external physical boundaries and internal organizational forms, and the new forms born from this can also be interpreted from the above perspectives. At the macro level, the Urban Improvement Movement emphasized the connection with the modern city from the perspective of the time, so the road connecting the whole city became the focus of the new form. At the meso-micro level, the movement emphasizes a "model" way of life, in which a modified neighborhood unit is embedded to change the old form of closed, independent

government.

1） Road

Road construction is at the heart of the Urban Improvement Movement, built to the standards of automobiles and combined with the municipal pipe network, literally connecting material and information to the rest of the city. Both sides of the road have pedestrian functions, and most of them are combined with the building interface to make Qilou streets, and its convenience makes most of the prosperous commercial activities along the line develop. According to the needs of use, the roads built in the Republic of China are divided into main avenues (30~40 meters), trunk roads (25~30 meters), first-class streets (20~25 meters), second-class streets (15~20 meters), third-class streets (10~15 meters) and other scales. According to the source of the new road, it can be divided into:

i The Road Converted from the City Wall Foundation

With the advantages of convenient location and abundant space, the roads converted from the foundation site of the Nancheng city wall are the widest and most important type, and the street interfaces they produce are almost all Qilou commercial interfaces (Figure 3- 11). A row of houses backed by the base of the city wall has also been turned into the protagonist of the shopping street. However, their original depth is very small, and they are not the "shop-warehouse-residence" integrated Bamboo Houses with large depth in the traditional business district, and they may need another row of houses to act as auxiliary rooms, and the lanes between them have developed into "back streets and alleys" type commercial service channels. Similarly, unlike the road that was widened by the original arterial road, the flipping of the city wall preserved a large number of alley gates leading to the interior of the block. These alleys, which were originally the last row of houses at the base of the city walls, were not intended to be overt, but now they became the gateway to the road through the service passages of the block. And due to the gray space generated by the construction of Qilou, the forms of these commercial interfaces have become rich, and the functions and public and private attributes have become ambiguous.

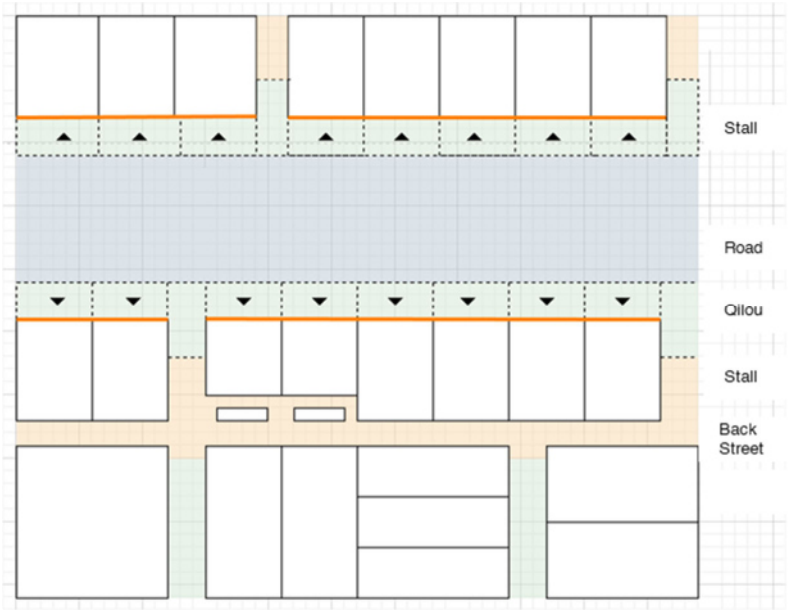


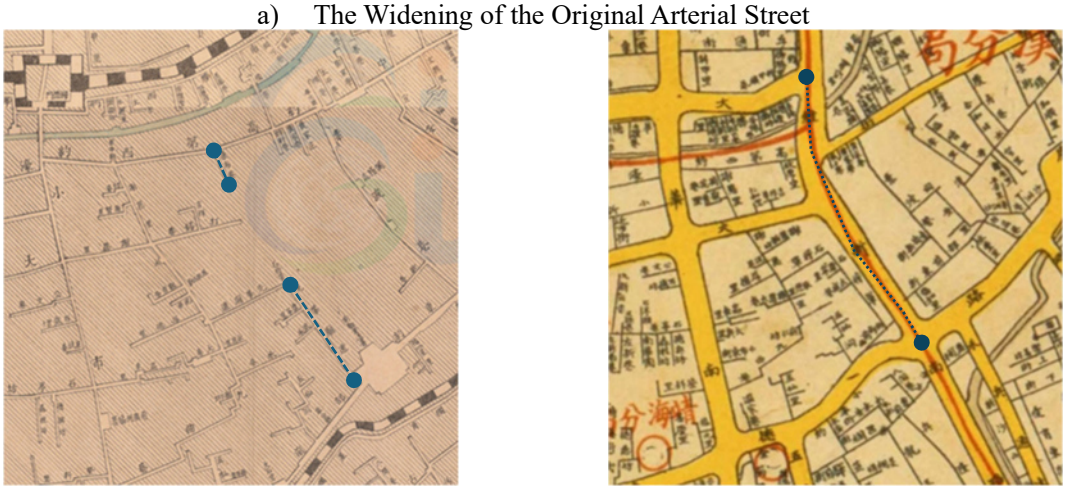
Figure 3- 11 Qilou streets and back alleys along the road
(Source: Author)

ii The Road that has been Expanded on top of the Existing Street

This part mainly includes the widening of the original arterial street and the extension road of the original street. Most of the roads that were widened were roads of a certain grade during the City Wall Period, and some of them were originally connected to the city's road network, making them highly convenient. One of the roads that has been widened is City Gate Straight Street (such as Nanmen Straight Street is widened to Hanmin Road, which is now Beijing Road), and the grade is at the main avenue and above; One is the east-west long street (Daxin Road), which is above the first-class street.

Examples of newly built roads are Wende Road and Weixin South Road (also known as Zhongzheng Road, now Guangzhou Qiyi Road). The former is an extension of the existing street (Fuxue West Street) under the current road plan, and the latter is the need to shape the new central axis of the Republic of China (Memorial Hall - Municipal Government - Haizhu Bridge).

a) The Widening of the Original Arterial Street



b) The Extension of the Original Street

Figure 3- 12 The road that has been expanded on top of the existing street
(Source: Based on the "Guangzhou City Map" and " The Latest Road Map of Guangzhou")

2） The Street to the Collective Housing

Collective housing is a small group of experimental houses, usually built by wealthy overseas Chinese businessmen and government bureaucrats, and is mostly low-rise villa buildings in Western style. Unlike naturally formed dwelling units or closely-packed "li" units, they use more space-aligned herringbone lanes, and the main lanes do not have street gates (Figure 3- 13). It takes into account both public and private, reflecting a clean and elegant modern urban style. In the place name, various "new streets" are usually used to distinguish them from the old neighborhoods, such as Liuhe New Street, Guangya New Street, etc.

Figure 3- 13 The Street to the Collective Housing
(Source: Author)

For the neighborhoods of Nancheng, the Urban Iimprovement Movement during the Republic of China was the most recent and most vigorous urban renewal action. It reshapes the stable pattern of the previous city wall in terms of spatial form and social anchors, and largely constructs today's block form and block public life.

3.3.2 Urban Development in the People's Republic of China (PRC)

After the founding of the People's Republic of China, Guangzhou's urban construction had multiple peaks, namely the early days of the founding of the People's Republic of China, after the reform and opening up, and the Asian Games cycle[40]. Among them, in the early years of the founding of the People's Republic of China, the city construction that had been stalled by the war was mainly restored, focusing on production facilities and infrastructure; After the reform and opening up, real estate development was introduced, and the construction of high-rise residential buildings and commercial complexes began; In addition to the further development of real estate, the Asian Games cycle also carried out a series of renovation of the old city.

In the early days of the founding of the People's Republic of China, large-scale urban construction was basically concentrated on the outside of the original city, and the area was planned in a unified manner, which had obvious characteristics of planned economy, and these activities were not within the scope of Nancheng area. The event that had a direct impact on the pattern of the streets and alleys of Nancheng was the reconstruction of Jade Moat into a road. The rest of the urban construction activities are mainly local and indirect impacts, including the construction of landmarks in the city center, the relocation of commercial areas in the state-owned renovation, the construction of staff dormitories and government departments.

It was not until after the reform and opening up that the large-scale introduction of

commercial development brought about a boom in urban construction. During this period, the entire old city of Guangzhou, including the Nancheng area, underwent urban renewal of varying intensity, and new forms of commercial, commercial and residential areas began to reshape the old city again. For Nancheng, although the renewal of this period was larger in scale, it was still gradual, and it was a decentralized behavior within the framework of the road system of the Republic of China, lacking unified planning and intervention.

3.3.2.1 Urban Construction in the Early Days of the Founding of the People's Republic of China

The urban construction activities in this period subjectively served the overall situation of restoring infrastructure and industrial production as soon as possible, and there was no large-scale urban renewal for the Nancheng area, but the functional replacement of some plots was carried out, forming new social anchors. These phenomena begin to affect the public life of the neighborhood from the external input conditions, and also provide ideas for the development mode and sequence in the later stage.

1） Urban Landmark Construction - Point-Shaped

In the early days of the founding of the People's Republic of China, Haizhu Square was one of the centers of urban construction, and Haizhu Square was located on the south side of the old southern city wall. After the repair of the Haizhu Bridge, the Qiyi Road in the north side of the river was connected with the south side of the river and became an important traffic artery. On the north side of Haizhu Square, Guangdong Trade Center and Guangzhou Hotel were built successively, which became the city's business card at that time. This exhibition area is also one of the first urban construction activities carried out in Guangzhou in the early days of the founding of the People's Republic of China. The exhibition area makes use of the corner space in the middle of the Nancheng area, and aims to establish a city landmark rather than the renewal of the old city. Urban landmarks reinforce the old spatial form and add strong social anchors to the periphery of the neighborhood. The model of "corner development" by using the most economically efficient areas in the periphery has also become a common practice in the renewal of old urban areas.

2） The River was Converted into a Road – Linear

Before the 50s, the wide area of Jade Moat was still able to pass some small traders' boats, and assumed a certain role in public transportation to supplement the lack of land transportation. However, due to the serious silting and pollution of the river, which affected the quality of the urban environment and traffic efficiency, the government changed Jade Moat into a culvert in March 1951, and paved the road to form a street. This has led to a reshaping of the architectural

interface facing the moat – many of the buildings on the side of the building, which had been negative for environmental reasons, were re-opened after the road was completed.

In terms of the overall street and alley pattern, as a linear space that crosses the entire Nancheng area, Jade Moat has been transformed into streets, which has brought a huge improvement in traffic efficiency to the entire area, and the public vitality of the neighborhood along the line has also been reactivated. On the one hand, most area of the Jade Moat is very narrow and cannot be used as a road for traffic, and on the other hand, the demolition of the city wall and road construction has formed a relatively complete commercial system, and the architectural interface facing the moat is difficult to compete again with this first-mover advantage in terms of development space and agglomeration effect. Therefore, there is almost no commercial street along the ones that was transformed from Jade Moat, but as quiet residential streets, and the functions are mainly to serve internally.

3.3.2.2 Urban Construction after Reform and Opening Up

1） Commercial Land & Real Estate Development

Around the 90s, Guangzhou ushered in a peak of commercial land sales, and a number of commercial real estate developments appeared on the historical fabric of the old city. Early development was dominated by market behavior, lacking unified planning, and the overall model was decentralized and gradual. In terms of location, the development is mostly dotted in areas with high commercial value and convenient transportation, such as street corners and along main roads, and the original small plots are integrated on the land to form a larger plot, and the buildings are mostly point-shaped high-rises, including business offices, commercial complexes and high-rise residential buildings.

In this mode of renewal, the old and new patterns of streets and alleys are particularly distinct:① Although they are both gradually renewed, contemporary high-rise buildings usually retreat a loop due to fire protection requirements, and it is almost impossible to continue the historical construction method of "seeing the seams and inserting needles"; ② There is a huge disparity between the volume of the old and new buildings, and the way of use is also very different, and the interface on both sides of the middle street is very different. The impact of this renewal model on the streets and alleys of the old city is also twofold: on the one hand, the traffic flow of new buildings may put pressure on the old streets and alleys; New buildings may cover natural streets and alleys, or they may not be open for use to disrupt microcirculation; On the other hand, the new building's more intensive construction approach actually leaves more street and public space for the neighborhood.

The vitality of the market economy has also given rise to more forms of commercial space: for example, the revival of specialized streets such as Gaodi Street and traditional wholesale markets， and new business model combines with exhibition and e-commerce; retail pedestrian streets such as Beijing Road that focus on pedestrian experience and spatial quality; Various commercial centers (indoor pedestrian streets) that integrate traditional specialty streets into podium buildings, etc.

2） Land for Non-Commercial Facilities

In addition to commercial real estate development, some non-commercial facilities are also an important driving force for the renewal of old cities, among which the more representative ones are schools and other facilities. Unlike commercial complexes and high-rise residential buildings, the form and site of this type of facility are regulated, so it often needs to occupy a larger plot of land and cover more natural streets. Schools also have certain requirements for closure, and are often surrounded by walls to leave a continuous impassable interface for the block. The fixed opening and dismissal times of schools will bring a peak of foot traffic to the surrounding streets, and the impact on the streets and alleys of the old city, which is often not wide.

3） Exploration of Urban Renewal that Pays more Attention to Humanistic Care

After the reform and opening up to the 90s of the 20th century, market-led urban renewal brought some new opportunities to the Nancheng area, but also caused many problems. Therefore, after the 21st century, the government began to explore the organic renewal model combining municipal intervention and market drive, and took the opportunity of hosting events such as the Asian Games to carry out a series of street renewal actions that pay more attention to humanistic care and are more suitable for contemporary urban public life. Representative actions include: ① Continuously updated pedestrian commercial street system represented by Beijing Road. In 2002, Beijing Road was introduced as a full-day pedestrian street, and later Teemall and other commercial centers were added as indoor pedestrian streets. After 2018, a new round of renovation and upgrading began, and at present, Gaodi Street and the Qilou in Danan Road, which run east-west direction, have also been included in its pedestrian improvement system; ② After the moats were reclaimed as roads in the last century, the role of hydrological landscape in the urban memory was re-emphasized, and the East Moat within the Nancheng area was renovated, and its coast was transformed into a linear greenway landscape belt that can be walked; ③ Pay attention to the construction of complete functions of the community, combine community centers, pocket parks and embedded functional facilities,

increase community public space, and create a pedestrian life circle.

3.3.2.3 Typical Street Morphological Types of this Period

1） Ring Road for High-Rise Building

Due to the needs of fire spacing, vehicle parking and logistics transfer, high-rise buildings built on the fabric of the old city need to leave a ring road between the surrounding buildings. In some cases, such as management needs and height differences, these loops are not incorporated into the existing road network.

Figure 3- 14 Ring Road for High-Rise Building
(Source: Author)

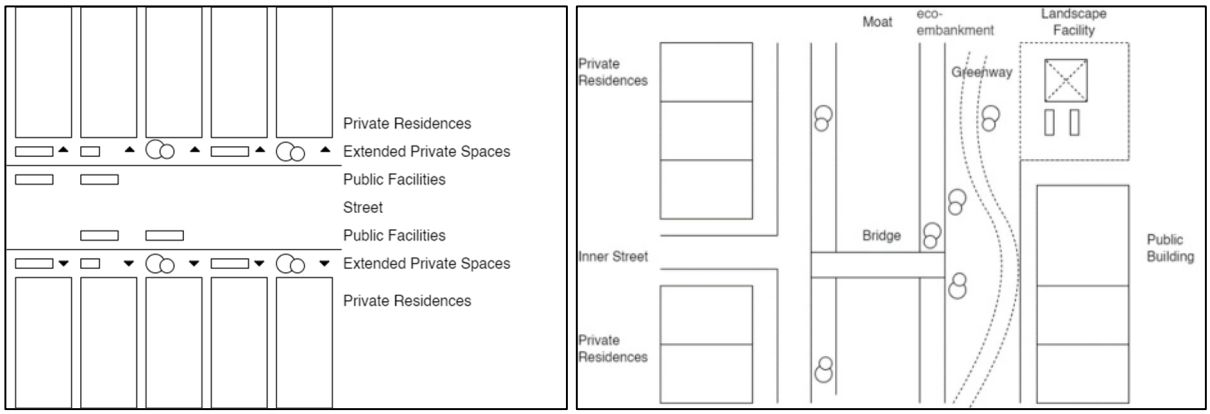
2） The Street Transformed from the Moat and Canal

i The Street Formed by Moat Reclamation

In the last century, due to the generally poor environmental quality along the river and the loss of traffic function, Jade Moat was transformed into a culvert and paved with roads above. Residential roads are basically formed along the original moat, and according to the different widths, the road separation and interface show different utilization methods.

ii The Greenway Formed by the Renovation of Moat

Since the beginning of 2009, as part of a large-scale water control project in Guangzhou, East Moat, the eastern boundary of the Nancheng area, has also undergone environmental remediation. The project improves the water quality of the river through technical means, and builds an ecological embankment and landscape recreation belt along the moat, forming a continuous good greenway for walkers.



a) The Street Formed by Moat Reclamation b) The Greenway Formed by the Renovation of Moat

Figure 3- 15 The Street Transformed from the Moat and Canal
(Source: Author)

3） Commercial Street

i "Front Shop and back Warehouse" Type Professional Street

"Front store and back warehouse" is the most common spatial mode of professional streets in Nancheng area. This model is filled with commercial interfaces on both sides of the main street, and the main logistics functions such as warehousing are placed in the backstreets and side alleys to maximize the commercial value of the street and shorten the logistics path. This model follows the historical street pattern and achieves functional self-consistency, while the vacant dwellings in the old town are also used as storage.

ii "Exhibition and Sales Combined" Type Professional Street

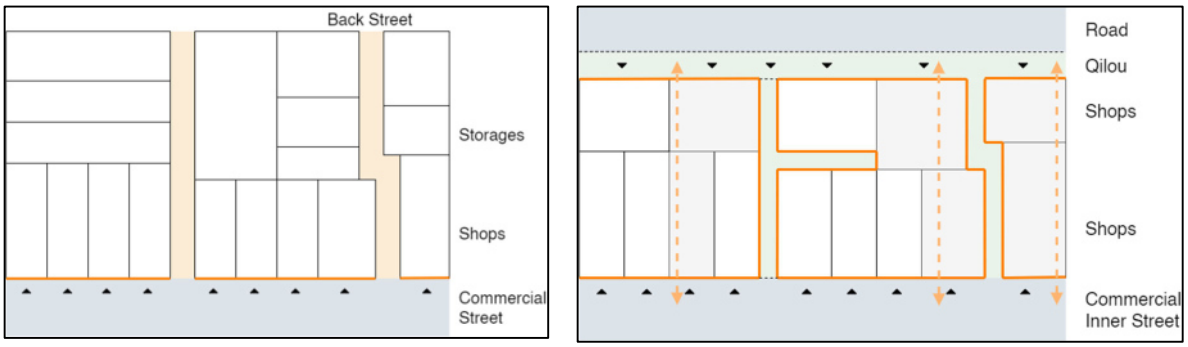
On the basis of "front store and back warehouse", some operators realize that the mixed business model of combining wholesale and retail, offline and online meets the current market demand. Therefore, some large and deep bamboo houses have been transformed into a corridor-style shop connecting the inner and outer streets on the ground floor, and the store space focuses on the combination of exhibition and sales, and the upper floor of the store can also carry out e-commerce live broadcast business. An example of this specialized street is the boutique shoe wholesale area around Gaodi West Street.

iii Outdoor Retail Pedestrian Street

The retail pedestrian street in the Nancheng area is represented by Beijing Road, which has historically been a commercial hotspot for pedestrians. In urban renewal, the streets were transformed into pedestrian streets to further attract residents and tourists, and retail centers, leisure and entertainment facilities were equipped to enhance commercial vitality. At the starting point, the pedestrian area of the street can reach a width of more than 25 meters, providing diversified possibilities for crowd gathering and market activities.

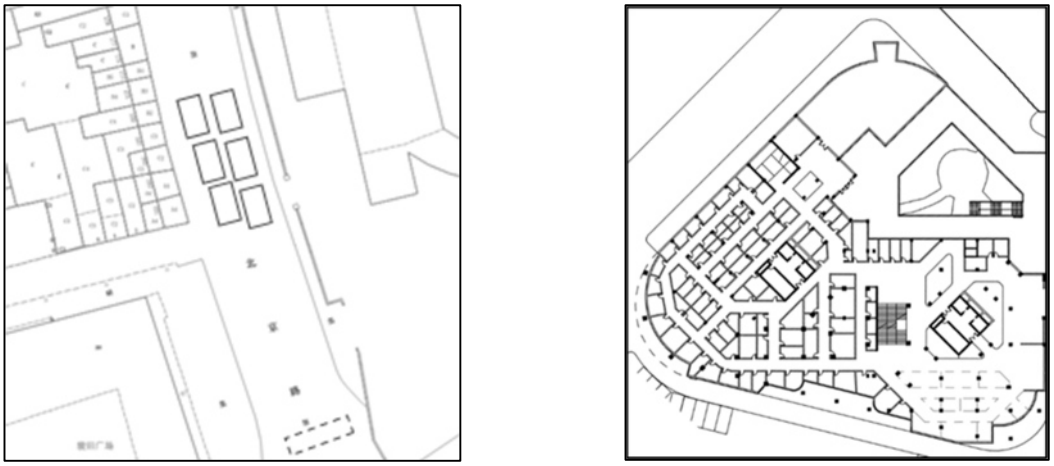
iv Indoor Commercial Pedestrian Street

Indoor commercial pedestrian streets are located in commercial centers, which are usually mixed-use facilities arranged by using the podium of high-rise buildings. The advantage of this model is the integration of the planar extension of the street into the intensive interior space, the common use of ancillary facilities, and the development of commercial activities regardless of the weather. The indoor commercial center is also divided into a wholesale professional market, and a retail-oriented commercial complex with integrated leisure and entertainment.



a) "front Shop and back Warehouse" Type Professional Street

b) "Exhibition and Sales Combined" Type Professional Street



c) Outdoor Retail Pedestrian Street

d) Indoor Commercial Pedestrian Street

Figure 3- 16 Commercial Street
(Source: Author)

4） Community Street with Embedded Service Capabilities

In urban renewal, which pays more attention to humanistic care, the community functions of the Nancheng area tend to be complete, emphasizing the placement of services and public facilities within walking distance. Due to the limited space in the old city, the street office is often set up in a single-family building, and integrates community services, activity centers and other functions, and is surrounded by pocket parks to form a community center in an administrative and public sense. Other community services, such as fitness equipment, public restrooms, logistics distribution points and garbage collection points, are also embedded in the

ground interface on both sides of the street.

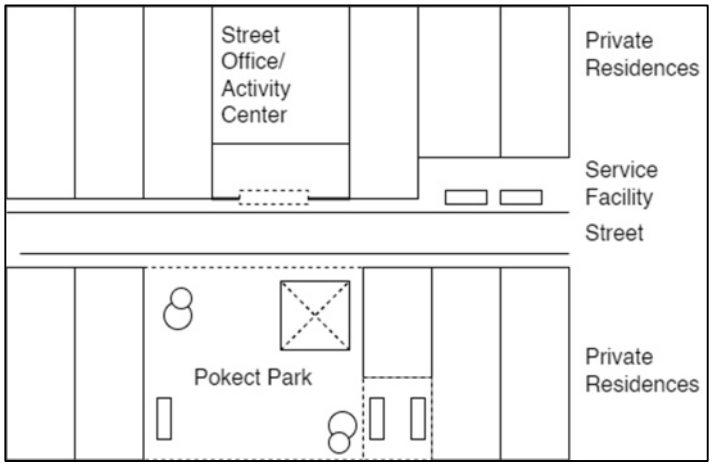
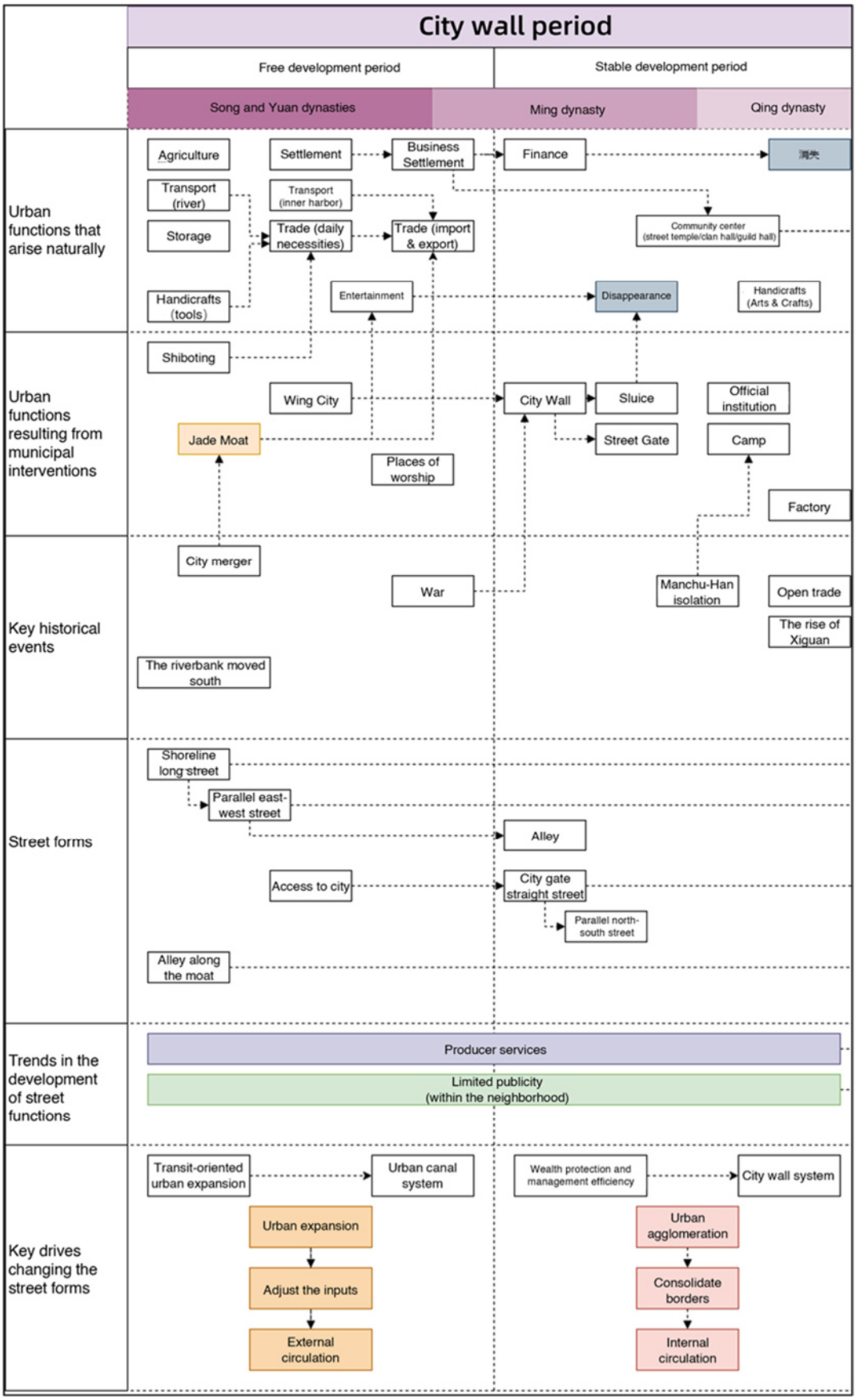


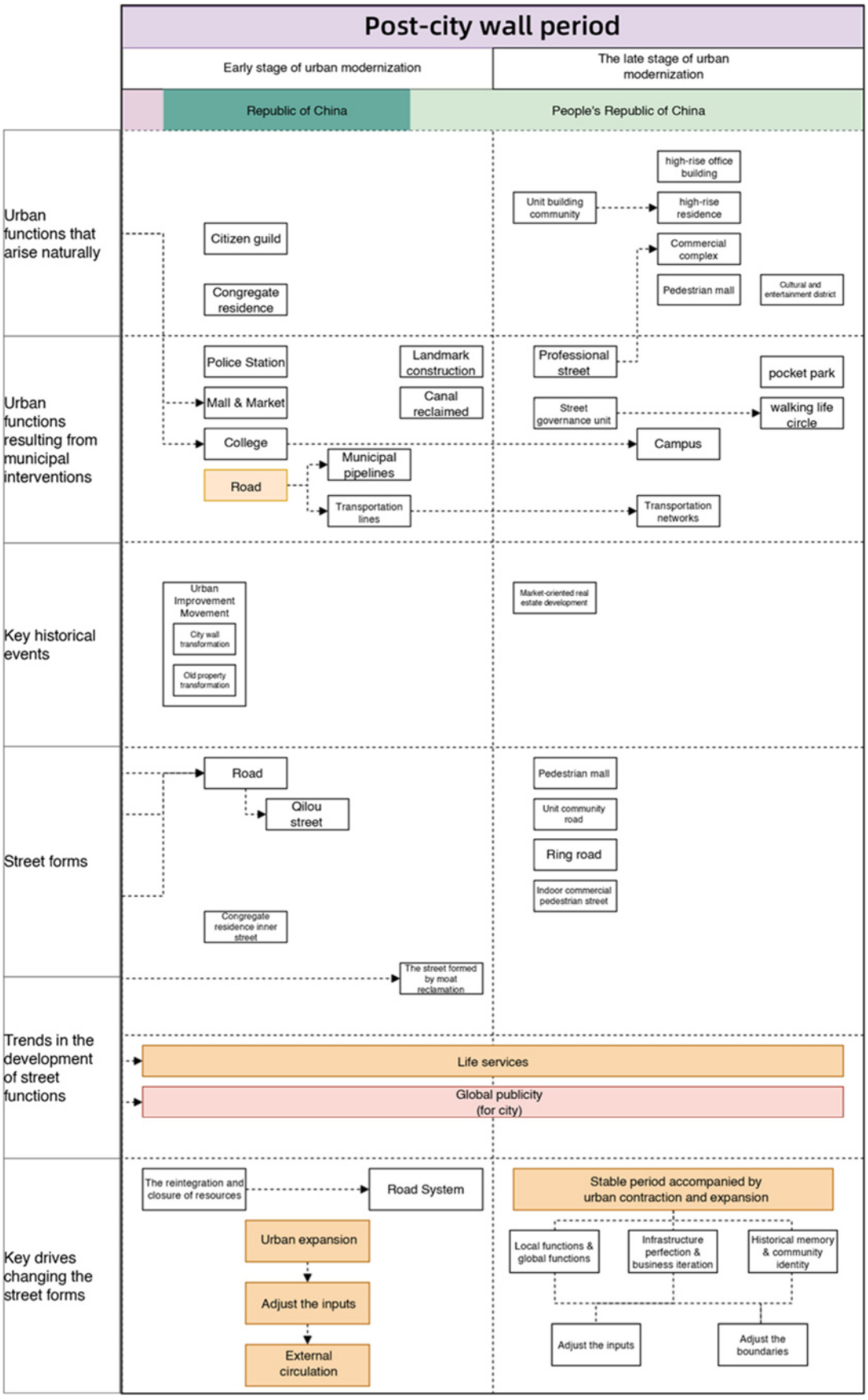
Figure 3- 17 Community Street with Embedded Service Capabilities
(Source: Author)

3.4 The Law of the Historical Evolution of the Streets in Nancheng Area

In the process of the development of Nancheng, there are two parallel development paths (spontaneously generated urban functions and facilities, and urban functions and facilities generated by municipal interventions) that affect each other. It can be concluded that its historical laws are as follows (Figure 3- 18):



a) City Wall period



b) Post-City Wall Period

Figure 3- 18 Summary of the Historical Evolution of the Nancheng area (Source: Author)

In the expansion stage of the rapid development of Guangzhou in ancient times, the key driving force affecting the form and business of the street came from the outside, and the core function of the street was to communicate the external circulation between the block and the city. The key to forming the vitality of the street lies in the input conditions, and the streets that cater to the dynamic changes of the city and take the lead in integrating into the urban development are easy to form important streets.

In the stage of stable development of Guangzhou in ancient times, the key driving force affecting the form and business format of the street came from the inside, and the internal circulation of the allocation of the block's own resources was the core function of the street. The key to maintaining the vitality of the street lies in the rational allocation of resources, and the advantages of the street with flexible space and clear service subjects are easy to inherit.

In contemporary urban society, due to the popularization of transportation and the great improvement of transportation capacity, the service capacity of streets and the iteration speed of street formats are not the same. The phenomenon of urban expansion and contraction may jump out of the boundaries of the past and exist in different parts of the neighborhood at the same time. When drawing on the historical experience of neighborhood development, it may be necessary to consider strategies and approaches in different contexts at the same time.

Based on the above background, it is concluded that the Nancheng area is currently in a relatively stable evolution cycle: ① The Nancheng area is located in the old city center of Guangzhou, not on the fringe of the overall expansion of the city, but there is a partial contraction and expansion caused by functional changes in the block; ②In terms of period, after the historical events of large-scale urban renewal, it is necessary to pay attention to the historical memories that disappeared in the previous updates; ③ There is no decisive change in boundary status outside the block, but the internal resources need to be allocated and integrated.

For the construction of social anchor networks, the main contradiction is to identify the social individuals served by the streets, and how to use an anchor subject to aggregate their public life. The current problem can be summarized as:

First, local functions and global functions are mixed and overlapping. There may be many people on the same street at the same time, and the scope of the street is sometimes not clear. We need to promote the classification and agglomeration of functions, and re-form the main axis of the block with its own duties; The second is the degree of infrastructure perfection and the risk of business iteration. The infrastructure of the neighborhood needs to be updated according to the core business type, but it needs to be flexible and changeable. We need to

identify anchor spaces that are inefficient in public interactions, where spatial form and function are at odds, assess the potential for improvement of anchor facilities or anchor institutions, and then decide whether to change the input conditions or internal resource allocation. The third is the shaping of historical memory and the construction of community identity. It is necessary to perpetuate the historical memory in the old town, but also not to hinder the development of the community by preserving the old form. Therefore, it is necessary to form a synergy between the two values, and guide them to a direction conducive to community development by building a new community core and combining historical memory and benefits.

3.5 Relationship between Street Spatial Patterns and Social Anchoring

3.5.1 The Models of Social Anchors in Various Periods

During the free development stage of the city wall period, the main social anchors in the Nancheng area were the urban water system (Pearl River, Jade Moat) and trade markets (bazaars, cargo stalls). Relying on the city's water system, primary agricultural products and goods from outside the city are transported into the southern city area and the local market trade is carried out. The streets of this period were anchors (markets) in themselves and formed a network of anchors connecting other functional areas (inner city, residential areas, entertainment areas, dock areas, storage areas), on which city dwellers, merchants, transport owners, agricultural producers, and craftsmen relied on anchors to establish close connections. The urban form and community format are unified to achieve a thriving community ecology (Figure 3- 19).

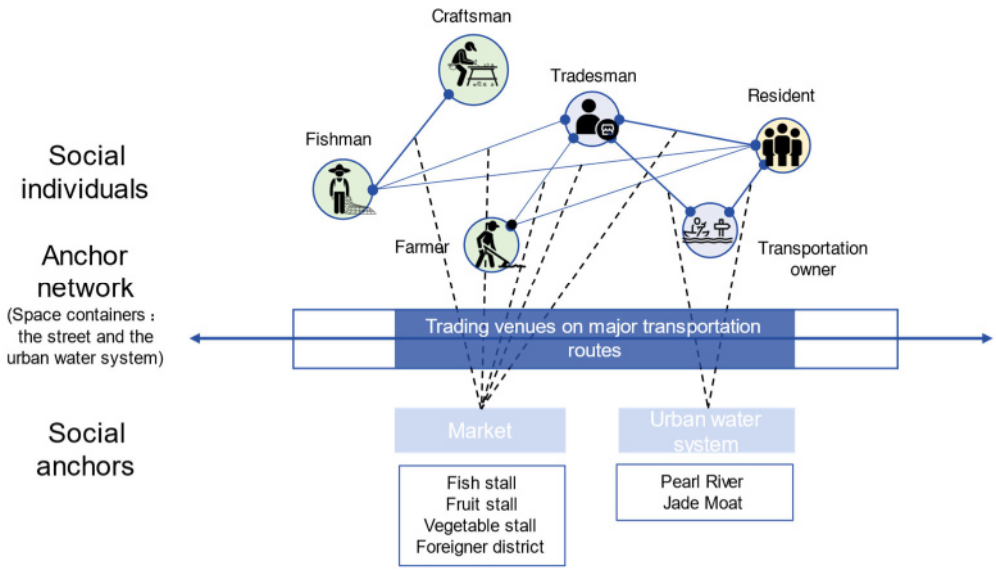


Figure 3- 19 The Model of Social Anchors in the Free Development Stage of the City Wall Period (Source: Author)

In the stable development stage of the city wall period, the urban water system in the Nancheng city, Jade Moat, lost its anchor role as a transportation of social assets under the

construction of the city wall and sluices. The business and environmental quality along the line declined rapidly, transforming from a bustling entertainment and boat mooring area to a single handicraft backstreet. With the shift of the commercial center to the outside of the city, some streets based on commercial anchoring in the city have been affected to a certain extent. However, the handicraft industry and the financial industry filled the original bussiness gap, and together with various trade associations, this part of the form and structure was maintained. Due to the needs of administrative functions, Nancheng moved into a certain proportion of official institutions during the Qing Dynasty, such as the Liangguang Ministry Hall(两广部堂) and the Guangdong Customs. These institutions do not serve the governance of the local community, and their anchoring effect on the community is indirect, such as the acquiescence of commercial and entertainment venues around the real estate of the government office. The governance of the local community is highly dependent on the autonomy of the gentry as an intermediary. Each neighborhood has a street gate that closes regularly to separate the inner street from the outer street, and has a street temple, the center of community discussion, which acts as an anchor point within the neighborhood. During this period, the role of streets and alleys as anchor networks declined, and the various anchors within the community tended to diverge and isolate, with the most important anchors shrinking along the streets of the center of Nancheng city (Figure 3- 20).

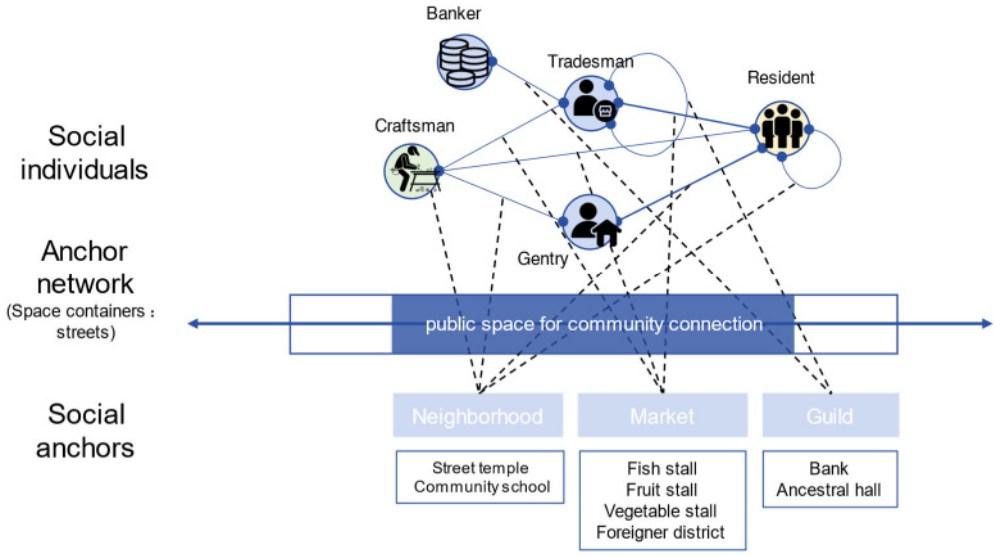


Figure 3- 20 The Model of Social Anchors in the Stable Development Stage of the City Wall Period (Source: Author)

In the early days of urban modernization, the Urban Improvement Movement provided a strong input of social assets to reintegrate the previously closed Nancheng area into the city. Qilou Streets are widely found along the roads with prominent traffic conditions, and the service

business can realize the anchor of the whole city through the new transportation mode. At the same time, a series of interventions made by the municipal government in urban governance are also breaking the situation of the previous period of neighborhood units: One is the "temple property transformation", which disintegrates small community anchors and replaces them with municipal facilities (such as schools, modern shopping malls and housing security institutions) to play a role in connecting neighborhoods. The second is to divide the police perimeter and realize an administrative management unit similar to the current street-level, so that the scope of municipal management can be expanded, and more social assets and social subjects can be integrated. The third is to develop the strength of citizens and strengthen civic awareness. During the Republic of China, a large number of localized social groups participated in municipal activities, such as the Qinghao Public Group and the Xiguan Commercial Guild, and even interfered with government decision-making to a certain extent. However, the process of urban improvement was disrupted by the war, and urban development re-entered a period of regression and stagnation (Figure 3- 21).

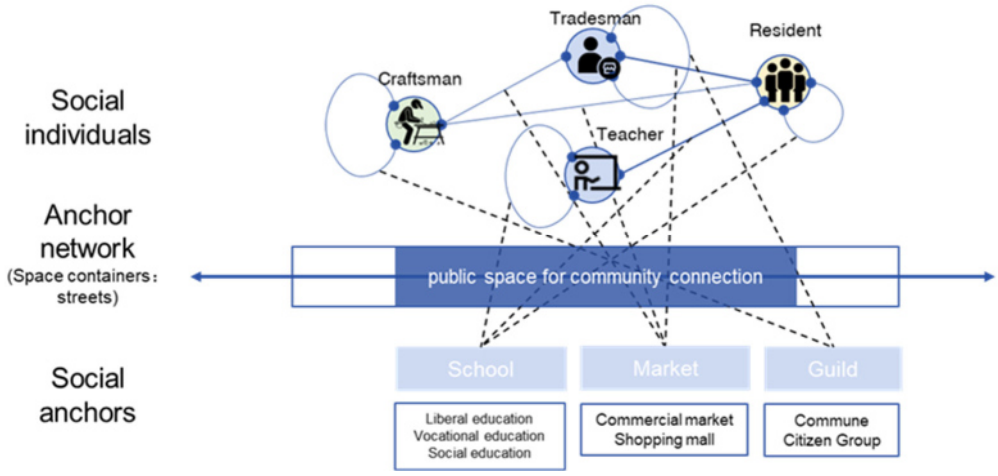


Figure 3- 21 The Model of Social Anchors in the Early Stages of Urban Modernization in the Post-Walled Period
(Source: Author)

For a period after the founding of the People's Republic of China, the urban layout of the Nancheng area did not change much, and only some unit communities were embedded. At the same time, due to the huge number of dilapidated houses and the dense population in the central urban area, local governments have insufficient funds, so they can only introduce market funds to assist urban renewal in the early stage of reform and opening up. However, in this kind of renewal behavior that lacks unified planning, developers often pursue the maximization of short-term benefits and ignore the long-term and overall value, and use advantageous land plots to carry out large-scale demolition and construction. As a result, many high-rise and mixed-use

buildings are embedded in the low and dense texture of the old city in dots and patches, which not only causes "constructive damage" to the historical context, but also greatly increases the building volume, population density and traffic intensity of the old city[58]. Although the early market-oriented development provided a new social anchor potential for Nancheng in terms of economic benefits, it ignored the construction of community cohesion and the maintenance of historical identity, which was not the optimal solution for urban renewal. After 1999, the Guangzhou municipal government announced that it would prohibit developers from carrying out renovation projects within the old city, and in the subsequent urban renewal practice, it established a small-scale organic renewal, with the government taking the lead in coordinating social resources. At the same time, the current community governance follows the "street-community" level, and shapes the anchor point of community life on the basis of respecting the original social relations, and its ideal model is manifested as the life circle layer radiating along the street to the periphery of the central area formed by "neighborhood committee + various public activity facilities".

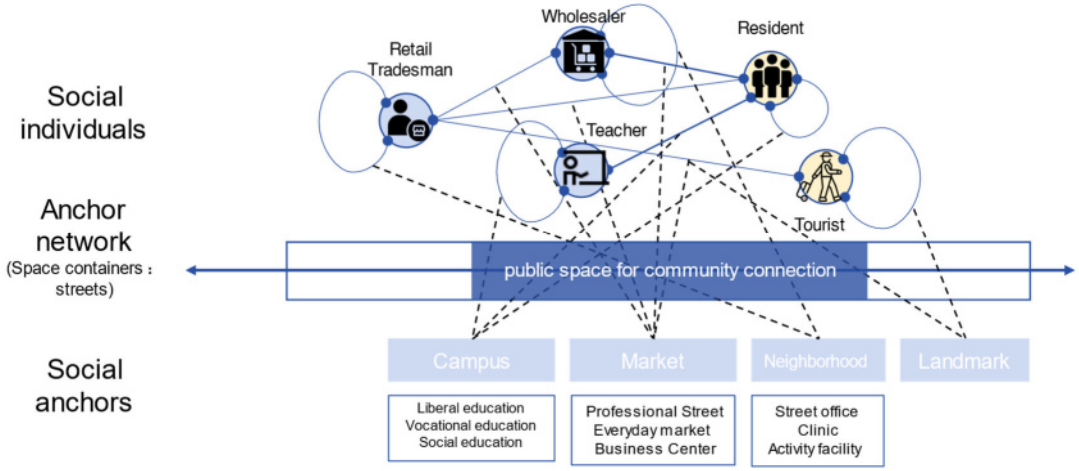


Figure 3- 22 The Social Anchor Model of the Late Period
(Source: Author)

3.5.2 The Relevance of Street Space to Social Anchors

In Chapter 2 of this paper, the hypothesis that street space is related to social anchors is proposed through some phenomena, theories and practices related to social anchors. However, whether the hypothesis is valid for the Nancheng area still needs to be demonstrated in the context of the actual situation. Combined with the existing historical research, this chapter can show that the streets in the Nancheng area, as an external space, are universally and interactively associated with social anchors, and that the streets have an importance that cannot be ignored in the process of constructing a social anchor network.

3.5.2.1 The Public Nature of the Street in the Community Derives from the Connected Anchor Space

In the Nancheng area, the street is a relatively stable spatial structure in the historical evolution, and the gradual urban renewal mode makes the streets in the later period mostly inherit the spatial pattern of the previous period. However, in the similar spatial patterns of different periods, differences in the degree of publicity and prosperity of business are often observed, and the reason is usually that the social anchors in the spatial container have changed and shifted. Typical examples of this situation include: the Jade Moat line, which was originally a prosperous commercial and entertainment area, has become a handicraft backstreet waterway with an increasingly narrow space, loss of traffic function and low environmental quality due to the relocation of the original social anchor (foreign trade center); The "demolition of the city and the construction of roads" in the urban improvement movement brought about the import of traffic flow, which turned the back streets and alleys and private houses under the original city walls into active Qilou shops facing the road.

3.5.2.2 The Impact of Anchor Spaces in the Community is Spread Outward through the Streets

Historically, the Nancheng area lacked a complete public space such as a plaza in modern cities, and most of the area maintains a higher density urban form until today, so the street is one of the most common and important forms of public space in the Nancheng area. Anchor facilities and activities in the city rely on streets to connect people, disseminate information and circulate resources, and their ability to anchor public life is largely based on the accessibility and spatial quality of streets. As a result, it can be observed that new anchor facilities are clustered on main streets, and large anchor institutions also transform the surrounding street space to expand their influence. Representative examples of this situation include: Gao Di Street, as a long east-west street with relatively favorable traffic conditions, has historically seen the clustering of commercial halls, ticket agencies, and market management departments, and there is also a merchant family colony represented by Xudi; in the Qing Dynasty, stores and recreational facilities were operated with the tacit approval of the official government in the vicinity of the Liangguang Governor, and the land of the governmental office was inherited by the Sacred Heart Cathedral which also acquired the surrounding store properties to create an affiliated facility and a residential area for its members, and at the same time, it was also a place for its members to gather. facilities and congregation areas, and also transformed the plot of land in front of the main entrance of the church into a well-organized gateway space[65].

The above phenomenon of correlation in the Nancheng area reveals that there is a certain mapping relationship between the social anchor network and the street spatial network, and that

the street is the external spatial medium for constructing the social anchor network.

3.5.3 Typical Models of Anchor space

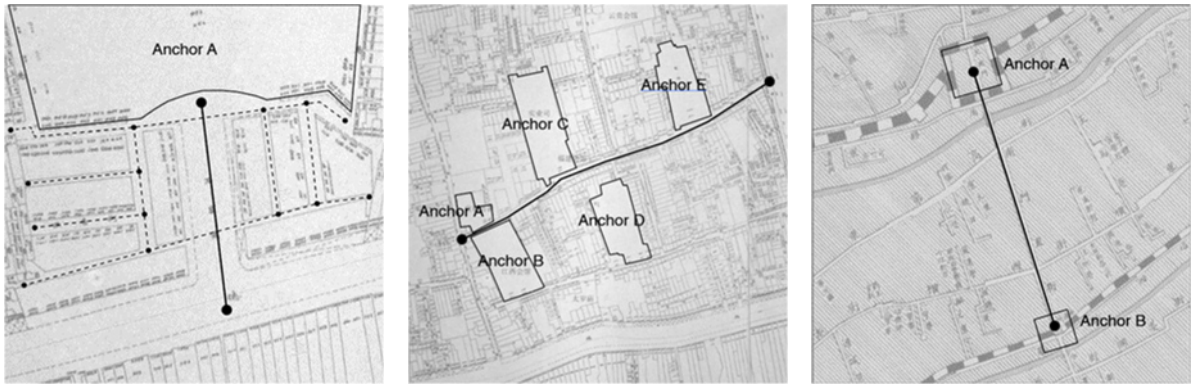
In the street maps of Nancheng in various periods, the three typical spatial patterns of “gateway”, “corridor” and “bridging” that are closely related to the phenomenon of social anchors can be generally observed, which also reflect “the role of streets as a means of constructing social anchors”. They also reflect the idea that “the street serves as an external spatial medium for the construction of social anchor networks”:

Gateway street spaces are mostly located in neighborhoods at and around the entrances and exits of large anchor structures, or at nodes leading to larger areas. These spaces are based on the foot traffic and access (business or residential) provided by the anchor institution or region, which also needs these peripheral spaces to project its public influence outward or to obtain social inputs from public life. Examples of the “gateway” spatial pattern include the historic Liangguang Governor h and later the gateway to the Sacred Heart Cathedral, the city gate markets in history, and the current starting point of the Beijing Road Pedestrian Street, among others. Gateway-type street spaces embody neighborhood development with anchor institutions or external areas as the dominant driving force, and public life forms circles clustered around such hotspots (Figure 3- 23a).

Corridor street spaces are mostly located on the main street in the block, connecting a series of anchor facilities at the street interface on both sides. These anchor facilities may not be as large as larger anchor institution, but most have similar or related formats, form a linear sequence, and make the most of their street interfaces. These spaces are based on the accumulation of business traditions on some of the main streets, which provide them with the flow of people and traffic, and the rear blocks provide them with space for development. At the same time, the main street also forms a thriving vitality through these interface spaces. Examples of the "corridor" spatial model include the commercial club group and professional street on Gaodi Street, and the commercial guild group on Sanfuqian Street. The corridor street space reflects the resource tandem role of the main street in the block, and the public life forms a linear agglomeration in the corridor(Figure 3- 23a).

The concept of bridging street space is more extensive, and most of them are located at the nodes where the two spatial attributes or business attributes are different in the block. Due to the development of cities, public life that was previously separated from each other and with different attributes may be adjacent and overlapping, and they may have opportunities to interconnect and create new business forms, and this is where "bridging" comes into being.

Examples of the "bridging" spatial model include the historical area of wharves, bridges, entertainment districts and commercial districts along the Jade Moat, and the area of "City Gate Straight Street" between the inner and outer cities. The bridging street space reflects the possibility of communication and integration of social resources between different public lives(Figure 3- 23c).



a) Gateway b) Corridor c) Bridging

Figure 3- 23 Typical Models of Anchor Space
(Source: Author)

The above-mentioned spatial patterns do not exist in isolation in the Nancheng area, but correspond to the social anchor network it carries, and a variety of models form an organic street system. The diagram shows their spatial topological relationships:

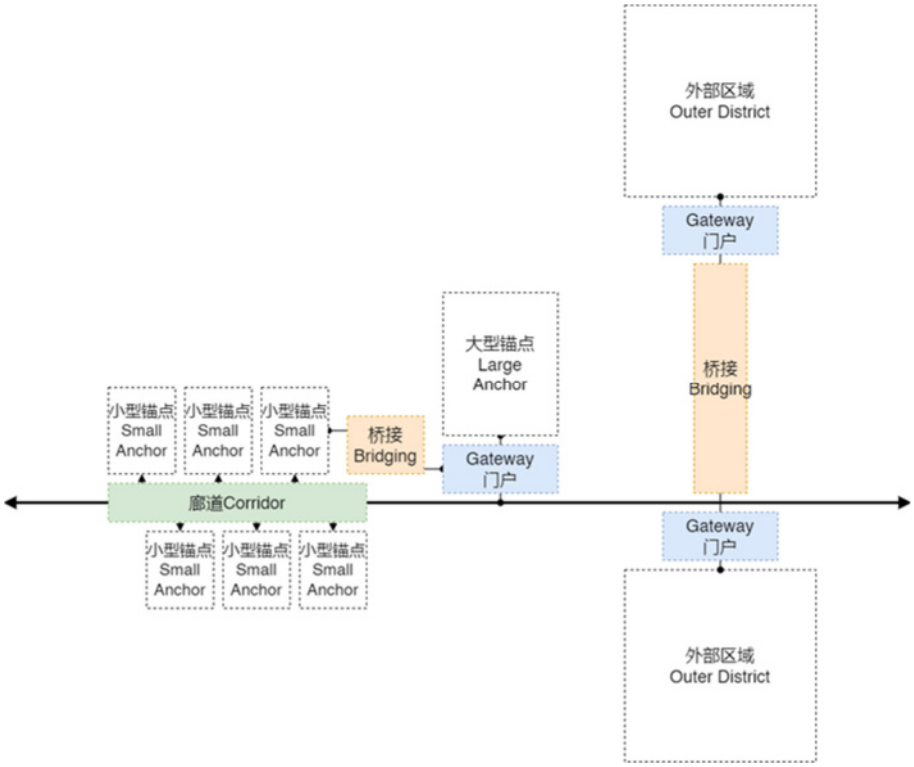


Figure 3- 24 the Relationship between Anchor Spaces
(Source: Author)

3.6 Summary

This chapter first analyzes the evolution of spatial form and public life changes in the Nancheng area of Guangzhou from the formation to the present in chronological order through historical maps and documentary materials. Taking the establishment of the southern city wall in the Ming Dynasty and the demolition of the southern city wall of the Republic of China as the time nodes, this chapter divides the history of the region into two spatial evolution cycles, the "city wall period" and the "post-city wall period", and summarizes the important urban construction events, typical street patterns and their mutual influence in different periods.

A horizontal comparison of different periods shows that the evolution of urban functions roughly follows the two main axes of "municipal intervention" and "self-evolution", which are accompanied by the emergence of street forms adapted to new functions. The emergence of the city canal, the city wall and the road represent the transformation of the three urban development momentums, and the input of external conditions and the allocation of internal resources affect the transformation of public spaces which act as anchors.

An analysis of the typical social anchor patterns of each period shows that the street not only serves as the anchor of public life itself, but also connects various anchor facilities into a system. The historical development of the Nancheng area shows that the street space is closely related to the social anchors, and the streets are actually the external spatial medium for the construction of the social anchor network. Under the tone of gradual urban renewal, three universal street space patterns of "gateway", "corridor" and "bridging" have emerged, which have a relatively high affinity with the public life connected by social anchors.

In the following study of renewal strategies, it is necessary to identify the service subjects of social anchors, analyze the conditions and resources inside and outside the neighborhood, and pay attention to the experience in historical evolution to give full play to the advantages of different spatial models.

Chapter 4 Design Conditions and Status Analysis

This chapter defines the design conditions for the urban regeneration strategy of "social anchor network construction". Based on a clear understanding of the historical pattern and evolution of the Nancheng area, this chapter will enter the site and analyze the current situation at the neighborhood level. Firstly, we select the anchor institutions, which are the subjects for the construction of the social anchor network, discuss their necessity and feasibility, and define the specific scope of the site for the derivation of the design strategy. After that, based on the field research, a meso-micro scale graphical analysis is conducted with the anchor institution itself and the street that connects to the anchor institution as the clues, to clarify the historical elements and people's activities, to point out the characteristics of the public life and the problems faced by the site, and to propose potential ideas for improvement（Figure 4- 1）.

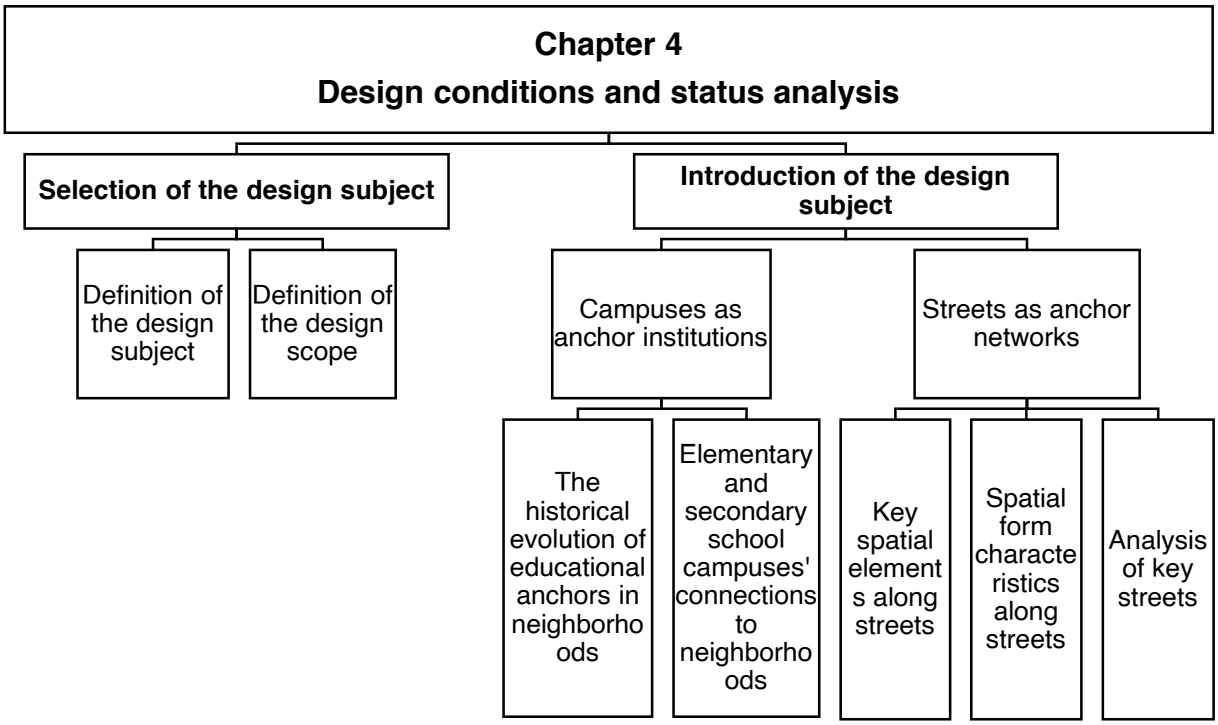


Figure 4- 1 Chapter Structure of Chapter 4
(Source: Author)

4.1 Selection of the Design Subject

From the summarization of historical development patterns and the analysis of the current situation, it can be concluded that under the increasingly rich urban public life and more scientific and rational renewal planning mode, the current South City area has the potential to establish strong social anchors, and some shaped social anchors can be observed in the local area. However, confined to the legacy of the old city, whether the development potential of the majority of the area can be reasonably transformed and formed into a certain scale of anchor

point network, it is still necessary to screen and plan the anchor point institutions and to play the role of the historical streets and alleys as a link in the process. Therefore, it is necessary to select the appropriate spatial body as the anchor institution and use it as the base point to deduce the design strategy. At the same time, we also need to locate a block with high potential for enhancement and representativeness to carry out the grounded deduction of the design strategy.

4.1.1 Definition of Anchor Institution

The Nancheng area has a prominent share of public service space, and the public facilities that are suitable as anchor institutions (with reference to the size of the service, the land scale area, and the on-site influence of the community) are: schools (11 in total, including elementary to secondary), hospitals (10 in total, including community health stations to general hospitals), and commercial complexes (8 in total, including wholesale markets to daily consumption centers). Of these, schools are the most numerous, cover the largest area, and have the most prominent involvement in the community (Figure 4- 2). The majority of the school sites are historically inherited, embedded in the center of the community, have the longest contact boundaries with the community and buttress the many historic streets, a morphological quality not found in other anchor institutions. Elementary and secondary schools have a well-defined service radius, cover a wide range of streets, radiate a large population, and have extensive and deep social connections at the site, making them suitable for hosting community activities.

Therefore, at the level of the existing community councils, broader social anchors can be established based on clusters of one to three schools common to the community, assisting in linking other commercial and healthcare facilities. Considering that the boundaries of the campuses themselves are the streets of the community, the influence and connectivity of these anchor institutions will be more centrally reflected in the street interface. The task of building a network of social anchors will be spatially organized along the streets and the spaces along them, and the process of improving the network of social anchors will also be a process of enhancing the vitality of the streets.

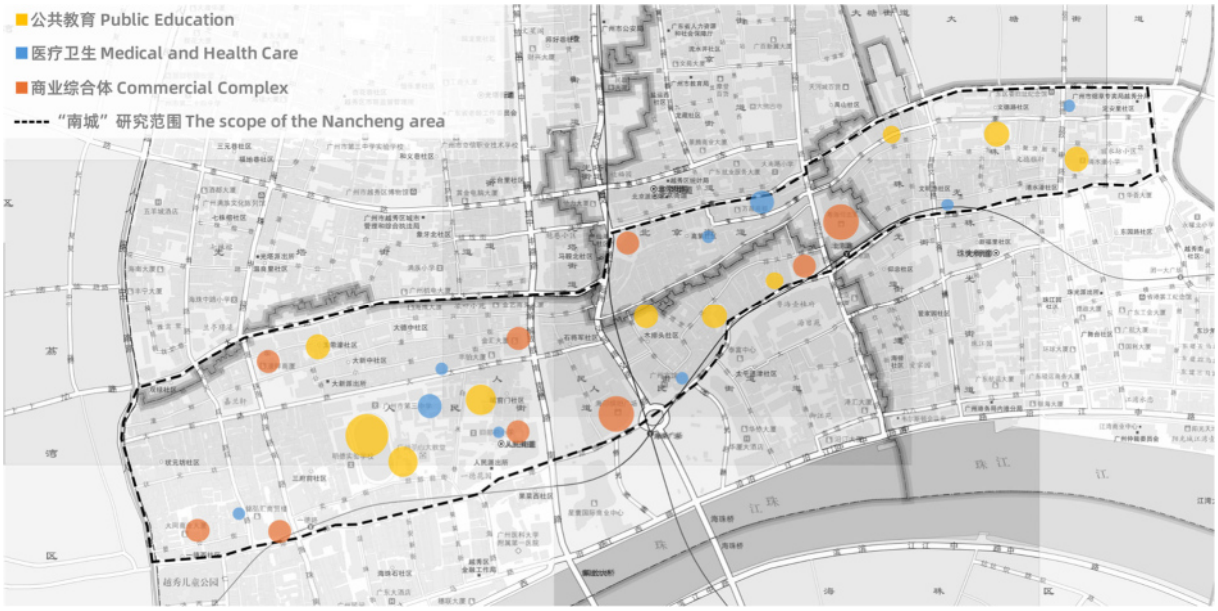


Figure 4- 2 Distribution of Major Anchor Institutions in the Nancheng area
(Source: Author)

4.1.2 Analysis of Design Conditions from the Perspective of Social Anchors

For the design sites with representative and renewal potential, this study mainly refers to the concept of "low utility land" in the current status quo in the "Special Plan for High Quality Urban Renewal of Yuexiu District (2023-2035) (Draft for Public Comments)". The concept defines the evaluation items according to the three categories of industrial, residential and public services, and the weighted score of each item is used as the evaluation index (Figure 4-3). The plan also proposes evaluation criteria for the regeneration potential of low utility land (Table 4-1), and assigns high, medium, and low development value levels according to the retention value, development potential, and the difficulty of regeneration.

Figure 4- 3 Evaluation Indicators of "Low Utility Land" in Yuexiu District
(Source: Reference[59])

Table 4- 1 Indicators for Evaluating the Regeneration Potential of "Low Utility Land" in Yuexiu District.
(Source: Reference[59])

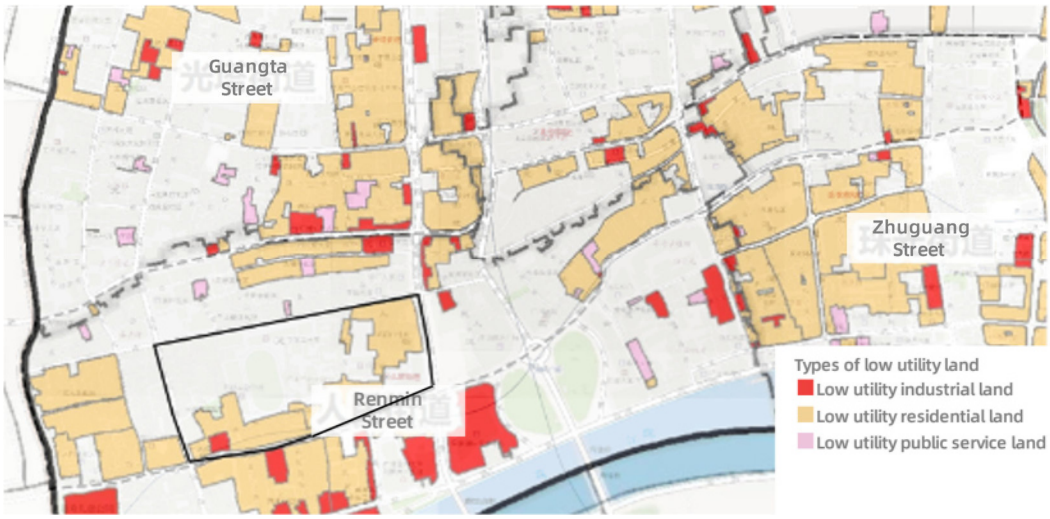
Land Type	Evaluation Dimension	Evaluation Factor	Evaluation Grading
Preservation Value	Historic Preservation Value	Municipal and above cultural relics protection units	Outside the heritage construction control zone/heritage construction control zone/cultural relics protection range/heritage building subject
		Historical and Cultural Neighborhoods	Outside the Environment Coordination Zone/Environmental Coordination Zone/Construction Control Zone/Core Protection Scope

		Historic Landscape Area	Outside the Environmental Coordination Zone/Environmental Coordination Zone/Construction Control Zone/Core Protection Scope
Development Potential	City Location	Commercial Land Value	High/Medium/Low
		Office Land Value	High/Medium/Low
		Residential benchmark land price	High/Medium/Low
	Important Platforms	Functional Platforms	Inside/Outside Scope
	Traffic Location	Road Traffic	200m/500m of land adjacent to main roads (including planning)
		Railway Transportation	200m/500m within the station (including planning) area
Difficulty of Regeneration	Land factor	Ownership	State-owned land/collective construction land
		Development intensity	Status quo plot ratio below 1.5 / plot ratio 1.5-3.5 / plot ratio above 3.5
	Degree of aggregation	Plot size	More than 10 hectares/1-10 hectares/less than 1 hectare
		Plot shape index	1/(Perimeter/4√Area)

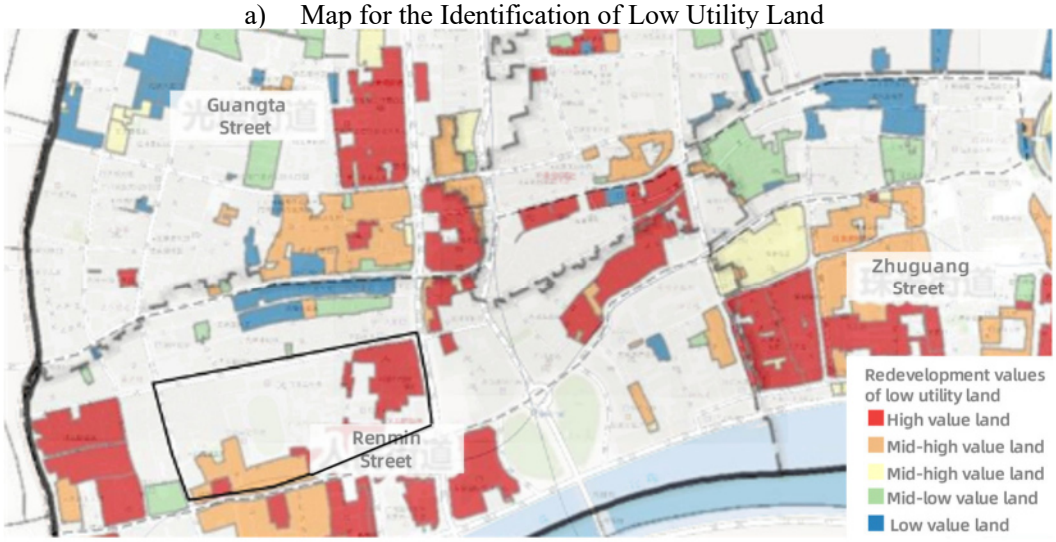
According to the ranking of "low utility land" index and filtering out the bottom 60% of the sites, the distribution of their functional types (Figure 4- 4a) shows that the low utility land in the Nancheng area is mainly residential land. In terms of the distribution of development value (Figure 4- 4b), it can be seen that the sites in the central and western parts of the Nancheng area have high development potential. In view of the fact that there is already a relevant plan based on the Beijing Road commercial district around Gao Di Street in the central part of the

Nancheng area, this study focuses on the derivation of the design strategy for the western part of the Nancheng area.

Further analysis reveals that the parcels within the solid line in the figure are dominated by residential land, while the parcels they enclose are the campus clusters of Guangzhou No. 3 Middle School, Mingde Experimental Middle School and Jiubuqian Primary School. The plan to revitalize the neighborhood through a network of social anchors by using the campuses within this range as anchor institutions has high research value and is of some reference for other neighborhoods in the Nancheng area. Therefore, the neighborhood surrounded by the solid line was selected as the design scope and entered into the subsequent design strategy derivation.



a) Map for the Identification of Low Utility Land



b) Map of Redevelopment Values of Low Utility Land

Figure 4- 4 Distribution of Different Types of Low Utility Land
(Source: Adapted from Reference[59])

4.2 Introduction of the Design Subject

The selected design area is the plot of land from Daxin Road in the north, Yide Road in the south, Haizhu South Road in the west and Jiefang South Road in the east, with an area of about 94,000m² . Its center plot is a cluster consisting of Sacred Heart Cathedral, Guangzhou No.3 Middle School, Mingde Experimental Middle School and Jiubuqian Primary School School, surrounded by mainly residential buildings and with high-rise buildings at the edges. In the following section, the main anchor institutions (primary and secondary school campuses) that can be relied upon will be sorted out by combining literature and on-site research, and the main spatial elements of the parcel, the characteristics of the street morphology, and the main public activities will be clarified from the meso to the micro level.

4.2.1 Campuses as Anchor Institutions

The analysis above has revealed the special spatial position of the educational anchor in the neighborhood. This subsection will explore how this cluster of campuses has been formed in the current neighborhood from the perspective of its historical evolution, and extract the connections between the campus as an anchor institution and the community and the potential for enhancement from the current situation.

4.2.1.1 The Historical Evolution of Educational Anchors in Neighborhoods

Educational anchors have a long historical tradition of participation in the Nancheng community. During the Ming and Qing dynasties, there were already social schools in Guangzhou's urban and rural areas, and in the middle of the Ming Dynasty, the conversion of temples into schools was advocated in order to serve as a means of indoctrination[60]. Initially a place for the public in the township to pay for teachers to teach the children in the township, the social school later became a group for thief prevention and disaster relief, and was two sides of the same coin with the street temple in terms of neighborhood governance. The Yide Road at the southern boundary of the design area is named after the “Yide Social School” that stood by the roadside in the Ming and Qing Dynasties.

From the late Qing Dynasty to the ROC, Guangzhou's society was in the midst of a diversified development, with government-initiated schools, church schools, and resident-organized schools appearing in the city at the same time, and a large number of the land for the school buildings were inherited from the original community temple properties[61]. After the founding of PRC, out of the need to centralize educational resources and improve the overall level of education, many church schools and private schools were gradually converted and merged into public schools. More recently, due to the increase in the number of primary and

secondary school students and the higher demand for quality education on campus facilities, a number of primary and secondary schools in the Old Town area have been merged and expanded, resulting in the current situation where many complete campus sites are embedded in high-density, low-rise residential neighborhoods. Figure 4- 5 depicts how some of the schools within the neighborhoods have historically evolved from other sites and how the nature of their instruction has changed over time.

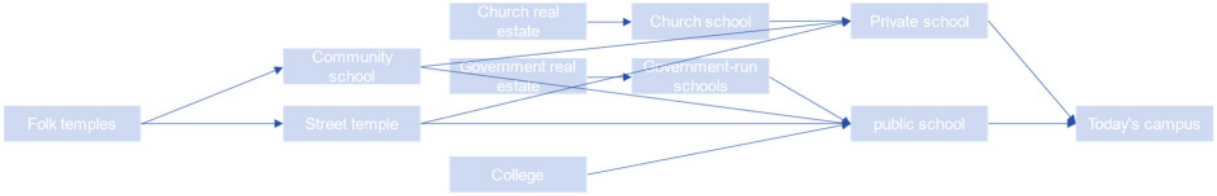


Figure 4- 5 Schematic of the Evolutionary Relationships of Educational Anchors in the Nancheng area (Source: Author)

For the design scope of this paper, the three schools that have survived to the present day are Guangzhou No. 3 Middle School, Mingde Experimental Middle School, and the Jiubuqian Primary School, all of which have complex histories. But their origins all point to the same historical event - the replacement of the Sacred Heart Cathedral with the site of the Liangguang Governor in the neighborhood after 1863, and the start of the operation of the ancillary properties surrounding the church. The three schools were formerly part of these properties, and all initially existed as parochial schools.

In 1857, the French Consulate in Guangzhou set up the Pi Chong College, founded by the French missionary Guillemin, to study foreign languages, mainly for the education of the children of consular officials and the training of translators. After the French Consulate moved to Shamian, Pi Chong College was moved to the site of the former Third Middle School (formerly known as Joseph Road) in 1863, and in 1903, Wei Changmao built a large-scale school on the basis of Pi Chong College, named Sacred Heart College. In the Guangxu period, the college started the earliest “school-run industry”, making it the earliest part-time movie theater in China, which also introduced some foreign blockbusters[62][63].

In 1914, the collage was converted into Sacred Heart High School. In 1925, the Catholic Diocese of Guangzhou funded the construction of two new buildings on an empty lot adjacent to the Sacred Heart Middle School to prepare for the establishment of the Mingde Girls' High School. At the beginning of the school, only about twenty students were enrolled, but later efforts were made to expand the school, and in 1933 and 1935, the junior high school and senior high school sections were added to the school. In 1935, in order to reflect the Catholic mission of fraternity and salvation, the school implemented the policy of running a charitable school,

stipulating that all students in the senior middle school were exempted from tuition fees, and adding a civilian night school to provide free education. There was an elementary school and a kindergarten attached to the Mingde Girls' High School. The later Jiubuqian No.1Primary School was the Rixin Primary School run by the church at that time, and the Jiubuqian No.2 Primary School was the kindergarten attached to the school at that time[64].

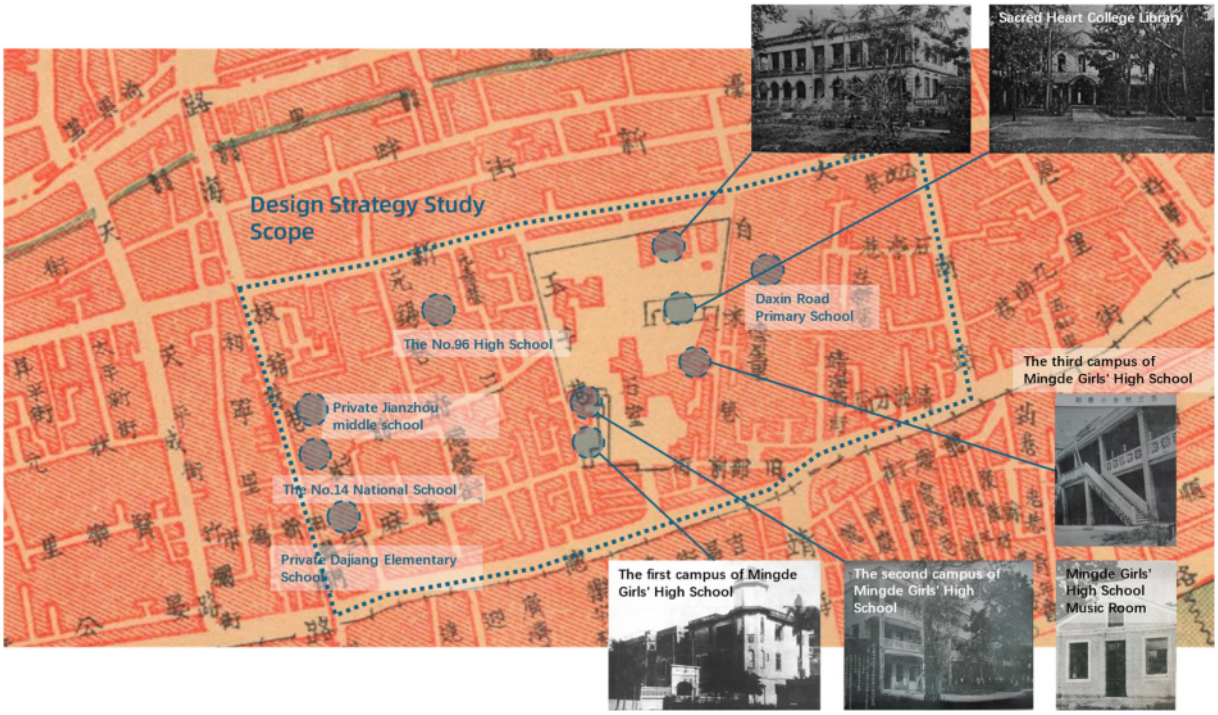


Figure 4- 6 Schematic Map of the Campus Distribution during the Republic of China (Source: Author)

In the early years of liberation (around the 1950s), the People's Government strengthened the management of private secondary schools and the curriculum had to be set according to government regulations, so the school canceled the religious course and changed its name to Qiyu Middle School, which was dedicated to the government in September 1952 along with Mingde Girls' Middle School and merged to form the Third High School of Guangzhou.

In 1986, the West Campus of the Jiubuqian Primary School was expanded (at today's site), which was a merger of the former Daxin Road Primary School, Longrenfang Primary School, and No. 20 Middle School. In 2004, the expansion project of the Guangzhou No.3 Middle School was completed, relocating more than 2,100 residents to the west of the original school, expanding the boundaries of the school campus to Yuanxi Alley and Dexin Street, and expanding the area to more than three times the size of the original, and possessingthe largest gymnasium, sports field, swimming pool and academic lecture hall of the schools in the district at that time. Guangzhou No.96 Middle School was partially incorporated into the No.3 Middle School. The Jiubuqian Primary School was moved out and the original site became the Mingde

Experimental Middle School. In 2009, Guangzhou No.34 Middle School was also incorporated into the No.3 Middle School.

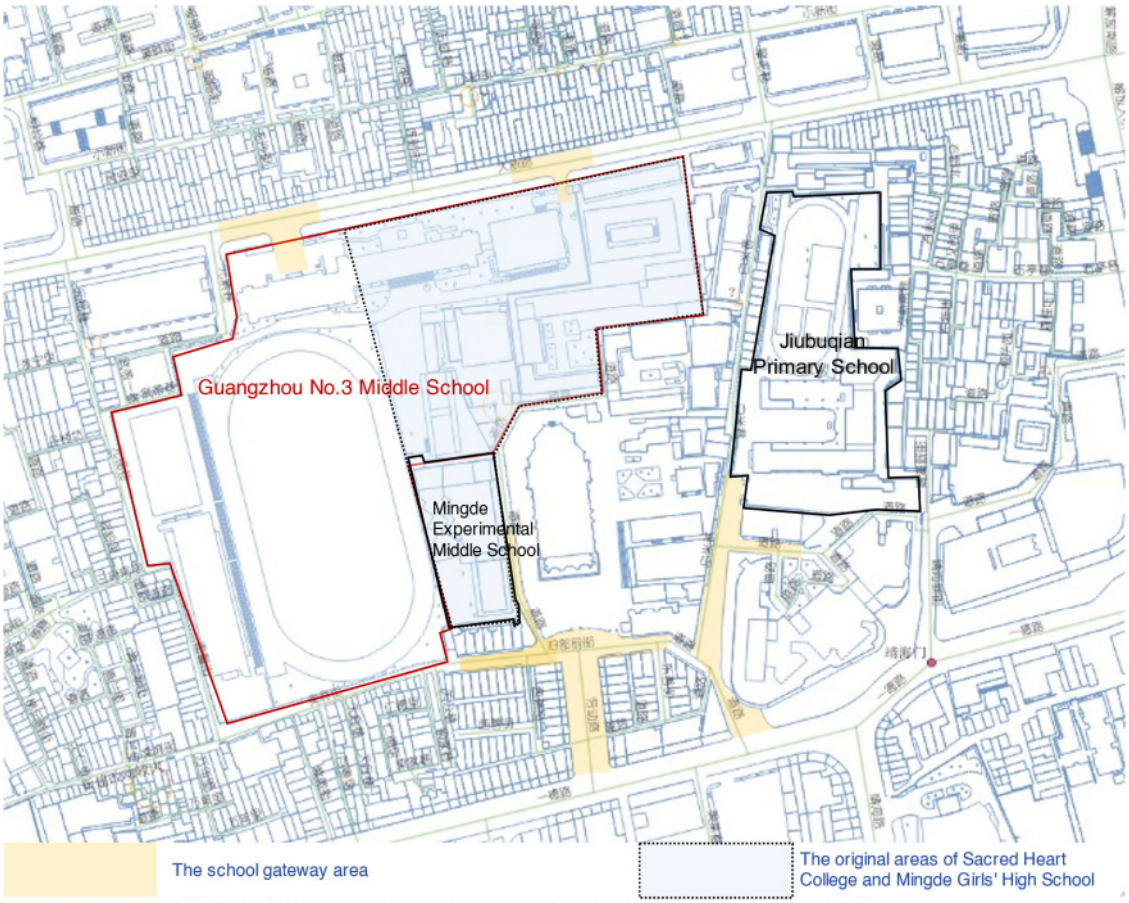


Figure 4- 7 The Existing Boundaries of the three Campuses
(Source:Author)

By now, after three historical iterations of church origins, private-to-public conversion, and consolidation and expansion, the three campuses have become the largest cluster of campuses within a single neighborhood in the Nancheng area. The memories, resources, and connections they possess to the surrounding community are topics worthy of discussion under the lens of social anchors.

4.2.1.2 Elementary and Secondary School Campuses' Connections to Neighborhoods

Currently, Guangzhou No.3 Middle School is a full-time public secondary school in Yuexiu District and a national model high school in Guangdong Province, covering an area of 43,847 square meters, with 67 teaching classes and more than 3,000 students. The campus has a beautiful environment, adding rare greenery to the dense old city. The swimming pool, basketball court and other sports facilities are open to the public during non-teaching hours under the management of a third-party organization. However, the entrances to the venues are set in alleys and lack relative guidance, parking and other supporting facilities. The school also

develops students' practical ability and comprehensive quality through the “Four Festivals” (Sports Festival, Arts Festival, Science and Technology Festival, and Charity Sale Festival) and other sequences of activities, which have a certain degree of home-school linkage, and have the potential to form a linkage system for the whole neighborhood. In addition, No.3 Middle School has a long-walled boundary inside the whole neighborhood, which makes the spatial feeling a bit monotonous, and the internal landscape and local historical elements have not yet been shown to the whole community through these boundaries.

Mingde Experimental Middle School, which covers an area of about 2,800 square meters and has approximately 18 teaching classes, is a private junior high school affiliated with No. 3 Middle School. The overall situation of the school's connection with the community is similar to that of No. 3 Middle School, but the overall size of the campus is smaller and does not allow for the provision of public spaces such as sports facilities. The school also establishes links with families and the community through a number of hands-on activities (e.g., bazaars, etc.). However, due to the smaller campus, these activities that are moved directly to the street in front of the school are also co-organized with the community's work therapy station and social work service station. This practice expands the community impact of the activities and is a worthwhile idea. The school's limitation as a single anchor institution is still its limited size, it could consider linking up with other primary and secondary schools in the neighborhood, focusing on increasing its impact in terms of public activities.

The Jiubuqian Elementary School (West Campus) is a public elementary school with a total area of 13,015 square meters and approximately 32 classes. The campus has adequate and standardized sports facilities and is a sports promotion school. The campus also has a garden that serves as a labor base for planting Chinese herbs. Chinese medicine culture is a special feature of the school, and the flow of knowledge resources among multiple populations is realized by linking neighboring medical resources and local non-heritage heritage. In addition, Baimi Alley on the school's boundary has been used for school-community co-construction activities to advocate for waste separation and recycling. The alley has also been made safe in response to students' walking to school. Still, the primary school's linkages with the community are relatively limited to the campus and a single street, and these measures do not appear to be simple to replicate on the south side of the neighborhood, where commercialization is more intense and the population more complex.

Based on the current enrollment practices for primary and secondary schools in Guangzhou and the “Guidelines on Construction Standards for General Primary and Secondary Schools in Guangzhou”, it is possible to qualitatively sense the extent to which students

attending these schools travel to and from their homes and schools, and thus to infer the ability of schools to serve as anchors for building home-school-community linkages. According to the guidelines, a reasonable service radius for secondary schools is within 1000 meters[65]. Guangzhou No. 3 Middle School has a predominantly Yuexiu-based enrollment, but is also able to enroll a certain percentage of out-of-district students. Considering the high quality of the school and its attractiveness to the student population, it should have a greater reach to the "home-school-community". In the actual survey, it was found that at the end of the school day, students walk back to their neighborhoods, and a significant portion of them go to bus and subway stations on the outskirts of their neighborhoods, crossing the streets and alleys within the design area in the process. Mingde Experimental Middle School basically only enrolls students within the district. The enrollment area of the Jiubuqian Primary School is defined in terms of residential streets, and the analysis shows that it is also located within the 500-meter service radius which is also consistent with the guidelines. Unlike the high school, the majority of students at the elementary school need to be dropped off and picked up, thus bringing exponentially more foot traffic and a more tightly managed area in front of the school (similarly, there is a small drop-off and pick-up demand at the middle school).

In general, the active forms of campus-community linkages within the scope of the design are mainly "festival-type" short-term activities, "home-school-type" peer-to-peer relationships, and "short-distance" proximity radiations. Some passive forms of linkage are seen in the open operation of sports facilities, student consumption and other market behaviors. In more everyday public life, such as the daily paths of students, residents, merchants, and tourists, the campus does not serve as a perceptible, publicly cohesive spatial feature, but merely provides a long boundary and transient flow of people to the neighborhood. Therefore, in the process of building a network of social anchors, the unique nature of the campus as an anchor institution needs to be utilized to build a public life system that can be perceived on a daily basis.

4.2.2 Streets as Anchor Networks

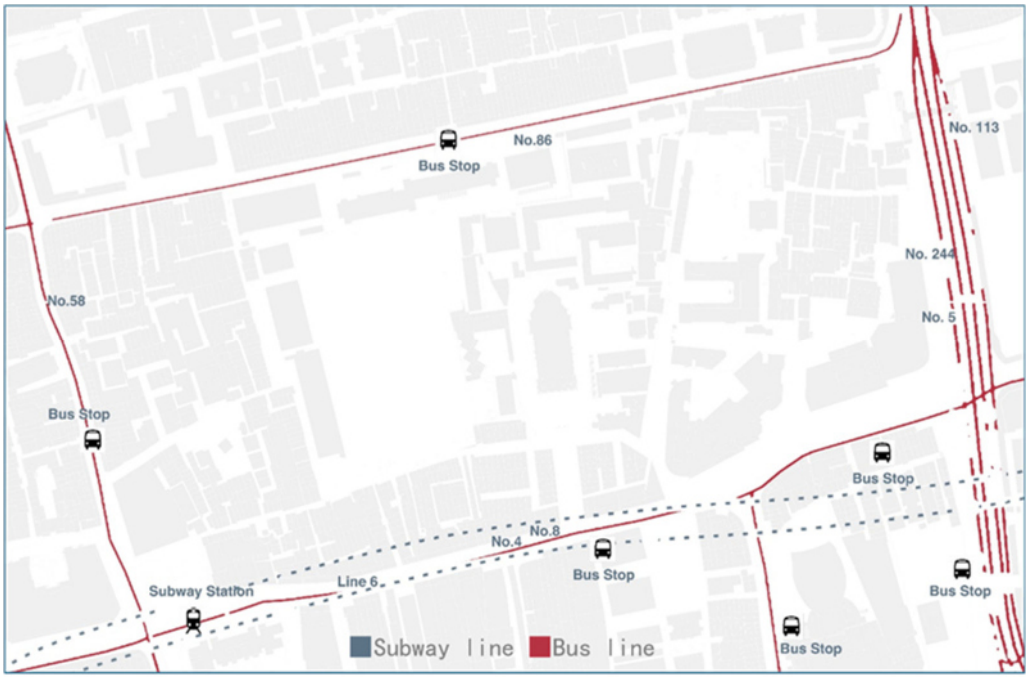
Streets form the boundaries of the campus, are the public life paths connecting the school, and are also the indispensable material form carriers for the construction of the social anchor point network. This section attempts to summarize the "key streets" in the construction of the social anchor network in terms of spatial elements and morphological characteristics, and to analyze these key streets on a micro scale to extract the starting point of the renewal strategy.

4.2.2.1 Key Spatial Elements along Streets

Starting from the basic access attributes of the streets, it can be found that the internal streets of the neighborhood are dominated by slow-moving (walking/non-motorized) traffic, with temporary motorized traffic demand near the anchor institutions (schools and commercial complexes) (Figure 4- 8), where pedestrian-vehicle mixing is an issue of concern. The distribution of public transit stops reflects the fact that the southern portion of the neighborhood is a major landing point for outside visitors and a major departure point for students and residents traveling to other neighborhoods, making it a neighborhood gateway to focus on.

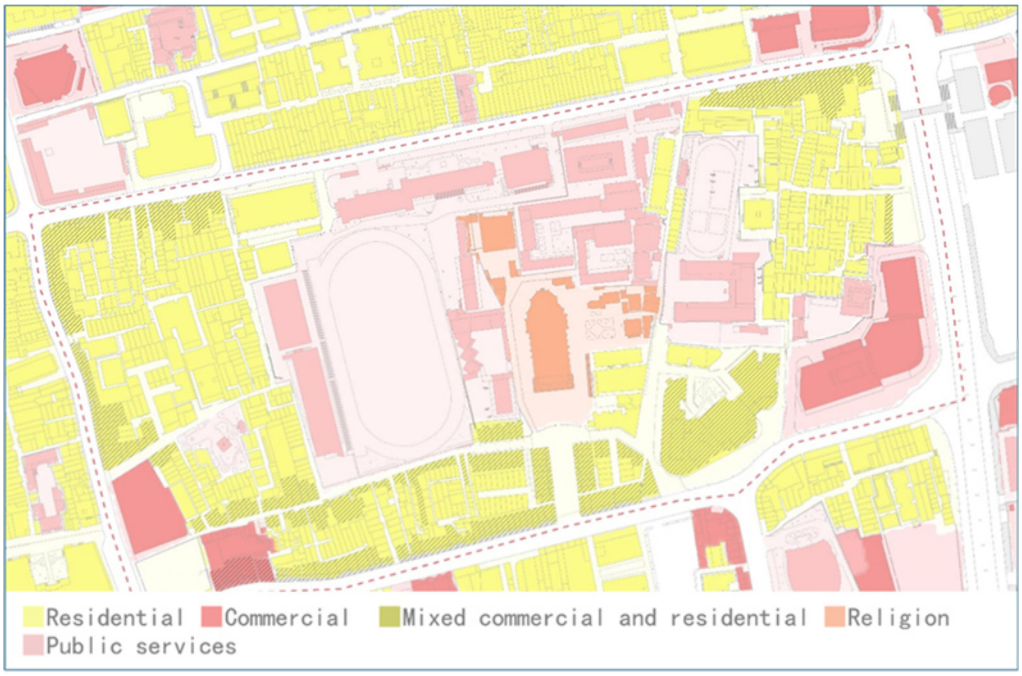
The area has a residential base with a large educational area embedded in the center. Commercial complexes are located at the corners, and “single-layer” ground-floor businesses are located along the main streets. The “low utility land” is distributed in an L-shape to the east and south, and surround the three campuses in the center (Figure 4- 9). The environmental quality of these residential sites and the economic efficiency of the commercial sites need to be improved.

a) Neighborhood access attributes

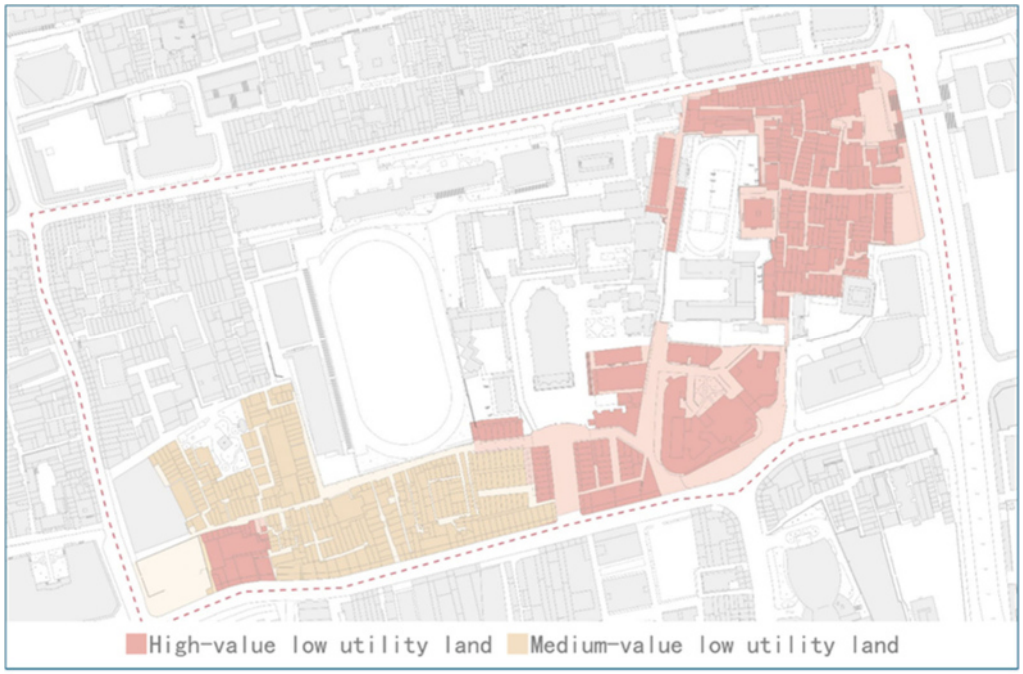


b) Neighborhood Public Transportation

Figure 4- 8 Analysis of Traffic Elements
(Source: Author)



a) Type of Function



b) Distribution of "Low Utility Land" and its Development Value

Figure 4- 9 Analysis of Land Use Types
(Source: Self-drawn based on Reference[59])

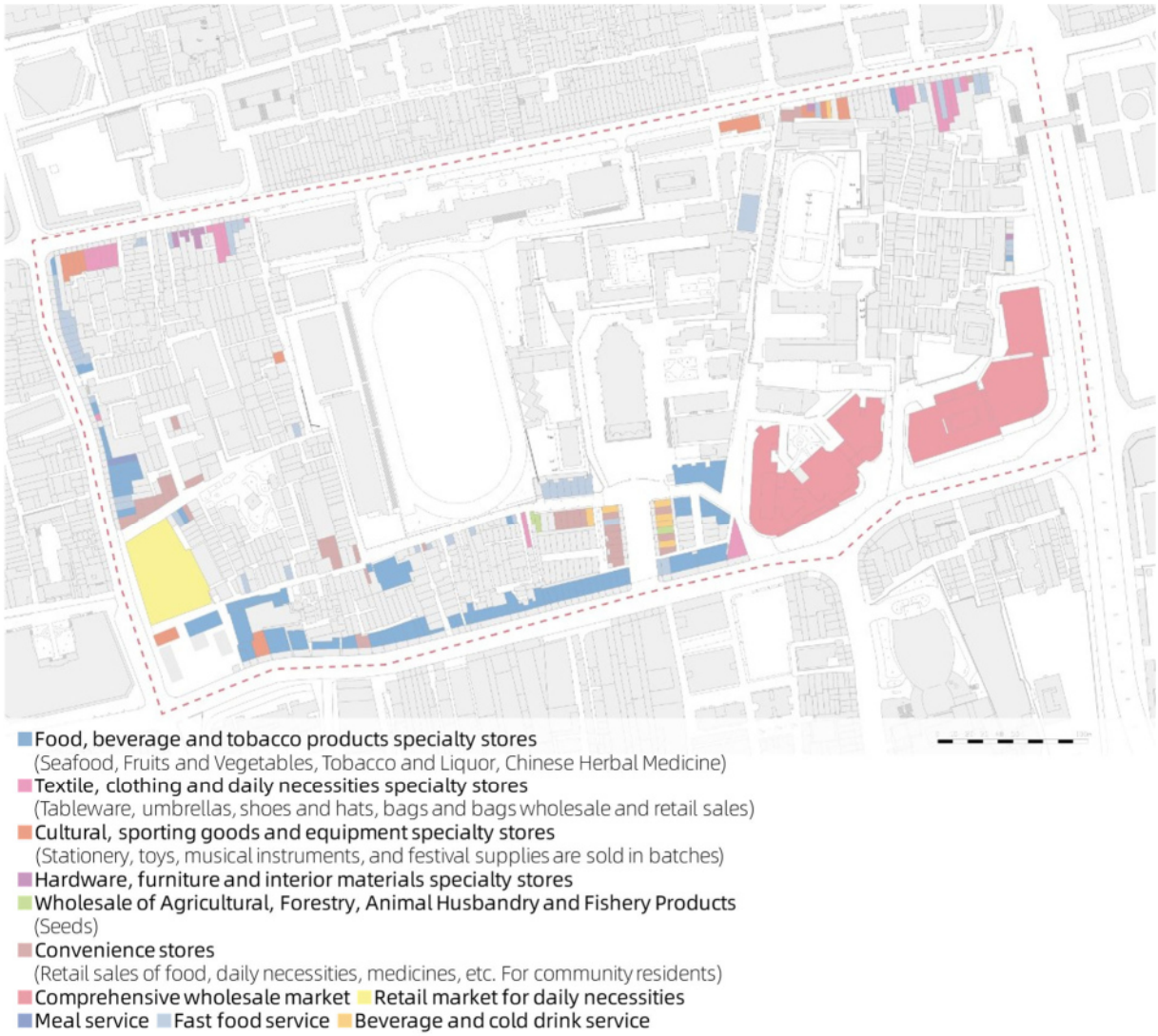


Figure 4- 10 Analysis of Business Formats
(Source: Author)

Referring to the national standards such as the Classification of Retail Formats and the Classification of National Economic Industries, combined with the existing active characteristics of the region, the distribution of the main business formats can be obtained as shown in Figure 4- 10. From the figure, it can be found that the distribution of business formats shows the characteristics of agglomeration in the main streets, dense in the south and sparse in the north. At the same time, due to historical and traditional reasons, different types of businesses have their own agglomeration areas: for example, along Yide Road and Maima Street, there are dry goods professional streets mainly engaged in seafood and medicinal materials; In front of the Sacred Heart Cathedral, a commercial area for catering, special products and souvenirs is formed; The area around the Jiubuqian street is a wholesale market area for handicrafts and daily necessities, and two comprehensive wholesale markets have been established; a commercial service area for residents' daily life near Haizhu Market; Along Daxin

Road, it is a professional street mainly engaged in musical instruments, building materials and logistics services. In addition, the large and small shops on Yide Road, Maimaj Street, and Jiubuqian Street will also hold annual market gatherings during the Spring Festival every year to display and sell New Year's goods, which has become a kind of anchor activity in the block.

In daily public life, the flow of people moving around the area changes with tidal times. Taking weekdays as an example, through field visits and surveys, combined with the quantitative analysis of the population activity index obtained by Baidu's urban population geography big data platform (as shown in Figure 4-11), the following temporal distribution characteristics can be summarized: the participation of the flow of people to and from school constitutes two peaks (6-7 a.m. and 4-5 p.m.) population activity peaks; Due to the overlap of various public activities such as residents' life procurement, work activities and visitor tours, 9 a.m. to 12 a.m. is the most active time period for population activities in the area, and most of the external spaces in the block are involved; In the evenings after 6 p.m., there is less active foot traffic in the block, the main public events are more purposeful (e.g., shopping and sports activities), and the lack of lighting makes people more inclined to walk along the main street or move inside the facility.

At the same time, the flow of people in the area also has the following spatial distribution characteristics: there are population activity hot spots at the southeast and northwest intersections, which are relocated to the block as a starting point, and the bus station at the boundary is also an important node for entering and exiting the block during the day; The two comprehensive wholesale markets (commercial complexes set up using the podium of high-rise buildings) to the southeast are the hotspots of population activity in the block, and the nearby Stone Room Sacred Heart Church and two primary and secondary schools are crowded during the day, making the block more active in the east than in the west, which also verifies the distribution characteristics of high-value "low-efficiency land" mentioned above. The Maima Street and Baimi Lane in the block, and the Yide Road and Daxin Road on the border are streets with significantly active daytime crowds; The Sanfuqian community in the northwest of the block is an area with less active crowds at all times, which is related to the fact that its interior is basically residential and storage houses, but the pocket park and the swimming pool of the city's No. 3 Middle School are still facilities with potential for public activities. It is worth exploring in the follow-up urban renewal to make use of the spatiotemporal distribution characteristics of crowd activities and the connection function of anchor points to crowds, enrich public activities in specific spaces by improving the quality and convenience of space, and flexibly allocate spatial resources in neighborhoods.

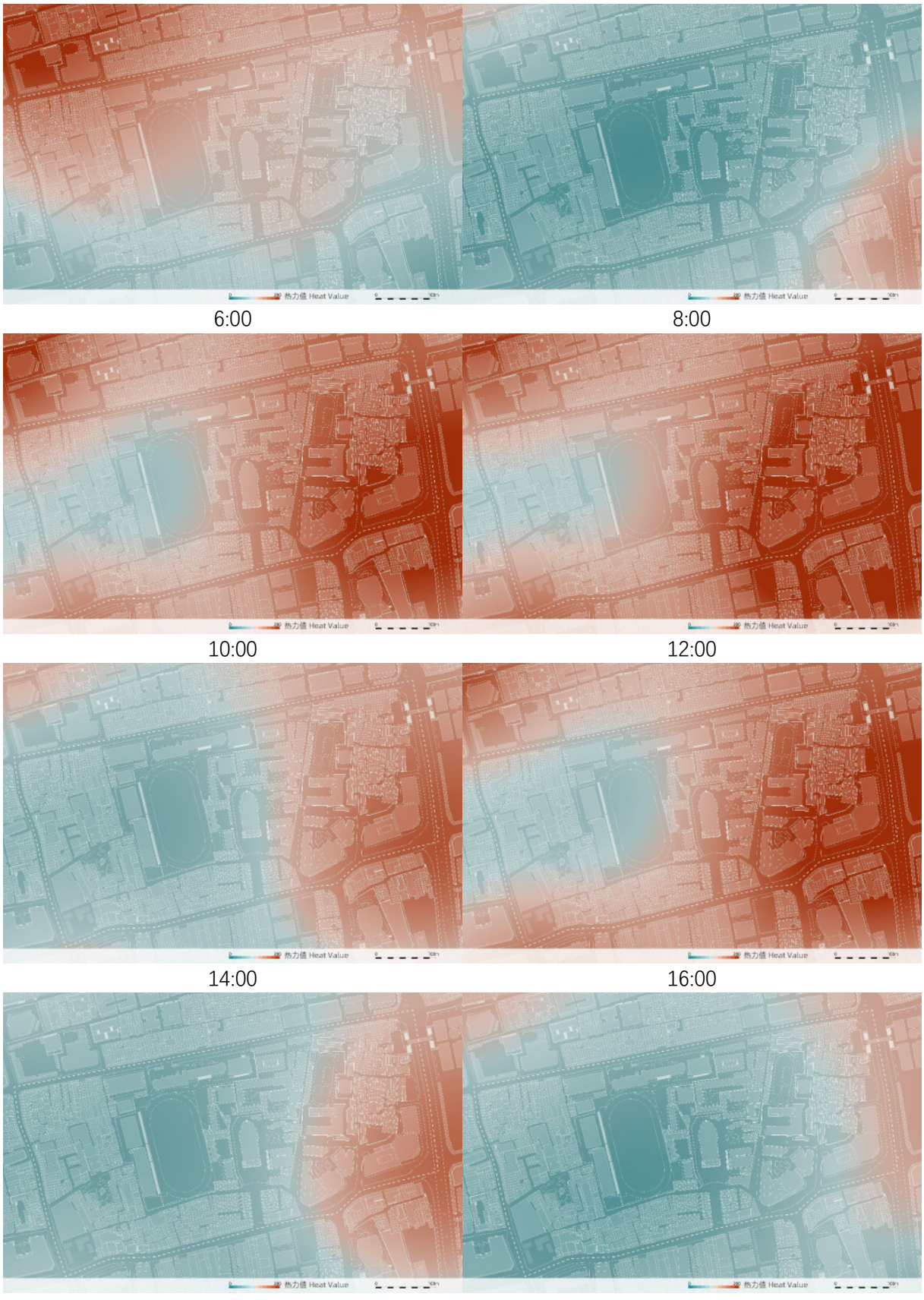
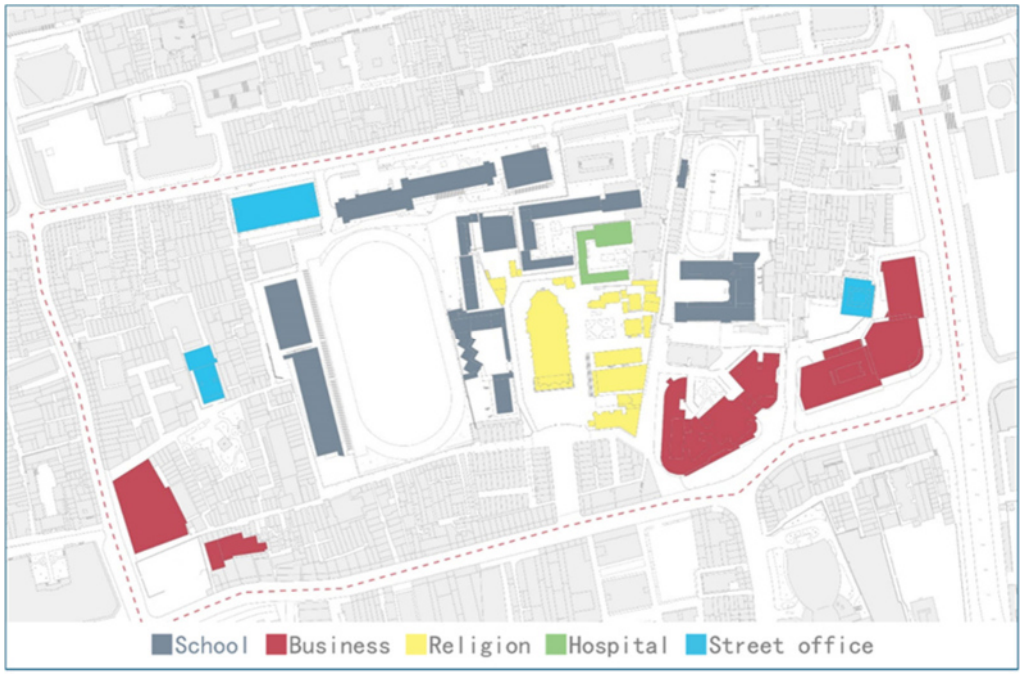


Figure 4- 11Distribution of Heat Values of Population Activity on Weekdays
(Source: Drawn based on data from Baidu's urban population geography big data platform)

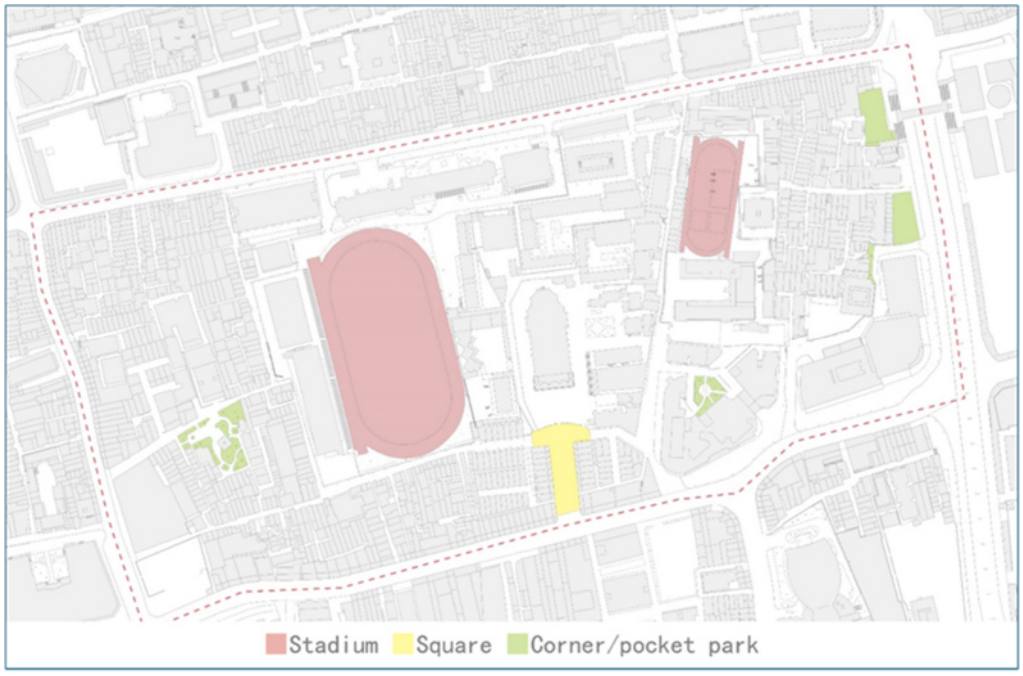
The distribution of anchor institutions is shown in Figure 4- 12, showing a circle pattern. The innermost layer is the religious building (Sacred Heart Cathedral), which is a historical and cultural landmark of the region and anchors people beyond the neighborhood and the city. Believers (and also a considerable number of expatriates living in Guangzhou) use it as a gathering place for spiritual exchange; tourists use its open space and church building as a destination for sightseeing. However, the landmark's relationship with the neighborhood's residents is weak, with a low percentage of local residents practicing foreign religions, and their connection to this place is primarily to doing business with visitors.

The outer layers of the church are clusters of campuses that have evolved from its properties, and they are the main anchors of concern for the design strategy of this study. These elementary and secondary schools have a clear catchment area, enrolling students mostly from the surrounding neighborhoods, with clearer local connections in home-school-community circulation. The paths that elementary and middle school students pass through to and from school, and their usual lives in the neighborhoods tie most of the other anchors together. The outer layers of the campus are embedded with several administrative community stronghold facilities, which are intentionally integrated in the current Community Life Circle Plan as centers of public services and public activities, and as an important class of anchor points in the neighborhood. Integrated within or near these buildings are health stations, senior centers, neighborhood pocket parks, etc. At the periphery of the neighborhood, i.e., at the interface where the neighborhood and the roadway come into contact, the main anchors are a variety of commercial anchors covering every-day, leisure and wholesale consumption. Overall, the more southward the neighborhood goes, the stronger the commercial atmosphere becomes.

The multiple levels of social anchors form a cluster, but have yet to establish an organic network of anchors with each other. Businesses in commercial podiums, visits to churches, fitness activities in community parks, and teaching and practicing on campuses are all located in the same neighborhoods, but in daily public life they are mostly passive encounters, sometimes interfering with each other's traffic. The streets between these social anchors need to consider how to connect and channel public activities.



a) Public Facilities with the Nature of Anchor

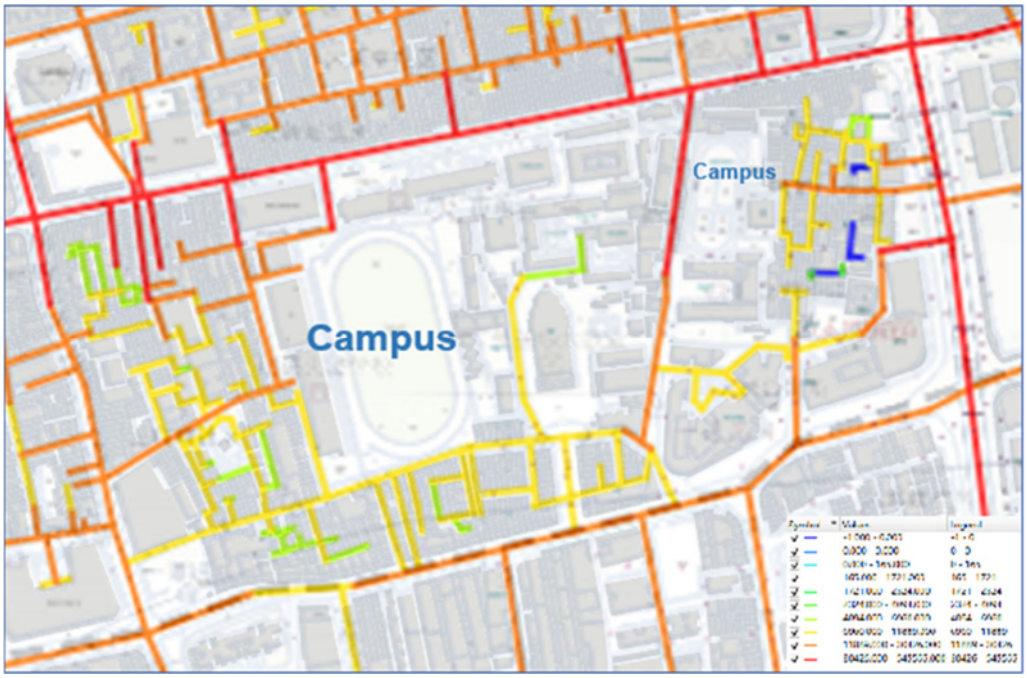


b) Open Exterior Space

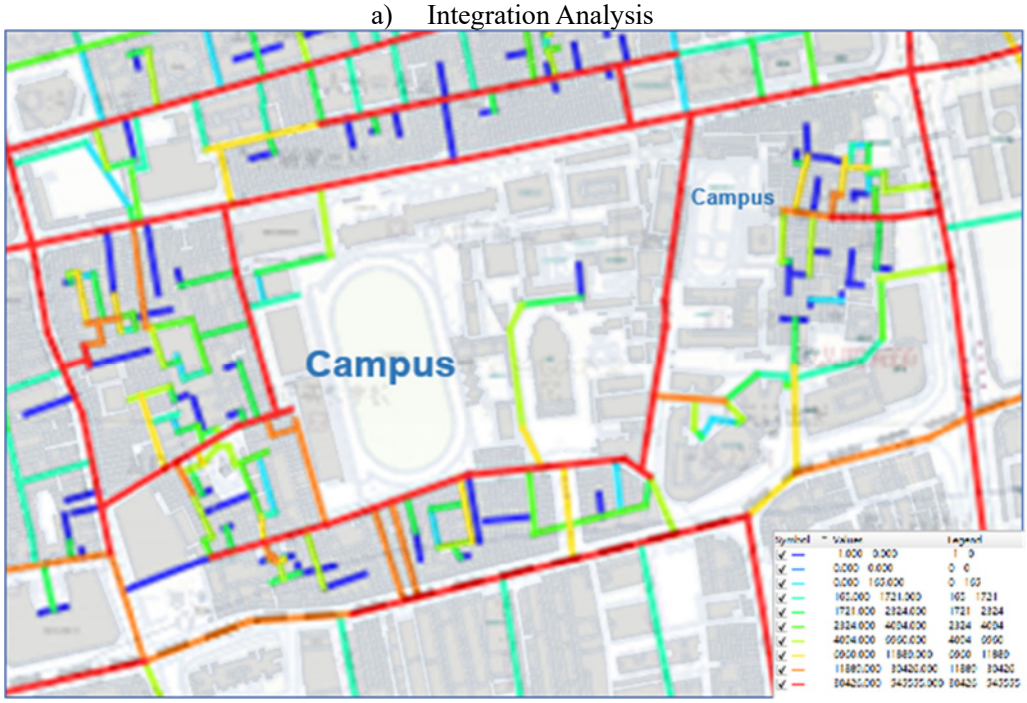
Figure 4- 12 Public Space Analysis
(Source: Author)

4.2.2.2 Spatial Form Characteristics along Streets

The pedestrian streets into the area center enclose an almost trapezoidal shape, and these streets exhibit a high level of integration/selectivity (Figure 4- 13). Notably, these streets coincide with or extend from the boundaries of the central campuses. Institutions that use the campus as a primary anchor point need to focus on these streets because of their high potential to attract public activity.



a) Integration Analysis



b) Selectivity Analysis

Figure 4- 13 Spatial Syntax Analysis
(Source: Author)

Figure 4- 14 Historical Element Analysis
(Source: Author)

The urban fabric of a neighborhood shows a clear morphological boundary, and the street at the boundary is concerned with accommodating two different kinds of public life. At the same time, historical streets need to be protected in terms of scale, pavement and interface; for urban forms "lost" in former urban renewal, according to their value, it is possible to consider how to "reproduce" them in public memory.

Based on the above analysis, some of the streets are defined as "key streets" (Figure 4-15), which have the following characteristics: ① they serve as the boundaries of the anchor subject (campus) or are directly connected to its boundaries; ② they are also connected to other public facilities or open spaces with the nature of an anchor;. ③ high level of integration and connectivity among neighborhoods, with the potential to gather public activities; ④ connecting to low utility sites, with upgrading value; ⑤ serving as a historical street in its own right or carrying certain common memories; and ⑥ being located in the interior of the area and dominated by pedestrian activities. These streets have the potential to weave a network of social anchors in terms of historical memory and operational efficiency, and will be used as the main research threads and important design nodes later in this chapter.

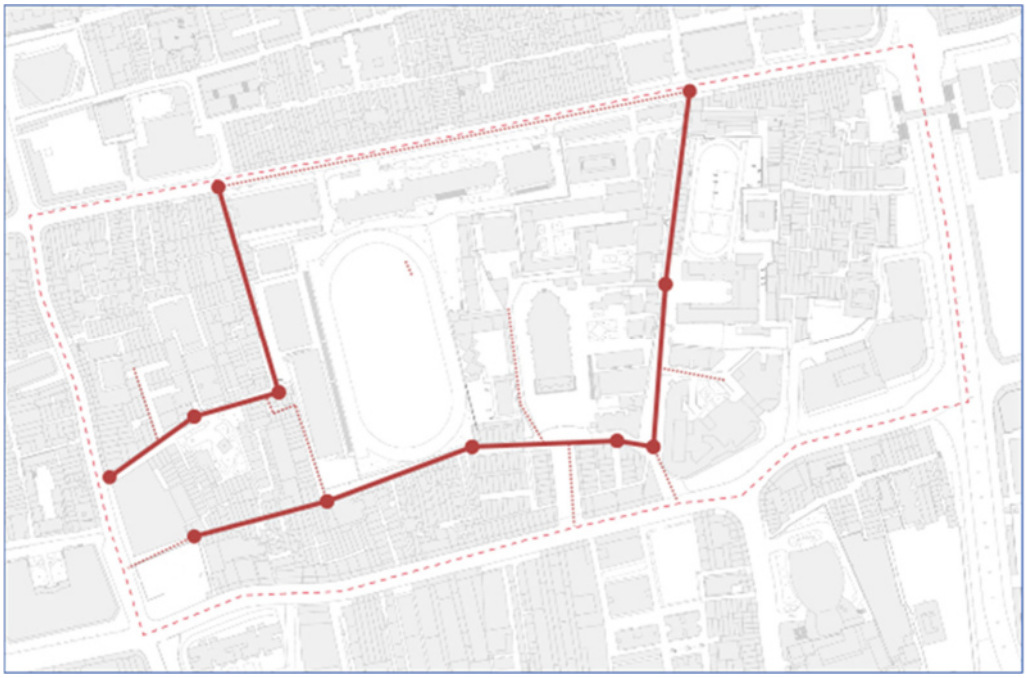


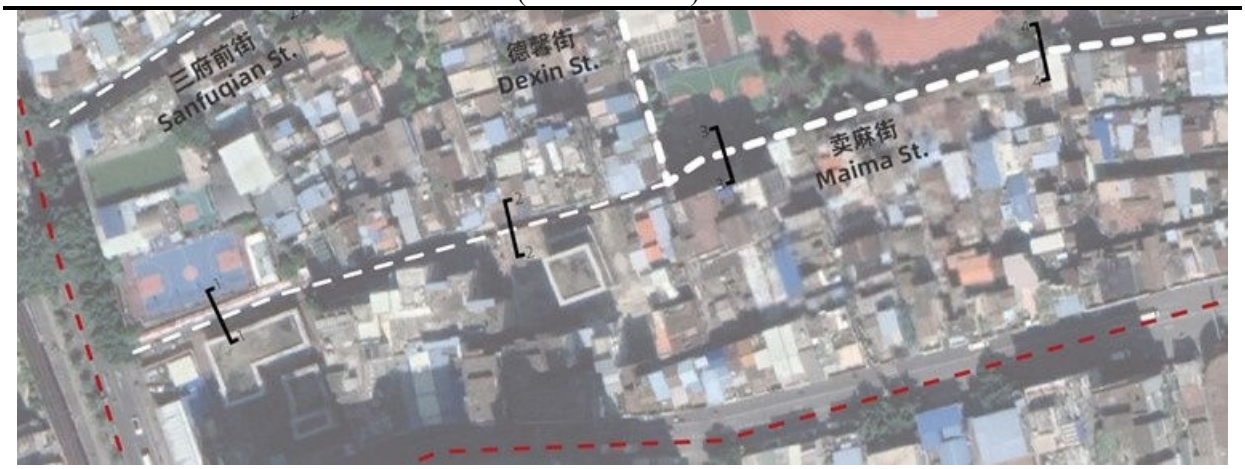
Figure 4- 15 “Key Streets” Analysis
(Source: Author)

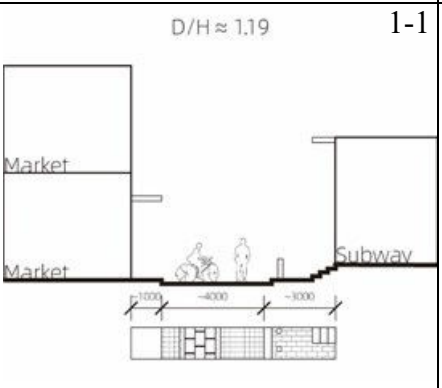
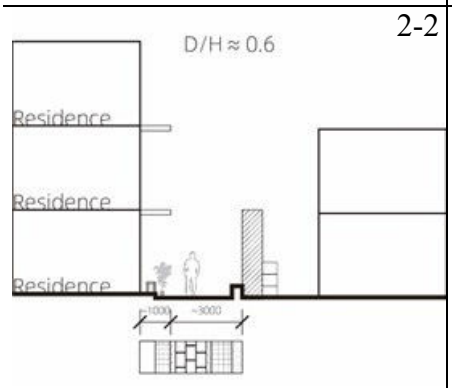
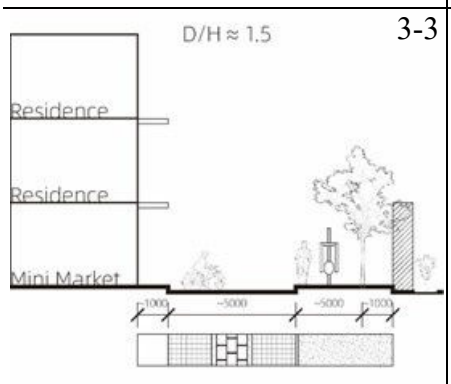
4.2.2.3 Analysis of Key Streets

After deriving the main street structure of the design area, some microscopic characteristics along the “key streets” were extracted from the field study, such as crowd activities, interface patterns, road paving, and aspect ratios, etc. In the following (Table 4- 1 to Table 4- 6), 20 cross sections (Figure 4- 16) are selected to describe the morphology and public activities along each of the key streets:

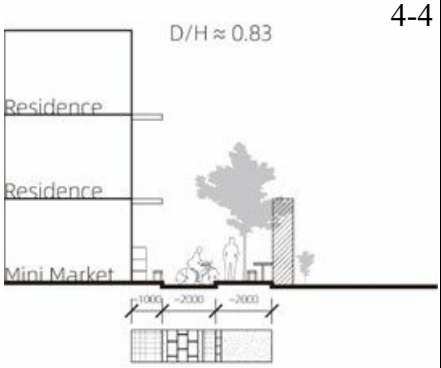
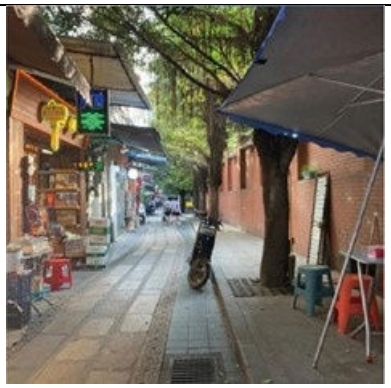
Figure 4- 16 Selection of Points for Street Section Analysis
(Source: author)

Table 4- 2 Street Section Analysis along Maima Street
(Source: author)



Diagrams	Photos	Main population activities
1-1 		● **Tradesmen** operating stores that sell wholesale or retail, using panel trucks to carry goods to and from stores, warehouses, and roadways, using sidewalks for outside displays ● **Residents** walking or riding in the streets and alleys, using roadside fitness facilities ● **Students** walking to and from school on the streets and alleys, or being transported by parents on bicycles ● **Tourists** walking to attractions from subway and bus stops, stopping at stores
2-2 		
3-3 		

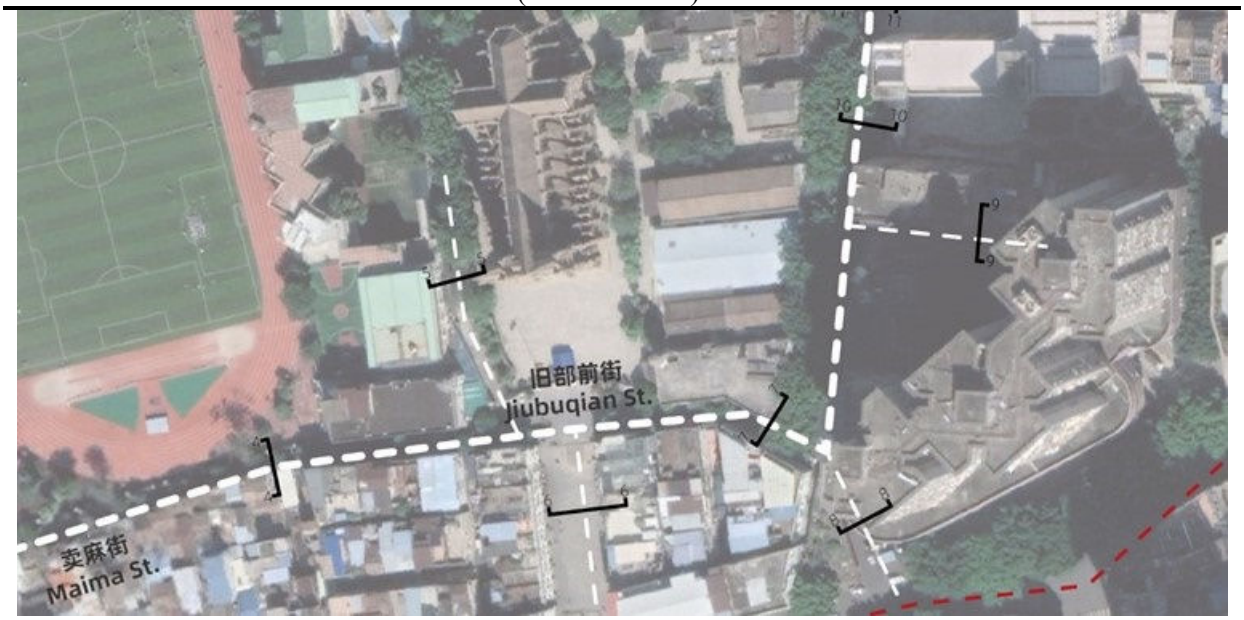
Continued Table 4- 2

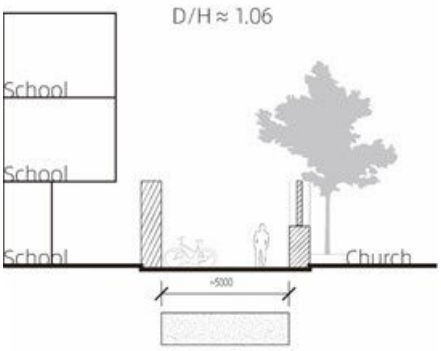
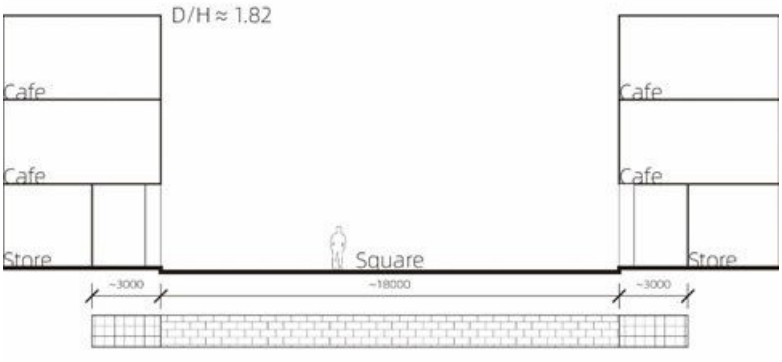
4-4			

Maima Street (Table 6-1) is a commercial street located in the southern portion of the site, bounded by the Yide Road Metro Station to the west and the plaza in front of the Sacred Heart Cathedral to the east, with the south fence of the Guangzhou No.3 Middle School on the east side of the street. The street pattern is the historical “east-west long street style”. The location of the street is favorable, and the crowd activities are abundant. The commercial business is a mixture of dry goods wholesale, daily necessities retail, food and beverage, both serving the community, but also for foreign visitors. However, the street currently faces a number of problems, such as the narrowness of the street, the serious mix of people and vehicles, and the lack of stopping space leading to a poor walking experience; the walled interface formed by the expansion of the No.3 Middle School provides a rare public space for pedestrians, but the connection with the campus and historical memory is weak, and the phenomenon of parking and outward display is not managed in a unified way.

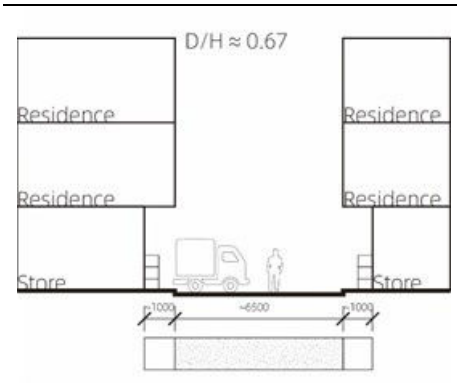
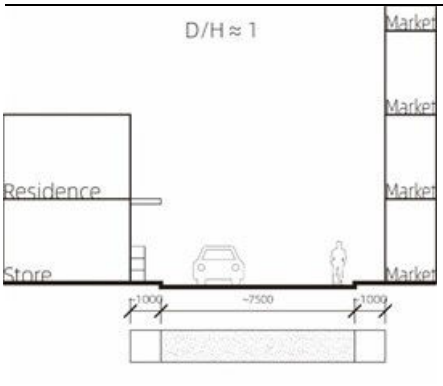
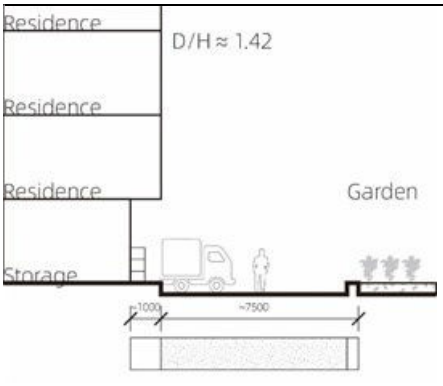
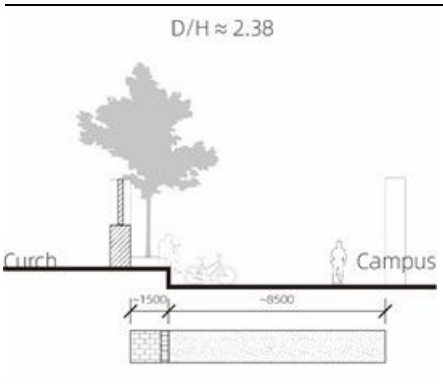
From the perspective of building a network of social anchors, the potential regeneration idea is to introduce a mechanism to connect the main population, so that the residents can realize again that this section of the interface is a public place worthy of being built by the community conservation. And at the same time, provide the necessary buffer, accommodation and communication space for different people's behaviors. Considering the narrow space of the street and the need to rely on a place that connects more people, the south wall of Guangzhou No.3 Middle School is an entry point for regeneration.

Table 4- 3 Street Section Analysis along Jiubuqian Street
(Source: author)



Diagrams	Photos
5-5 	
6-6 	

Continued Table 4- 3 Street Section Analysis along Jiubuqian Street

	7-7	
	8-8	
	9-9	
	10-10	

Continued Table 4- 3 Street Section Analysis along Jiubuqian Street

Main population activities
● **Tradesmen** operate stores that sell wholesale or retail goods, use panel trucks and motorcycle trucks to transport goods to and from stores, warehouses and roadways, and street frontage loading and unloading or merchants utilize backstreet roads in commercial podiums for logistical activities. Organize bazaars along the street during festivals such as Chinese New Year ● **Residents** waiting to pick up and drop off students in squares and streets, with minibuses, motorized vehicles, and bicycles parked on the roads ● **Tourists** gathering in the square, waiting to enter the church to visit and spend money in the neighboring stores ● **Students** gathering in the plaza and streets during school drop-off and pick-up times, then traveling along the road to their destinations, spending money in neighboring stores, or going to daycare facilities ● **Citizens** from outside the neighborhood travel to various wholesale markets to spend money, visit fairs at festivals

Jiubuqian Street (Table 4- 3) is also a popular commercial street on the south portion of the site, and has long been a source of significant out-of-area pedestrian traffic from anchor facilities (cathedral and wholesale markets). The street pattern is the historic “long east-west” street pattern.

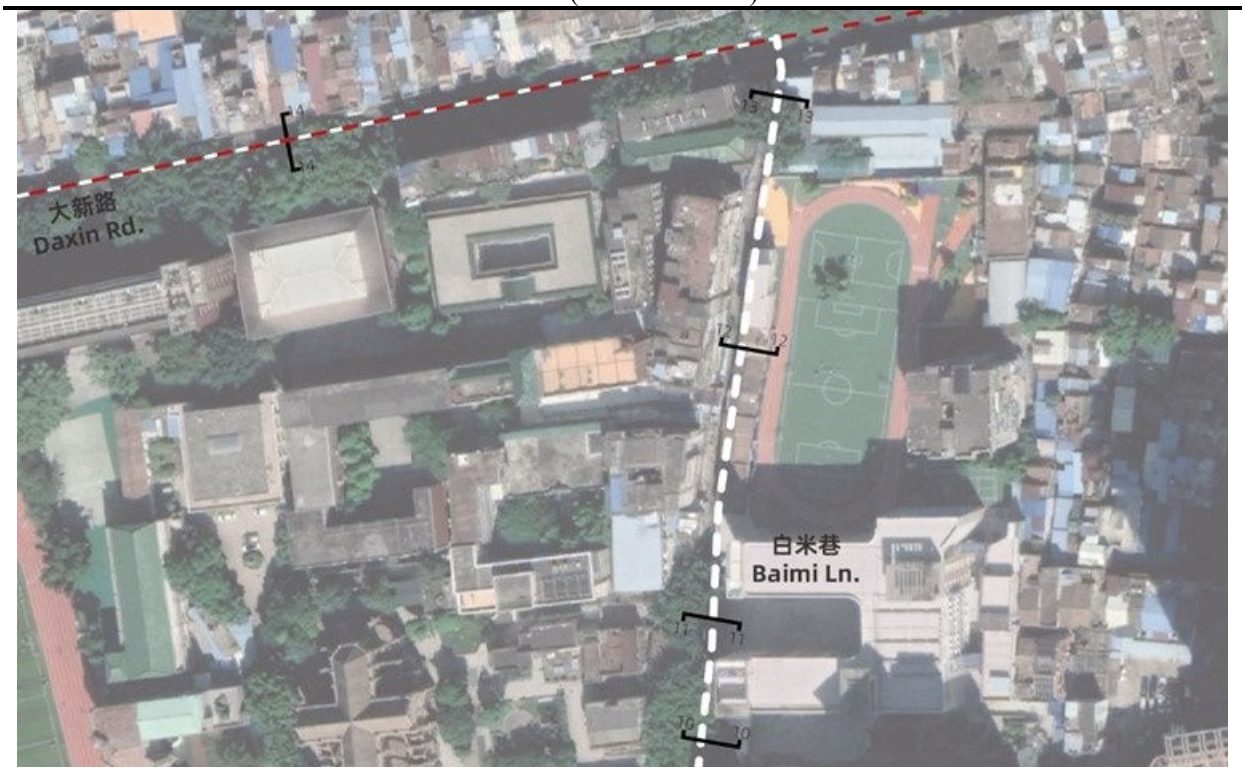
This area is characterized by peak street volumes at certain times of day (school hours, holidays) due to the constraints of public space and the overlap of pedestrian activity. Pedestrians, motorized vehicles, minibuses, and minivans are present near the street and plaza at the same time, causing significant congestion.

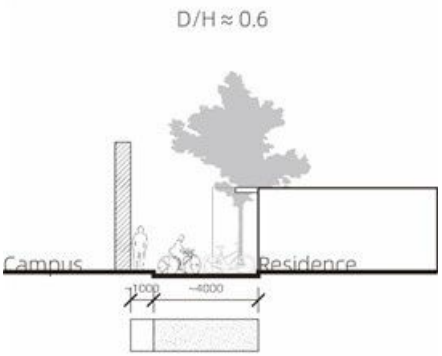
Located to the east of the street, Debao Trading Market and Wanling Center are complex shopping malls set up on the podiums that gather a wide range of small goods (wedding, New Year's goods, stationery, toys, etc.) for wholesale. They occupy a place in the layout of the professional market in Yuexiu District, but there are problems such as old facilities, indoor accessibility is not as good as traditional stores, the impact of e-commerce, and the attraction of some businesses to the community is not high, resulting in the vacancy of some stores. Moreover, the back space of high-rise buildings is of poor quality, and the corner gardens overlap with the back space, which lacks pedestrian safety.

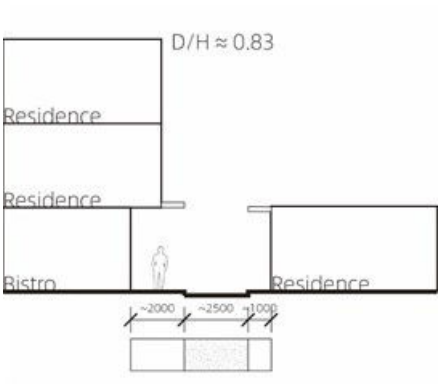
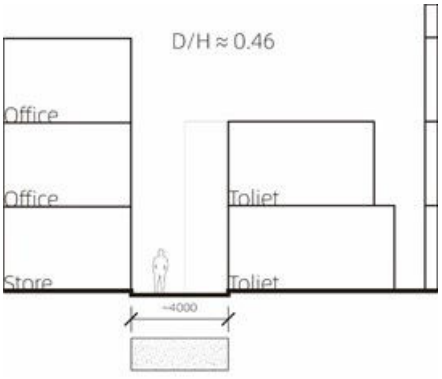
From the perspective of building a network of social anchors, a potential renewal idea is

to introduce a mechanism for crowd diversion and a corresponding spatial form to relieve "congestion" and avoid "idleness". In terms of time, time-based activity planning is carried out, and in terms of space, a three-dimensional flow is guided. As an important starting point and destination for the daily public life of the community, the role of the entrances and exits of the two campuses (Mingde Experimental Middle School and Jiubuqian Primary School) needs to be paid attention to.

Table 4- 4 Street Section Analysis along Baimi Alley
(Source: Author)



Diagrams	Photos	Main population activities
11-11 		● **Tradesmen** utilizing space on the ground floor of residential buildings for small-scale catering operations ● Residents maintain the space in front of their homes for parking non-motorized vehicles, drying clothes and planting greenery; and use public

12-12 		facilities such as public toilets ● Students and parents walk or ride to and from school on the road, interacting with the food and beverage establishments
13-13 		

Baimi Alley (Table 4- 4) is a channelized internal street located on the eastern portion of the site that connects Daxin Road to the north and Jiubuqian Street to the south. The street pattern is the historic “long north-south” street pattern. The 170-meter-long road is a narrow alley through the residential area, with an average width of less than 4 meters, and only about 2 meters at the southern end near the entrance to the Old Ministry Front Primary School, making it difficult to match the pedestrian flow of the campus. There are still some active small dining spaces on the first floors of the residential buildings, but the space still limits the accessibility of services.

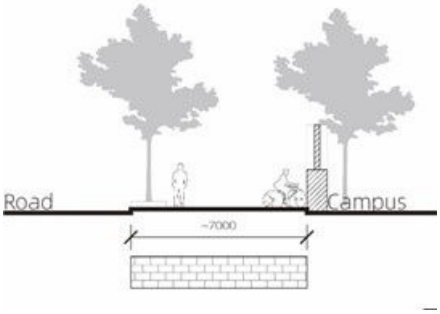
The special status of Baimi Alley has attracted the attention of the Urban Renewal Department. In 2022, the street management unit, in conjunction with the design institute, solicited input from residents through a variety of channels, focusing on street improvements to address infrastructure shortcomings. The implementation methodology involves hardware renovation and functional optimization (improving street interface, enhancing pedestrian safety, embedding garbage collection points), integration of cultural elements into the public space (historical elements and public art wall paintings), and long-term management mechanisms (residents' participation in flower care and maintenance of wall paintings, and linking with

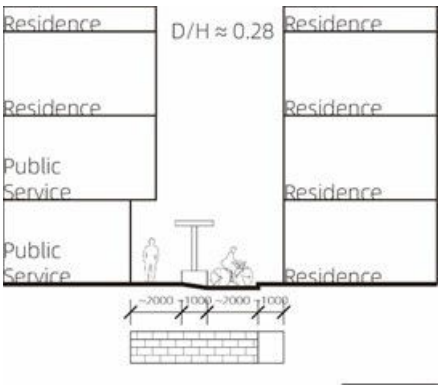
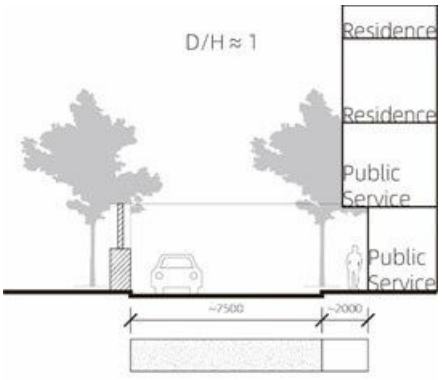
schools to provide education on garbage collection). These mechanisms are important references for other key streets in the design scope.

However, during the field study, it was found that some of the renewal measures had not survived well, and the congestion at the southern entrance had not been well resolved. At the same time, despite the installation of wall paintings of historical elements at the north and south entrances of the street, the visual viewing experience at most locations inside and outside the street is poor, and the perception of historical memory is compromised.

The above problems occur on important access roads within this neighborhood, affecting the ability of the educational anchor facilities and service spaces in their vicinity to be easily accessible, community cohesion-carrying public spaces. From the perspective of building a network of social anchors, potential regeneration ideas are: to maintain and build on the existing regeneration achievements, to improve the closed and depressing visual impression of some of the interfaces (especially at the entrances and exits), to provide the necessary space for buffering and exchange of information, and to utilize the campus as a cultural facility to further promote historical memories and cultural ambience.

Table 4- 5 Street Section Analysis along Daxin Road
(Source: Author)

Diagrams	Photos	Main population activities
14-14  		● **Tradesmen** use Qilou for their businesses ● **Students** walk or ride to and from school on the street and spend money in the stores ● **Residents** and

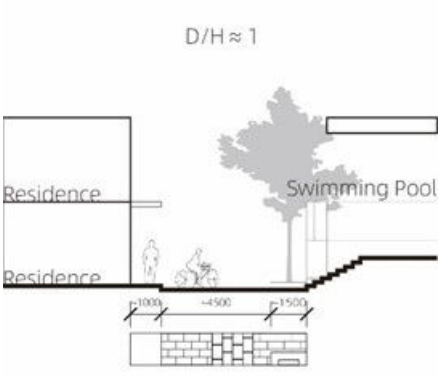
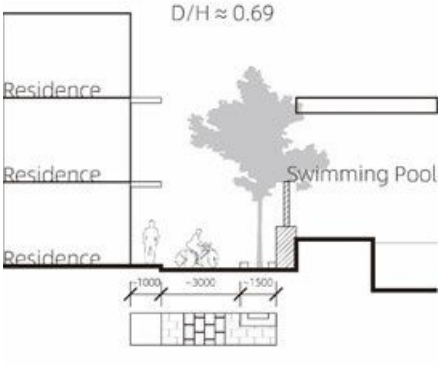
15-15 		**citizens** from outside the neighborhood enter the neighborhood through the neighborhood entrances and use the sports facilities, parking lots, and public services
16-16 		

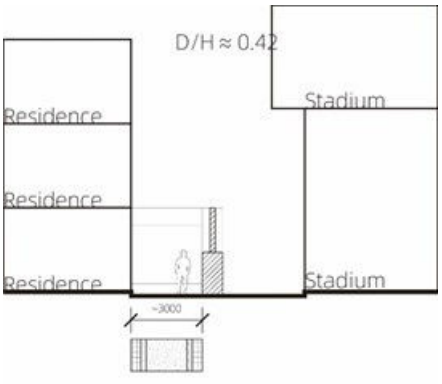
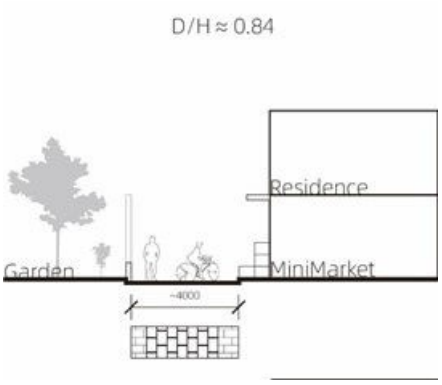
Daxin Road (Table 4- 5) is a roadway located at the northern boundary of the site that interacts primarily with the interface on the side of the entrance to Guangzhou No. 3 Middle School. The street pattern is the historic “long east-west” street pattern. The scale along the street is appropriate and the boundary of the campus has good visual interaction with the city. In addition to Baimi Alley, there are entrances along the street that lead south into the site, as well as entrances on both sides of the street service center. The entrance on Yuanxi Alley integrates a community bulletin board but is too narrow, and the entrance on Yuansu Alley is integrated with the campus parking lot, with a slightly hidden side street into the neighborhood. In both cases, there is a certain lack of historical features and signage system, which affects the convenience of outside visitors to reach public facilities such as swimming pool in the neighborhood.

From the perspective of building a network of social anchors, a potential renewal idea is to improve the guidelines for the anchor facilities along Daxin Road and at the entrances to the neighborhood, and to strengthen the historical features. Meanwhile, on other campus boundaries within the neighborhood, the interface construction along Daxin Road can be borrowed to strengthen the visual connection between the campus and the public life of the

community, to improve the current status quo of high building density, lack of greening and landscaping in the neighborhood, and to build the impression and willingness of community sharing of sports facilities.

Table 4- 6 Street Section Analysis along Yuanxi Alley, Sanfuqian Street and Dexin street (Source: Author)

Diagrams	Photos	Main population activities
17-17 		● **Tradesmen** use residences for storage and transportation through streets and alleys; sporting goods close to stadium entrance ● **Students** walking or riding to and from school on the streets and alleys ● **Residents** and **citizens** from outside the neighborhood visit sports facilities via streets and alleys, park non-motorized vehicles at stadium entrances
18-18 		

19-19  		● **Tradesmen** operate from market stalls; use neighborhood ground floor interface for outward display ● **Residents** interacting with markets and stores during morning and evening market hours; public space activities in pocket park
20-20  		

The north-south oriented Yuanxi Alley-Dexin Street is a passage-type inner street located in the western part of the site, linking Daxin Road in the north and Maima Street in the south. The two alleys are slightly wider than Baimi Alley, more closely connected to the logistics and warehousing of the commercial district, and close to the entrance of the swimming pool of Guangzhou No. 3 Middle School, which makes the atmosphere more active. However, the access situation is also more complicated, and the public access attribute is mixed with the private attribute of the residence. Between the two alleys is Sanfuqian Street, which runs east-west. Sanfuqian Street is the axis of public life in the Sanfuqian neighborhood, passing through the Haizhu Market, the community center and the street pocket park along the way, and is also an active street with potential for enhancement. The street historically extended eastward to the boundary of the Sacred Heart Cathedral, but is currently cut off by the middle school wall. The street's historical memory and public nature has mutated at the boundary of the campus.

From the level of building a network of social anchors, the potential idea of regeneration is to gather scattered elements of public space and differentiate the attributes of activities on the street, so that productive activities (commercial logistics) and public life can be spatially distributed in an orderly manner and reduce mutual interference while further enhancing the

cohesion of the public axis of Sanfuqian community. Respond spatially to the node where the campus meets Sanfuqian Street, and strengthen the role of the existing facilities as a "gateway" for community sports activities.

4.3 Summary

Through the overall analysis of the Nancheng area, this chapter identifies the educational anchor institution as the main subject of the design, and the neighborhood bounded by Daxin Road, Jiefang South Road, Yide Road, and Haizhu South Road as the scope of the regeneration strategy. Through the analysis of the historical evolution and current situation of primary and secondary schools in the neighborhood, the public resources that the educational anchor can interact with the community are identified. Through the analysis of the spatial elements of the streets within the design scope, the "key streets" with important public functions are identified, and the spatial structure for building a network of social anchors is preliminarily formed. The micro-level morphology and public activities of the "key streets" were analyzed one by one, and the characteristics of public life, current problems and potential ideas for linkage with the campus space were derived for each street.

Chapter 5 Strategies for Enhancing the Streets in Nancheng Area

Under the perspective of building a network of social anchors, this chapter will present the goals, visions, and guidelines for realizing the enhancement of public vitality in the streets of Nancheng area, and conduct a ground-up extrapolation of the design strategies based on specific spaces in multiple nodes (Figure 5- 1).

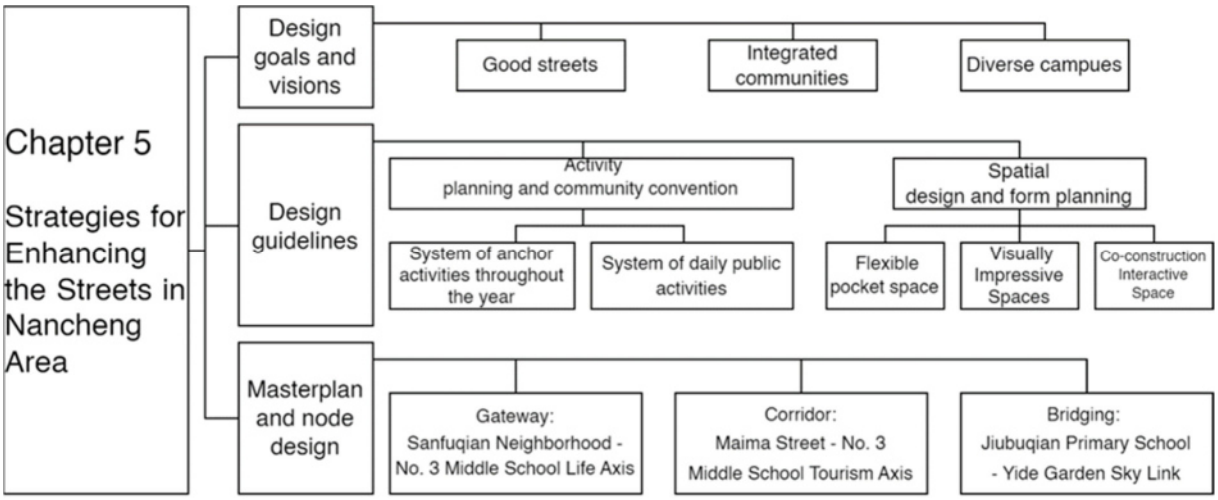


Figure 5- 1 Chapter 5 Structure
(Source: Author)

5.1 Design Goals and Visions

The main design goal is to enhance the affinity of the street for anchor activities, creating a good landscape, polyvalent boundaries and a comfortable walking experience. The main path is to form a high-quality social anchor network by re-matching spatial form-public activities and relying on educational anchor institutions. In order to translate this goal into design steps, two perspectives can be taken:

One is the historical perspective, oriented towards the cultural heritage of the city and the neighborhood. The spatial form of the neighborhood can be divided into: ① Parts to be inherited: street elements that are valuable for building community identity, urban impression, and historical research, such as orientation, scale, and style. Reference to the “Guangzhou Famous Historical and Cultural City Protection Plan” in the three levels of traditional streets and alleys according to the “overall protection - coordinated protection - bottom line control” principle; ② need to be reproduced: in the past urban regeneration has been lost or produced in the form of replacement, but in the history of the evolution of the street has an important position. It can be considered to use design techniques to recreate its direction, scale and style, etc., so that it can return to be part of the urban impression; ③ The part that needs to be iterated: the streets

whose infrastructures are too outdated to affect the basic urban life or whose status quo is too dilapidated and hazardous. On the basis of maintaining the above three elements, repair, relocation or replacement of part of the function.

The second is the efficiency perspective, based on the operational efficiency of cities and neighborhoods. The functions of a neighborhood can be divided into: ① the missing part of the current public life: the lack of this type of function will not be able to build a good social anchor network, which needs to be supplemented by using unused space or replacing inefficient space; ② the part of the current neighborhood where the allocation of resources is irrational: the part of the neighborhood that hinders the operation of the social anchor network, which needs to be activated by integrating the resources according to the type of subject and by changing the input conditions. activation.

On this basis, the design vision can be summarized as follows:

- Good Streets - public space, pedestrian experience;
- Integrated communities - shared functions, weakened boundaries;
- Diverse Campuses - feeding the community, cultural radiation.

5.2 Design Guidelines

With reference to some of the practice cases of building social anchor networks studied in the previous section, the design guidelines here will also start from the two paths of “activity planning and community convention” and “spatial design and form planning” to elaborate design guidelines suitable for designing neighborhoods. Activity planning and community convention focus on the “software facilities” of the community, focusing on weaving public activities with anchor points into a system; while spatial design and form planning focus on the “hardware facilities” of the community, focusing on creating containers to hold anchor point activities.

5.2.1 Activity Planning and Community Convention

5.2.1.1 System of Anchor Activities throughout the Year

Based on the existing events (the “Four Festivals” of the Guangzhou No. 3 Middle School, the bazaar of the Mingde Experimental Middle School, the Chinese herbal medicine event of the Jiubuqian Primary School, the New Year's Fair on Yide Road, etc.), a system of public events for the whole year is organized by extracting the elements of the events that have the potential for community participation. Under this system, the activities initiated by the anchor organizations form a sequence of events that are unique to the community. The “festivals”

cultivate the willingness of community members to participate continuously and form cohesion. Through multi-level and multi-form activities, Anchor's space can be effectively utilized at various times to give back to the community.

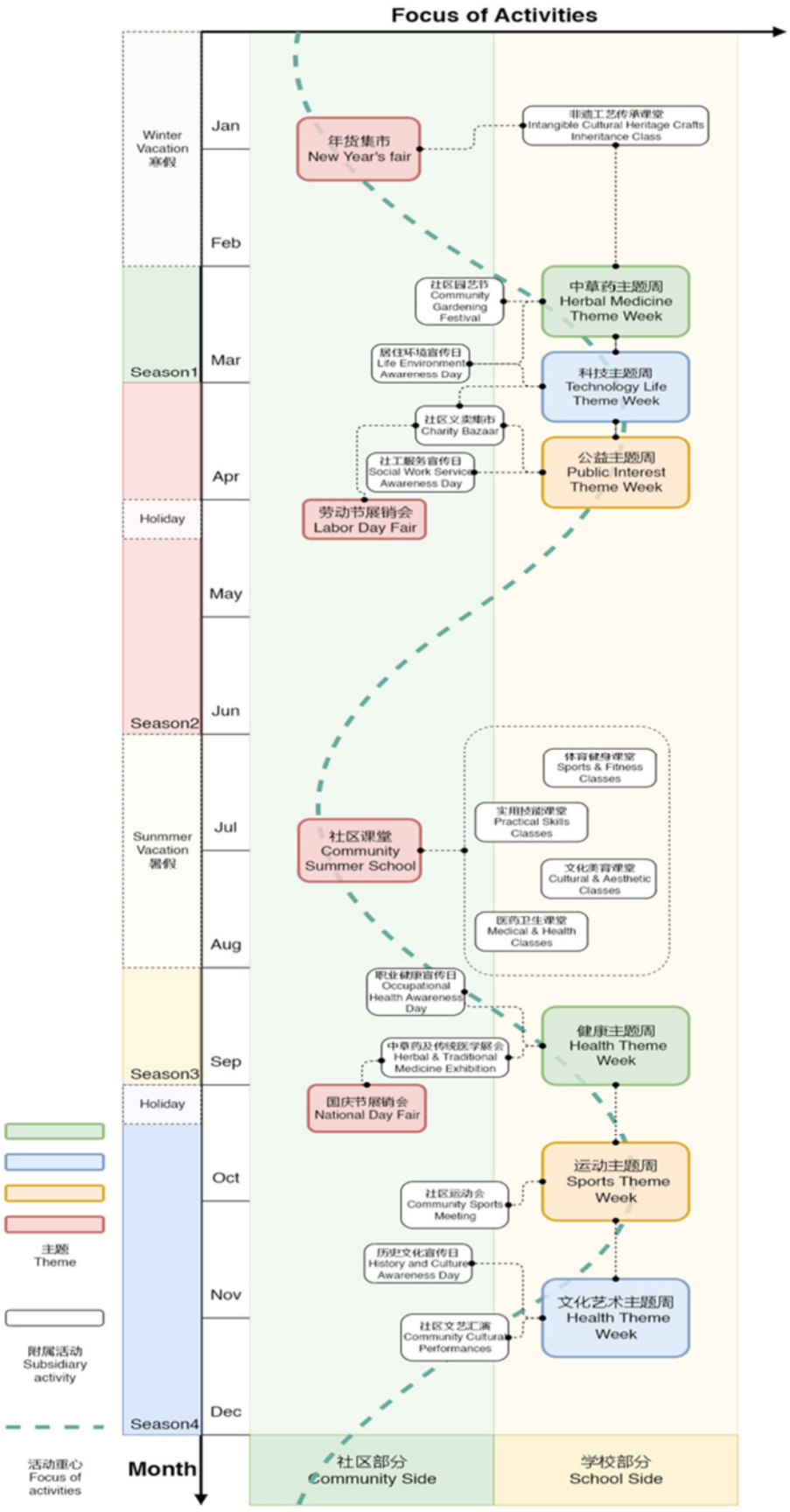


Figure 5- 2 The Campus Serves as the Main Anchor for the Community's Annual Public Event Planning (Source: Author)

The “Green Environment Theme Week” is extracted from one of the school characteristics of the Jiubuqian Primary School, i.e. the inheritance of intangible cultural heritage of traditional Chinese medicine. As shown in Figure 5-3, the theme week was preceded by the family tasks and community classes conducted during the winter vacation, and the exhibition of selected achievements was held to warm up the activities. Taking the Tree Planning Day as an anchor point, the “Community Gardening Festival” was held, using the campus garden “Garden of Dreams” as a model and core activity base, and promoting planting and maintenance activities in community gardens at all levels, along the streets, and in front of and behind the house. The planting of Chinese herbs in the “Science Dream Garden” was also used as an opportunity to promote medical knowledge learning at home and at school. In the latter part of the theme week, the focus of activities shifted to publicity activities to enhance the community's environment, educating families and schools on awareness and habit formation, and advocating a clean, orderly, shared, and technological way of life. The Community Environment Awareness Day is also the prelude to the Technology Theme Week the following month.

The “Technology Theme Week” is extracted from the “Science and Technology Festival” which is one of the school characteristics of Guangzhou No.3 Middle School, and is one of the “Four Festivals” on campus. The festival was originally a quality development activity for students to explore science on campus, but this theme week will give it more connotations of “science and technology change life”, linking family life and community life, and undertaking the value of improving the quality of the public environment in the community (Figure 5-4). The core of the theme week is the exhibition and competition of scientific and technological achievements within the campus, setting up open days for community participation, and publicizing the space in front of the campus and the main street interface. In the latter part of the theme week, the focus of activities shifts to the sale of technological achievements (inventions, art peripherals, small practical products), etc. This phase also links up with the supply chain of businesses for sponsorship and participation in small exhibitions and sales. While promoting the concept of technological life for the community, it also provides publicity and fund-raising for the next stage of the “Public Welfare Theme Week”.

The “Public Welfare Theme Week” is extracted from one of the characteristics of Mingde Experimental Middle School, and the prototype is a public welfare activity with the main content of charity sales and social work services. As shown in Figure 5-5, the theme week will be based on the fund-raising from the charity sales in the early stage, and will link up with

special schools, social work service stations and other facilities to carry out public welfare propaganda and help the disadvantaged groups; break down the barriers between groups of people, and promote the spirit of mutual help and dedication in the community. In the latter part of the theme week, the May 1 Labor Day will be used as a time anchor to promote and explain vocational labor and public service in the community on exhibition boards, so as to enhance community members' understanding of different vocational backgrounds and strengthen cohesion. During the Labor Day period, guiding materials produced by students will be placed on the main tour routes to help visitors recognize the history and culture of the community; the community will also arrange volunteers to provide crowd-surfing and other ancillary services to form a good impression of the community.

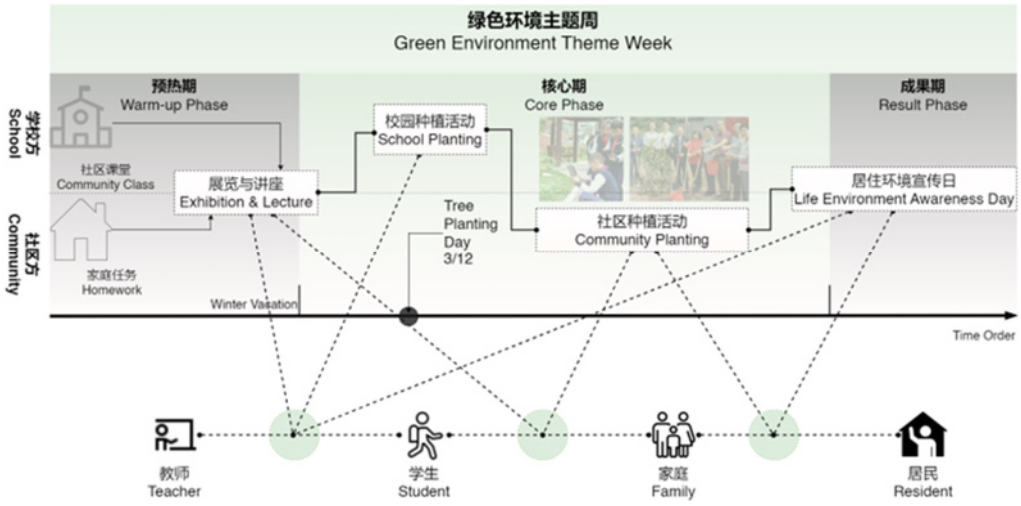


Figure 5- 3 Illustration of the Activities in the Green Environment Theme Week (Source: Author)

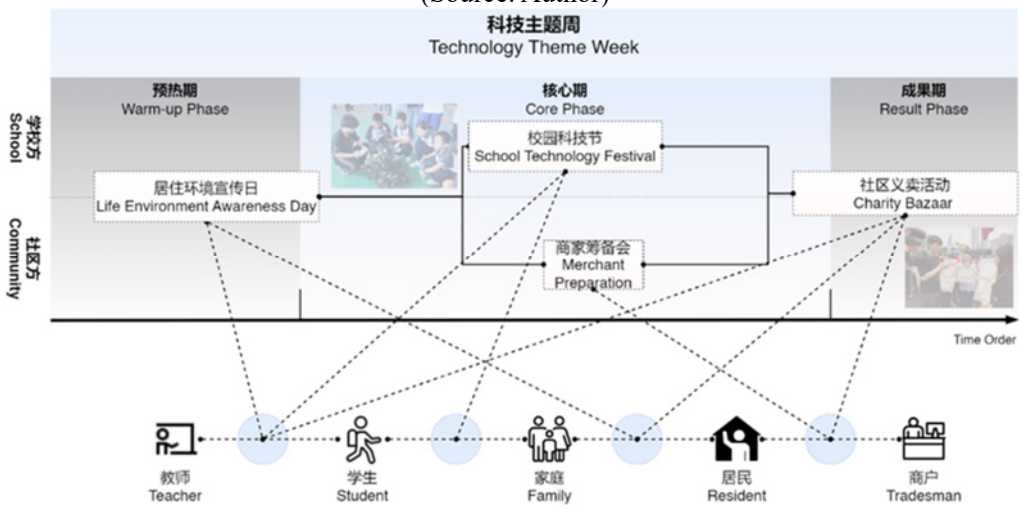


Figure 5- 4 Illustration of the Activities in the Technology Theme Week (Source: Author)

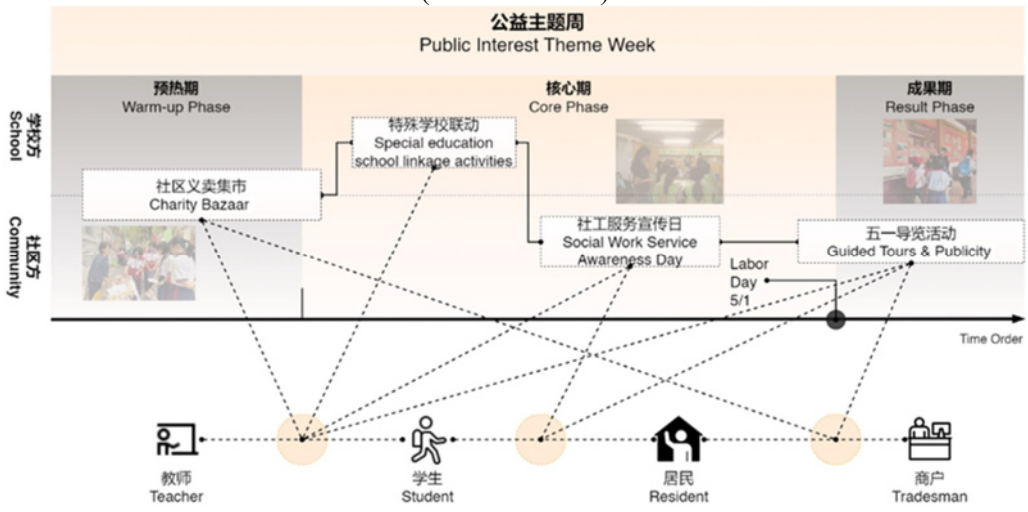


Figure 5- 5 Illustration of the Activities in the Public Welfare Theme Week (Source: Author)

During the summer vacation, community summer classes are conducted by utilizing unused classrooms and facilities on campus. The format is based on the night school programs that exist in China for different groups of people. The main contents include practical skills classes for vocational groups, cultural and aesthetic classes linking young people and the elderly, sports and fitness classes for people of all ages, and medical and health classes linking elderly groups, parents and medical workers. Among them, the medical and health classes are also part of the activities of the "Health Theme Week" after the start of the school year.

The "Health Theme Week" is based on the intangible cultural heritage of Chinese medicine, the community's cultivation, use and management of Chinese herbs, and the abundant healthcare resources in the neighborhood of the Jiubuqian Primary School. As shown in Figures 5-6, the theme week was preceded by the family tasks and community classes conducted during the summer vacation, and the exhibition of the selected results was used to warm up the activities. During the activity period, with Teachers' Day as the time anchor point, combined with herbal medicine planting and community healthcare lectures, covering students, teachers, parents, residents and other people in the school, family and surrounding community, to publicize occupational health, physical and mental health, and to promote the community's health awareness and healthcare knowledge. Later in the campaign, the results of the campaign will be displayed and knowledge publicized, using campuses, commercial streets and complex facilities to carry out exhibitions on herbal medicine and traditional medicine. These publicity activities are also involved in the herbal medicine exhibition and sale activities during the National Day the following month and the warm-up for the "Sports Theme Week".

The "Sports Theme Week" is derived from the "Sports Festival" jointly organized by Guangzhou No. 3 Middle School and Mingde Experimental Middle School. The festival was originally one of the sports development activities for students on campus, but this theme week will give it more connotations of "sports change life", promote community participation, and create an atmosphere of "fitness for all" (Figure 5-7). In addition to on-campus competitions for students and parents, community fitness facilities and core recreational paths will be used to synchronize light sports activities for all. After on-campus athletic competitions, their facilities are also utilized for formal competitions for community participation. During these competitions, the following month's "Culture and Arts Theme Week" is also promoted.

The "Arts and Culture Theme Week" is derived from the "Arts Festival" of Guangzhou No. 3 Middle School. The Festival was originally a sequence of quality development activities for school students, anchored by the school's anniversary. Throughout the event, the historical

memory of the community will be used as the foundation, and the artworks designed by students will be displayed on the main tourist paths and landmarks for publicity; at the same time, similar to the operation path of the "Sports Theme Week", in addition to the art activities organized in the school and participated by the school and the family, the parks, plazas, and commercial facilities in the community will be utilized to carry out art festivals belonging to the community simultaneously. In addition to school-based arts activities and home-school participation, the community also uses parks, plazas, commercial facilities, and other spaces to organize community arts festivals (Figure 5-8).

The "Arts and Culture Theme Week" also follows on from the "Non-Heritage Crafts Classes" that were held on campus during the winter break, which were publicized in advance to attract community members and visitors to the community to participate in learning about the traditional crafts and history of the community. This phase will also be linked to the current popular New Year's Fair tradition on Yide Road, and at the same time will stimulate awareness of traditional culture and historical memory within and outside the community, and foster a sense of responsibility for preserving, passing on, and promoting the culture of the community.

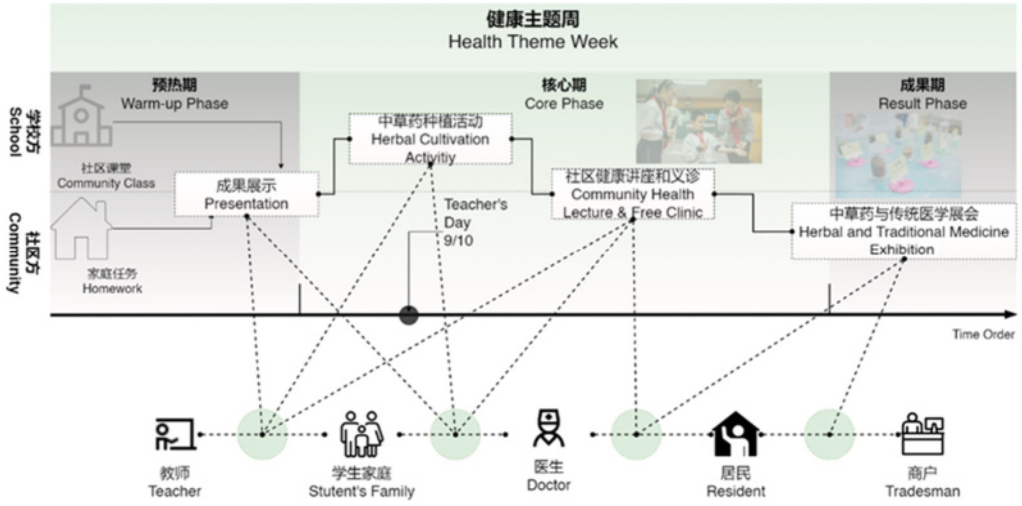


Figure 5- 6 Illustration of the Activities in the Health Theme Week
(Source: Author)

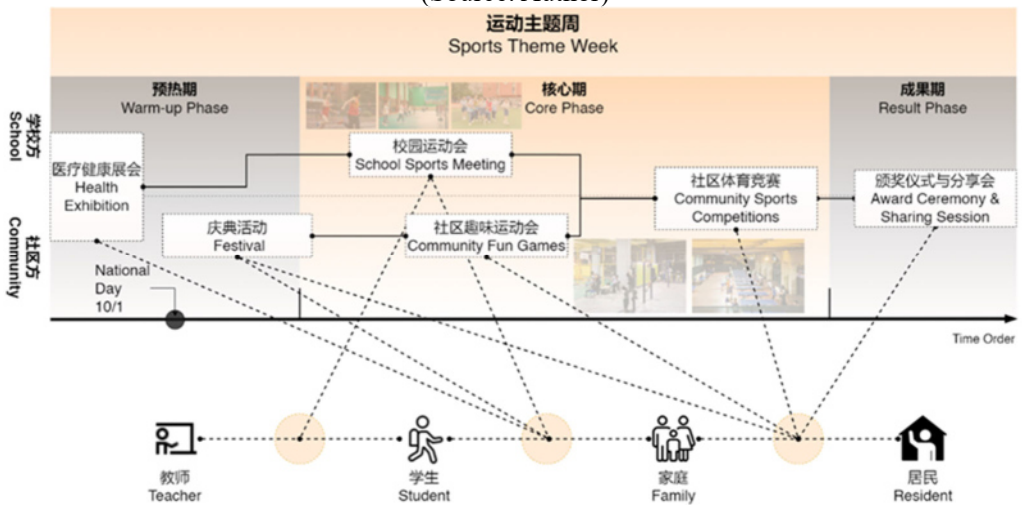


Figure 5- 7 Illustration of the Activities in the Sports Theme Week
(Source: Author)

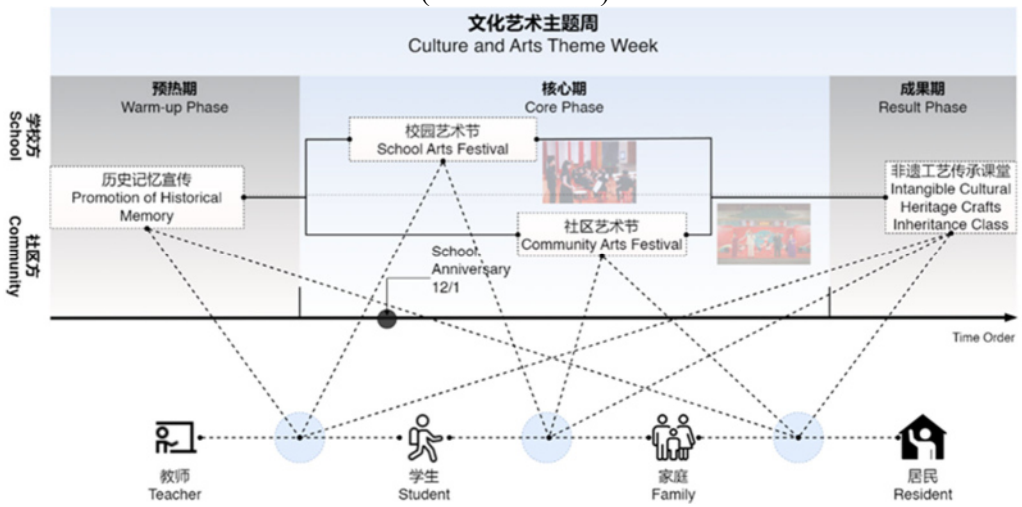


Figure 5- 8 Illustration of the Activities in the Culture and Arts Theme Week
(Source: Author)

5.2.1.2 System of Daily Public Activities

In contrast to the year-round activity sequence, the daily public activity sequence focuses on the distribution of the daily behaviors of different groups of people over the course of the day. This sequence ensures that, with limited capacity, the various daily activities that occur in the street can be carried out in an orderly manner without interfering with each other, and that appropriate space and facilities are always available. When neighborhood “festival-type” events are taking place, a time period is planned that is flexible enough to accommodate a wide range of people, ensuring that the target audience can fully participate.

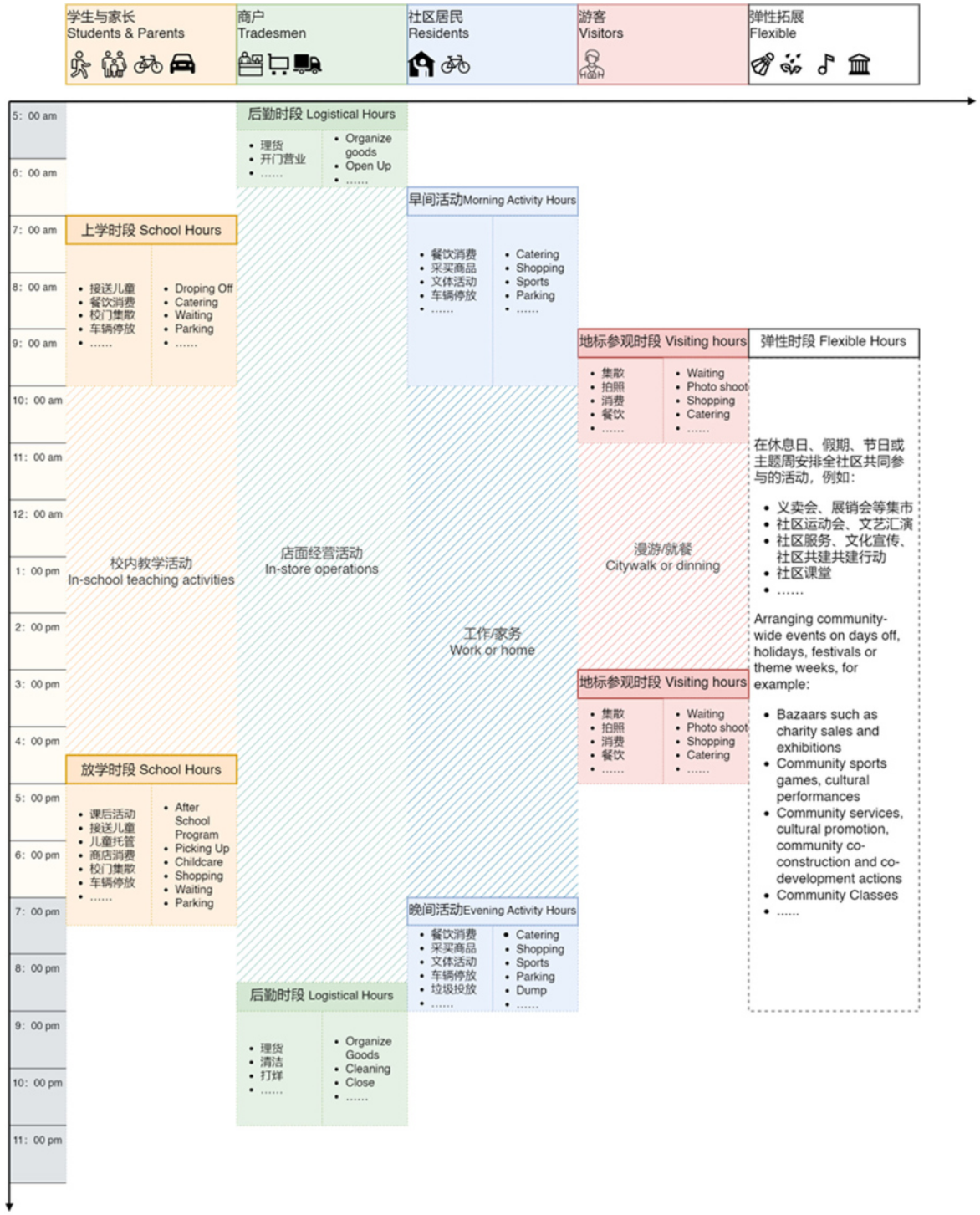


Figure 5- 9 Schematic Diagram of the system of Daily Public Activities
(Source: Author)

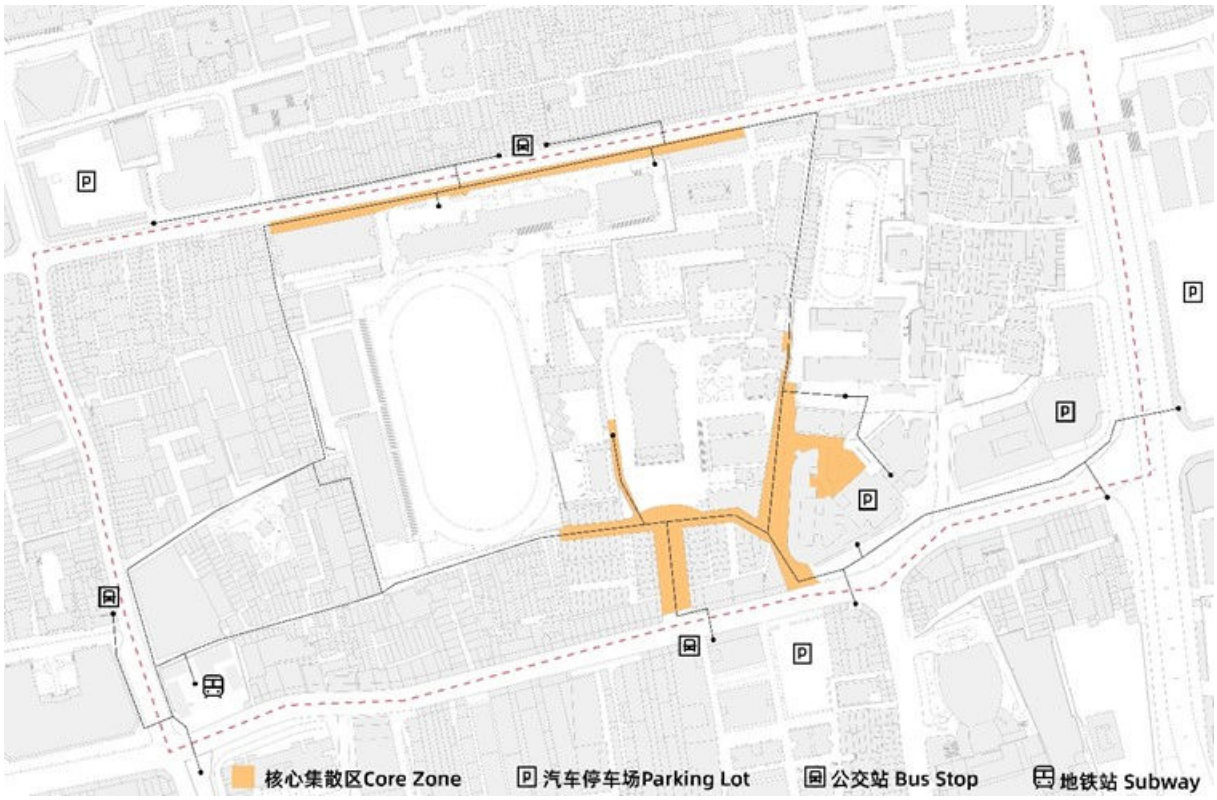


Figure 5- 10 Daily Activity Planning for Students and Parents
(Source: Author)

Figure 5- 11 Daily Activity Planning for Tradesmen
(Source: Author)

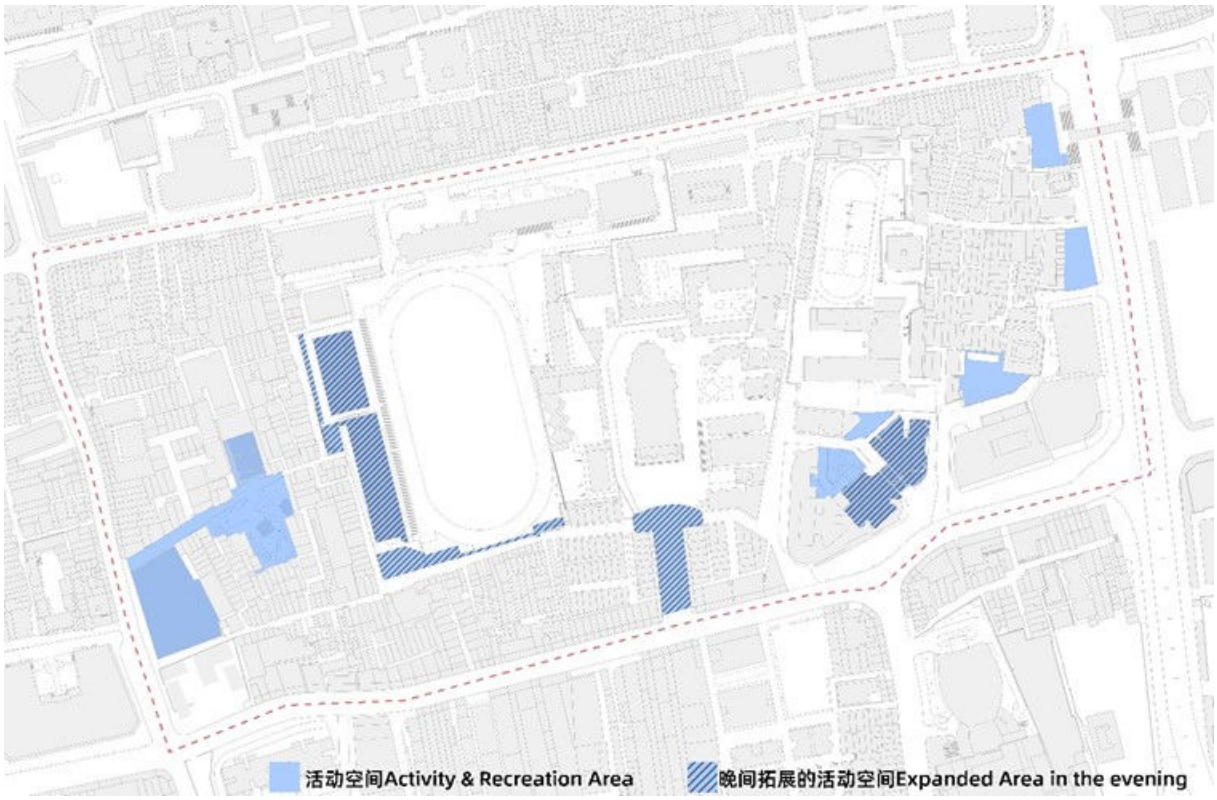


Figure 5- 12 Daily Activity Planning for Residents
(Source: Author)

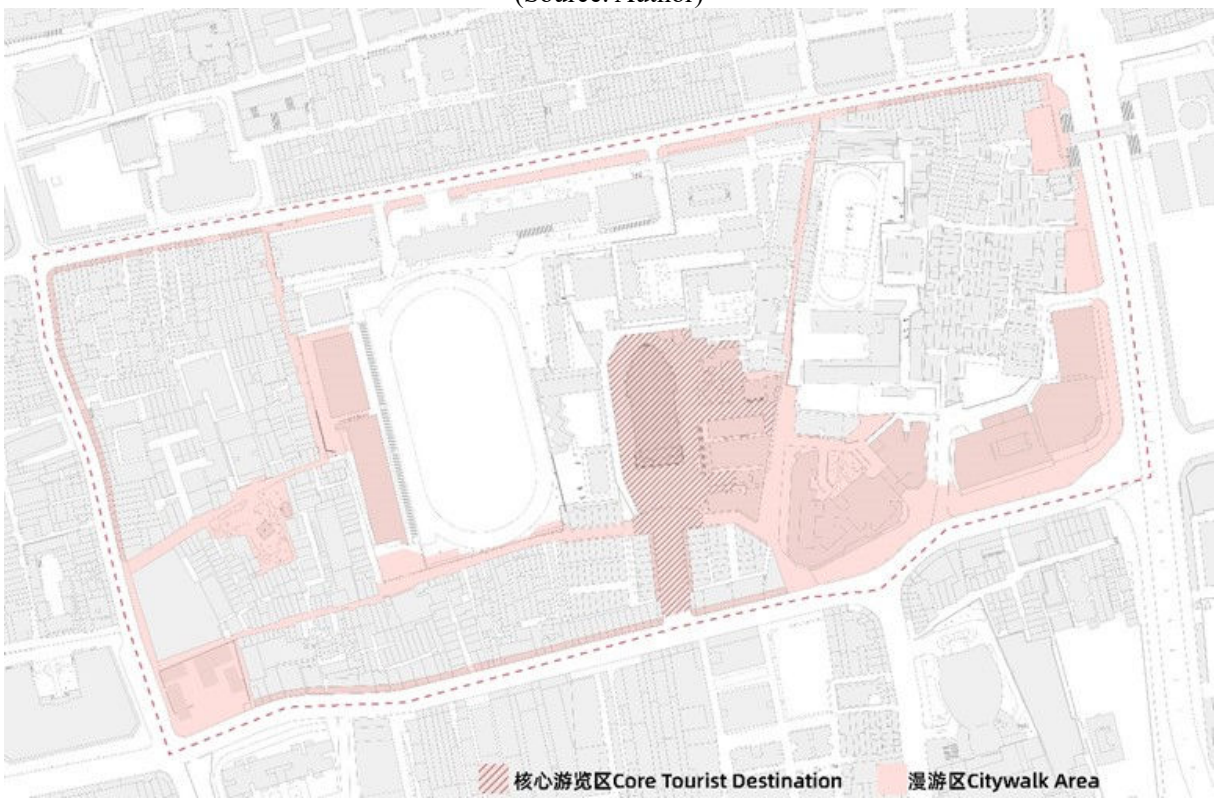


Figure 5- 13 Daily Activity Planning for Visitors
(Source: Author)

During school hours and dismissal times, traffic control is implemented within the core (orange) area, limiting outdoor expanded stalls on the main paths of gathering and departure, and utilizing the surrounding social parking lots to divert parking demand. Appropriately open

three-dimensional access to form a safe walking system (Figure 5- 10).

During the store logistics hours, manage the three-tier system of loading and unloading points - warehousing - storefronts, reasonably utilize the staging points to park loading and unloading vehicles, and transfer commodities through service backstreets (backstreets and alleys adjacent to warehousing). At the end of the logistical hours, some motorized loading areas raise movable blocking bollards to convert loading and unloading sites back to pedestrianized commercial streets. Limit curb-side loading and unloading that affects street traffic and limit the use of sidewalks by panel trucks. Encourage the use of service backstreets for transfers, and strictly limit expanded stalls that impede access in service backstreets (Figure 5- 11).

Residents in the morning activity time, advocate in the "street park - community center - commercial support" function of the core, to achieve dining, buying, culture and sports, parking and other behavior of convenient access. During the evening activity hours of the residents, a light guidance system will be opened to enhance walking safety and destination guidance. Open up part of the campus facilities, the shared floor of public facilities, and utilize the "embedded space" transformed by the campus boundary to meet the needs of multi-level activities (Figure 5- 12).

During the peak hours when visitors visit the landmark (Sacred Heart Cathedral), traffic control is implemented in the core area, and a guidance system is used to ensure the formation of an orderly tour route. During the main hours of visitor activity, stores are allowed to utilize the "embedded space" created by the campus boundary setback to increase commercial vitality (Figure 5- 13).

5.2.2 Spatial Design and Form Planning

In the previous analysis, we have extracted the common forms of "Gateway", "Corridor" and "Bridging", which have served as containers for various anchor activities in the historical evolution of the neighborhood. The spatial design strategy in this section will take the creation of these forms as a starting point, and weave a network of anchors with the existing street space as a skeleton. At the same time, based on the current characteristics of the neighborhood and the requirements for establishing a system of anchor activities, three target functions of street space are proposed: flexible pocket space, visual impression space, and co-construction and interaction space. These spatial modes firstly respond to the vision of "good streets", enhance the willingness of community members to focus on street activities, and form the cohesion of the place; and secondly, construct the anchor subject impression of "diversified campuses",

strengthen the public attraction of campuses, and realize the street carrying, Finally, to achieve the goal of "integrated community", the public activity system linking campus and community can be carried out benignly through the street, and the street becomes the link between campus and community for mutual benefit and co-construction.

5.2.2.1 Flexible Pocket Space

The flexible pocket space is the basic model of the spatial strategy, corresponding to the daily multiple crowd behaviors in the site. With limited public space, the street itself can play the role of both diversion (different attributes of activities can be carried out in an orderly manner) and amalgamation (different groups of people can integrate and communicate). Based on the perspective of spatial justice (using the original land of the community to form anchor facilities in the urban evolution), the flexible pocket space is mainly obtained on the side of the anchor institution by using the setback line or three-dimensional space replacement.

Gateway pocket space matches the capacity of the anchor facility, provides the necessary distribution space, supporting facilities and expansion potential, and is the basis for the orderly development of public activities within the anchor facility, as well as the starting point for its publicity to radiate outward. Corridor pockets divert different transportation modes, provide necessary stopping nodes and expansion space, and enhance the efficiency and vitality of the linear space. Bridging pockets serve both as a gateway to the two and as a diversion of transportation modes, and are a flexible way of spatial replacement in high-density areas.

5.2.2.2 Visually Impression Spaces

Visual impression space is the part of the spatial strategy that strengthens the memory of the place and group identity, corresponding to the visual communication and spiritual connection between different people in the site. The strategy is divided into two paths: one is to discover the inherent historical clues of the community (especially the historical streets lost in the urban renewal) and transform them into perceptible public art markers; and the other is to strengthen the visual communication between different places and promote group identity.

Through the display of public art on the façade, the gateway visual space forms a visual center in the old city fabric of high-density alleys and strengthens its sense of "landmark" in the community; the corridor visual space forms a continuous and perceptible interface through the carrying of guiding signs, displaying the internal landscape, and placing public art; and the bridge visual space, through the three-dimensional setting, material treatment, or interface design, transforms the visual space into a perceptible public art signage. The bridging visual space is used as a visual identity through three-dimensional setting, material treatment or

interface design.

5.2.2.3 Co-Construction Interactive Space

Co-construction interactive space is the core of the spatial strategy oriented to the theme of “building social anchors”, and after the first two spatial modes provide containers for activities and public attraction, the community will really participate in activities that are connected to the anchor institution.

Gateway interactive space is the extension of the activities of the anchor institution, in which the warm-up publicity of thematic activities and the display of results are carried out to attract the active participation of community members; Corridor interactive space mainly establishes the traction for long-term participation in daily public activities, and subconsciously enhances the understanding and sense of belonging among community members through the building of gardens, book drifting, and the popularization of knowledge, so as to ensure the benign operation of the community statute; Bridging interactive space is the core link for the aggregation of thematic activities. Interaction space provides a direct link for aggregated thematic activities, integrating different aspects of activities into a relatively intensive place to accommodate core activities such as celebrations and bazaars.

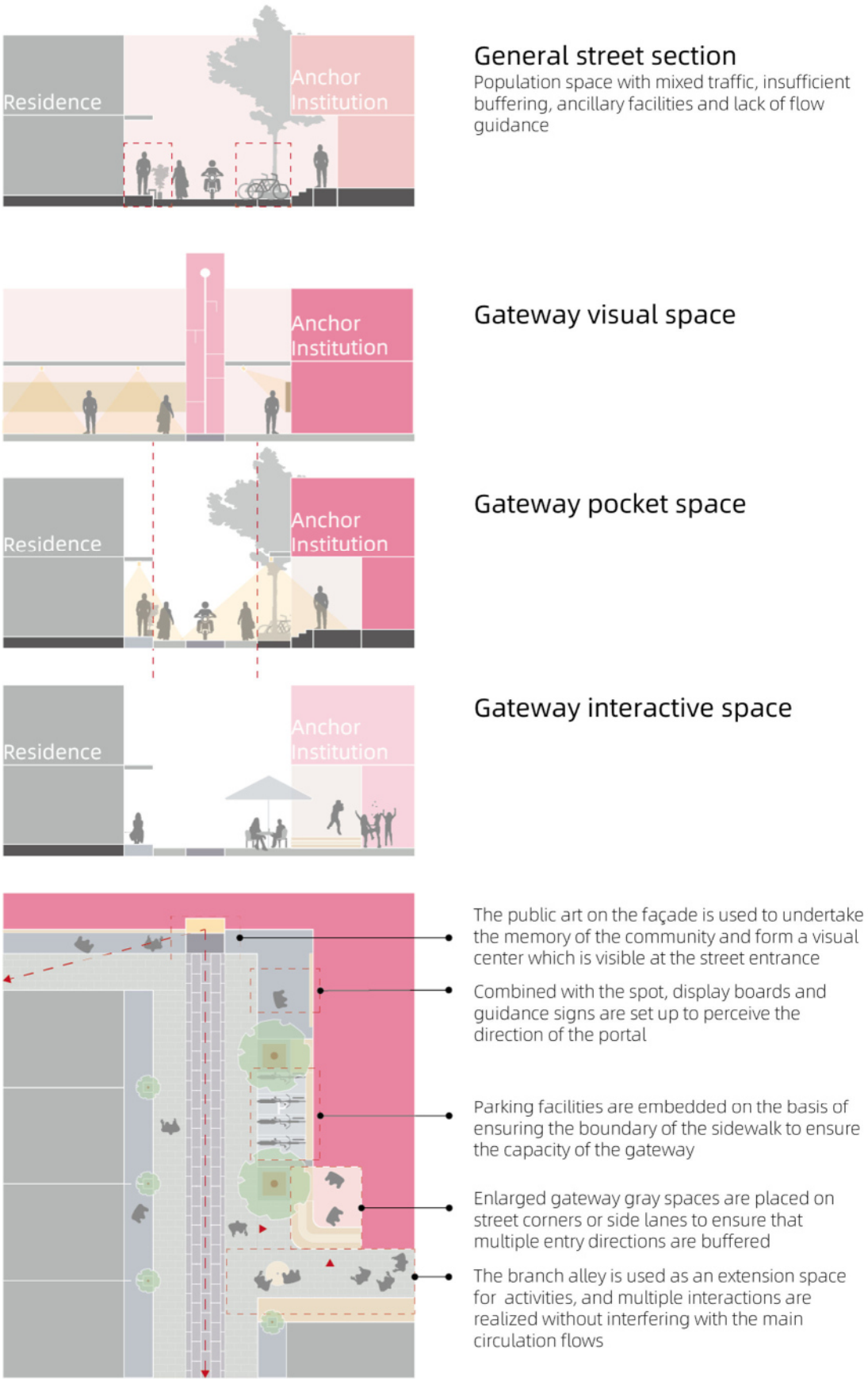


Figure 5- 14 The Functional Mode of the Gateway Space
(Source: Author)

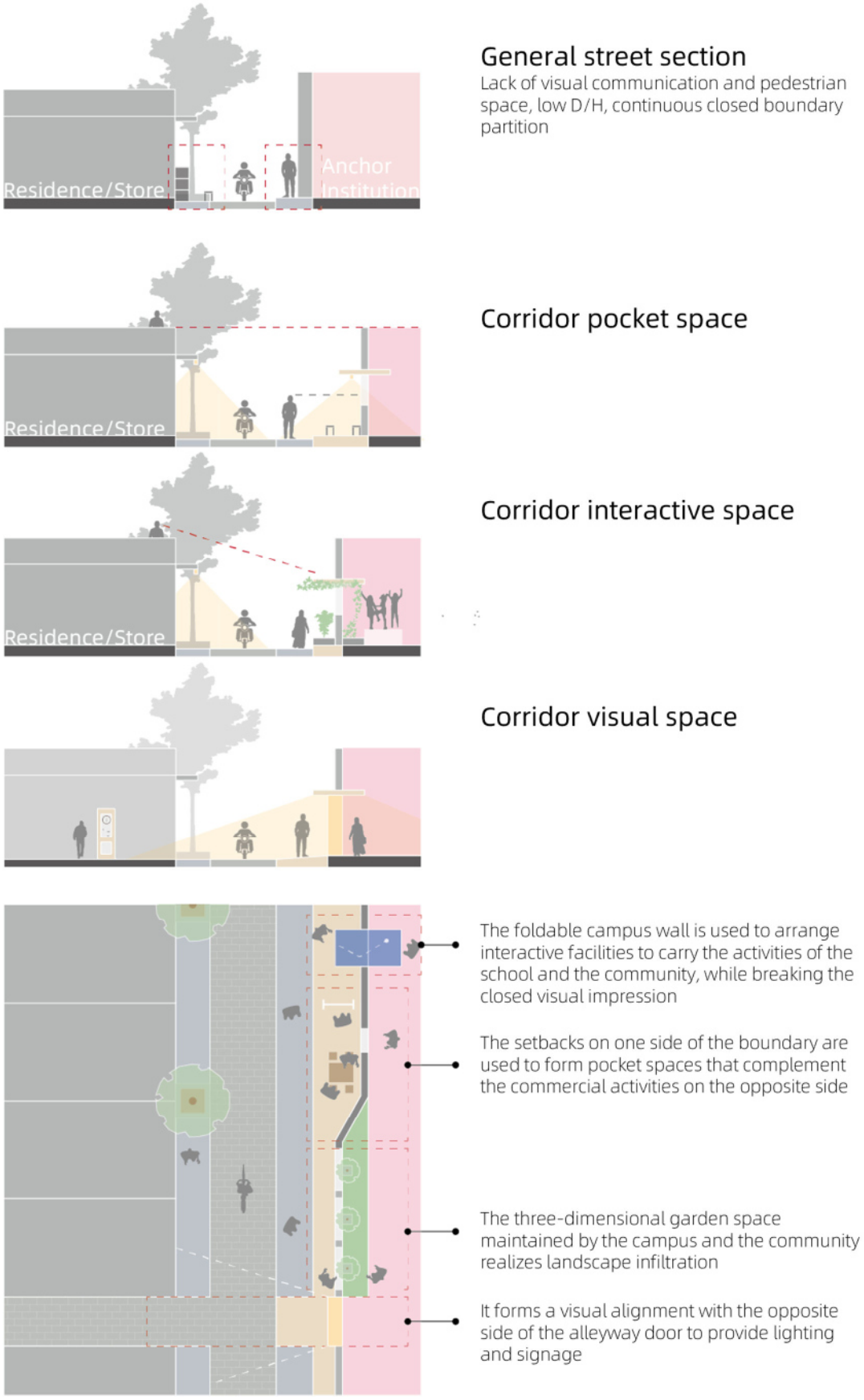


Figure 5- 15 The Functional Mode of the Corridor Space
(Source: Author)

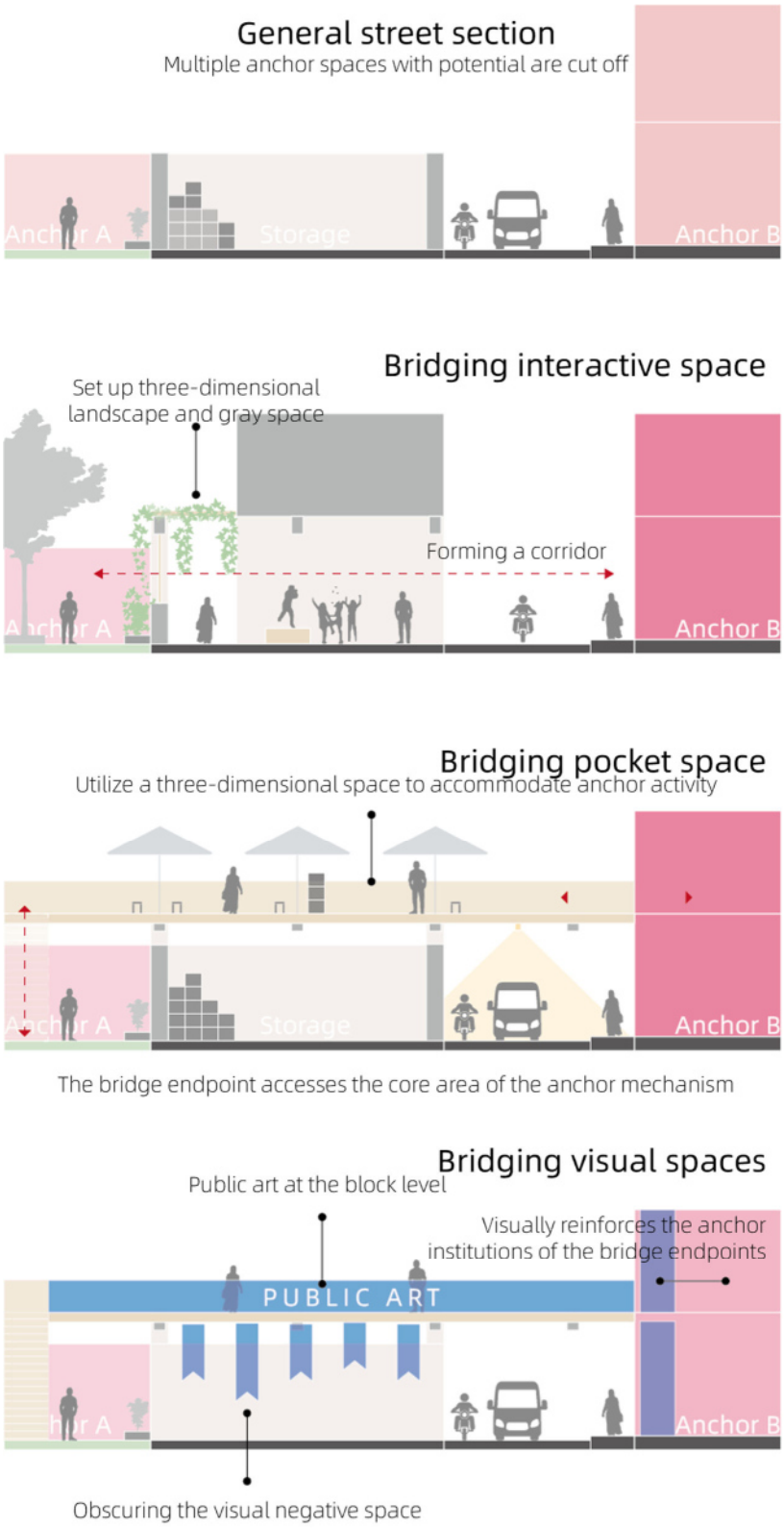


Figure 5- 16 The Functional Mode of the Bridging Space
(Source: Author)

5.3 Masterplan and Node Design

Figure 5- 17 Masterplan
(Source: Author)

Landing the above spatial strategies on a specific site results in a generalized plan as shown in Figure 5- 11. The key streets are arranged as the skeleton, and the sites with different attributes have adopted targeted spatial patterns. In the design of the three nodes, three representative anchor themes of “Gateway”, “Corridor” and “Bridging” are applied respectively.

5.3.1 Gateway: Sanfuqian Neighborhood - No. 3 Middle School Life Axis

The node is located on a section of the western boundary of the Guangzhou No. 3 Middle School where it intersects with Yuanxi Alley and Sanfuqian Street. The target spatial form of the node alignment is “Gateway”, which aims to create a gateway between the high school's sports facilities and the surrounding streets and alleys. Currently, the entrances to the public facilities in this area are scattered, and the pedestrian experience is poor due to the mixing of people and vehicles and the lack of parking space, resulting in the potential of the social anchor not being well utilized.

In terms of design strategy, firstly, we pay attention to the original entrance of the swimming pool of the No. 3 Middle School, and move it to the south and align it with Sanfuqian

Street, forming a “bridging” relationship between the Sanfuqian Community Center and the gateway of the school gymnasium, reinforcing the centrality of one side of the community, and forming a clustered walking axis for life.

Secondly, we pay attention to the lost street memory in the former urban renewal. Due to the expansion of the campus covering the original street, the length of the current Sanfuqian Street is only about half of the length of the last century, and its historical memory as a main axis of the community cannot be well perceived. By utilizing the façade of the campus building to install public art wall paintings, the disappeared Sanfuqian Street is “extended” to the façade of the building, aiming to awaken the historical memory of the community, and at the same time, make the boundary of the school a landscape with humanistic care. The intersection of the three-dimensional wall painting and the ground level is the public entrance to the athletic facility, which “recreates” the historic landscape while also serving as part of the public landmark, helping residents and visitors identify this anchor space.

Subsequently, in response to the public activities brought about by the gateway, the difference in height between the inside and outside of the boundary of the wall on one side of the entrance is utilized to create an embedded space to accommodate ancillary amenities such as seating, notice boards, and bicycle parking, which reduces their occupation of the public street and ensures that daily life is carried out in an orderly manner. The embedded flexible space also integrates a nighttime lighting system to provide guidance and enhance walking safety during the peak nighttime hours of public use of the sports facility.

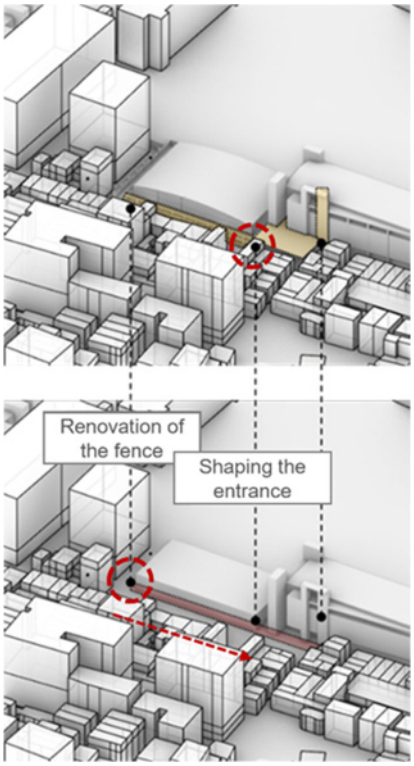


Figure 5- 18 Schematic Diagram of the Spatial Strategy
(Source: Author)

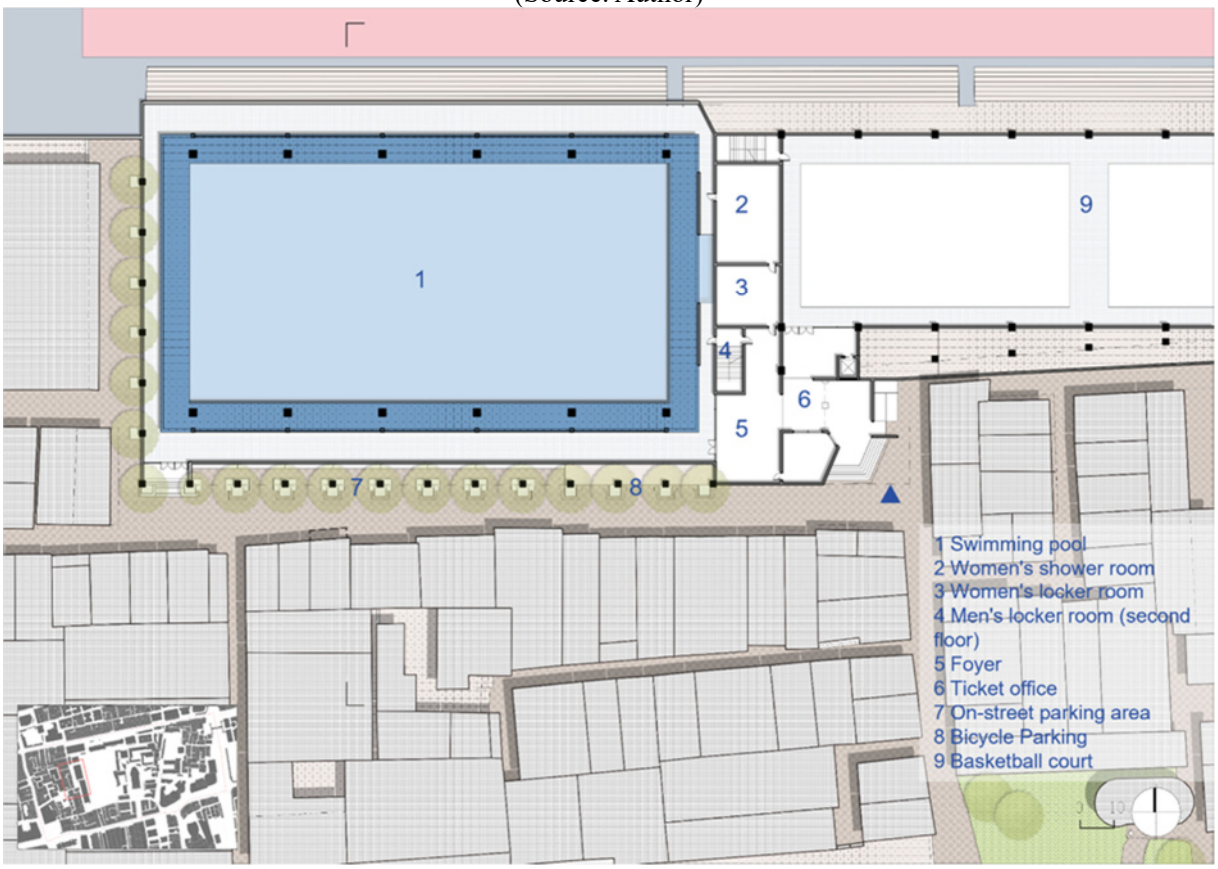


Figure 5- 19 Node Plan
(Source: Author)

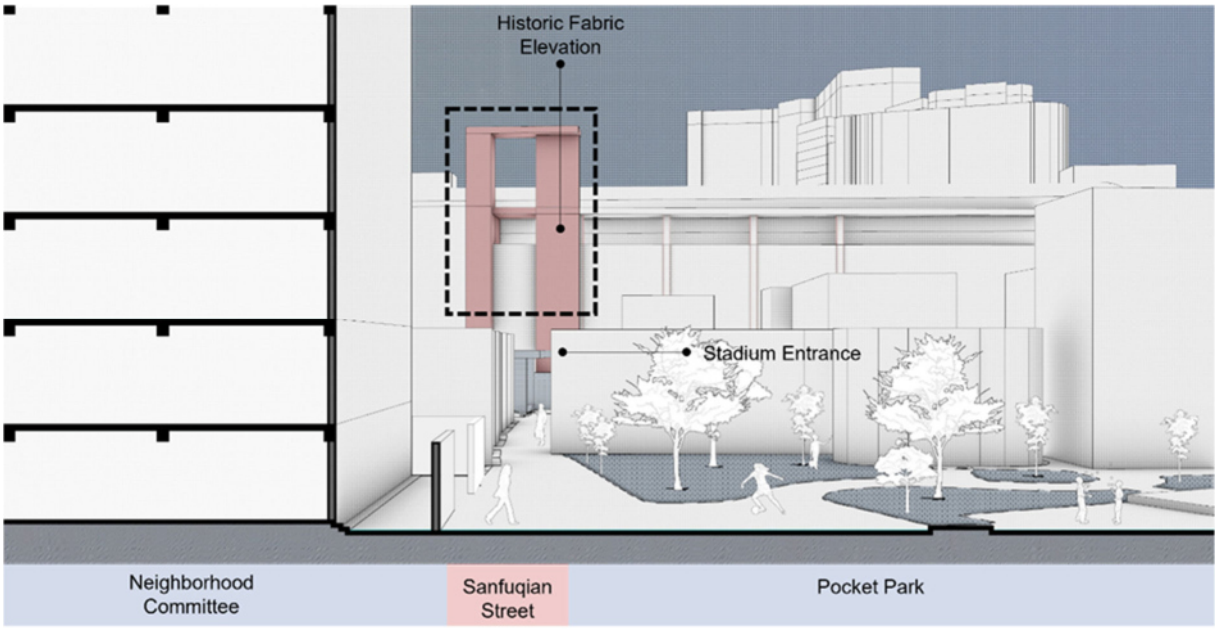


Figure 5- 20 Schematic Diagram of the Gateway Visual Space
(Source: Author)

Figure 5- 21 Perspective View of the Section
(Source: Author)

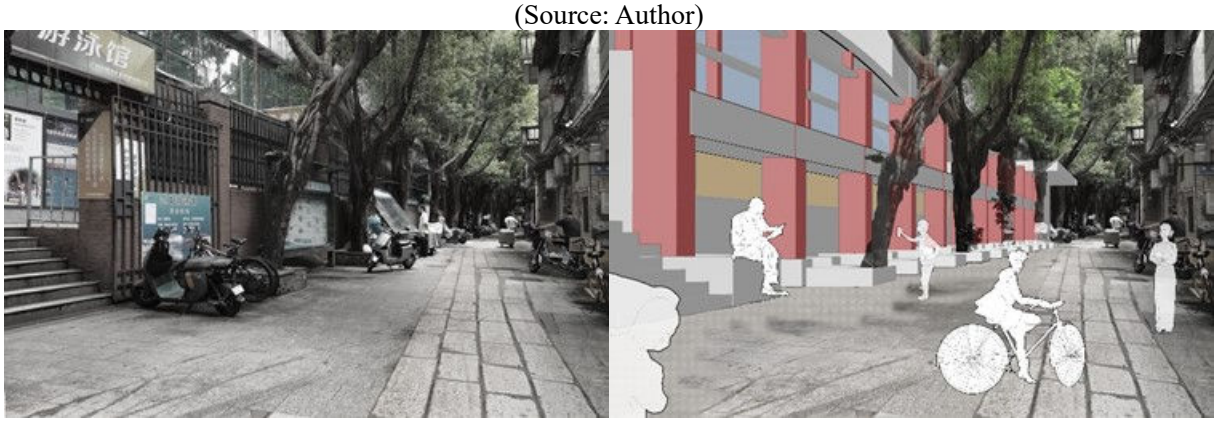


Figure 5- 22 Perspective View of a Person's Viewpoint
(Source: Author)

5.3.2 Corridor: Maima Street - No. 3 Middle School Tourism Axis

The node is located on the south side of the Guangzhou No. 3 Middle School, on a section of the boundary, which is the main section of Maima Street. The target spatial form of the node's alignment is “Corridor”, aiming to create a perceptible campus boundary with the function of anchor point. Currently, the pedestrian flow in this area is high, the pedestrian-vehicle mixing and the lack of parking space result in a poor walking experience, and the visual experience on the campus side is closed and monotonous, resulting in a social anchor that is not well perceived by the community.

In terms of design strategy, the first focus is on the basketball court at the southwest corner of the No. 3 Middle School. After lifting it upwards, the ground floor space can be used to replace the original public facilities on the street (e.g. fitness equipment, recycling points, express points, etc.), forming an intensive functional box on the corner and maintaining the walking continuity along the street. The elevated court can be connected to the indoor gym and stadium bleachers inside the campus, and its use will not be affected.

Secondly, on the basis of guaranteeing the normal operation of functions within the campus, moderate setbacks are made to other boundaries, reserving the necessary buffer and stopping space for commercial activities on Maima Street, as well as creating spatial containers for the envisioned thematic public activities. The larger setback spaces are arranged in conjunction with the campus landscaping to form a garden built by the campus and the community together. The ground plants are maintained by the community, while the climbers located in the upper shelves are planted on campus.

Subsequently, in response to the disappearance of historical streets in the former urban renewal, public art installations are implanted on the renovation boundary of the campus, which correspond to the original entrances of the streets covered by the campus construction and serve as a symbolic expression of“alley gates”. These installations function as historical and cultural promotional signs for the neighborhood, enriching the visuals within the opposite side of the street, and also function as light boxes at night to supplement street lighting.

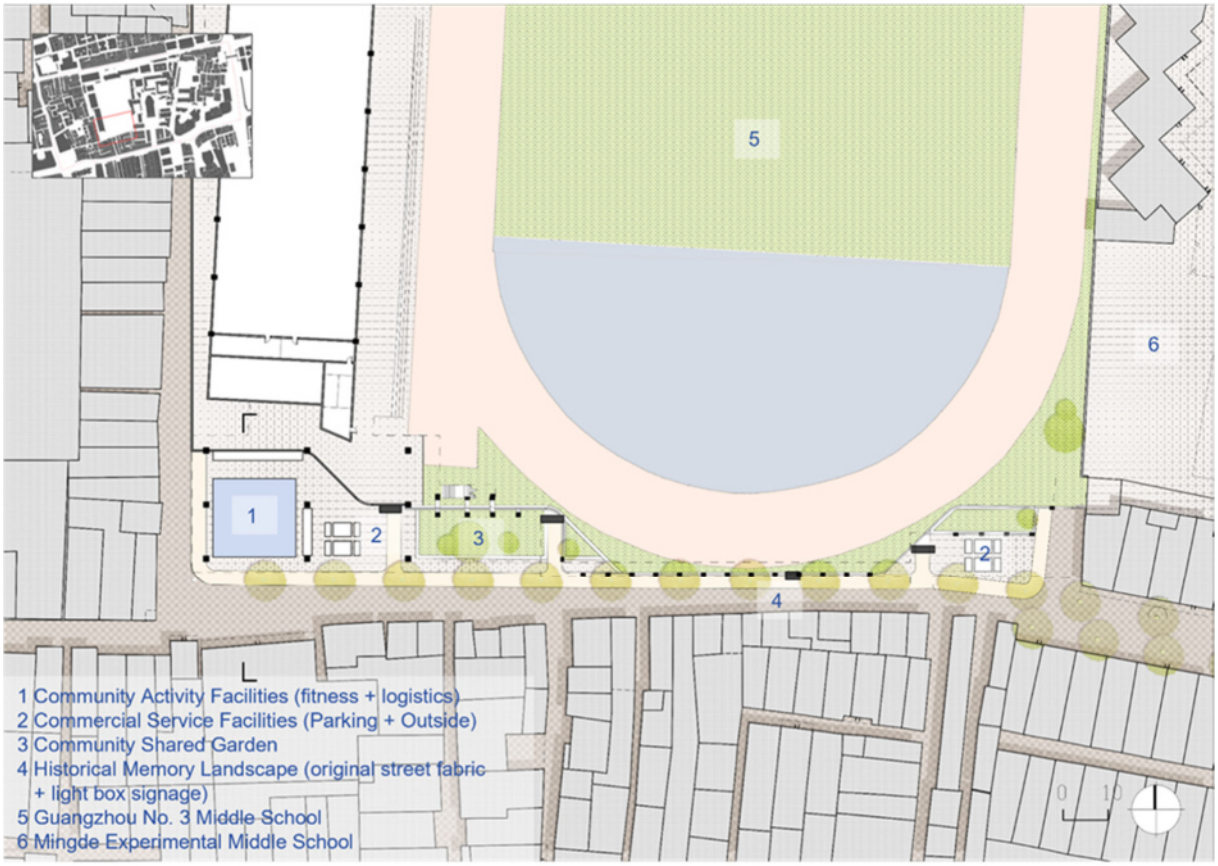


Figure 5- 23 Node Plan
(Source: Author)

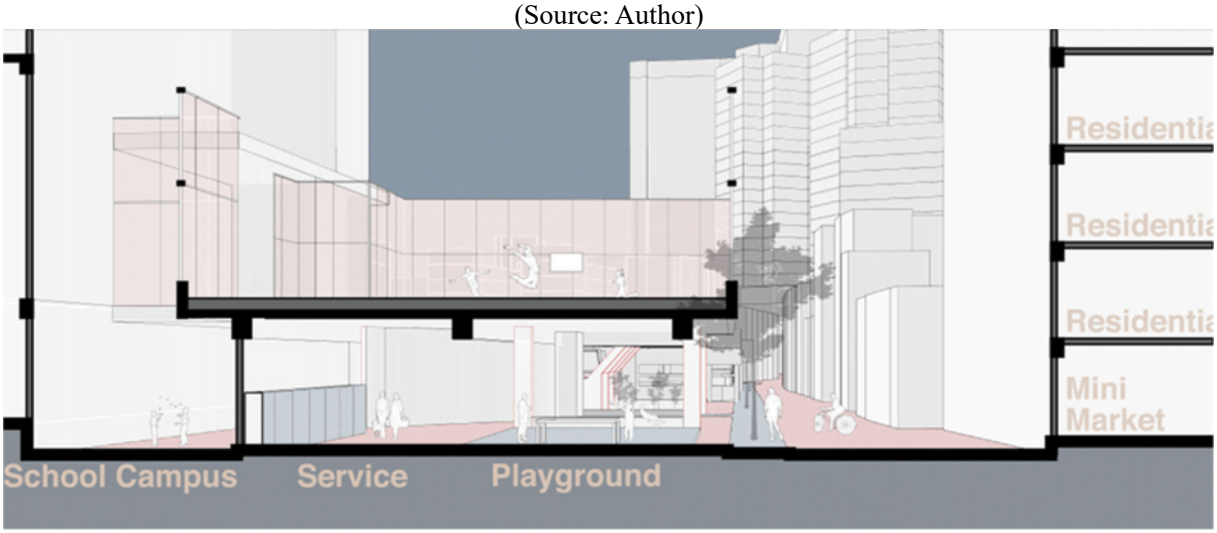


Figure 5- 24 Perspective View of the Section
(Source: Author)

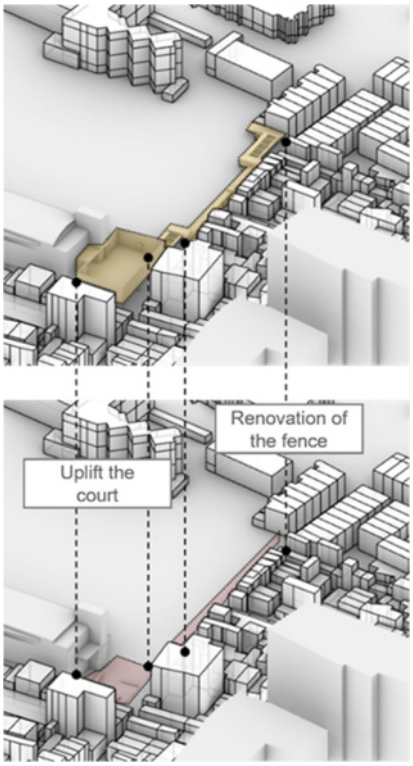


Figure 5- 25 Schematic Diagram of the Gateway Visual Space
(Source: Author)

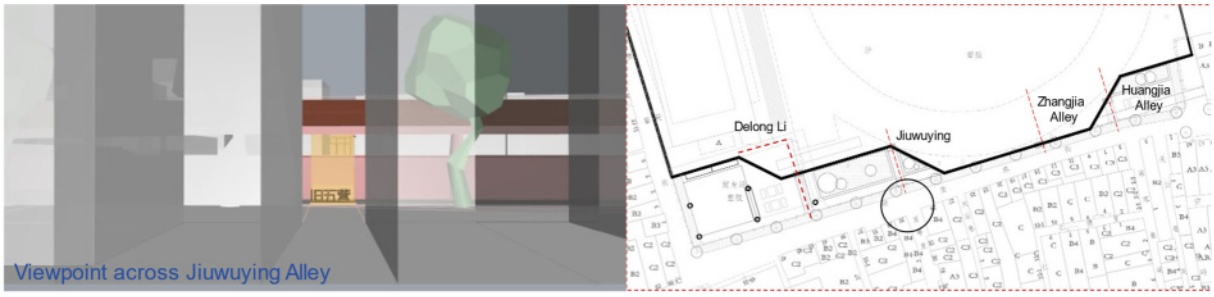


Figure 5- 26 Schematic Diagram of the Corridor Visual Space
(Source: Author)

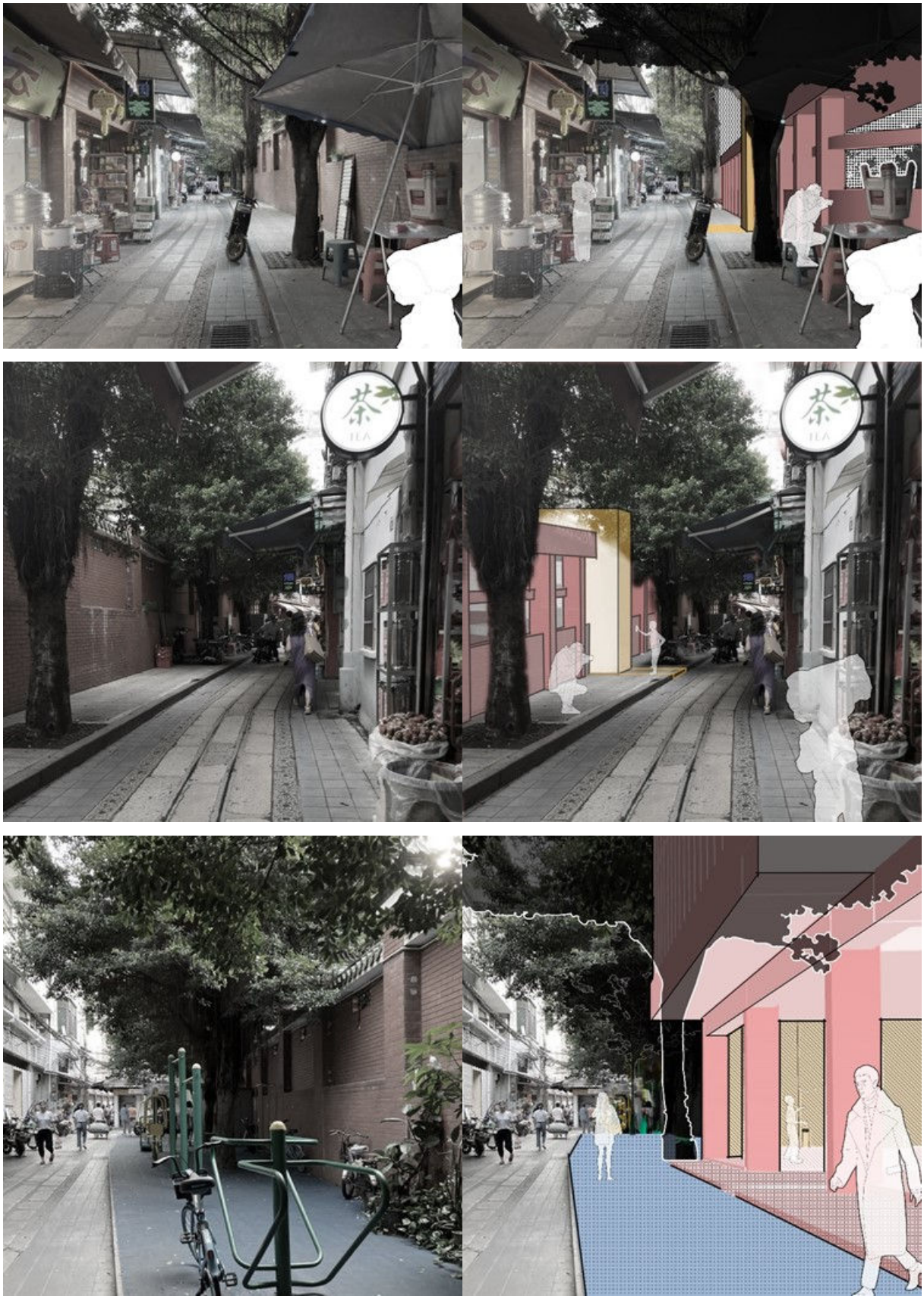
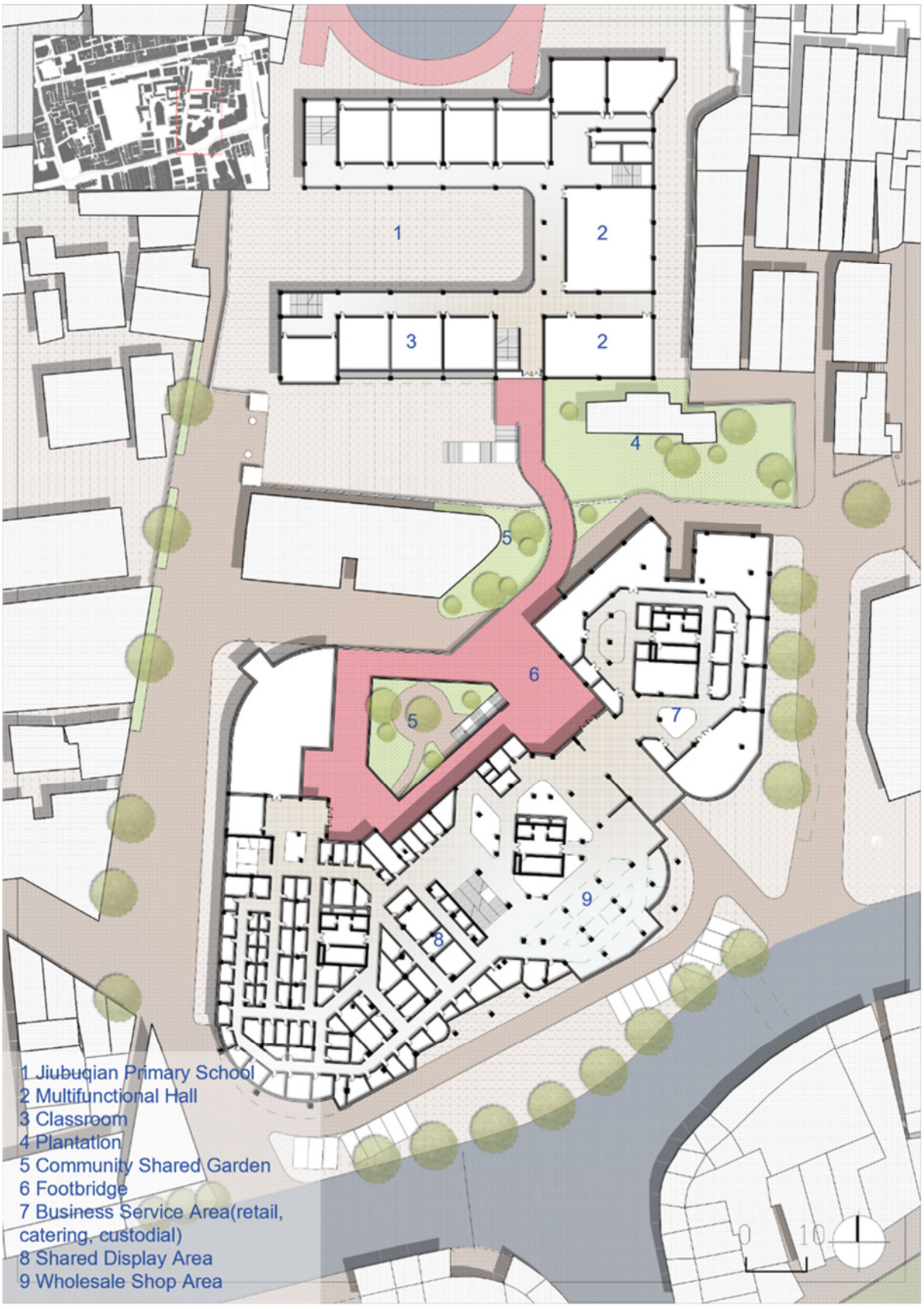


Figure 5- 27 Perspective View of a Person's Viewpoint
(Source: Author)

5.3.3 Bridging: Jiubuqian Primary School - Yide Garden Sky Link



This node is located at the south side of Jiubuqian Primary School, adjacent to the wholesale commercial podium of the high-rise building Yide Garden. The commercial center is called"Debao Trading Market". The target spatial form of the node alignment is "Bridging", which aims to bridge the two anchor facilities and accommodate more vibrant and orderly public activities. Currently, this area has extremely high peak foot traffic, which creates a poor pedestrian experience due to pedestrian-vehicle mixing and lack of parking space during campus drop-off and pick-up times. On the Debao Trading Market side, public facilities are slightly outdated, some of the stores on the floor are vacant, and the cluttered logistical space backing up to the building contributes to the poor environmental quality of the internal roadways in the neighborhood. Therefore, it is necessary to create the synergy of anchor facilities through some means, so that the quality of public space can be positively guided.

In terms of design strategy, based on the characteristics and problems existing in the campus and the wholesale market, the proposal of erecting a pedestrian footbridge is put forward. First of all, during the campus pick-up and drop-off period, the footbridge adds a direction for the campus to collect and disperse, some students can choose to cross the road through the footbridge, and parents can wait on the air platform for pick-up and drop-off to alleviate part of the congestion. It can also direct some of the pedestrian flow to destinations on the side of the commercial center, using the replacement of some of the vacant wholesale businesses, and using the floors adjacent to the sky bridge to form a shared floor geared towards the needs of the public. This level includes facilities for students and parents such as restaurants, a bookstore, and a care center, and also makes use of the open space in the middle for exhibitions and exchanges during themed events.

With the introduction of the bridge, the corner garden, which backs onto the building, is transformed into a median that connects the two anchor spaces, allowing the site to re-emerge as an anchor space valued by the community.

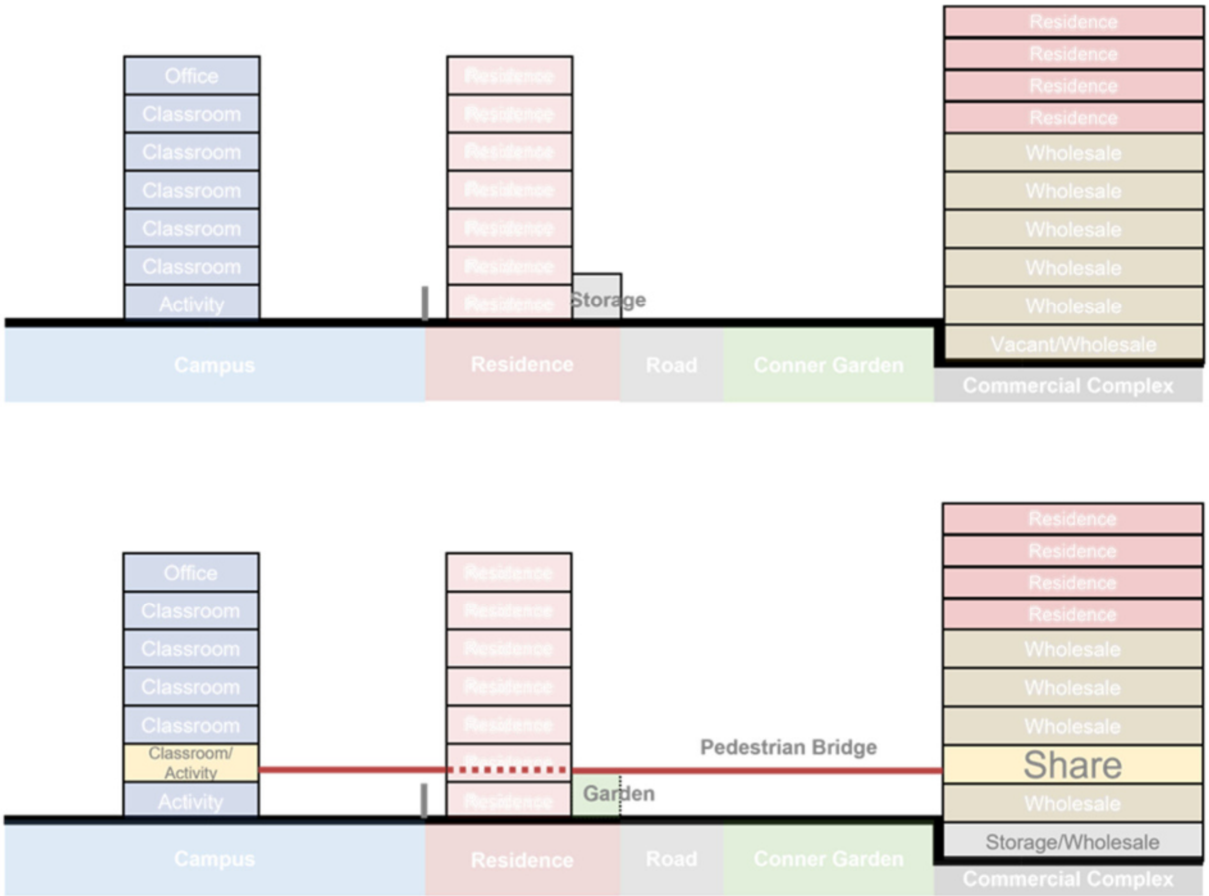


Figure 5- 28 Schematic Diagram of Spatial Strategy
(Source: Author)

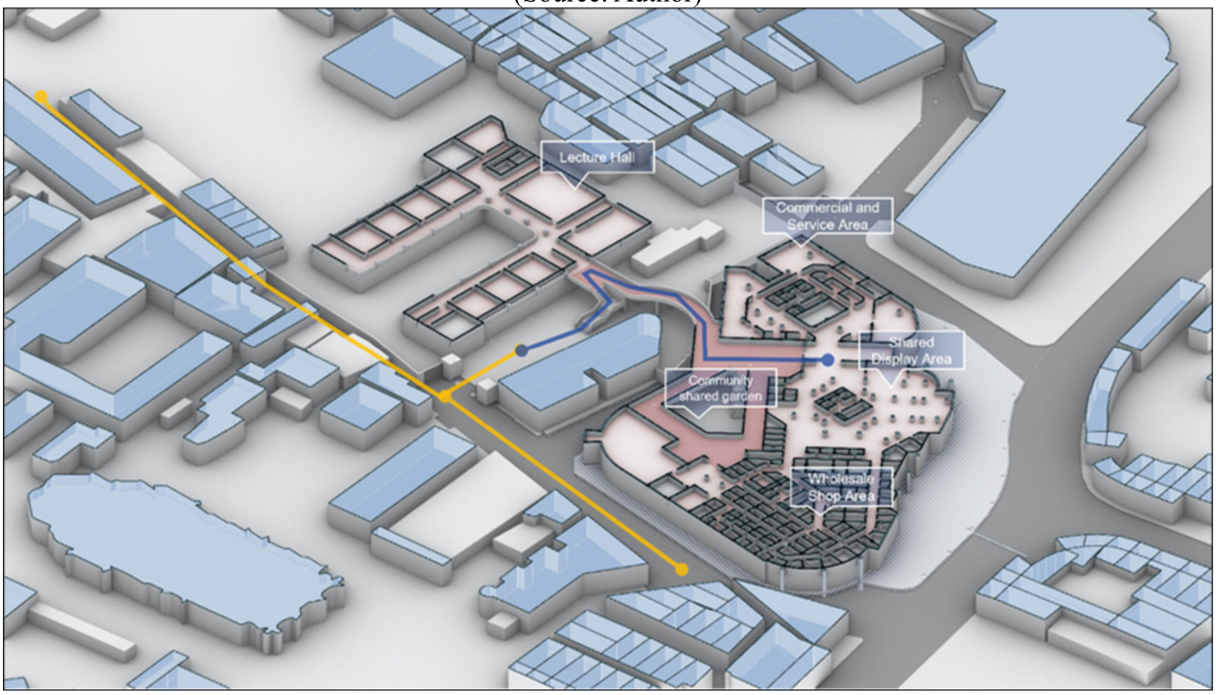


Figure 5- 29 Node Isometric Drawing
(Source: Author)

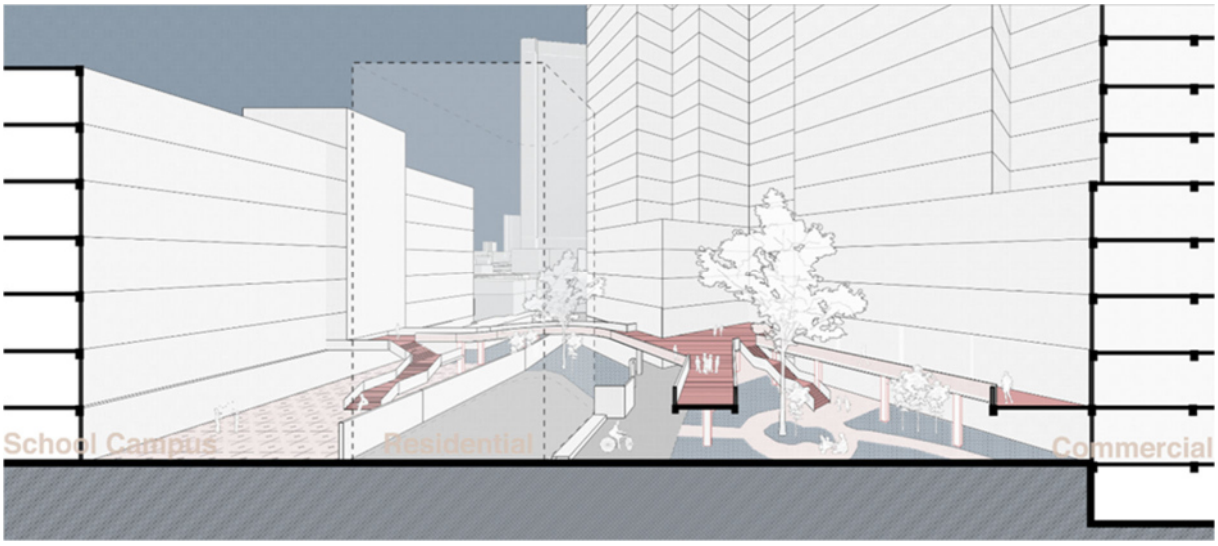


Figure 5- 30 Perspective View of the Section
(Source: Author)

Figure 5- 31 Perspective View of a Person's Viewpoint
(Source: Author)

5.4 The uniqueness of design strategies from the perspective of social anchor networks

Compared with the traditional strategy of renewing historic districts, the design method proposed in this study reflects the uniqueness of the perspective of "social anchor network" in the following aspects:

The most prominent feature of the design strategy is to emphasize locality, and use the community's own resources, historical memory and social connections to build a "Nancheng Plan" that can serve the residents of the community and form a sense of belonging to the community. Different from the traditional renewal model of attracting external investment for commercial development and replacing the original functional formats in the old urban areas, this strategy proposes an endogenous path with the help of the advantages of community public service resources, and then forms an attraction to external visitors on the basis of revitalizing the internal circulation of community public life, and finally forms a sustainable and active

block, so as to avoid the dilemma of urban renewal such as "gentrification". At the same time, the design strategy also innovates the practice of traditional anchor institutions, which are usually institutions of higher learning, large hospitals and other organizations, and emphasizes their economic traction role in the community. Based on the actual characteristics of the site, this strategy selects primary and secondary school campuses as the main anchor institutions, focusing on emphasizing their public service functions, and realizing the design vision through the close social connection of "home-school-community". At the same time, according to the characteristics of primary and secondary school campuses rooted in community history and accompanied by community evolution, the dissemination of historical memory and cultural impression is realized.

At the same time, the design strategy also focuses on the construction of the network system, from "nodes" to "anchors" and then to form "anchor networks". The traditional renewal model often uses single-point implantation (such as museums and cultural parks) to activate neighborhoods, but it is easy to lead to the "island effect": anchor facilities are disconnected from community life, and the radiation scope is limited (for example, Shanghai Tianzifang was overly dependent on the tourist economy in the early days, squeezing the demand of indigenous people). In this study, a three-level synergy mechanism is formed through the series of anchors in the street network: the first is the strengthening of core anchors, with campuses and community centers as "strong anchors", and improving service capabilities through functional expansion (using campus sports and teaching facilities in leisure time, and placing base facilities in commercial centers); The second is the complementarity of secondary anchors, embedding "weak anchors" such as pocket parks and shared shops along the streets to fill the service blind spots and strengthen the agglomeration function of the core anchors. The third is the activation of connecting corridors, using street interface design (such as border co-construction garden and historical wall painting) to promote the flow of people and information interaction between anchor points, and form a flow guide to the core anchor points.

In addition, the design strategy also emphasizes flexible spatio-temporal adaptation, which is different from the traditional strategy that emphasizes the permanent solidification of spatial functions (such as transforming historical buildings into single-function exhibition halls), which is difficult to adapt to the dynamic changes of community needs. In the time dimension, the "theme week" and "timetable" are established to match the school calendar and community rhythm, so that anchor facilities (such as campus playgrounds and street parks) can be transformed into public activity containers at specific times; In terms of space, multi-functional spaces, movable facilities, and variable interfaces (such as modular market stalls and folded

campus walls) are used to switch spatial functions to avoid idle resources.

5.5 Summary

This chapter continues the above analysis of the current situation of the site, and proposes the design vision of "good streets", "integrated communities", and "diverse campuses". Based on the existing and potential anchor spaces and anchor activities in the neighborhood, this chapter proposes a system of activity planning and community convention. The system is based on the unique public life and home-school connection in the community, including annual and daily anchor activity planning, using the form of "theme week" and "timetable", using anchors to cultivate community identity of community members, enhance the vitality of related business formats, and use flexible diversion planning to ensure the order and efficiency of daily public life. Spatial design and morphological planning are based on creating spatial containers for the above-mentioned public activities, and radiating the influence of anchor institutions outward. This chapter follows the three spatial modes of "gateway", "corridor" and "bridging" mentioned above, and uses the external space of the street as the anchor point of the institution and community life, and selectively expands the campus activities to the neighborhood, so as to play its cultural and educational functions while ensuring the normal operation of its internal teaching activities. This chapter also proposes three functional design methods: "flexible pocket space", "visual impression space" and "co-construction interactive space", to respond to the problems of insufficient public space and loss of historical impression in the study area, as well as the potential to activate the interaction of people in the community and form community cohesion. Then, this chapter selects three nodes that are closely related to the boundaries of community streets and campuses, and deduces the above-mentioned spatial patterns and design methods, showing the life scenarios of using the street as an external space to construct a network of social anchors. Finally, this chapter also discusses the uniqueness of design strategies from the perspective of social anchor networks from the perspectives of locality, network system construction, and spatiotemporal elastic adaptation.

Summary and Outlook

Conclusion

The hypothesis that the number of social connections shows a correlation with the degree of public activity in built-up spaces was proposed at the beginning of this study. In order to verify this hypothesis, combined with historical map data and literature, an analysis of historically evolved urban morphology is conducted in Chapter 3 of this study, extracting the street space patterns and social anchor patterns that existed in the historical South City area, and summarizing the historical evolution patterns of neighborhoods and the mechanism of development dynamics. By comparing different periods, it is found that while the street spatial pattern remains approximate, the change of its social connection causes the change of the degree of public activity. In the case of accessing a strong social anchor, its public activity level is greatly enhanced; when the street loses its connection with the social anchor, its public space usually goes into decline and becomes a negative area in the city. These phenomena validate the previous hypothesis to a certain extent.

At the same time, the historical analysis also summarizes the characteristics of the evolutionary cycle that summarizes the South City area is currently in, i.e., the current urban form is in a relatively stable period, with no major changes in the main pattern, but needs to pay attention to the local features of functional replacement and anchor point migration. Chapter 3 also summarizes the main contradictions facing urban renewal in the Nancheng area in the current context, i.e., how to identify the social individuals served by the street and how to utilize an anchor point subject to aggregate their public life.

This study also analyzes the current situation of the Nancheng area from a social anchor perspective and an urban form perspective, and identifies the general distribution of educational anchor facilities in the area and their potential as anchor institutions in urban renewal. After that, the urban renewal strategy of "building a social anchor network" is modeled on a real site. It was concluded that a feasible system of year-round public activities for the community as a whole can be created by building a school-family-community linkage based on the anchor activities of the educational anchor institutions. In addition, utilizing spatial containers such as "portals," "boundaries," and "bridges," combined with flexible pockets of space, artistic visual spaces, and co-constructed interactive spaces, can be a good way to integrate these activities into the real site neighborhood. The combination of flexible pocket space, artistic visual space and co-constructed interactive space can well integrate these activities into the real

site neighborhood. Given the consistency of the urban form and the prevalence of educational anchor facilities in the South City area, this urban design approach has some value for generalization.

Innovation

This research has innovative points in the dimensions of theory, methodology and practice. In terms of theoretical integration, this study systematically introduces the social anchor theory into the regeneration of China's old town districts, puts forward the core view of "street as anchor cyberspace medium", reveals the intermediary role of historical streets in cohesion of public life and transmission of social capital, and expands the theoretical boundaries of interdisciplinary research of urban morphology and sociology.

In terms of method integration, the research constructs a three-stage research framework of "historical evolution-current situation analysis-strategy deduction", and realizes the connection between macro law summary and micro scene implementation through the parallel path of historical map analysis + morphological research, event planning + spatial design, and provides methodological innovation for the study of historic districts.

In terms of practical mode, this study proposes a spatial model of "theme week activity system" and "gateway-corridor-bridging" with campus as the core anchor, and forms a composite renewal path of historical memory conservation, community vitality stimulation and educational resource feedback through the synergy of elastic strategy, visual strategy and interaction strategy, so as to provide a paradigm reference for the organic renewal of similar neighborhoods.

Deficiencies and Prospects

There are also some shortcomings in this study, for example, in the study of social anchors, it is mainly based on the current situation and historical data to summarize, although the basic conclusions can be drawn through qualitative analysis and the deduction of supporting design strategies, but some more accurate and efficient means are still needed in the value judgment of current urban design. Social anchors, especially the study of social networks, are expected to enable data-driven research methods with the help of quantitative research tools or based on big data as a blueprint for analysis. Both social networks and street networks have topological structures, and the theories of spatial syntax in the field of urban morphology have been relatively mature, and there are also methods for studying networks in the field of sociology, and the deeper correlation between social anchor networks and street spatial networks is also expected to be revealed from this path.

At the same time, the design strategy proposed in this paper is still in the stage of deduction based on the current situation of the site, and some technical details faced in the implementation process need to be discussed in relevant practices. Issues such as the degree of openness and opening hours of the campus need to be explored by educators, students' families, community residents, and administrative units. In the process of practice, it may be necessary to carry out small-scale and gradual experiments on anchor space and anchor activities similar to the methods of urban regeneration. It may also be necessary to follow the practice path of university anchor institutions, and implement "advocacy" actions through non-profit organizations, so that the tradition of community-campus linkage can be carried out for a long time.

Bibliography

[1] 卢济威.新时期城市设计的发展趋势[J].上海城市规划,2015(01):3-4.

[2] Moudon A V. Urban morphology as an emerging interdisciplinary field[J]. Urban morphology, 1997, 1(1): 3-10.

[3] 赵一澐.清末民国广州南城高第街街区的形态演变[D].华南理工大学,2012.

[4] Tversky, A. & Kahneman, D. (1974). "Judgment under uncertainty: Heuristics and biases". Science, 185, 1124–1130.

[5] Horton F E, Reynolds D R. Effects of urban spatial structure on individual behavior[J]. Economic geography, 1971, 47(1): 36-48.

[6] Goodsell C T. Public architecture as social anchor in the postmodern age[J]. Public Voices, 1997, 3(1): 89-97.

[7] Wood E, Thomas R. Research Note: Measuring Cultural Values—The Case of Residents' Attitudes to the Saltaire Festival[J]. Tourism Economics, 2006, 12(1): 137-145.

[8] Miller H J. What about people in geographic information science[J]. Re-presenting geographic information systems, 2005: 215-242.

[9] Carrasco J A, Hogan B, Wellman B, et al. Collecting social network data to study social activity-travel behavior: an egocentric approach[J]. Environment and Planning B: Planning and Design, 2008, 35(6): 961-980.

[10] Fulbright-Anderson K, Auspos P, Anderson A. Community involvement in partnerships with educational institutions, medical centers, and utility companies[M]. Baltimore, MD: Annie E. Casey Foundation, 2001.

[11] Dragicevic N. Anchor institutions[M]. 2015.

[12] Henry Lou Taylor, Jr. and Gavin Luter, Anchor Institutions: A Review of the Literature[J], AITF publication

[13] Netter Center for Community Partnerships. Anchor Institutions Toolkit[EB/OL]. https://www.nettercenter.upenn.edu/sites/default/files/Anchor_Toolkit6_09.pdf

[14] Clopton, Aaron Walter and Finch, Bryan L.(2011) 'Re-conceptualizing social anchors in communitydevelopment: utilizing social anchor theory to create social capital's third dimension', Community Development, 42: 1,70 — 83

[15] Cantor N, Englot P, Higgins M. Making the work of anchor institutions stick: Building coalitions and collective expertise[J]. Journal of Higher Education Outreach and Engagement, 2013, 17(3): 17-46.

[16] 上士幌町役場建設課. 都市計画・用途地域|北海道上士幌町[EB/OL].

https://www.kamishihoro.jp/page/00000430, 2024.

[17]初楚,周燕珉.日本"生涯活跃街区"政策指导下的中小城市更新策略——基于老年宜居环境建设视角[J].新建筑,2023(6):39-45.

[18]上士幌町役場企画財政課. 上士幌町の公共施設等配置計画に関わる整備方針[EB/OL]. https://www.kamishihoro.jp/page/00000234, 2015.

[19]Atelier BNK. Kamishihoro Lifelong Learning Center[EB/OL]. http://www.atelier-bnk.co.jp/projects/201905/1768, 2017.

[20]薛璇,王潇,李琳.公众参与视角下社区规划师制度的实践探索——以徐汇区长桥街道长桥四村社区为例[J]. 规划师, 2021, 37(S1): 25-31.

[21]高迪.城市微更新之长桥街道老旧小区景观改造[J]. 住宅与房地产, 2023, (19): 78-80.

[22]Conzen M R G. Alnwick, Northumberland: a study in town-plan analysis[J]. Transactions and Papers (Institute of British Geographers), 1960 (27): iii-122.

[23]Hillier B, Leaman A, Stansall P, et al. Space syntax[J]. Environment and Planning B: Planning and design, 1976, 3(2): 147-185.

[24]黄佛颐编纂, 仇江等点注. 广州城坊志[M]. , 1994.

[25](明) 解缙等编. 牛津大学博德利图书馆藏《永乐大典》, 卷一一九零五 [M]. 国家图书馆出版社, 2015.

[26]Vrooman, D. (1860). Map of the city and entire suburbs of Canton[CM/OL]. http://nla.gov.au/nla.obj-230559586, 2023.

[27]中华民国广州市市政公所. 廣州市圖[CM]. 广东省档案馆, 1998

[28]中华民国广东陆军测量局. 廣州市專門圖幅聯合表[CM], 1947

[29]广州市经界图. [CM]. 广州市档案馆, 1927

[30]書籍行遠安堂印行(1930s).廣州市最新馬路全圖[CM/OL], https://commons.wikimedia.org/wiki/File:Canton_Maps.djvu?page=1, 2024

[31]1959 年广州市航空影像图[M]. 广州市城市建设档案馆, 1959

[32]广州市地名委员会办公室, 广东省测绘技术公司编. 广州街巷图册[M]. 广东省地图出版社, 1992.

[33]曾昭璇.广州历史地理[M].广东人民出版社,1997.

[34]吴庆洲. 广州古代的城市水利[J]. 人民珠江, 1990, 6.

[35]刘卫著. 广州古城水系与城市发展关系研究[M]. 华南理工大学出版社, 2016.

[36]关菲凡. 广州城六脉渠研究[D]. 广州: 华南理工大学硕士学位论文, 2010.

[37] 周霞著. 广州城市形态演进[M]. 中国建筑工业出版社, 2005.

[38] 冯江. 广州变形记: 从晚清省城到民国第一座现代城市[J]. 城市与区域规划研究, 2013, 6(01): 107-128.

[39] 黄素娟. 从省城到城市: 近代广州土地产权与城市空间变迁[M]. 社会科学文献出版社, 2018.

[40] 黄慧明.1949 年以来广州旧城的形态演变特征与机制研究[D].华南理工大学,2013.

[41] 孙翔. 民国时期广州居住规划建设研究[M]. 广州: 华南理工大学, 2011.

[42] 张健. 康泽恩学派视角下广州传统城市街区的形态研究[D]. 华南理工大学, 2012

[43] 李嘉欣,郑卓,谷俊杰,马婷,易西兵,汤永杰.广州城区晚全新世环境变迁与人类活动[J]. 热带地理,2021,41(01):67-81.

[44] 林声渊,吴宏岐.广州历史上的新南城及其形成原因探析[J].城市学刊,2022,43(01):74-80.

[45] Weber M, Martindale D. The city[M]. New York: Collier Books, 1962.

[46] 涂成林主编. 当代广州学评论. 2017 年第 1 期·总第 3 期. 2017, Vol.1, Issue 3[M]. 社会科学文献出版社, 2017:169.

[47] 广州市交通规划研究院. 广州交通发展简史[M]. 中国人民大学出版社, 2016.

[48] (元) 脱脱等撰. 宋史. 第三九册, 卷四六一至卷四七七 (傳)[M]. 中華書局, 1985.

[49] 广州市文化局.广州文物志[M].广州:广州出版社,2000.

[50] (唐)郑熊. 番禺杂记[J]. 1990.

[51] 孙海刚.明初广州府城周边急递铺分布路径研究——基于明代《永乐大典》广州古城图中的邮驿信息分析[J].中国地方志,2018,(05):62-77+126.

[52] (清) 赖振寰. 朱子碑楼辑存[M].

[53] (清) 屈大均著. 广东新语. [M]. 中华书局, 1985.

[54] 章生道《城治的形态与结构研究》,（美）施坚雅(G.William Skinner)主编：叶光庭等译.中华帝国晚期的城市 [M]. 北京: 中华书局, 2000:104

[55] 顾雪萍,彭长歆.从″集庙议事″到″庙产投变″广州西关街坊的空间组织、形态与演变研究[J].时代建筑,2024,(01):16-22.DOI:10.13717/j.cnki.ta.2024.01.016.

[56] 邱捷.清末广州居民的集庙议事[J].近代史研究,2003,(02):187-203.

[57] 周祥.广州城市公共空间形态及其演进研究（1759-1949）[D].华南理工大学,2010.

[58] 涂成林主编,李佳希,李佳曦. 城市变迁 : 一座国际大都市的成长[M]. 广州出版社, 2019.

[59]广州市越秀区房屋管理局.越秀区高质量城市更新专项规划（2023—2035 年）征求意见稿[EB/OL]. https://www.yuexiu.gov.cn/hdjlpt/yjzj/answer/37604#feedback, 2024:42-52

[60]张昂霄.明清闽粤地区的社学与地方社会[D].东北师范大学,2018.

[61]龚慧华.民国时期广州寺庙变迁（1918-1937 年）[D].暨南大学,2010:60-69.

[62]广州市第三中学党政办公室.圣心明德 溯根传史[EB/OL]. https://mp.weixin.qq.com/s/2vts0OKnB-zdhYmB9uf52A, 2024

[63]广州市政协学习和文史资料委员会.广州文史资料存稿选编. 第七卷, 文化教育[M]. 中国文史出版社, 2008:7-14

[64]雷雨田,马建钊,何方耀等著. 广东宗教简史[M]. 上海:百家出版社, 2007:294-399.

[65]广州市教育局办公室. 广州市普通中小学校建设标准指引[EB/OL]. https://www.gz.gov.cn/attachment/7/7041/7041272/8013836.pdf, 2024:1-2.

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