



A study on public participation in the conservation and regeneration of traditional central axis in the context of urban renewal: the case of Guangzhou traditional central axis

Liang Wenyi

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Liang Wenyi. A study on public participation in the conservation and regeneration of traditional central axis in the context of urban renewal: the case of Guangzhou traditional central axis. Architecture, space management. 2022. dumas-03792534

HAL Id: dumas-03792534

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Grenoble Alpes University
Institute of Urban Planning and Alpine Geography
Master 2 Transformative Urban Studies

**A Study on Public Participation in the Conservation and Regeneration of
Traditional Central Axis in the Context of Urban Renewal: The Case of
Guangzhou Traditional Central Axis**

BY

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Abstract

Guangzhou is devoted to urban renewal based on micro-regeneration, and the traditional central axis, which is one of the main targets of urban renewal, is facing some challenges in the current process of conservation and regeneration, especially whether the traditional central axis is still perceivable in today's urban development from the perspective of residents. Therefore, this research aims to examine the interaction between the protection and transformation of the traditional central axis and its historic districts and public perception in the context of contemporary urban renewal. This study focuses on the changes of the traditional central axis in Guangzhou's urban development and the role it plays in this process, examining the traditional central axis as it is affected in the context of urban renewal in Guangzhou, analyzing the challenges it faces, the resident's perceptions of the traditional central axis, and the preservation and transformation of the traditional central axis from the resident's perspective. The research methods of this research include an extensive study of relevant literature, field observations, an online survey of residents, and semi-structured interviews with approximately six residents in the area.

Through the analysis of the collected data, it was shown that the traditional central axis lacks spatial continuity, mainly in terms of architectural form, green space, and transportation. And in the current context of urban renewal (micro-regeneration), a challenge facing the traditional central axis is the lowered perception of residents of the traditional central axis space, due to their perception of the traditional central axis depending on their living environment. Moreover, in the conservation and regeneration of the traditional central axis undertaken by the municipal government, it has begun to introduce public participation, but the limited access to public participation and the lack of consideration of all stakeholders have led to resident's dissatisfaction with the government-led conservation and regeneration projects of the traditional central axis. It is undeniable that the municipal government is making efforts for public participation, and we can see that the proportion of resident's opinions in the current conservation and regeneration projects is gradually increasing.

Keywords: Traditional Central Axis, Micro Regeneration, Guangzhou

Acknowledgements

First of all, I would like to express my deepest gratitude to my academic supervisor Cristina Del Biaggio, whose expertise and rich knowledge have helped me a lot, providing me with useful advice and inspiration during the preparation of my thesis, as well as constant feedback, which enabled me to complete my thesis.

Then, I would like to express my gratitude to all the professors of TRUST, who brought a wealth of teaching content and expertise to the program and provided the knowledge base for my thesis.

I would also like to thank Mundus Urbano for providing the Master program, from which I have gained a lot, especially to the program managers Dr. Anshika Suri and Dr. Čamprag Nebojša for their advice and support. Also, I'd like to thank all of my Mundus Urbano colleagues for providing me with constructive comments and feedback.

A deep appreciation goes to my friends in China who shared their valuable experiences in different fields of expertise and greatly helped me in my research. I am grateful to everyone who participated in the survey and the interviews. Without their participation and help, it would not be able to continue the research.

Most importantly, I would like to express my heartfelt gratitude to my family, they are always behind me with their constant encouragement and support, providing warmth when I was struggling with my thesis and always caring for my studies.

Finally, I would like to thank all who reviewed this thesis during their busy time, as well as the Jury members who participated in the defense.

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Acronyms

CCPCC Chinese People's Political Consultative Conference

Glossary

Protected Historic Site

As Sites Protected at the National, Provincial, City, and District Level are lawfully the monuments with protection of the different level in China, it is prohibited to damage or demolish them. An approval by the State, Province and local Administration of Cultural Heritage is required before a potential removal of such sites.

Development Zone

Refer to the functional areas designated by the Chinese central government and local governments for the integration of economic and high-tech resources or experimental demonstrations as specific spatial areas that emerge in the urbanization of China.

Central Business District (CBD) is the commercial and business center of a city.

Redevelopment

A kind of urban renewal that carry out new construction on a site that has pre-existing uses. It represents a process of land development uses to revitalize the physical, economic and social fabric of urban space.

Regeneration

“Regeneration” is used in this search to refer to an urban renewal approach different from the traditional urban renewal in the Chinese context, and in this research refers specifically to the approach that focus not only on physical environmental transformation, but geared towards more integrated economic and social development, rather than demolition of houses and reconstruction of buildings. Regeneration focuses more on public participation

Cultural Heritage

Refer to cultural relics with historical, artistic and scientific value, and intangible cultural heritage refers to various traditional cultures that exist in intangible form and are closely related to people's lives and inherited from generation to generation. Traditional Central Axis is not only the tangible cultural heritage but also the intangible cultural heritage.

Introduction

Background

Cities are the product of both the conception and historical practice of human settlement ideas, and cities with an urban axis are the concentration of planning ideas and their achievements at a particular time (Li, 2021). From the cross-axis of a town in ancient Rome, the central axis of the ancient city of Teotihuacan in Mexico, to the cities planned and built in ancient China based on the theory of the central axis layout in the *Zhouli-Kao Gong Ji*, to the modern cities of Paris with the Champs-Élysées and Canberra with the Griffin axis plan, and so on. The urban axes of these cities mentioned above all show different axial spaces. As *Spiro Kostov* mentions in his book, *The City Shaped* (1993), the appearance of a similar type of morphology in a different geographic context might be the product of a completely different planning philosophy. It can be said that the urban axis will be influenced by different urban development ideas and practices over time, and its spatial functions and urban forms may change accordingly, and then demonstrate different characteristics (Li, 2021).

Therefore, the linear spatial forms manifested by urban axes can be detected in different cities: from the urban axis in Beijing, the capital of China, to the urban axis in Washington, D.C., USA, to the urban axis in Barcelona, Spain, all reflect their important position in urban spatial forms, and thus, as mentioned above, the formation and development of urban axis depends on its physical environment and its historical development, and thus reflects different cultural characteristics in different contexts. Therefore, the study of the urban axis is not only analyzed through the general knowledge of urban planning but also requires understanding and analyzing the urban axis in a specific context. In this regard, this research focuses on the study of an urban axis with a rich history in the Chinese context, so the development of this urban axis will be studied from both chronological and geographical scales.

Development of China's Urban Central Axis

In China, the urban axis has been used as one of the urban planning and design methods until today. Urban axis planning ideas of China can be traced back to the *Zhouli-KaoGongJi*, a

literature that recorded the specifications and manufacturing processes of various types of governmental handicrafts during the *Spring and Autumn and Warring States* period (770 b.C. - 476 b.C.) in China, which recorded the basic layout of the Chinese capital city: "*The city is planned in the form of a traditional zoning layout with the palace as the center. The city can be divided into a palace, government office area, urban area, residential area, etc. The palace was placed in the center of the city, and the north-south axis of the palace city, that is, as the main axis of the city planning. The government offices were divided into both sides of the north-south axis of the city as the front of the palace area.*" (Zhou Li - Kao Gong Ji, 2011). It mentioned that the layout of the central axis had a profound influence on ancient Chinese city planning, then the temple-based axis planning gradually evolved into the palace (political center) as the core of the capital city construction (Li, 2021), i.e., the diverse core functions of ancient cities were concentrated on the central axis - as the political bureaucratic area, the military defense area and the most active commercial areas, these functions were usually concentrated on both sides of this linear road, thus achieving a concentration of the urban core (Li, 2004), and this planning idea continued until the early 20th century when it became a very mature model of Chinese urban construction (Li, 2021).

After that, the urban axis became a method of urban space design in Chinese urban planning in modern times and has been used ever since. Modern Chinese cities are accustomed to centralizing core urban functions along the urban axis, making it an important means of controlling the spatial structure of the city center and acting as a guide to the urban layout (Si and Qin, 2009). China's current rapid urbanization - is reflected in the rapid increase in the urbanization rate (from 36.09% in 2000 to 63% in 2020) (National Bureau of Statistics, 2020).

The urban axis has been instrumentalized by the municipal government and has become one of the most common urban planning tools, such as the Municipality of Foshan has published a master plan for the new urban area of Foshan in 2022, which proposes the principle of one axis and one belt as a means to promote the development of new urban areas (Figure 1).

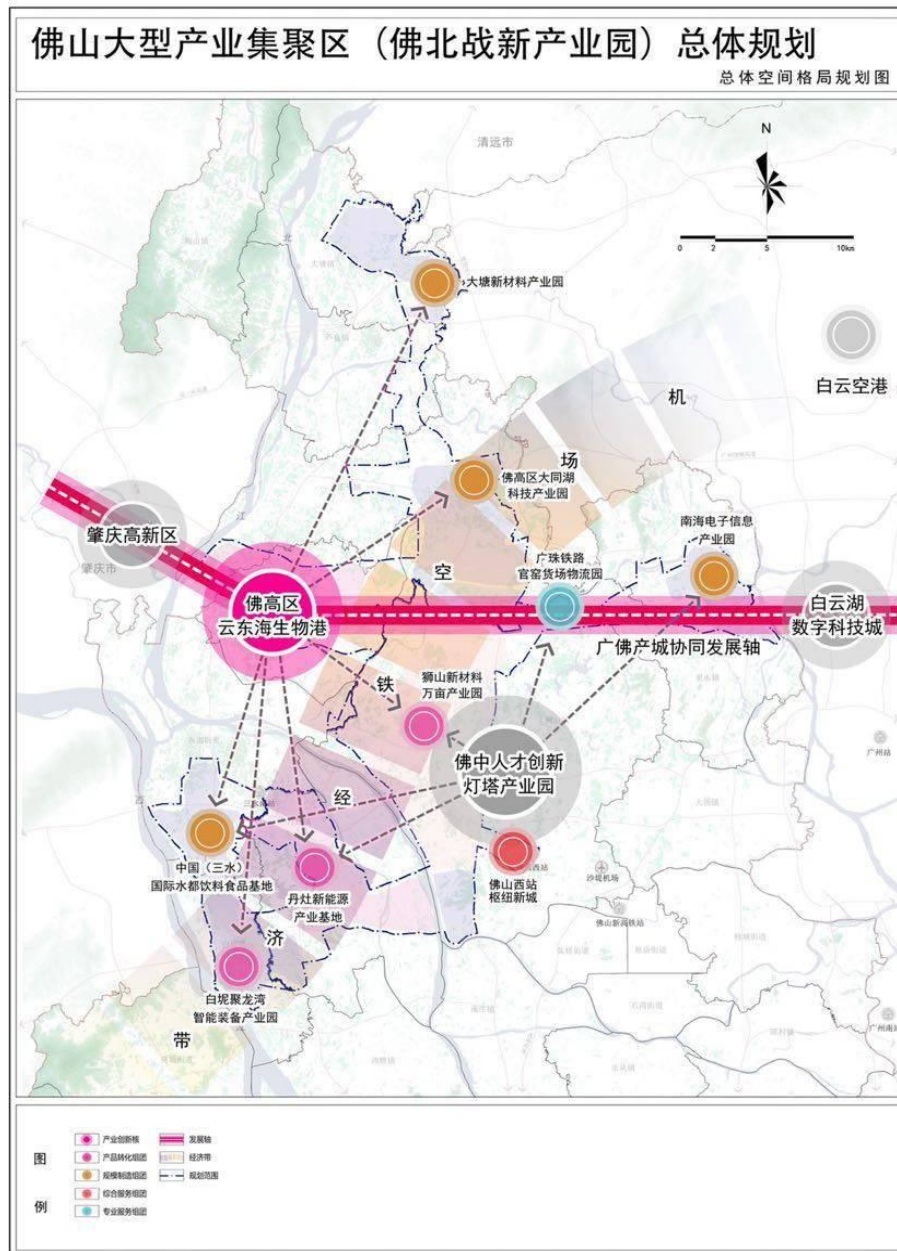


Figure.1 Master Plan of Foshan Large Industrial Zone. Source: (Foshan Municipal Government, 2022)

As a result, urban axes planned by local governments according to current urban development demands gradually replaced the previous urban axis, and those replaced urban axes are called “old urban axes” or “traditional urban axes”. Although its role in controlling the spatial layout in the current urban development is gradually weakened, it still holds a special position in the city. As Zhang (2018) says, the urban central axis is not only a means of spatial organization and a linear structure, but the urban central axis is constantly given new values and meanings in the inheritance and development, especially the traditional central axis, which embodies certain cultural and historical values. According to Dong Wei, moderator of the UNESCO Chair in Cultural Resources Management, urban central axis is a

typical expression of historical changes in a city, giving the city its historical diversity and richness (An, 2021). For example, Guangzhou, a coastal city in Southern China with 2,200 years of history, its traditional central axis in the old city (Yuexiu District) embodies the rich historical heritage of Guangzhou (also known as Canton), and the relics of various eras can be seen along and on both sides of the central axis.



Figure.2 Location of Guangzhou in Guangdong Province, China. Source: Wenyi Liang, 2022

In recent years, China has paid more and more attention to the protection and management of the traditional central axis. In 2021, the 44th World Heritage Committee side event on "*Conservation and Sustainable Development of Historic Urban Landscapes*", co-hosted by the National Cultural Relics Administration of China and the People's Government of Beijing Municipality, proposes that the protection of the traditional central axis should take into account their value and significance to the people (Gao, 2021). It is hoped to raise the attention of the whole society to the conservation of traditional central axes in historic cities (An, 2021).

This people-oriented idea of the urban axis preservation and renewal points to a new perspective and orientation for the transformation of the traditional axis, that is, from the

perspective of residents, whether the traditional central axis is still perceived in today's urban environment, and whether their different degrees of perception of the traditional central axis has a very strong connection to the traditional central axis preservation, these questions lead us to re-examine the municipal government-led traditional central axis preservation and renewal project, and to propose a perspective of residents to discuss the conservation of traditional central axis. Therefore, the study aims to explore the interaction between the public perception and the conservation and renewal of the traditional central axis and its historic district in the context of contemporary urban renewal.

Research focus

At present, China is actively promoting people-centered urban renewal, especially for the preservation and regeneration of traditional central axes. Guangzhou, the oldest city in Southern China, has one of the oldest traditional central axes in China (Wang, 2003). Currently, the Guangzhou Municipal Government is also promoting the conservation and regeneration of the traditional central axis, through a small-scale renewal of different important sites and historical buildings along the traditional central axis of Guangzhou, with an emphasis on respecting and preserving history, while introducing public participation. Compared with the traditional renewal method (demolition of the historic area and reconstruction of historic areas with a commercial character), Guangzhou's renewal approach is more reflective of the preservation and succession of history, which has important research implications for the understanding of the conservation of the traditional central axis in urban renewal.

At the same time, the conservation and renewal of the traditional central axis are facing new challenges: whether residents are respected in the current project, and how it incorporates their participation in these renewal projects. This makes Guangzhou's traditional central axis a case study that can help answer the questions of this research—— How the ongoing conservation and regeneration projects are being intervened by the residents, and how these projects can be improved in response to the resident's opinions. These questions can be answered in the ongoing conservation and regeneration of the traditional central axis in Guangzhou.

Therefore, to achieve the overall aim of the research, the study will take the Guangzhou

traditional central axis as a research case and seek to answer the following questions:

1. How has the traditional central axis changed during Guangzhou's urban development and what role has it played in this process?
2. How is the traditional central axis currently affected in the process of conservation and regeneration?
3. To what extent do residents perceive the traditional central axis? What is the impact of the changes in the conservation and regeneration on residents and what are their views on the preservation and regeneration of the traditional central axis?

Plan of thesis

Introduction provides an overview of the research topic. It includes the general background of the urban axis and its role in urban planning, the problem statement, followed by the research focus, and the research question.

Chapter 1 provides a theoretical background of the research topic to better understand the research case, including the theory of urban central axis in China, the general background of the development of the urban axis in China's urban renewal.

Chapter 2 examines the background and development of the selected site (Guangzhou Traditional Central Axis), and its impact on the development of Guangzhou's spatial layout and its evolution in the process, aiming to address the first research question.

Chapter 3 details the research methodology used in this study and how the collected data is analyzed.

The 4th chapter focuses on the analysis of the status of the traditional central axis of Guangzhou, especially the detailed analysis of the selected historical landmarks, to answer the second question.

The 5th chapter is an analysis of the surveys and interviews to tackle the last question.

Chapter 1 State of arts and theoretical framework

1.1 State of Arts

The study of the axis can be seen as a design approach. Chinese scholars Tang Zilai et al. in *"Guangzhou New Urban Axis - Planning Concept and Design Guidelines"* (2000) summarized the main types of urban axis by analyzing different cases, they believe that urban axis can be analyzed in terms of spatial layout, transportation, etc. to provide a reference for the planning and design of urban axis. Based on the research of Tang Zilai et al., Wang Jianguo (2003), a professor at Southeast University, studied Chinese traditional axis and its space, and he concluded that urban axes play a spatial harnessing role in the spatial layout. While You Wenxing, in his study on the application of the urban axis in urban design (You, 2011), concluded that axis design follows the principle of continuity of urban space, which provided the conceptual basis of the axis for the later studies of other scholars.

Based on the studies of the above scholars, some scholars have conducted in-depth studies on Guangzhou's urban central axis. Based on his supervisor Wang Jianguo's research on the traditional central axis space, He Jianing (2003) further examines Guangzhou's traditional central axis system in depth, including its formation and development, and he argues that Guangzhou's traditional central axis embodies a unique spatial pattern of the unity of mountain, water, and city, and finally he offers technical opinions on the protection and transformation of the traditional central axis in terms of spatial form and land use function.

And Zhu Xiaoqiu (2002), in her research about the formation of Guangzhou's traditional central axis, discusses in detail the city development and the formation of the urban central axis in modern times, and she further analyzes the leading role of the modern times urban central axis in the city planning and construction of Guangzhou. Thus, she concludes that this central axis not only embodies a unique urban spatial pattern, but also still plays an important role in urban planning.

The scholars mentioned above have discussed in detail the concept of the axis, its formation, and its role and application in urban planning and design. The concept of urban axis proposed by Wang Jianguo and the principles of axis design concluded by You Wenxing help me better understand the basic meaning and characteristics of the urban axis, and He Jianing and Zhu Xiaoqiu's research on the Guangzhou's traditional central axis deepens my

understanding of the formation and development of the traditional central axis in Guangzhou and helps to carry out further research. Based on Tang Zilai et al.'s study of the urban axis in terms of spatial form and traffic organization, this research analyzes the characteristics of the traditional central axis in Guangzhou from these aspects.

Since these scholars' studies on the traditional central axis of Guangzhou focus on exploring its formation and development and evaluating the protection and transformation of the traditional central axis from a technical perspective, there is a lack of relevant studies from the resident's perspective. Therefore, based on further summarizing the relevant concepts and theories of the urban axis and sorting out the evolution of the traditional central axis in Guangzhou, this research will focus on the conservation and transformation of the traditional central axis based on the public's perception.

1.2 Urban Axis Theory in the Context of China

1.2.1 Introduction

This research first analyses the theoretical foundations of the urban central axis and urban renewal to understand the background of urban central axis transformation and preservation in the Chinese context, which will be done by reviewing secondary sources of relevant literature. First, this section focuses on the basic concept of the urban axis and related theories in the context of China, and then Section 1.2.3 explores the special significance of the traditional central axis for urban planning under different periods in China. Section 1.2.4 will introduce the background of the development of urban renewal in China, especially in Guangzhou, and discuss the challenges that the urban axis faced in the specific urban renewal context, providing the theoretical base for the following study as well as the relevant knowledge of the study case.

1.2.2 The concept of urban axis from the perspective of spatial aesthetics and spatial composition

The urban axis can be analyzed from two aspects: spatial composition and spatial aesthetics. Firstly, in the research "*Spatial Study of Traditional Axis*", Wang (2003) proposes an interpretation of urban axis in terms of spatial formation: Urban axis usually refers to a linear spatial element that plays the role of a spatial structure governing the city. He argues that

the urban axis is reflected through the external open spaces of the city and its relationship with architecture, and it is a basic way for people to perceive and experience the relationship between the urban environment and spatial form (Wang, 2003). For example, the linear relationship between the boulevards and the buildings on both sides of the space, or a space consisting of a road connecting two important buildings at both ends.

These axial spaces are recognizable, Kevin Lynch, in the book *"the image of the city"* (Lynch, 1960), mentioned that the identifiable images of the city are divided into paths, edges, districts, nodes, and landmarks, these elements are also reflected in the axis space. The structure of the axial space consists of identifiable elements such as paths, central areas(districts), nodes, and iconic buildings and structures (landmarks) (You, 2011).

- Paths serve as channels for people to perceive the space and connect various constituent elements on the city's central axis to highlight the linear axis space.
- Squares, parks, or residential areas of a certain scale along the central axis reflect certain regional characteristics and can be recognized by people.
- The nodes of important social activities are concentrated on the central axis, or the gathering points that assume multiple functions, such as public squares, which carry various public activities of people and together with building structures form the nodes of the axis, giving a continuous sequence of the axis space (Zevi, 2005).
- The iconic buildings on the urban axis are generally public buildings such as office buildings, city halls, monumental buildings, etc., with uniqueness and importance, while the iconic structures are often monuments that serve as a link to the axis. Sculpture. Gardens and other important landscape elements form a rich visual space of the axis.

These elements constitute an axial space that reflects a certain linear relationship. The linearity, on the other hand, gives the urban axis continuity and openness characteristics, so that the urban axis combines the natural environment and existing spatial features in the spatial organization to maintain the continuity of urban spatial forms (You, 2011). This continuity improves the identifiability of the axis space, and people can more easily perceive the axis space they are in. For example, there is a 7.8 km long North-South central axis in Beijing, which runs through the core of the city from Yongdingmen to Zhonglou. As can be seen from figure 3, the Beijing central axis consists of numerous continuous and intrinsically

related urban elements such as buildings and roads, which can be seen as a series of continuous landscape sequences, with some nodes dividing them into sections, each of which has its distinct landscape.

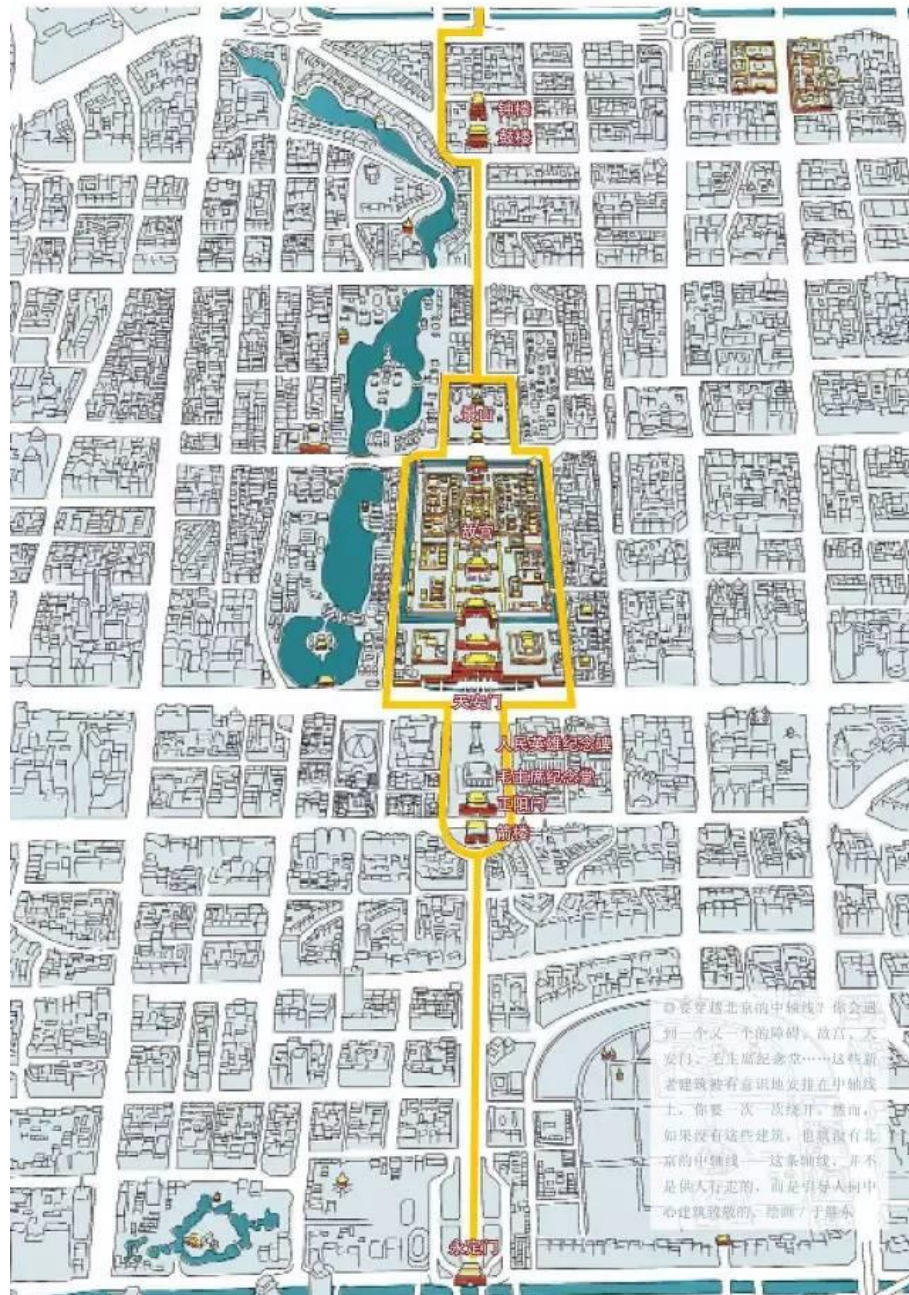


Figure.3 The Central Axis of Beijing. Source: (Chinese National Geography, 2022)

Therefore, the urban axis is not a line segment with a certain distance, but a continuous space manifested through a linear relationship. The traditional central axis studied in this research is also characterized by the prominence of its public spaces, and these large public spaces, guided by the axis and linked with urban elements such as buildings and roads,

eventually form the urban central axis that residents can perceive.

And in the sense of spatial aesthetics, the urban axis, in *Encyclopedia of China* (General Editorial Committee of the Encyclopedia of China, 1992), is defined as an important means of organizing urban space, through the axis, the urban spatial layout can be formed into a systematic entirety. In other words, urban elements such as streets, squares, green spaces, and buildings are organized as a whole and in parts by the urban axis to give people a sense of order in cognition. This sense of order has been described in “*Zhouli-Kao Gong Ji*” early (as below):

“The capital was a nine-mile square city with a general layout of three gates on each side of the city, i.e., 12 gates of the capital. There were nine north-south avenues and nine east-west avenues in the capital city, and 3 parallel streets leading to each gate. According to 1.4 meters per step, the width of each street is about 16 meters. The ancestral temple is built in the east, and the Imperial Divine Temple is built in the west, with symmetry between the left and right. The imperial court is built in the south of the imperial palace, and the market is built in the north of the palace. The market is a piece of land with a certain area, i.e., 100 paces square, and about 140 meters long from east to west and from north to south.”

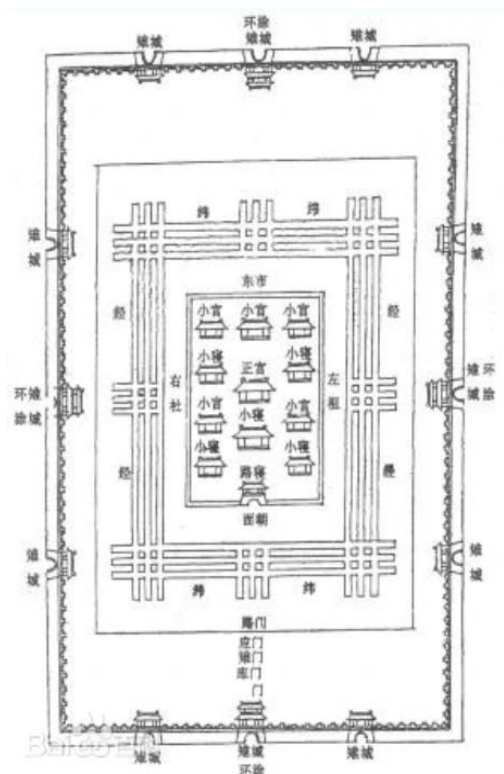


Figure.4 Spatial Layout of Capital City in Western Zhou Dynasty. Source: (Zhou Li - Kao Gong Ji, 2011)

As figure 4 shows, the order brought by the organization of the urban axis is presented in terms of layout, function, and scale. This order is reflected in the spatial layout of the city - the layout of the various constituent units of the city - the neighborhood, especially the organization of the streets and squares therein related to the surrounding buildings (Zhuang, 2021a). For example, the *Three Lanes and Seven Alleys* in Fuzhou, China, preserve intact the traditional spatial pattern of ancient Chinese cities. As seen in figures 5 and 6, the residential area is divided by various streets into rectangles of different sizes, and the individual courtyards are also arranged in a rectangular shape, with the main road in the middle of the block acting as an axis for the spatial organization and demonstrating an ordered entirety. This spatial aesthetic determines the historical heritage gathering character of the traditional central axis (Zhuang, 2021a). Ancient Chinese cities were keen to pile up their palace on the central road, which made the traditional central axis a place where large ancient architectural heritage gathered in the city, for example, the capital axis of Beijing has the palace architectural heritage of three dynasties.



Figures.5 and 6 Three Lanes and Seven Alleys, Fuzhou, China. Source: (Zhuang, 2021b)

The construction of ancient Chinese capitals has always followed the idea of symmetry in planning and layout. This symmetry gives a sense of seriousness, classical beauty, and a sense of order, and their layout all have a very prominent feature: the central axis runs through the whole city to enhance the sense of order (Zhu, 2002). In the book *A History of Chinese Architecture* (Liang, 2005), the axis that unifies the spatial layout of a large building complex in ancient China is called the central axis. The central axis reflects the Chinese philosophical idea of the center as the highest priority (Li, 2004). Ancient China has been following the tradition of being center-oriented, and this concept was already formed during

the Qin Dynasty (221 b.C. - 207 b.C.) (Sun, 2021). For example, in the *“Lü Shi Chun Qiu”*, a Chinese political theory treatise from the end of the Warring States period (476 b.C. -221 b.C.), it is written that

"In ancient times, kings chose the center of the world to establish the capital, the center of the capital to establish the palace, and the center of the palace to establish the imperial court" (Lü, 2020).

This also means that a city layout is symmetrically square, with the imperial palace (for the national capital) or administrative quarter (for a small city) sitting in the center of a North-South axis to symbolize the centralization of the power of the rulers (Chen, 2013). As shown in figure 7, the Forbidden City is located within the Imperial City, which resides in the center of the capital city.

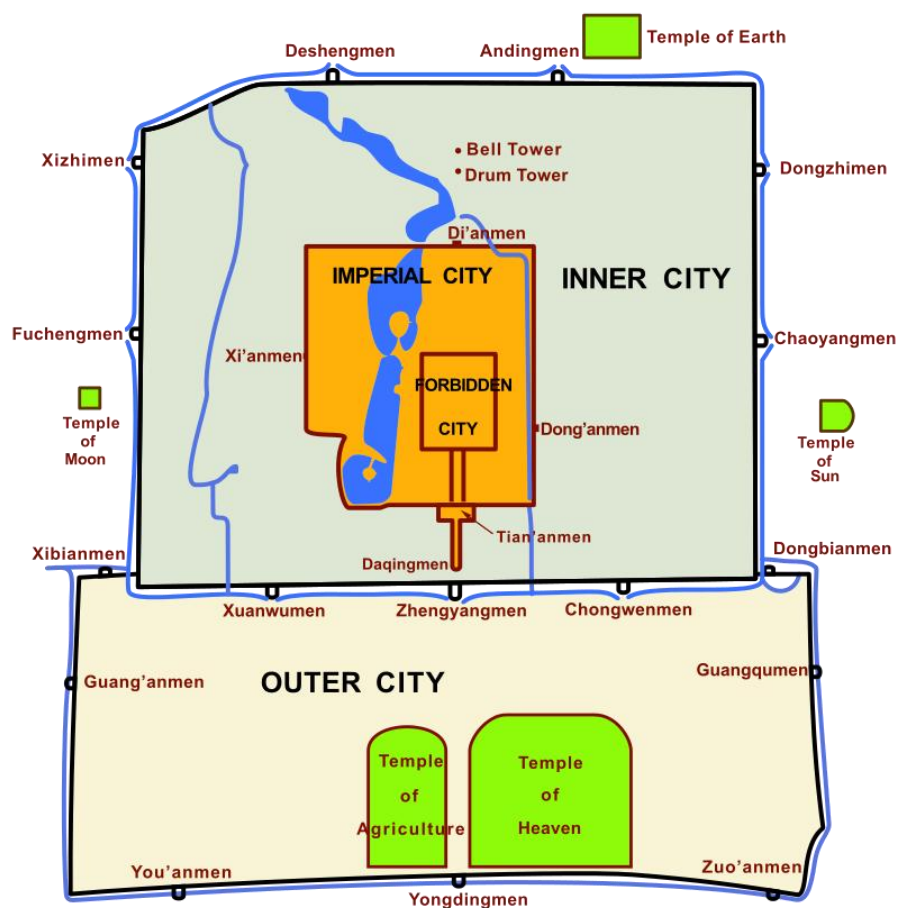


Figure.7 Map of Beijing city Author: (Kallgan, 2006)

The planning of the central axis of the capital city was the material embodiment of this philosophy. As such, the tradition of center-oriented incorporated the political claims of the

ancient emperors, and the central axis became the material embodiment of traditional Chinese philosophy and aesthetics in the making of spatial order in the city (Sun, 2021). In China, the urban axis, as a common urban planning method in both the present and the past, represented the traditional spatial aesthetics of central symmetry in the past and was the material symbol of the emperor's power in urban space, while today it has become a tool of municipal planning, dedicated to highlighting its spatial organization capacity to serve the development of urban areas. This research focuses on whether the traditional central axis, which has accumulated a lot of traditional aesthetic heritage and possesses the ability of spatial organization, has changed dramatically in terms of spatial organization and spatial perception for the residents today under the influence of urban renewal and urban expansion.

1.2.3 The shift of the urban central axis from symbols of power to planning tools

In the 5,000-year history of China, several capital cities were formed due to the change of political centers and dynasties, such as Chang'an in the Sui and Tang dynasties (581-907), Bianliang in the Song dynasty (960-1279), Dayidu Qota of the Yuan dynasty (1271-1368), and Beijing in Ming and Qing dynasties (1368-1912). In fact, the axis planning of ancient Chinese capitals has been formed during the Wei-Jin-North and South Dynasties period (386-589), under the influence of the traditional idea of being center-oriented, the ruling class chose the central axis of the city as a political tool to reflect its absolute status of centralization. With the continuous improvement of the capital city establishment in different periods, the layout of the central axis became more and more obvious: the importance of the uniqueness of the status of the ruling class and the symmetry of the center was emphasized (Cheng, 2009).

As shown in figure 8, Zhuque Street in Chang'an City of the Tang Dynasty is the central axis of the city, starting from the Imperial City and connecting the city gates, symbolizing the status of the ruling classes, and the neighborhoods and bureaucracies in the city are symmetrically arranged on both sides of Zhuque Street, reflecting a continuous spatial sequence.

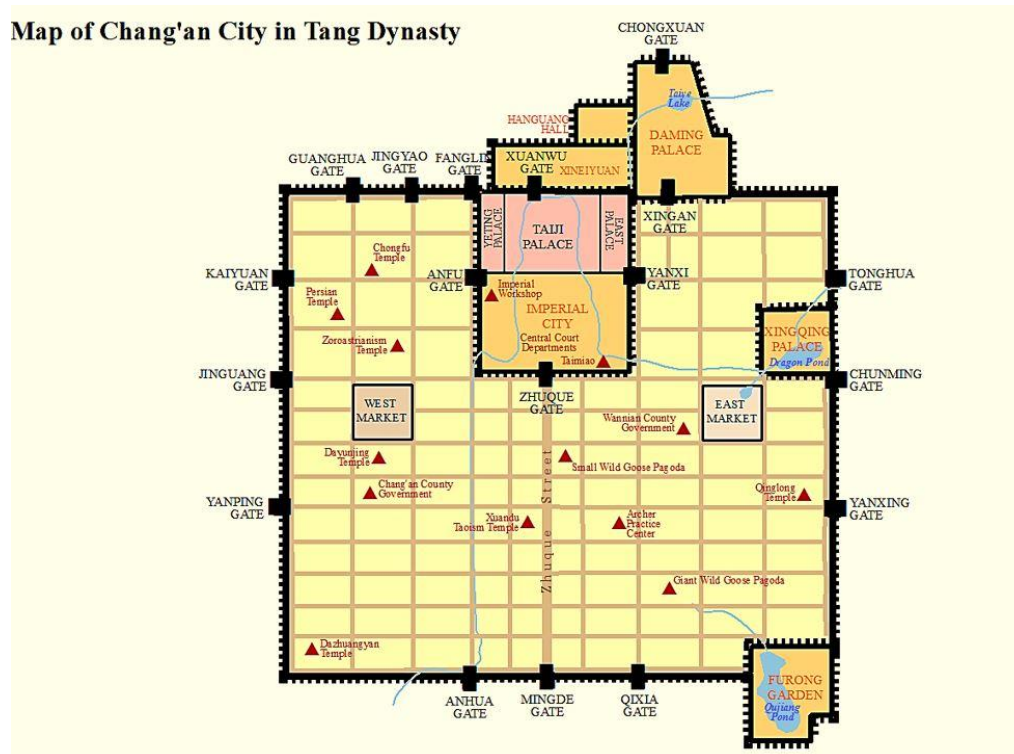


Figure.8 Map of Chang'an Author: (SY, 2017)

From the birth of the ancient city until the beginning of the twentieth century, the tradition of center-oriented and the planning and design concept of the symmetry of the central axis has been present in the construction of Chinese cities throughout the ages (Si and Qin, 2009). In ancient Chinese cities, the central axis, despite its planning power, was dominated by its political and aesthetic attributes, while until the early Republic of China (1912–1949), the planning concept of the central axis began to shift towards modernization, with its purely aesthetic and political attributes giving way to its instrumental and spatial organization capabilities.

In the period of the Republic of China, after the republican revolution of 1911, China took on urban renewal as a way to escape the ills of the traditional cities and accept Western modernism, transforming traditional cities that lacked public planning, sanitation, and street code into modern cities of Western standards (Qi, 2017). At this time, China's major cities were mainly divided into ancient Chinese capitals and cities that had been forced to open their ports by treaty since the Sino-British War of 1840. These cities were influenced by Western colonialism and colonial commerce to form new commercial mega-cities such as Shanghai, Dalian, Qingdao and Guangzhou, which were harbor cities, or new industrial towns such as Wuhan, which were greatly invested by colonial industries. They formed a different

urban pattern under the driving force of colonialism, a very different dynamic from the traditional Chinese urban development. With the emergence of the zoning of commercial and industrial areas, and the expansion of urban areas broke through the limitations of the original city walls.

These large cities all began to expand to varying degrees under the influence of different planning approaches introduced under the modernization guidance of the national government (e.g., Garden City by Ebenezer Howard, Haussmanniens), such as the series of "*Megacities Renewal Plans*" led by the Nationalist Government (officially the National Government of the Republic of China), the most typical of which was the attempted large-scale planning of new roads by the Government of the Republic of China in Guangzhou using up the original road network and central axis to open up the urban space(Figure 9). This *Megacities Renewal Plan* was the first large-scale modern planning idea to take advantage of the urban central axis, although it did not achieve great results because of the protracted Sino-Japanese and internal wars and the staggering corruption and administrative incompetence within the National Government (Qi, 2017).

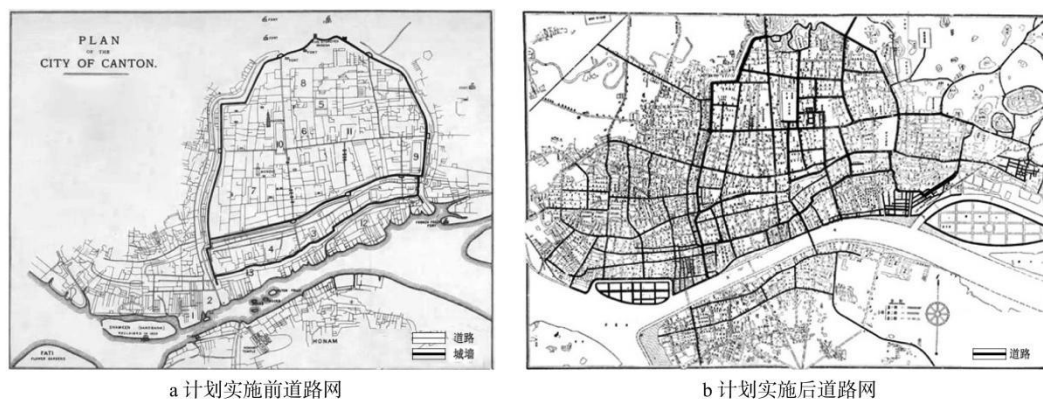


Figure.9 Comparison before and after the implementation of the Guangzhou City Road Expansion Plan
source: (Lin, Luo and Zhang, 2021)

And after the establishment of the Communist regime in China in 1949, the New Government followed the Soviet economic and political system in pursuit of modernization and rapid industrialization (Sun, 2017). With the assistance of Soviet experts assigned by Stalin in 1953, China embarked on the First Five-Year Plan, which aimed at achieving the massive urbanization and industrialization of existing large cities, with Guangzhou being one of the most important cities in the First Five-Year Plan (Guan and Lin, 2011). Guided by the Soviet experience in industrialization and urbanization, the New Government reestablished

the Urban Construction Committee attached to the Planning and Economic Commission and empowered it with the mission of developing residential areas to support industrial production (Guan and Lin, 2011).

Until the late 1970s, this planning system, which served industrial production and was subject to political leadership, dominated and continues to influence China's urban planning until today. And among them, urban cores (as urban areas with priority concentration of regional services and economy), urban axis (organizing the distribution of surrounding urban areas), urban clusters (functional urban areas), and urban design (the planning model dominated by municipalities) are still utilized by municipalities for urban governance and urban planning (Sun, 2017). Municipalities reinforce the spatial organization of the whole city by introducing the design method of "urban axis", such as the urban design of Zhujiang New Town in Guangzhou (Figure 10): Zhujiang New Town is divided into commercial, residential, cultural and financial district according to different functions, and each district is connected by landscape nodes, and combined with the street network and natural elements (water system, green spaces) to form a linear axis space, reflecting a certain sense of sequence.



Figure.10 Bird view of Zhujiang New Town, photographed by Siemen, 2021

1.2.4 Challenges of Urban Axis Faced in the Context of the Urban Renewal in Guangzhou, China

Overview of urban renewal in China

A city, in the process of its development, is accompanied by the process of renewal. However, urban renewal is faced with many paradoxes, such as the loss of the old city's characteristics due to large-scale demolition and excessive redevelopment, and the loss of vitality and value if cultural heritage and historic districts are sealed and solidified (Yu, 2022). Starting in 1978, the Central Government promoted the process of rapid modernization and industrialization: the urban population increased from 170 million to 620 million, with an average annual increase of about 14.5 million (National Bureau of Statistics, 2001). With the increase in urban land area and the increase in housing demand, most cities in China entered a phase of massive urban expansion, while municipal governments embarked on an urban renewal campaign to demolish low-rise housing in existing residential areas and build new high-rise housing to accommodate a larger urban population.

In the early 1980s, urban renewal was defined as the process of urban "metabolism", which was mainly through the demolition and reconstruction of old urban areas on a large scale (Zheng, 2020). The old city is defined in the *"Urban and Rural Planning Law of China(2019)"* as historical urban area with cultural heritage and traditional landscape, and a concentration of dangerous buildings and poor infrastructure. Therefore, old urban areas have a historical character and are usually areas where cultural heritage and historic districts are more concentrated. According to the *"Code of conservation planning for historic cities (2005)"* issued by the Ministry of Housing and Urban-Rural Development of the People's Republic of China on regulating the implementation of the conservation planning of historic cities, including the scope, the content and the methods of protection etc., historic districts (e.g. Historic Conservation Area) are areas in cities that are particularly rich in preserved cultural relics, have concentrated patches of historic buildings, can better reflect the traditional pattern and historical style, and have a certain scale. The historic district is a relatively fixed area, which can be included in the scope of the old city. And the traditional central axis accumulates the historic buildings of different eras, preserves the traditional pattern, and is the core of the historic district.

As a country with a long history, many cities in China have historic districts and historic buildings with considerable historical and cultural value, but in the process of rapid urbanization, these cities are generally facing the conflict between large-scale redevelopment and preservation of local history and culture, such as Beijing and Guangzhou. Since the 1980s, urban renewal, mainly through knock-down and redevelopment, has led to the destruction of many historic sites, historic buildings, and cultural features to a certain extent (Shan, 2011), especially the important historic buildings along the traditional central axis and the axis space that shows the traditional landscape.

In the past decades of urbanization, most cities in China have blindly pursued modernization and redevelopment of old cities, leading to the disorderly development of urban land and the irreversible destruction of historic districts: not only have the buildings in historic districts been knocked down and rebuilt with a considerable number of high-rise buildings, but also the reconstruction of historic districts lacks consideration of the cultural connotations represented by the buildings, and only the facade is decorated, ignoring the preservation of the internal structure, resulting in the loss of cultural values.

It was not until after 2000, when the growth rate of urbanization in China gradually slowed down, that the approach of urban renewal in China changed, as detailed in table 1 below. The scale and method of renewal shifted from large-scale demolition and reconstruction to small-scale regeneration, and the entities of urban renewal became more diversified (Shan, 2011), and changed from government-led to the joint participation of the government and the public.

Table.1 Evolution of Urban Renewal in China. Source: (Shan, 2011)

Urban renewal	Early Stage of urbanization	Accelerating Stage of urbanization		Stable period of urbanization
	Planned economy (1949-1978)	Market economy (the 1980s - 2000s)	2010-2015	2015- present
Reason	Industrial development and workers' housing demands	Residential housing demand, industrial and commercial development demand	City function upgrading	Sustainable development, urban revitalization

Goal	Social Orientation	Economic Orientation Government Orientation	Comprehensive Orientation	Comprehensive Orientation
Approach	Demolition and reconstruction	Demolition and reconstruction	Coexistence of demolition and reconstruction with micro regeneration	Small-scale micro-renewal with the functional replacement
Main body	Municipality	Municipality + Developer	Municipality+Developer +Neighborhood	Municipality+Developer +Neighborhood +Inhabitants
Scale	Small-scale fragmented plots	Large scale and volume City level	Decrease in scale, City level	Small scale, Neighborhood level

The development of the traditional central axis, which is the most concentrated urban historic site, has encountered new challenges in the new round of urban renewal. Whether it faces the challenge of decreasing the perception of the space of the traditional central axis by more and more people? This research explores whether it is possible to strike a balance between the conservation of the traditional central axis and the rebuilding of resident's perception of the axis space under the current urban renewal.

After entering the 21st century, in response to the criticism and reflection on the ways of urban renewal by society, China's urban renewal has gradually transformed from large-scale redevelopment to “micro-regeneration”, and cities have started to adopt renewal methods that are suitable for the city's conditions and pay more attention to public participation and diversified cooperation. "Micro-regeneration" refers to the renewal mode implemented through partial restoration and demolition, replacement of building functions, preservation and repair of the place, as well as improvement and revitalization of infrastructure (2016). Among them, Guangzhou is the pioneer city and the city with the widest application of urban renewal based on “micro-regeneration”. Therefore, it is important to study the development of urban renewal and the "micro-regeneration" in Guangzhou to understand the development and transformation of the traditional central axis.

Development of Urban Renewal in Guangzhou

- “Three Olds Transformation”

Before the 21st Century, Guangzhou's urban renewal was also based on large-scale

redevelopment, which led to difficulties in preserving the traditional features of the historic districts and historic buildings in the old city and also led to the disappearance of community culture and the weakening of neighborhood relationships. Therefore, the Guangzhou Municipal Government began to explore new urban renewal methods, and the development of urban renewal in Guangzhou is divided into two stages: the “Three-Old Transformations” Stage and the “Micro Regeneration” Stage. In December 2009, the Guangzhou Municipal Government announced an urban renewal strategy, literally known as “*Three-Old Transformations*” (*Sanjiu gaizao*), “*Three Olds*” means old urban areas, old factories, and old villages (hereinafter referred to as “*Three Olds*”).

The “*Three Olds*” projects were mainly single projects (urban villages, old factory buildings, etc.), and were led by real estate developers with government support. According to the “*Three Olds*” Policy, the “*Three Olds*” projects can choose the appropriate renewal mode according to the actual situation, including government-led mode, social financing participation mode, and landholder-led mode. This has created institutional conditions to attract more public involvement in the transformation.

“*Three Olds*” projects mainly adopted the integrated renewal approach, focusing on the adjustment of the industrial structure of the old city and the transformation of the “urban village” (Wang, Bouhoch and Wu, 2017). This model is conducive to the overall development of urban resources and can play a role in promoting urban construction at a certain stage, but it may lead to huge changes in urban spatial patterns and destruction of the cultural fabric, bringing new imbalances in development (Tang, Zhou and Zhao, 2021). This would mean that areas of the city with traditional architectural features would lose their character and become uniform commercial and residential areas, and the historic areas would lose their traditional lifestyles and customs as a result.

In response, the Guangzhou government has begun to strengthen the overall protection of historic and cultural districts.

- “**Micro - Regeneration**”

After the Guangzhou Municipal Government established the Urban Renewal Bureau in 2015, the *Urban Renewal Bureau* released the “*Regulation for Guangzhou Urban Renewal (2016)*” based on the “*Three Olds*” policy, putting forward the concept of micro-regeneration for the

first time. "Micro-regeneration" adopts a localized approach, integrating small-scale restoration, emphasizing historical and cultural preservation. After going through the "Three Old Transformation" phase, Guangzhou took the lead in China to carry out "Micro-Regeneration" in 2016. This phase is led by the Guangzhou Municipal Government, with the participation of multiple stakeholders (Tang, Zhou and Zhao, 2021). The main targets of micro-regeneration projects are old neighborhoods and historic districts.

It can be said that "micro-regeneration" is an innovative renewal model, making up for the shortcomings of the single model of comprehensive large-scale demolition and construction, focusing on the long-term benefits and sustainable development of the renewal project, revitalizing and upgrading in a gradual manner (Zhang, Wang and Fei, 2017). The transformation of urban renewal from "Three Olds Transformation" to "Micro-Regeneration" reflects the change of thinking in old city planning (Tang, Zhou and Zhao, 2021).

In 2018, the Guangzhou Ministry of Housing and Urban-Rural Development selected the Dexin district, the Pantang subdistrict, Meihua Road Subdistrict, Wuyang Subdistrict, and Old Nanhai County Subdistrict as five pilot projects of micro-regeneration (Feng, 2021). These neighborhoods are historical communities with a long history and rich cultural heritage, which have been built with considerable spontaneity and have developed unique community cultures. As of the end of 2019, five projects have been completed.

According to the interviews with the residents of these communities conducted by the Southern Metropolis Daily (Feng, 2021), the micro-regeneration effect of these communities is obvious: the living environment has been greatly improved, the supporting facilities are better, and the active participation of residents is fully reflected in the micro-regeneration process. For example, the old Nanhai County community set up a "micro-regeneration construction committee", the designer came with a proposal, residents gave their opinions, and the designer revised, and finalized the micro-regeneration customization plan. In the following years, the Guangzhou Municipal Government actively promoted the micro regeneration of the old city.

By the end of August 2021, of the 824 old neighborhood micro regeneration projects invested by the Guangzhou Municipal Government, 521 projects (around 667 neighborhoods) have been completed (Feng, 2021). According to the survey results of the Guangzhou Municipal Bureau of Statistics, the satisfaction rate of residents in the micro-regeneration of

old neighborhoods in 2020 reached 86.2% (Feng, 2021).

As for the protection of historical and cultural districts, in 2016, The Guangzhou Municipal Government issued the "*Regulations on the Protection of Guangzhou's Historic Conservation Areas*", clearly stating that micro-regeneration should be done to protect historic conservation areas and historic buildings, especially the Traditional Central Axis Historic Conservation Area (Yuexiu District Branch Office of Guangzhou Municipal Planning and Natural Resource Bureau, 2016). Subsequently, in 2017, the Guangzhou Municipal Government issued the "Conservation Plan for the *Guangzhou Traditional Central Axis Historic Conservation Area (2017-2021)* ", which emphasizes the protection of historic buildings and protected historic site at all levels in the Traditional Central Axis Historic Conservation Area by micro-regeneration, prohibits large-scale demolition and construction, and maintains the existing road pattern in the district.

In addition, the plan classifies historic buildings and all-level protected historic sites into the important protection list by following the relevant provisions of the "*Law of the People's Republic of China on Protection of Cultural Relics*". This series of initiatives reflects Guangzhou's urban renewal towards a greater respect for cultural heritage, a greater emphasis on people-oriented, and a focus on sustainable and harmonious development (Tang, Zhou and Zhao, 2021).

Since the "micro-regeneration" received quite positive feedback from the regeneration project of old neighborhoods from 2018 to 2020, the Guangzhou Municipal Government also pushed this renewal approach to the Traditional Central Axis Historic Conservation Area, where several renewal projects are still under construction or being evaluated today. Compared to the previous demolition model, micro-regeneration gains positive comments from the public for its gentle renewal approach. In fact, the current assessment of micro-regeneration objects in traditional central axis conservation plans is still largely limited to the protection of a single building or structure of historical value and focuses on the satisfaction of residents with the physical environment. The more diverse heritage of the traditional central axis (old trees, traditional landscape) and the diverse identity of natives make it inevitable that the simple assessment approach of micro-regeneration will encounter great challenges and setbacks in this environment.

Chapter 2 Research Methodology

This research will depend on the collection and analysis of data through an exploratory case study. A case study researcher typically observes the characteristics of an individual unit (Cohen, Manion and Morrison, 2000), gaining a deeper understanding. Therefore, this research focuses on only one research case to explain the research questions. By limiting to one case, more detail and deeper focus and analysis can be devoted to the research case.

The primary data (i.e., qualitative data) will be collected through field observation, online surveys and interviews (Detail will be explained in section 2.2.1). The data of the survey will be analyzed through the statistics software SPSS 2.0 (refer to section 2.3" Data Analysis").

Secondary data is research data that has previously been gathered and can be accessed by researchers (Schutt, 2006). Common sources of secondary data for social science include censuses, information collected by government departments, organizational records, and data that was originally collected for other research purposes (McCaston, 1988). The secondary data for this study were diverse, and the following library databases of China will be used to support this study: wanfangdata, CNKI, and CQVIP. These are the China Integrated Knowledge Resources Database, which includes resources such as journals, PhD and master's theses, conference papers, annals, statistics, books, and patents. I will use these resources to provide a reference basis for research (Detail will be explained in section 2.2.2).

2.1 Selection of the Study Case

For the case study, I chose Guangzhou's traditional central axis as the case study. This central axis was chosen because it is located in the core of the old city (Yuexiu District), and because this central axis has served as the central street of Guangzhou for thousands of years, accumulating a rich historical and cultural value from 2,200 years of Guangzhou's urban development. Importantly, it adopts the "micro-regeneration" in the preservation and renewal project. In addition, it is of great research significance regarding the challenges facing the preservation and renewal of the Traditional Central Axis Historic Conservation Area in the context of contemporary urban renewal in Guangzhou.

In addition, I conducted a detailed analysis of the select projects that have been finished so far based on the current situation of the traditional central axis, such as the historic buildings

and public spaces along the traditional central axis and discuss the situation after the accomplishment of these renewal projects, as well as the feedback and suggestions of the residents on these projects by reviewing newspapers, and official documents. I also contacted residents living near the Traditional Central Axis Historic Conservation Area through social media and conducted interviews.

2.2 Data collection

2.2.1 Primary data collection

The primary data of this research were collected in the form of a combination of field observations, online surveys, and interviews, reflecting the problems arising from the regeneration of the traditional central axis based on resident's perspectives and exploring their attitudes toward the conservation and regeneration of the traditional central axis.

- Field Observation

As a local resident, I have lived in the historic district where the traditional central axis is located for more than 20 years. Although it is not always possible to comprehensively document the changes to the traditional central axis daily, I am still able to provide a degree of subjective observation of its changes. Despite the pandemic and overseas study, I conducted 5-month field observation of the traditional central axis from March to August 2021, observing the state of the roads, historic buildings, and public spaces such as city squares and parks along the traditional central axis in terms of spatial layout, road conditions, and land use functions, and photographing and documenting them. During this period, approximately four hours per week were devoted to observing the important outdoor spaces of the Traditional Central Axis Historic Conservation Area and the sites of the regeneration projects, recording people's activities, and the progress of the regeneration projects, to select representative study areas for the conservation and regeneration of the traditional central axis based on the status of these sites, and to identify the interviewees.

- Survey

The survey was conducted quantitatively and was distributed through an online questionnaire platform (<https://www.wjx.cn/>) and social media (*Wechat*). The purpose of this survey is to find out the extent to which local people in Guangzhou know about the

traditional central axis of Guangzhou and their concerns about the conservation plan for the traditional central axis. The questionnaire is based on closed questions and is targeted at local Guangzhou residents. The beginning of the questionnaire provides the necessary information needed to answer the questions, such as the scope of the traditional central axis, an introduction to micro-regeneration, and information about the traditional central axis conservation and regeneration plan, which helps people to answer questions. The questionnaire is divided into three parts: the first part is the basic information of the respondents, including their age, time of living in Guangzhou and experience of living in Yuexiu District. The second part is the degree of respondents' knowledge about the traditional central axis and their concern about the preservation and regeneration of the traditional central axis. The third part of the questionnaire is about the status of the traditional central axis in Guangzhou and the evaluation of the views on the conservation and regeneration of this urban axis, which will be measured and analyzed by using the Likert scale with 6 points. To avoid too many people filling in the middle option of "average", it is more appropriate to use a 6-point scale for measurement. So that the final quantitative statistical results are obtained by combining the three parts.

- Semi-structured interview

In order to gain a deeper understanding of resident's perceptions of the current situation of the preservation and regeneration of the traditional central axis, interviews will be conducted with some local inhabitants to obtain qualitative data. The interviewees are mainly divided into residents living in the neighborhoods along the traditional central axis and people who are engaged in urban planning and have some knowledge of the conservation planning of this traditional central axis. Approximately 6 people will be interviewed to share their views, the interviews are conducted online on 14.08.2022 (Details can be found in chapter 5). The interviews were conducted using a semi-structured approach, making use of open-ended questions to encourage meaningful responses (Patton, 1990).

2.2.2 Secondary Data Collection

As described in the first section, this research aims to understand the significance of urban axis conservation in the context of urban renewal from the perspective of residents, and to understand the development of the traditional central axis by reviewing relevant materials.

The secondary data used in this research are mainly derived from historical sources on the urban central axis (e.g., Guangzhou City Journal), Newspapers (e.g., Guangzhou Daily) as well as official documents of policy on the preservation and regeneration of the Guangzhou traditional central axis (e.g., *The Conservation Plan for the Guangzhou Traditional Central Axis Historic Conservation Area*). These data were selected first to obtain additional sources of information that were insufficient or difficult to access in the primary data collection, and to feed back into the primary data collection. For example, the collection and interpretation of policy documents could eventually be reflected in the interviews and questionnaires to obtain more valuable feedback.

Through these data, it is possible to provide a basic understanding of the theories related to the urban central axis in this research, as well as detailed supporting data for an in-depth analysis of the evolution of Guangzhou's traditional central axis, while combining the collection of primary data to provide information from different perspectives to answer the second research question: the current situation of the traditional central axis in the process of preservation and regeneration.

2.3 Data analysis

In this research, the primary data collected from the field observation was visualized and analyzed via maps. And the primary data collected through questionnaires and interviews were statistically analyzed using the commonly used data statistical analysis software SPSS 2.0.. In addition, a correlation analysis was performed on the results of the questionnaire to derive data with certain correlations, which facilitated further cross-tabulation analysis and valuable findings.

2.3.1 Data Visualization

This research compiles and visualizes the primary data collected from the field observation through maps. Data visualization implies displaying information in the form of visual graphs to make it easier for readers to understand. The analysis diagrams in this research are based on the base map of "*Conservation Plan for the Guangzhou Traditional Central Axis Historic Conservation Area*", and the digital mapping software such as Adobe Illustrator, Photoshop, etc. is used to visualize the traditional central axis district in terms of spatial layout, road conditions and land use functions.

2.3.2 Correlation analysis

The correlation analysis is often used to examine the magnitude of the correlation between two or more variables and indicators (Zhang and Xu, 2020). It can be analyzed including the relationship between variables and the strength of the relationship, etc. There are three types of correlation coefficients commonly used in statistics, including the Pearson correlation coefficient, Kendall correlation coefficient, and Spearman rank correlation coefficient (Hauke and Kossowski, 2011). Different correlation coefficients should be used to measure different types of variables, and table 2 introduces the applications of these coefficients.

Table.2 Difference of Correlation. Source: (Nian, 2010)

Coefficient	Application	Explanation
Pearson correlation coefficient	Quantitative data, when the data matches normality	Measures the linear correlation between two variables.
Kendall rank correlation coefficient	Quantitative data consistency evaluation	Measures the ordinal association between two variables.
Spearman rank correlation coefficient	Quantitative data, when the data does not match the normality	Measures if the relationship between two variables is monotonic.

Among them, the Spearman rank correlation coefficient and Kendall correlation coefficient are rank correlation coefficients, which are called "Coefficient of Rank Correlation" (Hauke and Kossowski, 2011) and are not applicable to the analysis of this research. The Pearson correlation coefficient is used to measure whether two data sets are on the same line, and it is used to measure the linear relationship between the fixed distance variables. It can explore the correlation between the data in the questionnaire of this research.

Chapter 3 Overview of Guangzhou Traditional Axis

3.1 Introduction

This section outlines the general context for understanding the urban development of Guangzhou, and it aims to further understand the reasons for the formation of the traditional central axis in the urban development of Guangzhou and the process of its development. Section 3.2 introduces the background of Guangzhou, explaining in detail how “Shan-Shui Culture” has been of paramount importance in the city environment. Section 3.3 introduces the urban spatial development of Guangzhou since its foundation, with a focus on the formation and development of the central axis of the city. In this section, the position of Guangzhou's traditional central axis in the spatial development of the city is extensively discussed.

3.2 Background of Guangzhou

Located in Southern China, downstream of the Pearl River, Guangzhou is an important trading port on the Southern coast of China and, with a permanent population of 15.03 million, is one of the largest megalopolises in Southern China. Also, Guangzhou is the capital of Guangdong Province, the center of the Guangdong-Hong Kong-Macao Bay Area, the Pan-Pearl River Delta Economic Zone, and the hub city of the Belt and Road. With a history dating back to 214 b.C., Guangzhou's advantageous geographical location has made it historically one of the few ports of foreign trade for the ancient China dynasty and has been the political, economic, cultural, and military center of Southern China for 2000 years, with a thriving urban development.

In its urban development, the ancient Guangzhou city has served as an important trading port for successive dynasties in the southern area, and its urban layout continues to present under the influence of traditional Chinese cultural concepts (Shan-Shui Culture). Although the city boundary of Guangzhou has expanded from the inside out and the focus of urban expansion has changed, the traditional concept of “Shan-Shui City” has shaped the natural environment of Guangzhou city in the past and still influences the current urban landscape and environment (Chen, 2013), and the traditional central axis is the embodiment of the “Shan-Shui Culture”.

The Guangzhou traditional central axis is the center of the old city of Guangzhou, and its formation and changes are highly correlated with traditional Chinese cultural concepts, topography, and economic and political changes. Among them, the “Shan-Shui Culture”, one of the most symbolic ideas in “Feng Shui” theory, had a significant influence on ancient Chinese urban planning (Chen, 2013). Under the influence of the Taoist “Feng-Shui” theory, also known as Chinese geomancy, and the “Shan-Shui Culture”, which took “Shan-Shui” as a symbol of nature, the ancient city site of Guangzhou was basically located between Yuexiu Mountain and the Pearl River, with North as the priority in terms of orientation.

Historically, there were several central axes in Guangzhou, including the small-scale central axis in front of the royal palace of the Nanyue Dynasty (204 b.C.–111 b.C.), the central axis of the imperial administrative area (Beijing Road) from the Tang Dynasty to the end of the Qing Dynasty, and the central axis established in modern times (the period of the Republic of China), which is known today as the traditional central axis. These central axes all face the South and cross the center of the ancient city and continue southward. These central axes are not far apart and are defined by the political centers of the time, such as the royal palace of the Nan Yue dynasty, the Guangzhou Prefecture of the imperial government, and the Government of the Republic of China in Guangzhou, these central axes are embodying the dignity of the ruling class.

3.2.1 Shan-Shui Culture

“Shan” literally means “mountain” and “Shui” means “water” in Chinese. Since mountains and water are the important elements that make up nature, ancient China regarded both as representatives of nature, and thus “Shan-Shui Culture” (Mountain and Water Culture) was developed to present a symbol of Taoist philosophy (Qi, 2017) and further developed into the most important culture in ancient China, which had a significant impact on different fields, especially landscape design as well as ancient urban planning. Mountains and water were widely used in ancient urban planning, for example, mountains could be used as a reference for creating urban axes and ranges for military defense, and water can also be used for urban transportation (port and shipping) (Chen, 2013). “Shan-Shui Culture” was the soul of ancient Chinese city layout and classical landscape art, and to a large extent, ancient cities and gardens were a direct spatial reflection of Chinese philosophy and culture (Wang,

2002).

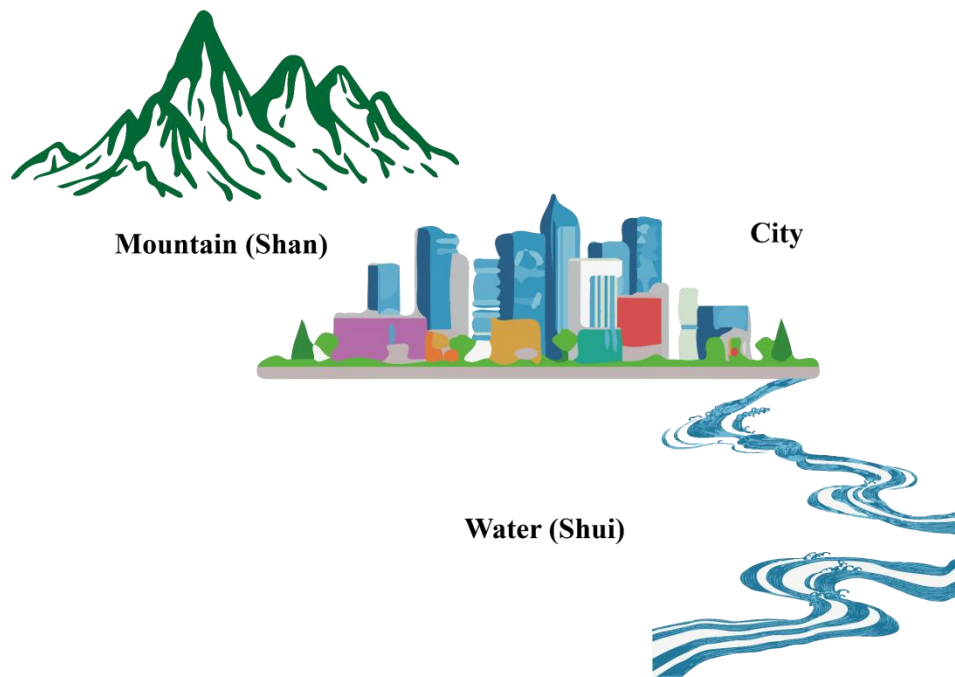


Figure.11 Analysis of the relationship between Shan-Shui culture and City. Source: Wenyi Liang, 2022

The "Shan-Shui City" is a unique spatial concept in ancient Chinese urban planning (Chen, 2013). It combines urban construction with the natural environment, which is mainly mountains and water. Out of the admiration and appreciation of nature, ancient emperors tried to establish cities in places surrounded by mountains and water, or to create these natural elements into their living spaces through man-made landscapes (Chen, 2013)(Figure 11 shows an ancient city established in a place backed by mountains and rivers). The development of Guangzhou is dependent on its natural mountain and water system (Yuexiu Mountain and The Pearl River), reflecting the spatial layout of "Shan-Shui City". As Sun Yongsheng, the director of the Institute of Historical and Cultural City Research of the Guangzhou Urban Planning and Survey Design Institute, said (Du and Ni, 2022), Guangzhou's city walls and road network were not as square as those of Beijing, but followed the shoreline of the Pearl River, variations of the river system and the terrain, making Guangzhou a veritable "Shan-Shui City" in ancient times. More importantly, the formation of Guangzhou's traditional central axis and the spatial perception of it by residents came from the influence of "Shan-Shui Culture": From Yuexiu Mountain to the Pearl River forms the node of the traditional central axis that defines the length and space.

3.3 Guangzhou Urban Spatial Evolution and Formation and Development of the Central Axis

3.3.1 Overview of Guangzhou's Traditional Central Axis

In a broad sense, the traditional central axis refers to a set of urban central axes consisting of the ancient central axis, the central axis in modern times (The modern time refers specifically to a period from 1842 to 1949 in China), and implicit ancient axis of religious and cultural activities, which disperse from Yuexiu Mountain to the Pearl River (Jianing He, 2003). As shown in figure 12, these axes start from the North and extend to the South, and the historical relics of different periods are preserved along the axis, forming the basic skeleton of the old city. The traditional central axis in a narrow sense refers only to the central axis of Guangzhou in modern times, which extends from Yuexiu Mountain along Sun Yat-sen Memorial Hall - People's Park - Qiyi Road to Haizhu Square and across the Pearl River (Jianing He, 2003).

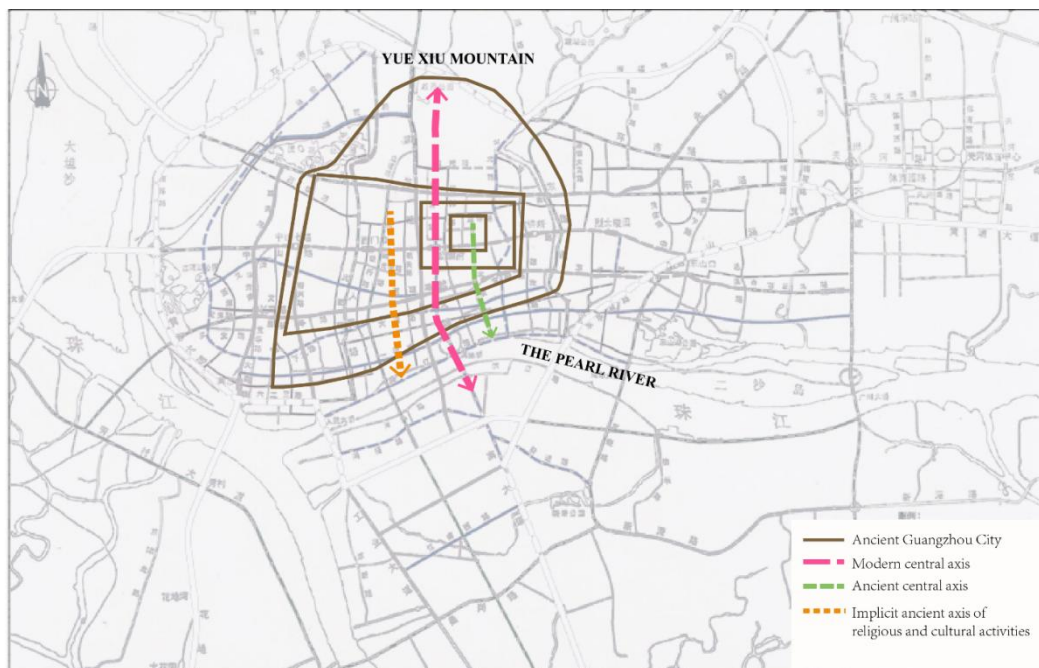


Figure.12 Map of Guangzhou Traditional Central Axis

Source: (Fei, 2016b). Edited by Wenyi Liang, 2022

In terms of spatial form, only the central axis in modern times has a clear spatial layout that runs through the whole city, linking the mountains and rivers and faces to the South, and has a decisive dominant significance on the urban morphology of Guangzhou (Jianing He, 2003). In addition, this central axis is located at the core of Guangzhou's historical center (Yuexiu

District), and a series of monumental and important public buildings are located along this central axis, which fully expresses the history of Guangzhou in modern times. It can be said that the central axis in modern times can be a symbol of Guangzhou's traditional central axis, which most prominently reflects the interactive history of Guangzhou's historical spatial forms and local geography (Wang, 2003).

3.3.2 Development of the Central Axis Under the Spatial Evolution of Guangzhou

"Guangzhou has never shifted its city center in the past 2,200 years." claimed the head of the municipality of Yuexiu District (Huang, 2019). Despite the exaggerated claims of the local municipality, it is undeniable that the area (Yuexiu District) where the traditional central axis is located has indeed been the center of the city for quite a long time in the past. The history of Guangzhou's urban development can be traced back to 2200 years ago when the Nan Yue dynasty (204 b.C–111 b.C) of ancient China took advantage of the former dynasty (Qin dynasty)'s fortress at Pan Mountain and Yu Mountain to establish a politically and militarily centralized capital city (Panyu City), later known as Yuexiu district of Guangzhou, and the city center did not shift very much over the next two millennia (until the late twentieth century).

Since its establishment, Guangzhou has been surrounded by rivers and mountains while breaking through the boundaries of urban development, but its city center has remained the same throughout its long history. Until today, the Yuexiu District remains the political and cultural center of Guangzhou under its polycentric development mode. The traditional central axis, which is its central area, contains the Guangzhou Municipal Government Complex, important buildings of various periods, and People's Park and Haizhu Square as places for residential activities, and a large piece of old residential areas. The neighborhood in which it is located presents a diversity of urban functions and preserves the history of Guangzhou's development from ancient times to the present.

- Ancient Guangzhou City Development

The city was built in 214 b.C. when the first Emperor of the Qin Dynasty unified the southern part of China and established a capital city called Panyu City, which was built on the edge of the Pearl River, backed by the Pan and Yu Mountains, and existed as a military fortress of the Qin Empire in the South. In 204 b.C., the Nan Yue Dynasty established its administrative center in Guangzhou and expanded Panyu City based on the Qin Empire's military fortress.

Also, the first central axis in Guangzhou was established in front of the Nan Yue Imperial Palace to guide the construction of the new city. The construction of the Nan Yue capital was the first planned large-scale construction in Guangzhou's history, and because of their religious belief in Yuexiu Mountain and their admiration for nature (Shan-Shui), the Nan Yue emperor clarified the principle of the construction of the central axis in Guangzhou thereafter - backing on Yuexiu Mountain, facing North and extending Southward to the Pearl River (Kong, 2020). In addition, Panyu City was renamed Guangzhou after a.D. 226.

Eight hundred years later, during the Tang Dynasty, Guangzhou grew tremendously as it became the largest trans-oceanic trading port of the Empire, and the city's boundary broke through the city walls, with a large residential and commercial area along the Pearl River outside the city walls, which gradually developed into a commercial settlement. At this time, Guangzhou had basically formed a spatial layout facing the South from the North, the northernmost part of the city was the administrative area (the present Guangdong Provincial Finance Department) as the center, and Qinghai Street (now Beijing Road) directly opposite connected administrative area with the southern city gate and crossed the commercial street outside the city to reach the Pearl River. Thus, a prototype of the first central axis of ancient Guangzhou running from the North to the South throughout the city was formed from the administrative area straight to the Pearl River. That is, the present Beijing Road straight to the Pearl River was the ancient central axis (Zhu, 2002).

As shown in figure 13, Guangzhou city was surrounded by Yuexiu Mountain at that time, and the Pearl River flowed in front of the city. The central axis, which starts from the administrative area in front of Yuexiu Mountain and runs along Beijing Road to the Tianzi Pier on the Pearl River, is an important part of the "Shan-Shui" structure of the ancient Guangzhou city. During the Song Dynasty (1072- 1297), Guangzhou, where the trade was flourishing, further expanded its urban area and built the Mid-City, East-City, and West-City, forming a spatial layout of three cities side by side, and the ancient central axis was basically formed. This layout continued until the Ming and Qing dynasties (1368-1912).

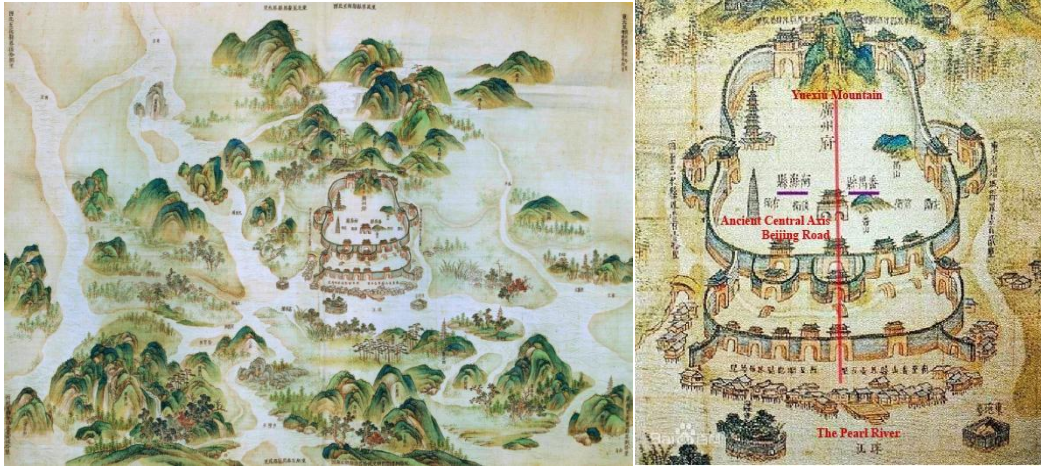


Figure.13 Ancient Guangzhou City Map, reflecting the Shan-Shui Structure of the city

Source(Guangzhou Daily, 2021)

Since the Ming and Qing Dynasties, Guangzhou has continued to develop based on the above-mentioned historical periods. During the Qing Dynasty, as the population swelled, the three cities of Guangzhou were merged, and the city expanded northward to Yuexiu Mountain and built Zhenhai Tower at the top of the mountain and expanded southward to the Pearl River. The expansion of Guangzhou City further strengthened the ancient central axis with the Zhenhai Tower at the back of Yuexiu Mountain, the Guangdong Provincial Office (Guangdong Buzheng Si) along Beijing Road, and the southern city gate, forming the “Shan-Shui City” pattern of the ancient Guangzhou City (Du and Ni, 2022). Figure 14 shows the extent of the Guangzhou city site in different dynasties, illustrating that the center of Guangzhou remained unchanged until the twentieth century.

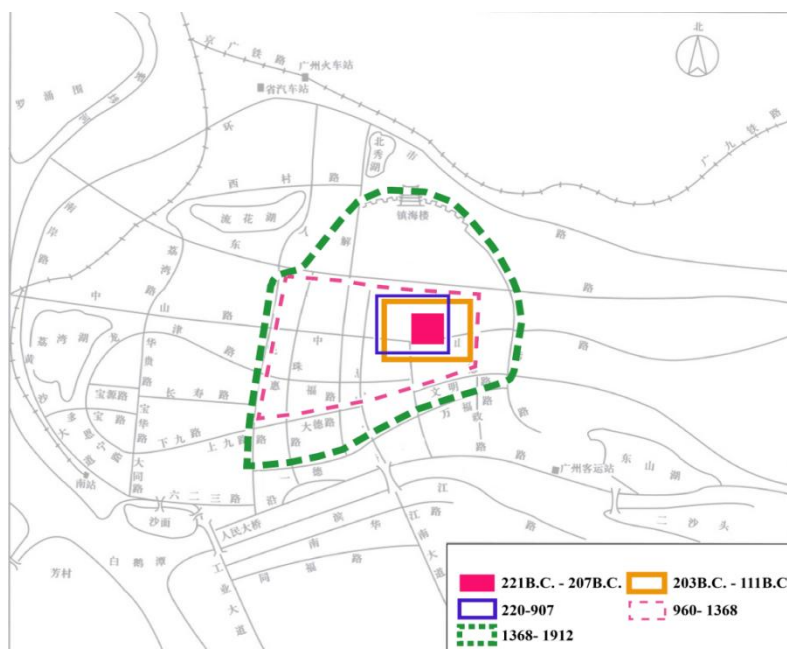


Figure.14 Changes in the Ancient Guangzhou city site

Source: (Guangzhou Baikequanshu Compilation Committee, 1994). Edited by Wenyi Liang, 2022

In 1757, the Government of Qing Dynasty imposed restrictions on all ports of entry into the country, reserving only the Xiguan area of the Pearl River in Guangzhou as a port for foreign trade and forbidding trade elsewhere in China, thus making Guangzhou a harbor city for the "Canton System". The Canton System, also known as "Single [port] trading relations" (1757-1842) served as a means for the Government of Qing Dynasty to control trade with the West within its own country by focusing all trade on the southern port of Canton (now Guangzhou) (Carroll,2010). During this period, the city's development broke through the limits of the original city walls, and the city began to develop along the Xiguan area and the South of the Pearl River, and the neighborhood located outside Guangzhou on the Pearl River - the "Thirteen Factories" (also called *Thirteen Hongs of Canton*) - became the only trading port of the Qing Dynasty that was open to the world. As can be seen in figure 15, the "Thirteen Factories" located in the Xiguan Plain, promoted the commercial development of the western part of Guangzhou outside the city and laid the foundation for the later urban development of Guangzhou to the West(Zou, 2017).

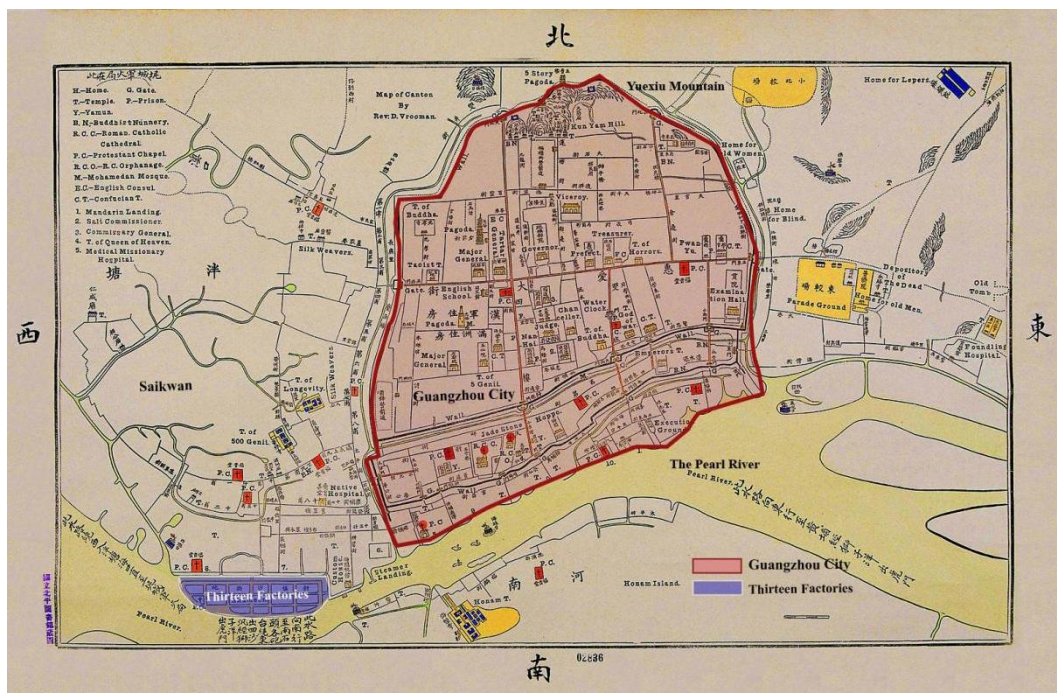


Figure.15 Map of the city of Guangzhou in the mid-19th century,

Source: (Fei, 2016a). Edited by Wenyi Liang, 2022

The ancient central axis of Guangzhou originated in the Nan Yue Dynasty, formed during the Tang Dynasty, and continued for nearly two thousand years until the end of the Qing

Dynasty. The design principle of the central axis emphasizes the “Shan-Shui Culture” that has been respected by Taoists and Confucians since the Spring and Autumn Period (770 b.C.- 476 b.C.) and laid the foundation for the later urban spatial layout of Guangzhou to reflect the images of “Shan-Shui City”. And the central location of the ancient central axis has kept the Yuexiu area as the traditional center of Guangzhou for a long time. At the same time, the prosperous trade and population expansion transformed Guangzhou from a mere military fortress and military-political center to a commercial and developed harbor city, and gradually formed a “Shan-Shui” spatial layout with a North-South orientation.

- 1840-1911

In the late Qing Dynasty, the Opium War (1839-1842) led to many cities of the Qing Dynasty falling into foreign concessions and colonies, and the import of modern Western industries and colonialism greatly interfered with the original urban planning mode of the Qing Dynasty (Zou, 2017). And Guangzhou, as the primary target of the British invasion, became the first of many harbor cities to be influenced by colonialism, with various foreign concessions established outside the city.

Influenced by modern industrial imports and further trade booms brought by the colonizers, areas outside the city walls began to develop in a large scale and non-traditional planning mode, with these new areas outside the city walls forming a new development pattern: the western part and the southern part of the Pearl River formed a cross-shaped street system (Yao and Chen, 2005), especially the western part as the gathering place of foreign concessions, gradually became the new economic center of the city. While the city within the city walls as a reserve of the imperial government has retained the traditional planning layout, the whole city tended to develop to the west.

Figure 16 shows that the area centered on the “*Thirteen Factories*” in the west of Guangzhou city and the area on the south of the Pearl River gradually developed, the buildings along the Pearl River were dense, and the spatial layout of Guangzhou developed along the Pearl River to the west was largely determined.



Figure.16 Map of Guangzhou City in 1907. Source: Guangzhou City Construction Archives, accessed on 20.07.2022

- 1912-1936

During the Ming and Qing Dynasties, Guangzhou began to develop to the West, gradually forming the prototype of a central axis of the old city to the westwards (He, 2003b). While the central axis of Guangzhou in modern times was formed during the period of the Republic of China (1912-1949). After 1911, Guangzhou became the origin of the modern Chinese revolution and the base of the democratic revolution, and the urban construction of Guangzhou began to strengthen its political status (Li and Yan, 2011). Guangzhou underwent two large-scale transformations between 1918 and 1935, and urban development shifted to the west, but urban construction basically retained the spatial layout of the ancient Guangzhou city (i.e., a the North-South central axis and “Shan-Shui City” layout). Industrial development changed the original economic pattern of Guangzhou, driving the development of urban transportation and commerce. Improved transportation and demographic agglomeration caused the historic Guangzhou city walls to lose their original defensive function and gradually became an obstacle to economic development and urban construction (Yao and Chen, 2005).

In 1918, the Guangzhou Municipal Office, a dedicated urban planning institution, was

established in Guangzhou and began a massive demolition project, leaving only part of the city walls to protect the administration offices, while the rest were demolished to make way for extensive roads. In the same year, the Guangzhou Municipal Office began to formulate the *“Guangzhou Metropolitan Development Plan”*, and the municipal construction began to move towards modernization (Zhu, 2002). The original municipal garden was transformed into a central park (Now People’s Park), and the street where the municipal office 7410 was located was built as Weixin Road (Now Qiyi Road). Thereafter, under the promulgation and implementation of a series of urban planning documents, Guangzhou began to develop under the control of the municipal authority and planning institutions, and the idea of zoning began to emerge, initially forming several functional areas such as the administrative center, industrial area, residential area, and commercial area.

In August 1932, the Guangzhou Municipal Government officially published the *“Outline of Guangzhou City Design”*, which was one of the earliest urban planning documents with modern significance promulgated in Guangzhou and even in China (Zou, 2017). *“The Outline”* fully reflected the modern urban planning ideas and introduced the concept of zoning into the urban planning scheme for the first time, based on the focus on function division, infrastructure construction and the road layout (Zou, 2017). In the same year, the Guangzhou Municipal Government formulated the road construction plan, and the road was designed in a chessboard-shape. Based on this, they formulated the *“Map of Guangzhou Road System”* that established the chessboard shaped as the form of Guangzhou's road network, and Weixin Road (now Qiyi Road) was the main city road in the center of the city at that time.

With the construction of important buildings and municipal facilities such as the Sun Yat-sen Monument (1929), the Sun Yat-sen Memorial Hall (1931), the Haizhu Bridge (1933), and the Municipal Government Mansion (1934) constructed by the Guangzhou Municipal Government (Li and Huang, 2003), a North-South axis connecting the Mountain and Water was basically formed from the Zhenhai Tower on Yuexiu Mountain, to the Sun Yat-sen Monument, the Sun Yat-sen Memorial Hall at the bottom of the mountain, the Municipal Government Mansion, the Central Park (now People's Park), through Qiyi Road to Haizhu Square and across the Haizhu Bridge. Influenced by the ancient China's traditional planning idea (the central axis planning), the Guangzhou Municipal Government defined this axis from

Yuexiu Mountain in the North, southward along Qiyi Road to the Pearl River as the urban central axis (Yang and Chen, 2002 Figure 17). This central axis divides the urban area of Guangzhou into two parts (Figure 18), and plays an important role in guiding the spatial layout of Guangzhou in the twentieth century (Yang and Chen, 2002).

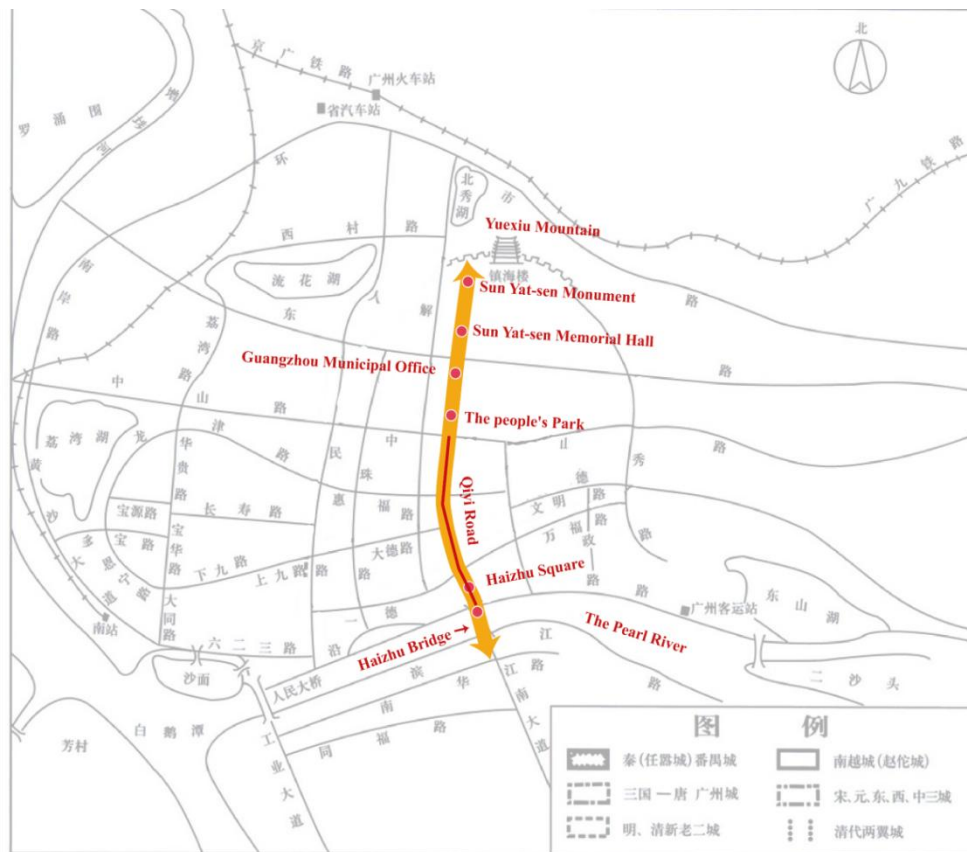


Figure.17 Diagram of the Guangzhou Central Axis. Source: (Guangzhou Baikequanshu Compilation Committee, 1994). Edited by Wenyi Liang, 2022

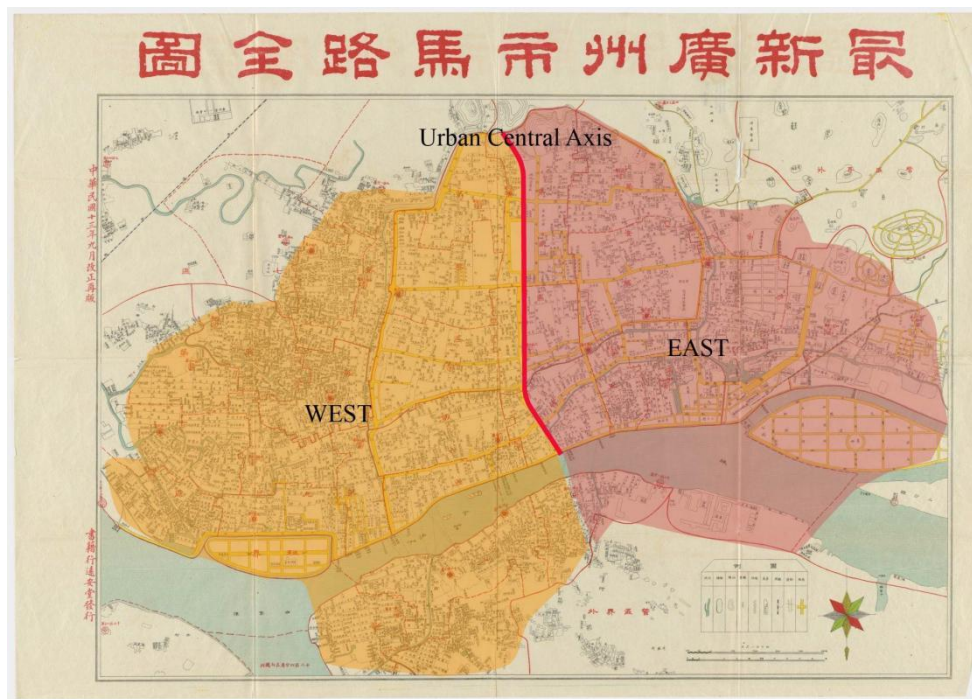


Figure.18 The latest map of the Guangzhou city road system (1924), indicating the modern central axis divides Guangzhou into two parts. Source: (Yuan and Tang, 1924)

- 1937-1949

During the period of the Republic of China, the Chinese government and the Guangzhou Municipal Government proposed several plans for the transformation of the city's functional districts, but the ensuing Sino-Japanese war and political changes prevented the implementation of these plans (Zou, 2017), while the successive wars brought great urban destruction to Guangzhou, with the long-term strategic bombing by the Japanese destroying some important historic buildings along the central axis and the Haizhu Bridge connecting the North and South of the Pearl River. Moreover, the evacuation of Guangzhou by the Nationalist regime during the Chinese Revolution also resulted in the targeted destruction of administration offices and important buildings along the central axis. The targeted destruction had a significant impact on the city center, especially the central axis.

After 1949, the urban planning ideas of the Communist regime in China served to imitate the “Five-Year Industrial Plan” of the Soviet Union. Guangzhou, as one of the few mega-cities controlled by the Communist regime, assumed an important role in industrial construction and population concentration in the future “Five-Year Plan” (Wang, Bouhoch and Wu, 2017). Thus, in China's “First Five-Year Plan” (1953-197), Guangzhou became a major city of heavy industry in South China, and with it, the establishment of large communities for workers,

when the city center was still the old city (Yuexiu District) and the area around the central axis remained a key area for construction.

The urban master plan formulated by the Guangzhou Municipal Government in 1954 continued the ideas of the 1932 urban master plan (Figure 19):

1. The core urban area was kept as it was.
2. The industrial area was developed to the South of the Pearl River.
3. The direction of urban development was pushed eastward along the Pearl River.

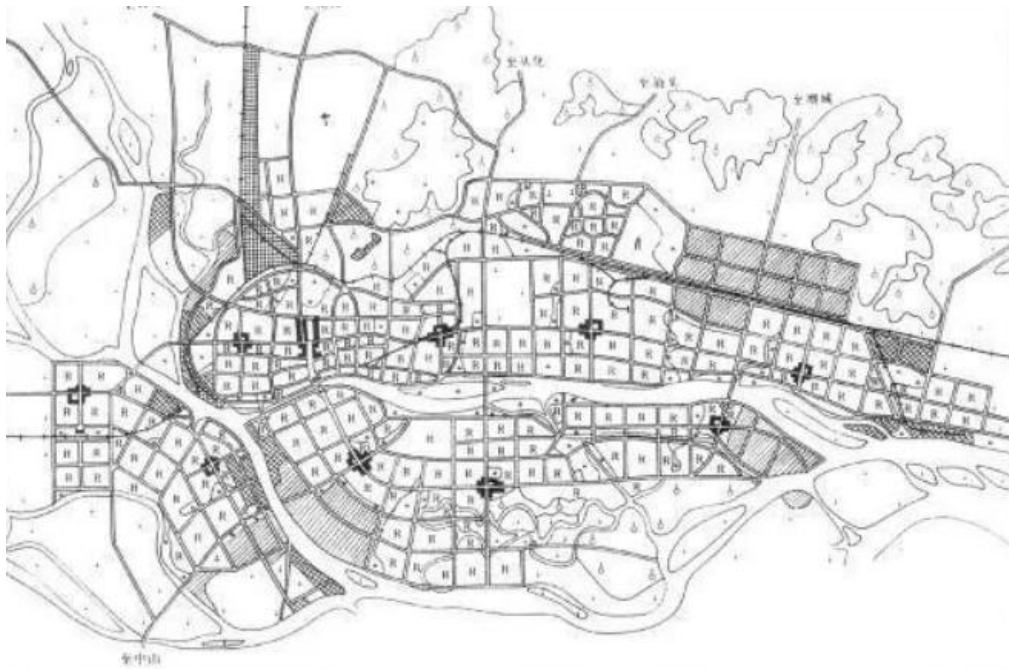


Figure.19 Guangzhou City Master Plan, the fourth Scheme.

Source: Guangzhou City Construction Archives, accessed on 21 June 2022

It can be said that the urban development of Guangzhou followed this planning idea until the end of the twentieth century. As shown in figure 20, which shows the urban development of Guangzhou in the twentieth century, the dominant direction of urban development in Guangzhou was adjusted from westward development in the early twentieth century to eastward development along the Pearl River and southward development across the Pearl River.

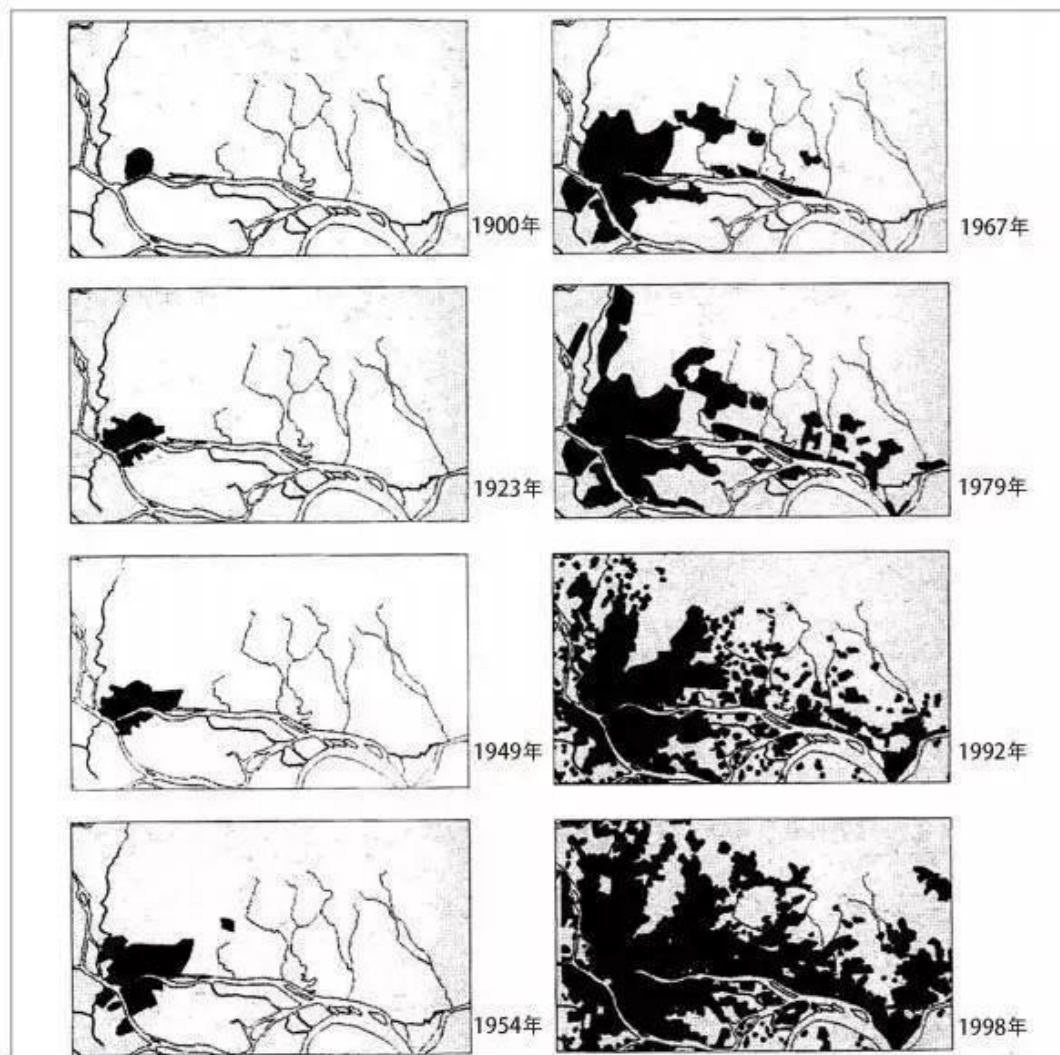


Figure.20 Diagram of Guangzhou urban expansion in the 20th Century

(Guangzhou Municipal Planning and Natural Resource Bureau, 2005)Source: Guangzhou City Construction Archives, accessed on 21 June 2022

The “*Second Five-Year Plan*” (1958-1964) was implemented in 1958, and a large number of industrial districts began to spread to the periphery of Guangzhou city, forming large industrial zones and residential areas for workers. During these five years, Guangzhou city began to develop to the East and the North. The “*Second Five-Year Plan*” led to an exponential expansion of Guangzhou's urban area (the city expanded to 76 square kilometers, and the population expanded from 1,6 million at the beginning of 1953 to 2.5 million in 1964, an increase of 57.2 percent annually) (National Bureau of Statistics, 2001). Under the planning model of “*Five-Year Plan*”, which focused on industrial production, several different industrial centers were established in Guangzhou, in addition to Yuexiu District, which served as the administrative center. This series of industrial construction activities allowed Guangzhou to gradually develop into a polycentric urban area and

gradually made the significance of the city's central axis as a planning tool at that time less important (Wang, Wang and Cui, 2002)

From 1979 to 1983, the Guangzhou Municipal Government formulated “*The Fourteenth Guangzhou City Master Plan*”. As shown in figure 21, in terms of urban structure, the city was determined to develop mainly along the northern bank of the Pearl River to the east of Huangpu District, and was divided into three main clusters: the first cluster was the old city, which was the central area of the city, the second cluster was the Tianhe District, and the third cluster was the Huangpu District, which vigorously developed industry, and identified Panyu Town and Huadu Town as satellite towns. On this basis, Guangzhou has been expanding outward, investing heavily in the development of specialized development zones, followed by the establishment of new towns in the suburbs. However, this outward expansion has led to some neglect of the traditional centers of the city (Yuexiu districts). And it has been turned into one of the historic conservation areas of Guangzhou.

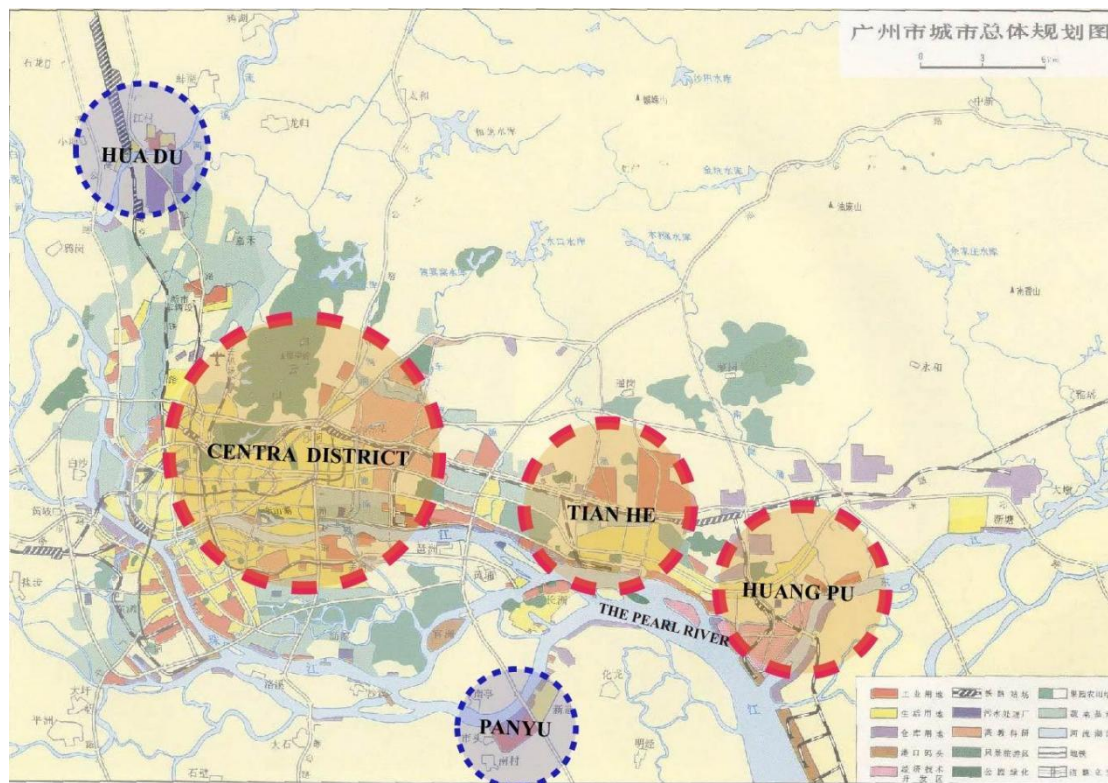


Figure.21 Map of the 14th Guangzhou City Master Plan

Source: Guangzhou Municipal Planning and Natural Resource Bureau(1984)

In the 1990s, Guangzhou's economic development was so rapid that the old city center could no longer cater to the requirements of Guangzhou as the center of South China. The construction of a modern new central business district was a pressing task at that time.

Therefore, the Guangzhou Municipal Government chose Zhujiang New Town and prepared "*New City Center: Zhujiang New Town Planning* " in 1993, and then formally implemented the scheme in the same year. While the newly published "*Zhujiang New Town Planning*" gradually transformed the central position of the central axis of the old city of Guangzhou at that time. This urban central axis is of great monumental significance and is located at the core of Guangzhou's old city surrounded by a large area of traditional residential houses with a strong atmosphere of life, reflecting distinctive local characteristics (Li and Huang, 2003). Therefore, in 2000, the Guangzhou Historic City Conservation Office defined the axis of "Yuexiu Mountain - Sun Yat-sen Memorial Hall - Municipal Government Mansion - People's Park - Qiyi Road - Haizhu Bridge " (i.e. the central axis in modern times) as the traditional central axis of Guangzhou (Chen, 2011), which gradually became a historical and cultural card of Guangzhou.

Subsequently, in 2001, according to "*Guangzhou City Master Plan (2001-2010)*" issued by the Guangzhou Municipal Government (2005), a new urban central axis was identified to be built in the new city center, Zhujiang New Town, and the new urban axis follow the spatial layout of the traditional central axis. As can be seen on the map (figure 22), the new urban axis maintains consistency and symmetry with the traditional central axis in terms of spatial structure. In addition, the master plan emphasizes the preservation and renewal of the historic conservation area of the old city where the traditional central axis is located.



Figure.22 Comparison of the traditional and new central axis of Guangzhou and Comparison of the urban development of Guangzhou in 1955 and 2018. Source(Guangzhou Daily, 2021)

Between 2007 and 2011, more than ten historic buildings and historic sites of the Traditional Central Axis Historic Conservation Area were listed as national, provincial and municipal Protected Historic Sites (Yuexiu District Construction Headquarters Office, 2021). In order to further implement the "*Guangzhou City Master Plan (2001-2010)*" and to ensure that historic conservation areas are effectively protected, the Guangzhou Municipal Planning and Natural Resources Bureau has promulgated a series of planning documents for the protection of historic districts in the following 10 years. In 2021, Guangzhou Municipal Planning and Natural Resources Bureau, based on the "*Guangzhou Traditional Central Axis Historic Conservation Area Conservation Plan (2017 - 2021)*" produced in 2017, issued the "*Revised Plan for the Conservation of Guangzhou Traditional Central Axis Historic Conservation Area (2021-2035)*" to deepen the protection and renewal of the Traditional

Central Axis Historic Conservation Area. At present, a new round of conservation and renewal projects for the traditional central axis are being implemented.

3.4 Conclusion

The formation and development of the traditional central axis embody the spatial layout of Guangzhou as “Shan-Shui City”, inheriting and developing the “Shan-Shui” pattern of the ancient Guangzhou City (He, 2003a). Huang Weizong believes that the traditional central axis is indispensable to a city and is the most concentrated expression of the history of the city's development (*Southern Metropolis Daily*, 2004). The importance of the traditional central axis is that the changing times of the city are deposited here, remembering the city development and reflecting it in different forms of relics, just like the historic buildings and historic sites along the traditional central axis, such as the Sun Yat-sen Memorial Hall, the Municipal Government Mansion, the People's Park, and the Haizhu Square, represent the history of urban development in Guangzhou in the last century, and witness the important events of this era, as well as preserving the common memory of Guangzhou people.

Since the Republic of China, the spatial layout of Guangzhou's old city has gradually collapsed, and the demolition of city walls, the construction of new roads and parks, and other measures to transform the urban space have led to the formation of the modern urban layout of Guangzhou. And as the traditional central axis formed in the period of the Republic of China, it not only embodies the urban layout of Guangzhou at that time, but also is the centralized embodiment of the modernization process of Guangzhou from the ancient city to the modern city.

Chapter 4 Analysis of the current situation of the traditional central axis

4.1 Introduction

The total length of the traditional central axis of Guangzhou is 3.3 km from the North to the South, and there are a large number of historical buildings and cultural relics(As shown in figure 23), including Zhenhai Tower, Sun Yat-sen Monument, Sun Yat-sen Memorial Hall, Municipal Government Mansion, People's Park, the historic site of Guangzhou Commune, Haizhu Square and Haizhu Bridge, etc. Most of these sites and buildings on the traditional central axis have profound historical and political significance and are important witnesses of the development of Guangzhou. Therefore, this section will provide a detailed analysis of the traditional central axis in terms of architectural forms, transportation systems, heritage conservation, etc. After that, I summarize the state of the central axis and analyze the ongoing regeneration project in detail. The research scope of this research takes Yuexiu Mountain as the starting point southward to Yanjiang Road, westward to Jiefang Road, and eastward to Jixiang Road and Jiaoyu Road. The specific scope is shown in figure 24 below.



Figure.23 Traditional Central Axis. Source:(Yuexiu District Branch Office of Guangzhou Municipal Planning and Natural Resource Bureau, 2017). Edited by Wenyi Liang, 2022

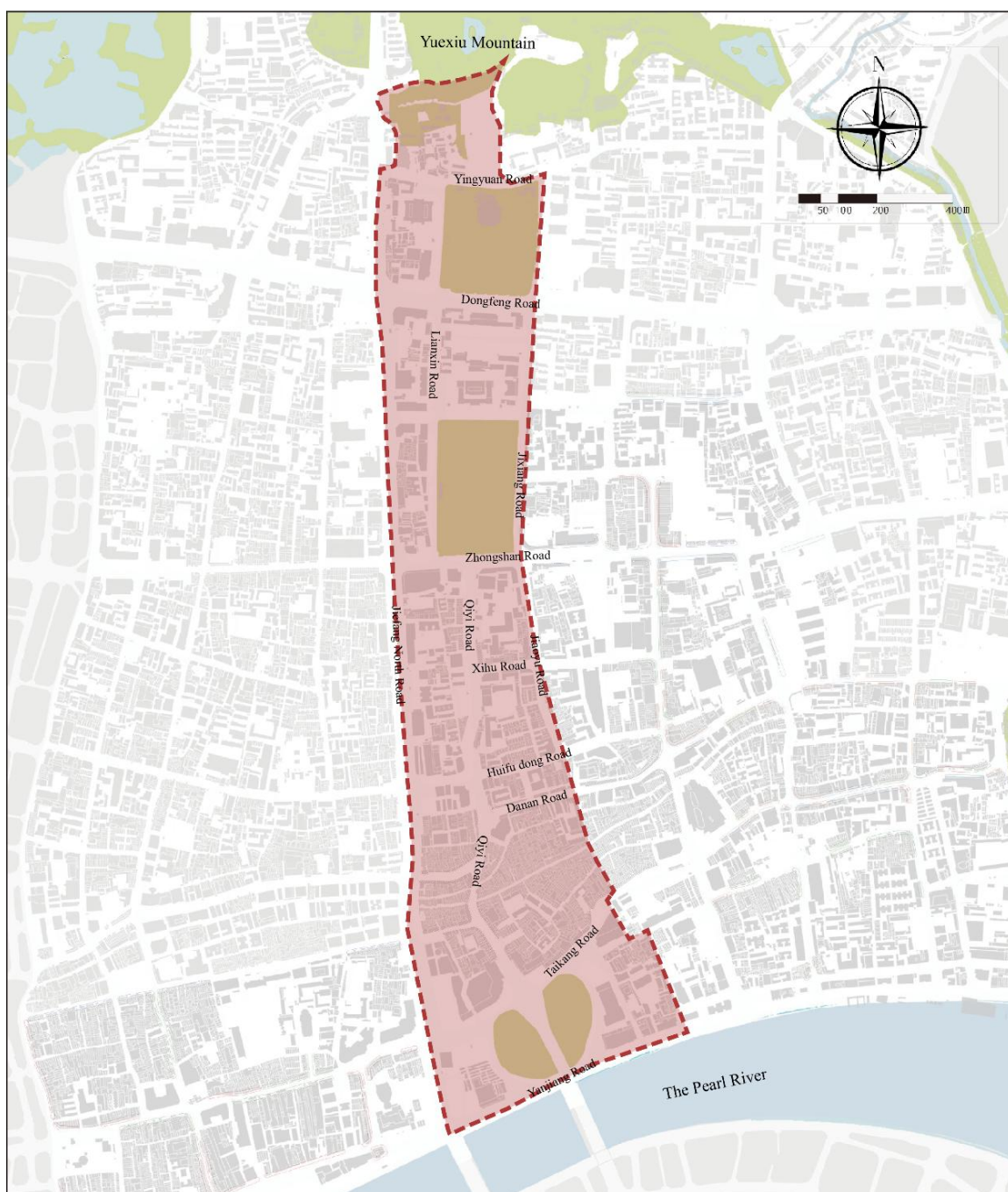


Figure.24 Research Area. Source:(Yuexiu District Branch Office of Guangzhou Municipal Planning and Natural Resource Bureau, 2017). Edited by Wenyi Liang,2022

4.2. Status of important historical and cultural resources

The traditional central axis is the core section of the old city of Guangzhou, along which many cultural relics and monuments of different dynasties and important historic buildings in modern times are distributed. There are a total of 25 Protected Historic Sites at all levels and 24 historic buildings. The specific names and locations are shown in the following distribution map (Figures 25 and 26) and list (Appendix 2).

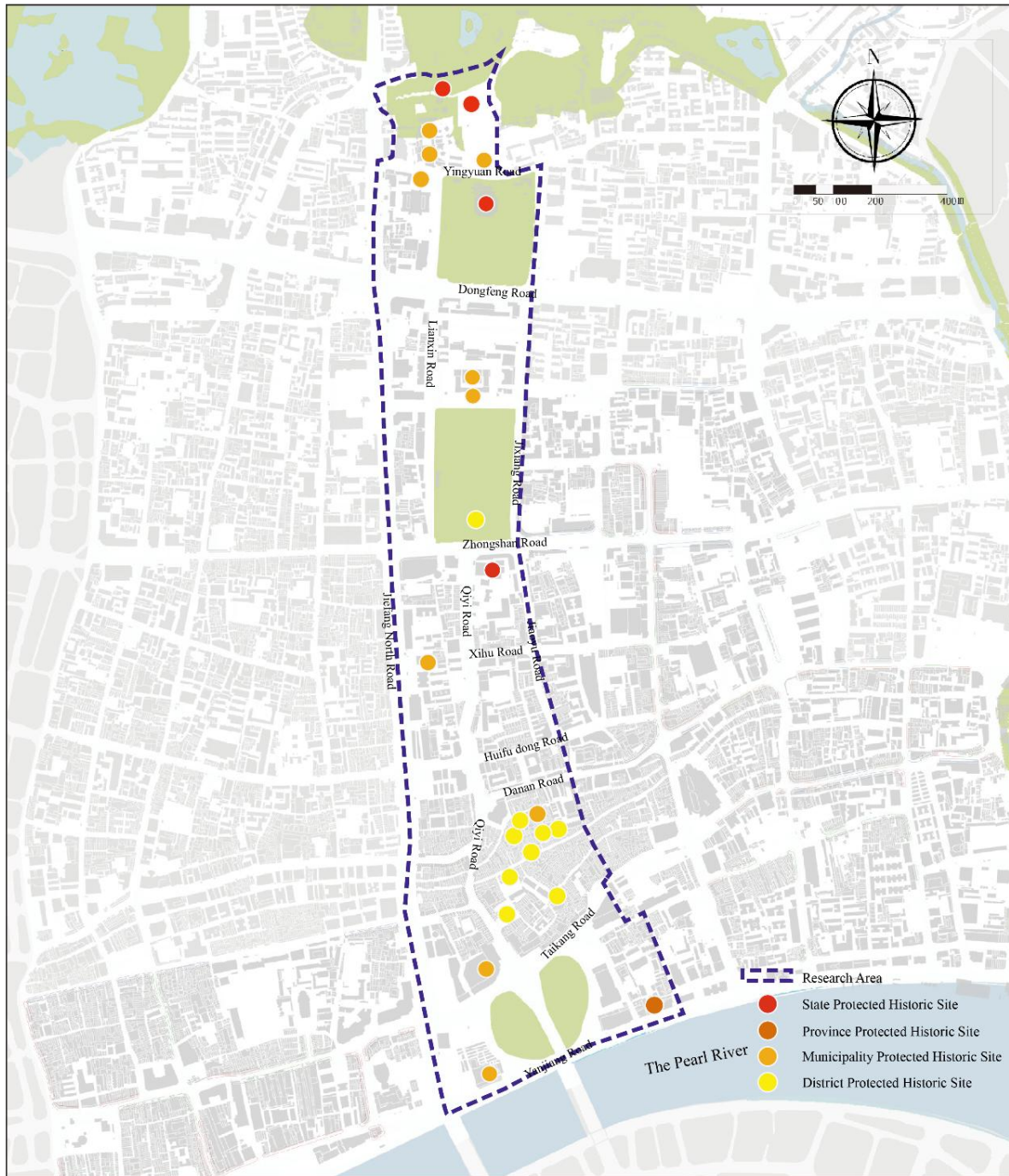


Figure.25 Diagram of the distribution of Protected Historic Sites at all levels. Author: Wenyi Liang

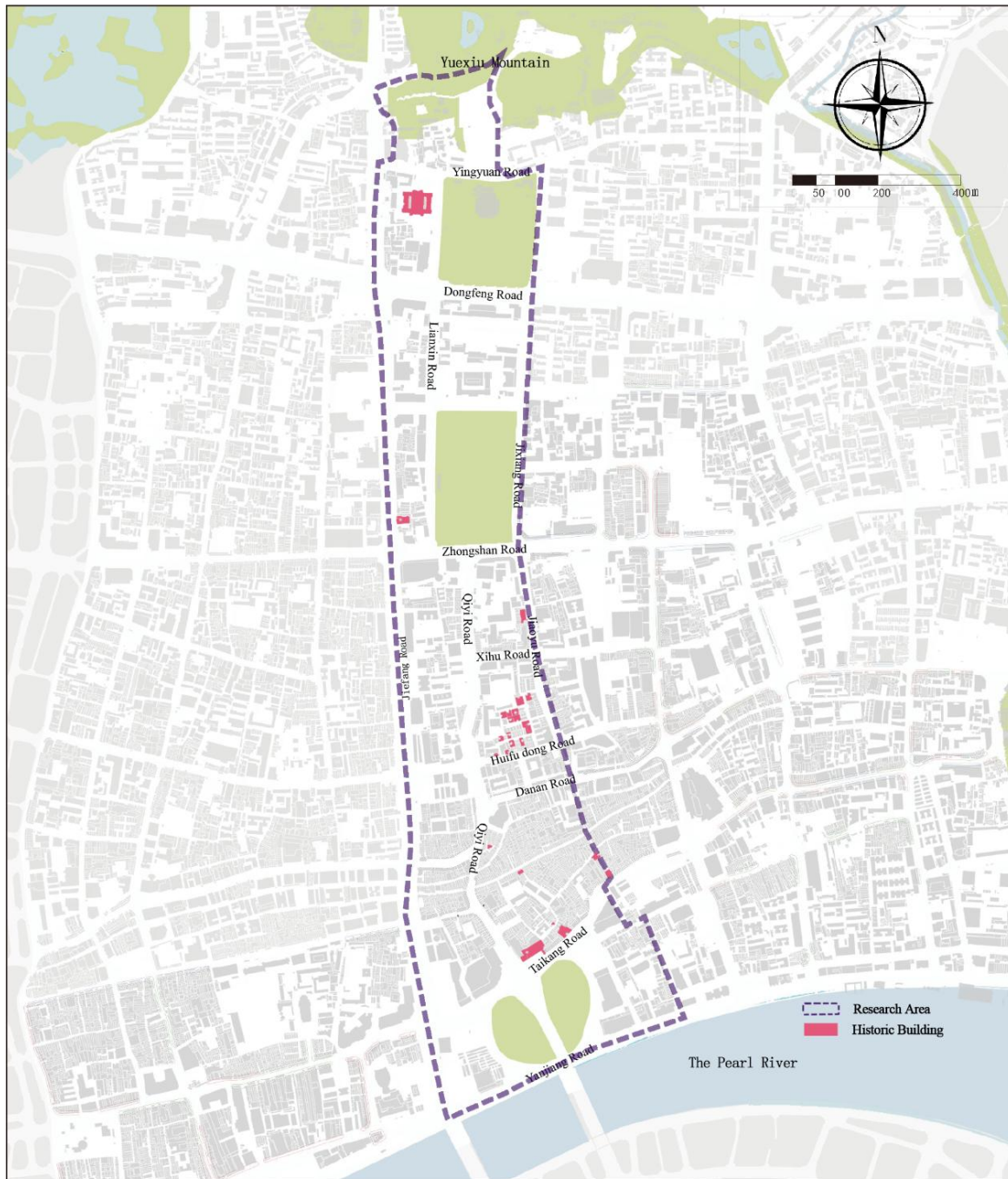


Figure.26 Diagram of the Distribution of important historical buildings. Author: Wenyi Liang

At present, these Protected Historic Sites are generally well preserved, but some of them have different degrees of aging and weathering erosion under the influence of natural factors such as time-lapse and environmental erosion (Figures 27-29), the historic buildings in the area reflect the local landscape and features of a certain period and have certain conservation value. Also, these Protected Historic Sites and historic buildings are scattered along the central axis, lacking connection with each other. The surrounding environment of the Protected Historic Sites and historic buildings is poor, the architectural style and volume

of the surrounding buildings are not coordinated with those of the Protected Historic Sites and historic buildings, and there is a lack of certain protective spacing between the buildings.



Figure.27 City Wall in Ming Dynasty, photographed by Wenyi Liang on 09.06. 2021

Figure.28 Historic Site of the Central Bank. Yue, 2019

Figure.29 Former Residence of Xu Guangping. Xia, 2022

4.3 Current status of architectural forms

The traditional central axis is located in an area that concentrates buildings of different periods and reflects different architectural styles. Through field observation and consulting relevant information and data through the library, most of the buildings in the period of the Republic of China were 1-3 floors, buildings after the 80s in twentieth century were 4-6 floors, and buildings after 2000 were mostly above 6 floors. In the distribution map of building height (Figure 30), the high-rise buildings are mainly distributed on Dongfeng Road, Jiefang Road, Taikang Road, and Yanjiang Road.

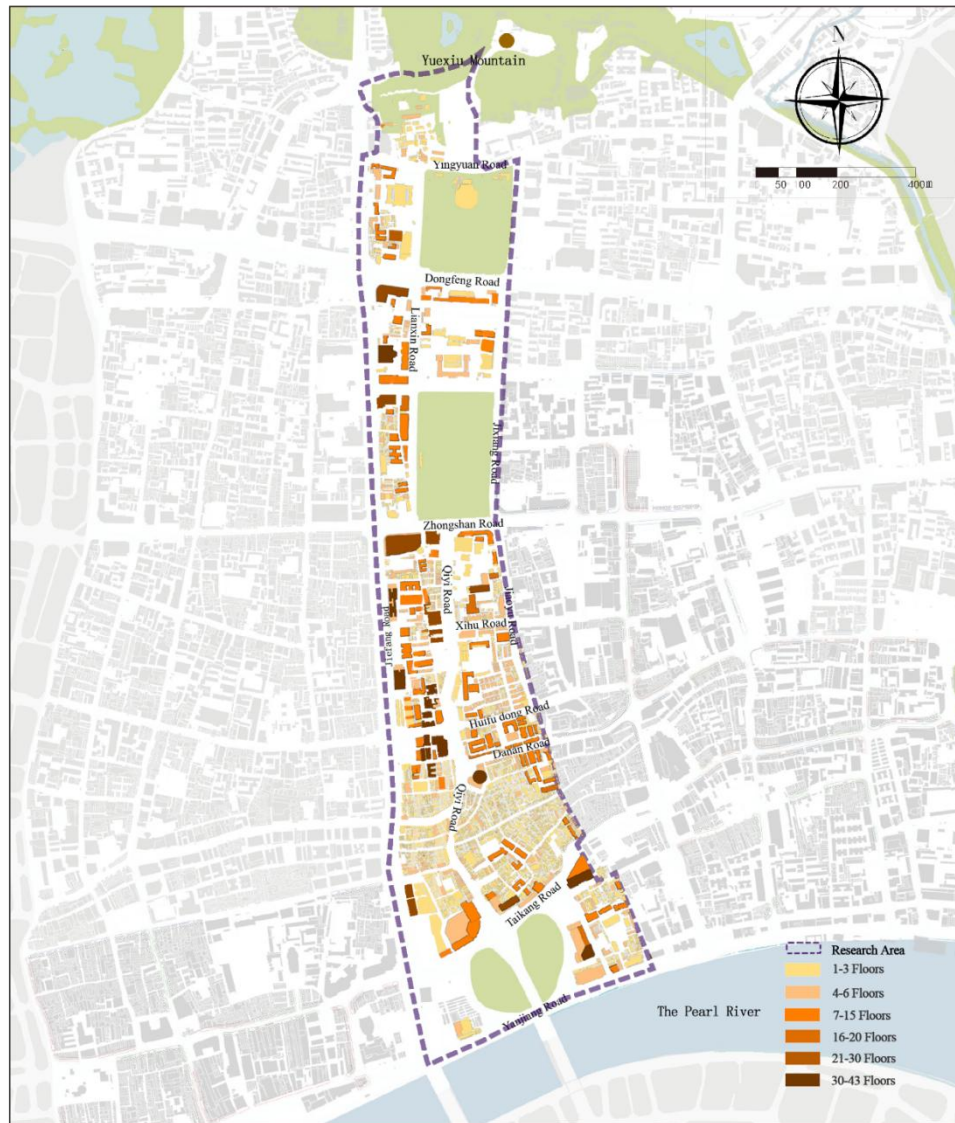


Figure.30 Map of Building height distribution Author: Wenyi Liang

Among them, the section (Yuexiu Mountain to People's Park) has a more uniform architectural form, except for the Sun Yat-sen Memorial Hall and the Municipal Government Mansion. There are a number of high-rise office buildings on both sides of the surrounding area, and the architectural style is mainly modernist. Both sides of People's Park are mostly multi-story residential buildings mixed with commercial functions, with small spacing between buildings and varying building heights, as shown in figures 31-34.



Figure.31 Trading Plaza in Jiefang Road, photographed by Wenyi Liang on 11.07. 2021



Figure.32 Residential buildings mixed with commercial function near People's Park, photographed by Wenyi Liang on 01.07. 2021



Figure.33 Multi-storey residence near People's Park, photographed by Wenyi Liang on 09.04. 2021



Figure.34 Guangzhou Municipal Government Mansion, photographed by Wenyi Liang on 07.07. 2021

The section of Qi Yi Road from the South of Zhongshan Road to the Pearl Riverside has a relatively complex architectural form and lacks integrity. Figures 35 to 36 shows the different functions of the buildings on both sides of Qi Yi Road: residential, commercial buildings, and discontinuous facades with different building spacing. In addition, there are contiguous traditional residential houses from the Qing Dynasty and the period of the Republic of China along the section, reflecting the architectural characteristics of the time. In figure 37, it can be seen that the traditional residential houses are mainly distributed on both sides of Qi Yi Road, and the street texture is well preserved, but due to the development of urban construction in recent years (eg. Road construction and newly built high-rise buildings), the

morphology of some streets and alleys has been impacted and not well protected.



Figure.35 1970s housing on Qiyi Road, photographed by Wenyi Liang on 21.05. 2021



Figure.36 Residential houses of the Qing Dynasty and the Republic of China that incorporate Western architectural styles, photographed by Wenyi Liang on 15.06. 2021

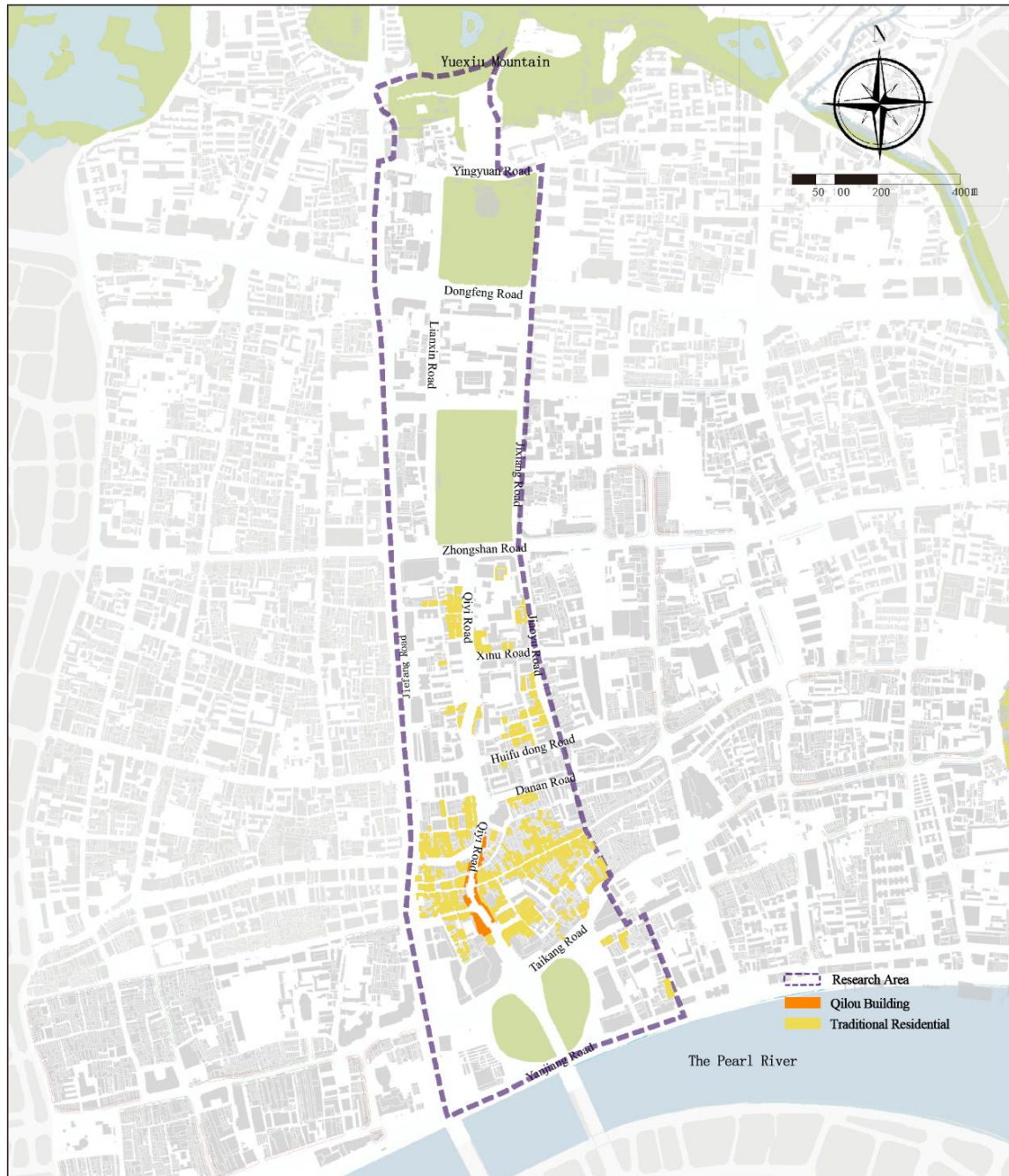


Figure.37 Diagram of the distribution of traditional houses. Author: Wenyi Liang

In addition, Qiyi Road also retains Qilou buildings, which are commercial and residential mixed buildings born in the early 20th century that blend the 18th century western architectural styles with traditional Cantonese architectural features, with the ground floor of the building setback along the street and leaving public space. The Qilou Building facade is brighter in color, and the ground floor forms a continuous arcade area as a mix of public pedestrian space and commercial space (As shown in figure 38). These Qilou buildings have been repainted in recent years, and some of them, as well as some of their connecting

corridors, have been demolished, eventually making the building facades less coherent (Figure 39). The new high-rise buildings along Qiyi Road, which were built in the early 21st century, contrast with the original traditional street texture due to their large volume and are incongruous with the existing spatial scale (Figure 40).



Figure.38 the public space at the bottom of the Qilou Building

Figure.39 Qilou along Qiyi Road, photographed by Wenyi Liang on 24.05. 2021



Figure.40 Comparison of high-rise buildings and low-rise buildings on Qiyi Road, photographed by Wenyi Liang on 17.08. 2021

4.4 Current situation of transportation

The roads along the traditional central axis are the main roads in the city, with large traffic demand. Among them, Zhongshan Road, Jiefang Road, Dongfeng Road and Yanjiang Road are city main roads, linking the Traditional Central Axis Historic Conservation Area with its surrounding, Lianxin Road, Jixiang Road, Jiaoyu Road, Qiyi Road, Danan Road, and Taikang Road are the city secondary roads, Bailing Road, Xihu Road, and Huifu Road are city bypasses,

and the others are sidewalk (Figure 41).

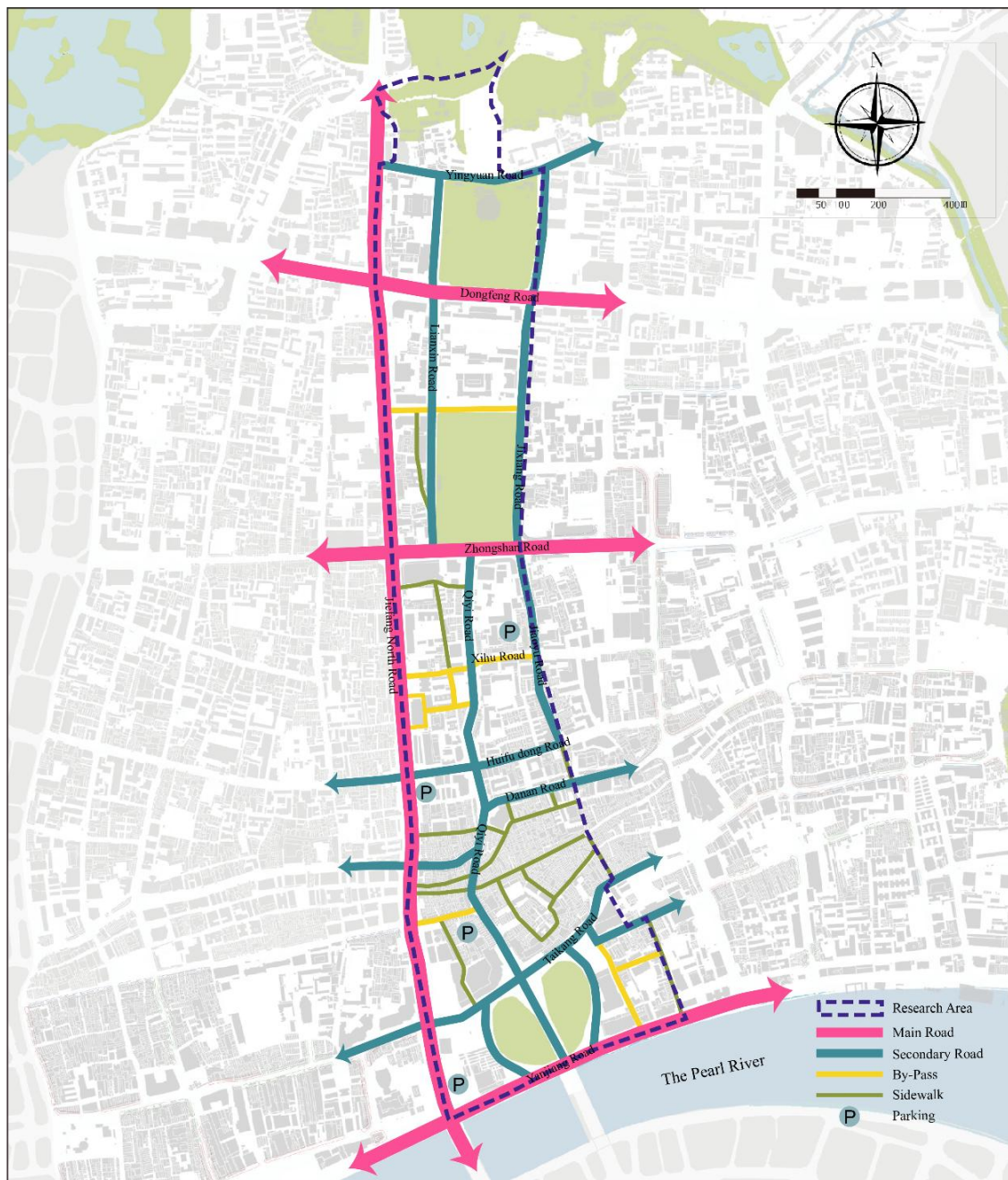


Figure.41 Transportation System. Author: Wenyi Liang

From figures 42 to 43, we can see that the mixed traffic of people and vehicles in the whole central axis neighborhood is serious, the pedestrian environment is average with low safety, and part of the space on the sidewalk is occupied by bicycles for parking. There are no public parking lots along roads of the traditional central axis, and a large number of vehicles are parked along the roads, resulting in lower traffic efficiency and congestion, and a more complicated road traffic situation.

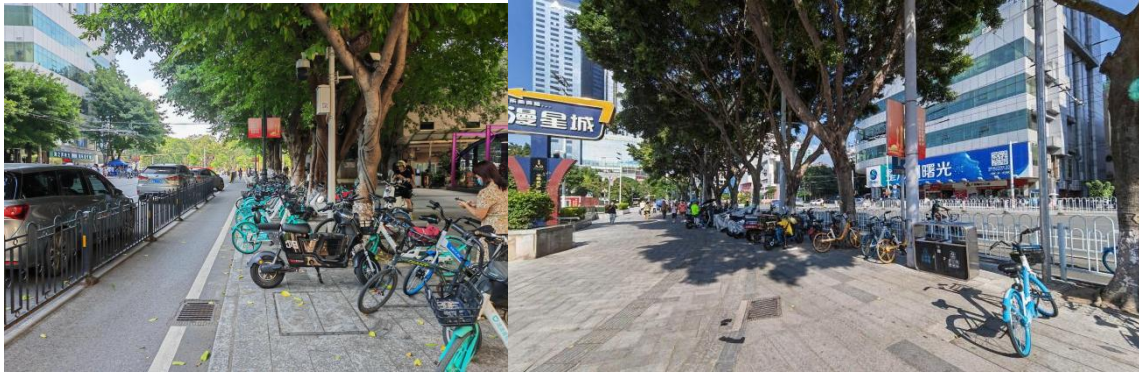


Figure.42 The sidewalk is occupied by bicycles, photographed by Wenyi Liang on 07.04. 2021



Figure.43 Road traffic chaos: mixed pedestrian-vehicle traffic, photographed by Wenyi Liang on 07.04. 2021

Several metro lines and bus lines are passing through the traditional central axis. As seen from figure 44, Gongyuanqian, the interchange station of Guangzhou Metro Line 1 and Line 2, is located next to People's Park in the middle section of the traditional central axis. And as the interchange station of Metro Line 6 and Line 2, Haizhu Square is located on Haizhu Square by the Pearl River in the southern section of the traditional central axis. More importantly, the direction of Metro Line 2 within Yuexiu District basically overlaps with the traditional central axis, from the North to the South there are four metro stations all located along the traditional central axis, which greatly improves the accessibility of the traditional central axis.



Figure.44 Distribution of Metro Line. Author: Wenyi Liang

4.5 The current situation of Land Functions

The building functions of the Traditional Central Axis Historic Conservation Area reflect different characteristics from North to South, as can be observed in figure 45, the northern section is mainly administrative institutions (Figure 46), parks and high-rise buildings interspersed with some stores at the ground floor(Figure 47), the middle section is mainly education institutions such as high schools, and residential houses with some stores at the ground floor(Figure 48), and large commercial centers (Figure 49).The southern section is a

low-end professional wholesale market along the road, mainly clothing and footwear wholesale (Figure 50), and a large area of low-rise residential houses. The roads along the traditional central axis serve not only for transportation but also have commercial functions with different commercial characteristics reflected on the streets.

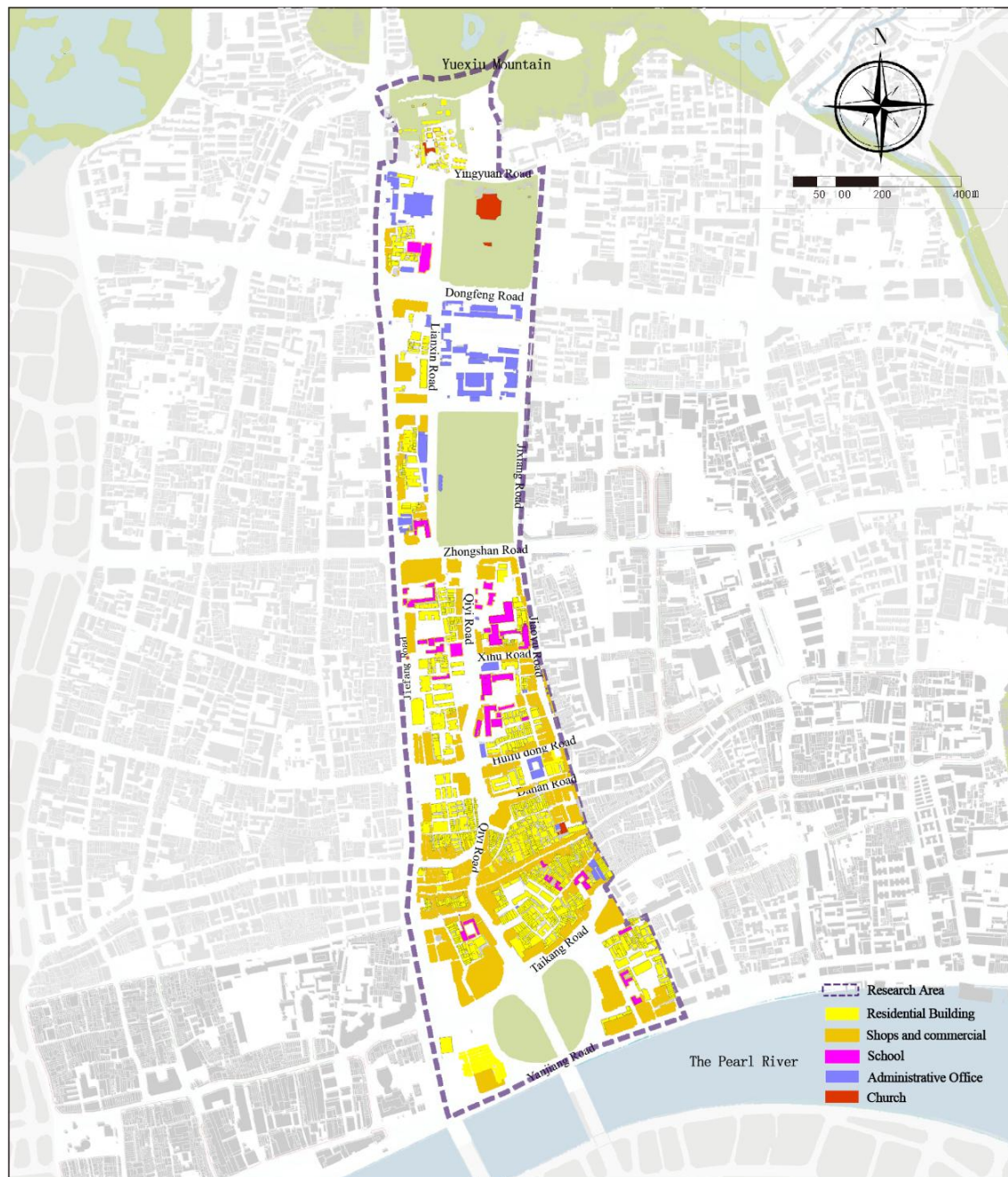


Figure.45 Analysis of Building Function. Author: Wenyi Liang



Figure.46 Administrative Office Building on Lianxin Road, photographed by Wenyi Liang on 19.06. 2021

Figure.47 Commercial and residential buildings on Lianxin Road, photographed by Wenyi Liang on 26.06. 2021



Figure.48 The shops along Qiyi road, mainly billboards, Art Supplies, etc., photographed by Wenyi Liang on 11.06. 2021



Figure.49 Commercial Center next to Haizhu Square

Figure.50 Stores along Qiyi Road are mainly grocery stores, photographed by Wenyi Liang on 12.04. 2021

4.6 Current situation of public space

The main large public spaces in the old city are concentrated along the traditional central axis, including Yuexiu Mountain, Sun Yat-sen Memorial Hall, People's Park, and Haizhu Square. Yuexiu Park is one of the largest city parks in Guangzhou (Figure 51), Sun Yat-sen Memorial Hall has long served as a major venue for large-scale conferences and cultural performances in Guangzhou (Figure 52), and People's Park is an open civic park (Figure 53), and Haizhu Square is both an important transportation plaza connecting to the Haizhu Bridge and a resting place open to the public (Figure 54).



Figure.51 People's Park, photographed by Wenyi Liang on 21.04. 2021

Figure.52 Aerial view of Sun Yat-sen Memorial Hall, photographed by Su, 2021

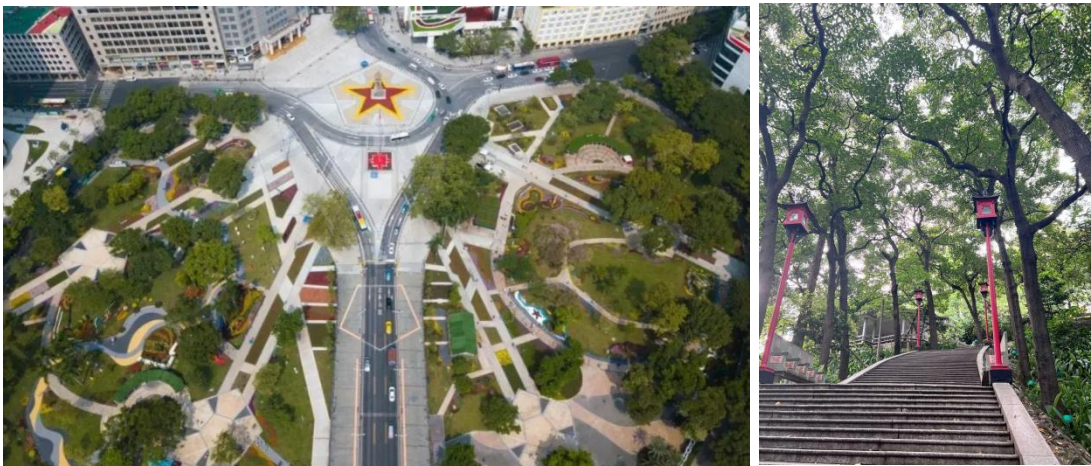


Figure.53 Aerial view of Haizhu Square Photographed by Luo, 2019

Figure.54 Yuexiu Park, photographed by Wenyi Liang on 18.07. 2021

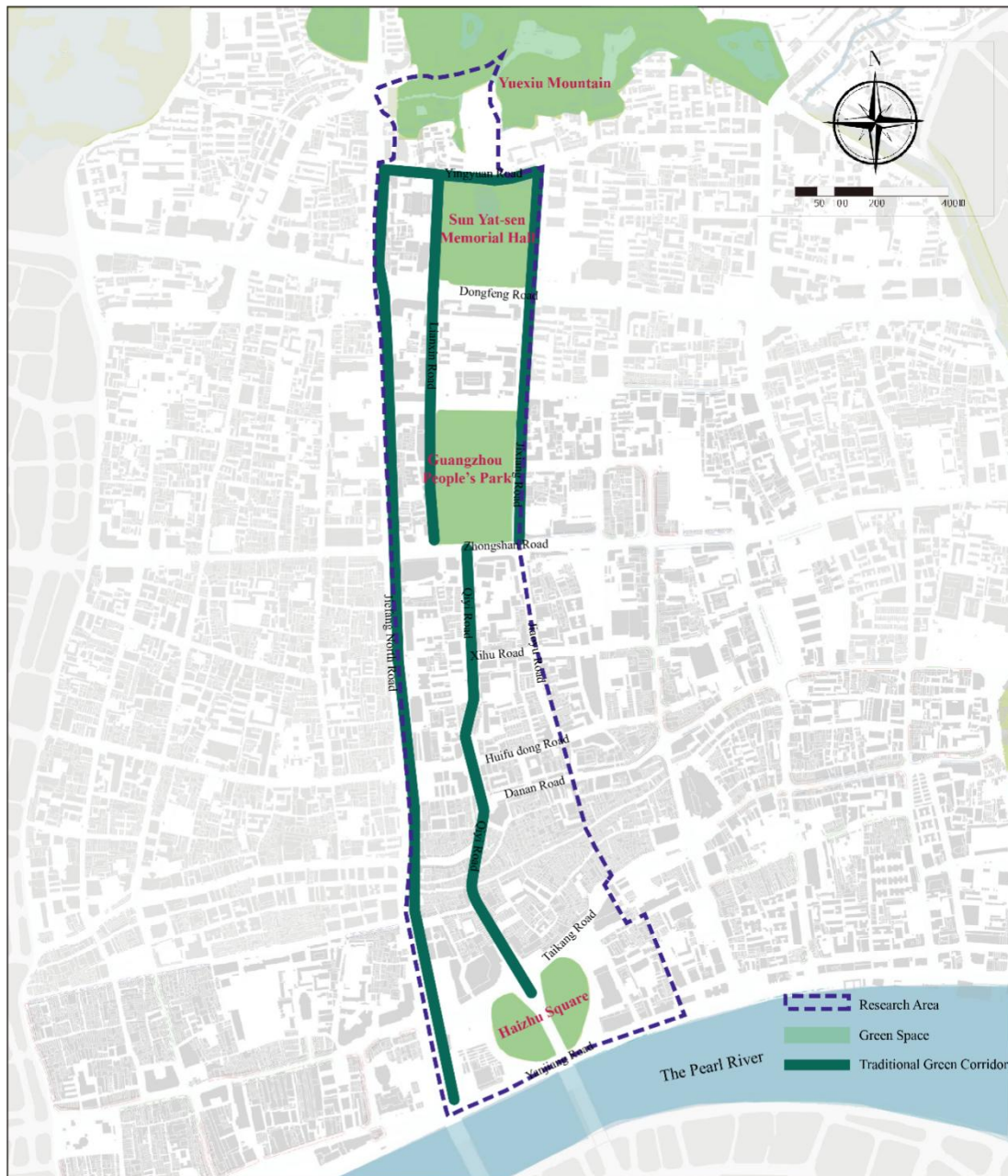


Figure.55 Diagram of Public Space and Landscape Analysis. Author: Wenyi Liang

The lush greenery along the traditional central axis forms a linear Green Landscape System and becomes an important green corridor in the city center of Guangzhou. On figure 55, there are four green corridors connecting the green spaces along the central axis, and these green corridors are mainly composed of old banyan trees (Figures 56 and 57), which hold an extremely important identity of green space for the residents. In addition, as seen from figure 58, Qiyi Road is more tortuous and lacks continuity and unity visually and spatially. Moreover, the building heights on both sides of the road are inconsistent and the high-rise buildings destroy the spatial symmetry. Besides, the connectivity between the above-

mentioned public spaces is poor and still lacks connection with the Pearl River, making it difficult to reflect the spatial characteristics of Guangzhou as a “Shan-Shui City”.



Figure.56 Banyan trees on Lianxin Road and Jixiang Road, photographed by Wenyi Liang on 21.04. 2021

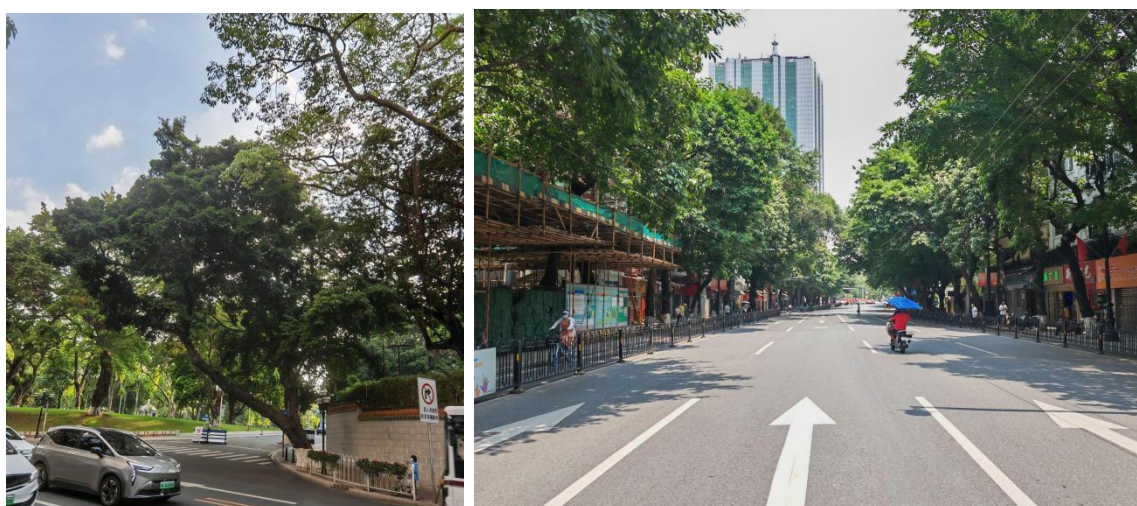


Figure.57 The big banyan tree next to People's Park, photographed by Wenyi Liang on 05.05. 2021

Figure.58 The banyan tree on Qiyi Road, photographed by Wenyi Liang on 07.07. 2021

4.7 Summary of current characteristics and existing problems

Based on the previous research and summary, and according to the field observation and study of the current situation of the traditional central axis in Guangzhou, this research gives the following analysis of the existing problems.

(1) Rich historical relics and monuments, but some buildings are not properly protected

Some of the cultural relics and historic buildings along the traditional central axis lack maintenance and their structures are damaged to varying degrees, posing a certain degree of safety risks. For example, the City Wall of the Ming Dynasty, as a Provincial Protected Historic Site, part of it is entangled by tree roots, the bricks and stones are more seriously decayed, lacking necessary maintenance, and the wall is in danger of collapse.

(2) Diversified architectural styles, with a large area of traditional dwellings with a strong sense of life, but the lack of protection of space in the streets and alleys

The Qilou buildings along Qiyi Road lack comprehensive protection, and some traditional houses in the neighborhood lack repair. Also, there is the phenomenon of unauthorized construction that has destroyed the overall appearance of the historic district.

(3) Chaotic architectural forms along the traditional central axis

The emergence of new high-rise buildings has destroyed the continuity of the original building facade of the street. Important buildings such as Sun Yat-sen Memorial Hall and the old site of Guangzhou Commune are surrounded by modern high-rise buildings, destroying the unity of the landscape in the area. Also, the high-rise buildings block the visual space and cut off the visual connection with the surrounding environment, resulting in a discontinuity of the central axis.

(4) Convenient transportation and high accessibility, but static traffic is seriously insufficient and the pedestrian environment can be improved

The sidewalk is generally occupied by bicycles due to the lack of bicycle lanes, and the walking space of pedestrians is further compressed, resulting in a discontinuous walking environment, which seriously affects the walking experience. As an area of high traffic flow, the lack of parking space and facilities affects the capacity of the road, and vehicles are parked randomly.

(5) Good and unique green public space, but lack of strong spatial connection

The traditional central axis connects Yuexiu Mountain, Sun Yat-sen Memorial Hall, People's Park and Haizhu Square, but the distance is far apart, especially from People's Park to Haizhu Square, which is packed with buildings and lacks corresponding small-scale open spaces to connect them, resulting in the discontinuity of the overall green space of the central axis. Most of the trees on the traditional axis are old and large, providing a unique green boulevard and forming part of the identity of residents.

(6) Lack of character and discontinuity of the function

The functions of the streets along the traditional central axis are all different. The section from Yuexiu Mountain to People's Park is mainly embodied with administrative office,

business and residential functions, while the function of the section from Qiyi Road to Haizhu Square are not clear, especially the commercial along Qiyi Road, part of which are small-scale self-operated stores, including clothing, restaurants and daily necessities. Another part is a professional wholesale market, the traditional commercial function has also gradually evolved into a low-end retail business, which has destroyed the traditional feature.

From the above analysis of the current situation of the axis space, it can be seen that the current situation of the traditional central axis of Guangzhou suffers from the lack of obvious characteristics of the axis, disorganized architectural forms and discontinuous green space. At present, the traditional central axis does not fully demonstrate its charm as the core location of Guangzhou as a historic and cultural city, nor does it fully play its role as the embodiment of the layout of the “Shan-Shui City”. In the process of conservation and regeneration, it faces the challenge of how to re-embody the unique axis space so as to be perceived by people. Therefore, the next section will provide a detailed analysis of some projects in the conservation and regeneration of the traditional central axis.

4.8. Analysis of the conservation and regeneration project of the traditional central axis

Under the rapid urbanization of Guangzhou, urban public space resources have plummeted. Compared with the new urban areas, the traditional central axis has several public spaces and citizen parks with long history and culture, and these public spaces provide residents with places for daily activities and preserve the common memories of residents. Among them, both Haizhu Square and People's Park are important nodes of the traditional central axis and have significant historical value as witnesses of many major historical events, as shown in figure 59, Haizhu Square serves as an urban green square connecting the southern and northern urban areas of Guangzhou, and People's Park is the midpoint on the traditional central axis as well as the most prominent civic park.

At present, the conservation and regeneration of the traditional central axis are ongoing, and some historic buildings and attractions on the axis are being enclosed for construction. As the main activity space for nearby residents, People's Park and Haizhu Square are the priority projects for conservation and regeneration. It is also the key implementation of micro-regeneration projects in Guangzhou in recent years. These projects reflect the main characteristics of the traditional central axis regeneration and conservation projects as well

as existing problems, such as the drawbacks of micro-regeneration implementation and the lack of say of the residents as one of the stakeholders. Therefore, this research selects People's Park and Haizhu Square to analyze their status quo.



Figure. 59 Diagram of the traditional central axis public space from People's Park to Haizhu Square

Source(Du, 2019). Edited by Wenyi Liang

4.8.1 Guangzhou People's Park

Guangzhou People's Park (the old site of the First Park) is located at the North end of Qiyi Road, in front of the Guangzhou Municipal Government Mansion, and is the earliest comprehensive public park established in Guangzhou, with a rather long history - the park is located in an administrative area since the Sui Dynasty. In 1920, the Guangzhou Municipal Government transformed the administrative office into a large municipal garden open to local people, and inaugurated it in October 1921, with Mayor Sun Ke naming it "First Park" at the opening ceremony (Yuexiu District Construction Headquarters Office, 2021). Because of

its central location, the park was renamed "Central Park" in 1925. But it was changed to People's Park in 1966. The park covers a total area of about 44,600 square meters and adopts the layout of an Italian patterned garden in a symmetrical form, which is one of the largest public spaces of the traditional central axis (Figure 60 shows the floor plan of People's Park) .

People's Park is the first modern citizen park in Guangzhou with a Western-style design, and it is also the venue for many citizen's gatherings and large-scale events, making it one of the most representative public parks in Guangzhou (Li and Wu, 1992). Zheng Lipeng said in an interview by the *New Express* reporters He Shan and Fang Rumin on 13th May 2021 that *"People's Park is one of the symbols of Guangzhou becoming a modern city, and is the center of Guangzhou urban planning during the period of the Republic of China. It is of great significance in the modern history of Guangzhou and is an integral part of the landscape of the traditional central axis of Guangzhou."*

In 2012, People's Park was listed as a "Yuexiu District Protected Historic Site".



Figure.60 Floor plan of People's Park. Source: (Du, 2020b)

People's Park contains a large number of ancient and precious trees, especially the park is abundantly planted with large-sized banyan trees, which are the main protagonists of the park. For the residents, the People's Park and the entire green environment consisting of all the plants, especially the big banyan trees, which have been the most important companion of several generations of people in Guangzhou, provide a comfortable and cool resting space for the residents, and the green space they provide is their favorite activity place. It can be said that these big banyan trees in the People's Park and even every big banyan tree on the traditional central axis carry the memories of many people in Guangzhou. The green space made up of these banyan trees gives residents a sense of identity in their green environment.

In December 2020, for the implementation of the traditional central axis conservation and regeneration project, the Guangzhou Municipal Government and Yuexiu District

Government have given priority to People's Park - as an important green open space on the core conservation area of the traditional central axis - to carry out the landscape optimization and enhancement project in the form of “micro-regeneration”. The Yuexiu District started the construction of People's Park in phases and areas with a construction period of about 6 months (Figure 61). The construction of the project includes the optimization of the central square, the south entrance square, and the pavilion, adding composite leisure and sports areas and lawns, etc. (Du, 2020a).

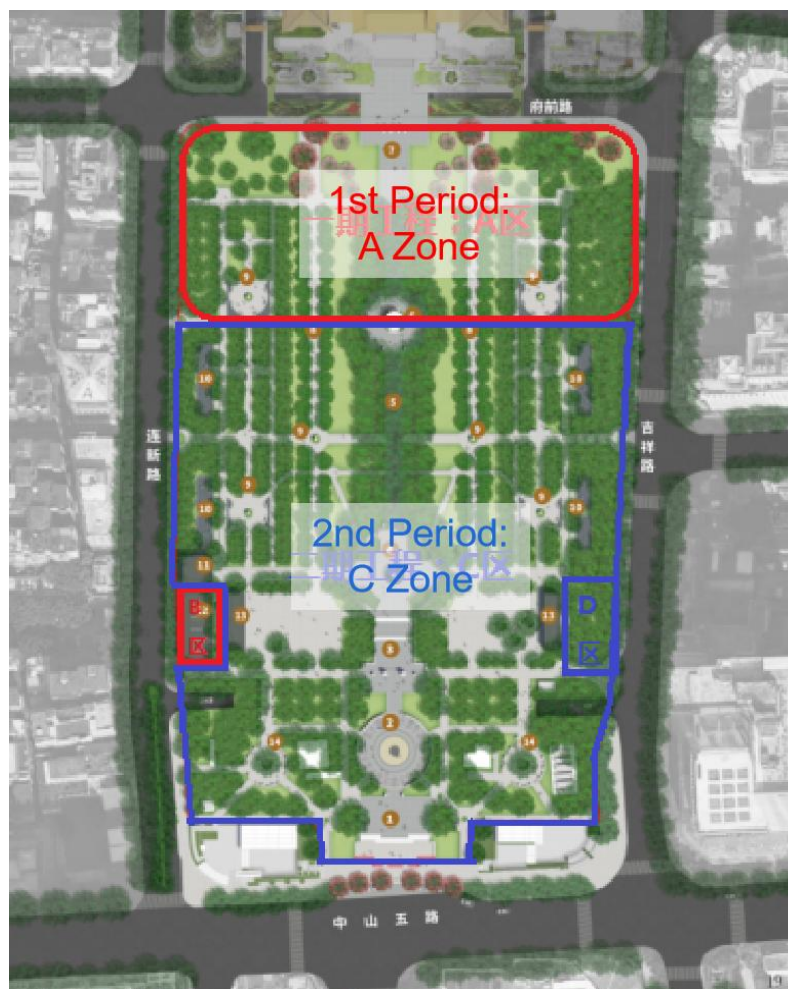


Figure.61 Construction Staging of People's Park Landscape Optimization and Enhancement Project

Source: (Water Affairs Bureau of Guangzhou Municipality, 2020)

The project focuses on ensuring the visibility of the central axis of the park and changing the previous restricted view and more depressed space by relocating some tree species, pruning trees, and adding lawns (Du, 2020a). This project adopts a modern planting style of “Sparse Lawn and Woodland”, aiming to update the green space of the traditional central axis with a modern aesthetic in line with the current one, highlighting the traditional central axis in terms of visual space and achieving an effect of open space and transparent views.

Therefore, People's Park, which is a concentration of greenery of the traditional central axis, became the first target of micro regeneration. The Municipal Government and the contractor classified and protected the architectural heritage inside the park, while starting the micro regeneration without massively damaging the park's spatial layout.

On May 31, 2021, after issuing "*Information on the Improvement of Greening Quality in Guangzhou*" by the Bureau of forestry and landscaping of Guangzhou Municipality, a special action called "*Guangzhou Greening and Afforestation Project*" was launched in the name of "*Greening Quality Improvement Project*". This Project is to upgrade the trees on the city main roads and parks in Guangzhou on a large scale in the form of "Sparse Lawn and Woodland" (He and Fang, 2021b). As of June 2021, many of the century-old banyan trees in People's Park have been pruned or even uprooted and replaced with thin phoenix trees. As shown in figure 62, the number of trees in People's Park has been significantly reduced after the regeneration. After the project was basically completed, 213 trees were relocated and only 20 new trees were added (He and Fang, 2021a). Figures 63 to 65 shows the comparison before and after the regeneration of People's Park, where most of the previous tree-lined park has turned into a large open and fenced-in lawn.



Figure.62 Comparison of Aerial view of the People's Park before and after the regeneration (the red circle in the figure was the position of the removed tree, and the blue circle range replaced the position of the tree species). Source: (New Express, 2020)



Figure.63 Before and after the regeneration of the central axis of people's park. Source: (New Express, 2020)



Figure.64 Before and after the regeneration of Brandy Avenue of People's Park. Source: (New Express, 2020)

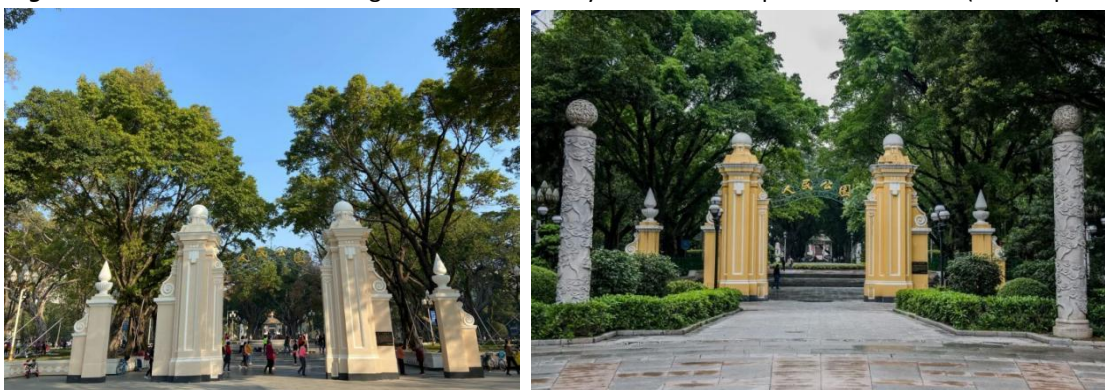


Figure.65 Before and after regeneration of the entrance of People's Park. Source: (New Express, 2020)

The project of the People's Park was completed by the end of June 2021, and the project entered the post-evaluation phase. According to the *New Express* reporter (He and Fang, 2021a), some residents have given quite positive opinions on the regeneration of People's Park, saying that the sense of safety, the improved activity areas , and the updated facilities are the main reason of satisfaction for the residents.

In fact, the conservation and regeneration project brought more dissatisfaction from the residents (He and Fang, 2021b). This dissatisfaction was mainly focused on the fact that the

Guangzhou Municipal Government's protection of People's Park neglected to protect the spatial pattern and overall appearance of the park, including the various plants of historical value in the park, and only protected the architectural heritage, which eventually led to resident's dissatisfaction with the project. This is because century-old big banyan trees and other precious trees have become an important part of the local resident's life, thus creating a unique sense of identity of the park. More importantly, the Guangzhou Municipal Government did not consult with the residents and removed those trees, especially the big banyan tree, ultimately destroying the historical environment and the resident's memories of People's Park and their sense of identity.

During the period, A campaign on the protection of banyan trees was initiated by local people who were jointly against the relocation of trees by the Guangzhou Municipal Government, and those involved in the campaign included citizens, different experts and scholars, and retired officials, all expressing their opposition through various channels. Some of them went to the Bureau of Forestry and Landscaping of Guangzhou Municipality to express their dissatisfaction in person, some of them criticize online, and some of them reflected the situation to the Central Government through specific channels (Ma, 2021).

Some technical experts who supported this campaign argued that the project was based solely on a landscape perspective, which not only failed to respect heritage preservation, but also destroyed the historical appearance of People's Park and reduced the greening rate and ecological benefits of the city (He and Fang, 2021a). Li Min of South China Agricultural University believes that *"People's Park planted a large number of trees that meet the climate of the South of China, highlighting the locality, however, the project did not protect the entire environment of the Park. The flowers and trees in the park also represent an important historical value, and that the regeneration destroyed the original historical appearance and the valuable historical atmosphere."* -- (13.05.2021 by He and Fang)

"The current renewal has greatly reduced the amount of greenery and weakened the biodiversity of the park. In a hot and humid southern subtropical place like Guangzhou, the approach of "Sparse lawns and woodlands" is not practical." said Cheng Xiaoshan, an associate professor at South China Agricultural University. -- (13.05.2021 by He and Fang)

And according to the *New Express* reporter who interviewed 25 residents randomly in the park on 13th May 2021 ((He and Fang, 2021a)), 17 of them gave poor reviews, 4 had positive

comments, and another 4 were in favor of changing the lawn, but again felt that there was less shady places, seating and space to move around:

"The park used to have a lot of chairs and benches for people to rest, but now there are no benches to sit on. People have to sit on the grass railings to rest." (Mr. Zhang who always plays Tai Chi or practice jogging in the park)

"After the renewal, it is clean and tidy. Trees here were too dense and the shrubs were cluttered before, so it looks beautiful after the regeneration." (Mr. Yang works nearby and comes for a walk at noon) -- (13.05.2021 by He and Fang)

After the accomplishment, the project was met with opposition and skepticism (e.g., The June 2021 Campaign to Protect the Banyan Tree) (He and Fang, 2021a), the Guangzhou Municipal Government began to reflect on the project and attach more attention to the preservation of those big banyan trees. Five months after the end of the People's Park project, the Guangzhou Municipal Government issued new guidelines for urban green space, clearly stating that the protection of old and valuable trees should be strengthened and the most stringent measures for the protection of old and valuable trees should be implemented: In urban construction and urban renewal, it is important to prohibit large scale demolition and construction, and consult experts and the public in cases involving tree relocation and felling (*New Express*, 2022).

In addition, the massive relocation of valuable trees as well as the expansion of lawns during the construction of the project contradicts the micro-regeneration approach. The project is not truly on a small scale. This reflects the fact that the municipality did not fully follow the scheme in the implementation of the micro-regeneration project.

The conservation and regeneration of People's Park is the first regeneration project along the traditional central axis promoted by the Guangzhou Municipal Government to be completed, reflecting its attempt to strike a balance between the preservation of architectural heritage and modern aesthetic regeneration. The effort and failure of this project is an important experience and reference for the conservation and regeneration of the traditional central axis, highlighting the special meaning of People's Park to the residents and revealing that residents lack the corresponding right to express themselves and thus

could only intervene in the project through public pressure. While the Municipal Government as the main body of the project had an obvious lack of research on different stakeholders, especially residents. This has led to the outbreak of people's dissatisfaction with the government-led regeneration project.

The following section will discuss another regeneration project of the traditional central axis, Haizhu Square, which reflects the characteristics of the traditional central axis preservation process and the importance of resident's opinions in this process.

4.8.2 Haizhu Square

Haizhu Square is located at the intersection of the traditional central axis of Guangzhou City and the Pearl River and is the waterfront square in Guangzhou. In 1953, the Guangzhou Municipal Government built Haizhu Square as the traffic square of Haizhu Bridge to connect the two sides of the Pearl River (Figure 66). In addition to being a traffic square and waterfront leisure square, Haizhu Square has become a commercial and cultural activity center to conduct foreign trade and to carry out cultural activities, etc. (Figure 67 shows Haizhu Square as a cultural trade center of Guangzhou). For a long period of time, Haizhu Square has been a famous foreign trade center as well as a major transportation hub in Guangzhou (Yuexiu District Construction Headquarters Office, 2021).



Figure.66 Haizhu Square, In 1958. Source: Guangzhou Municipal CPPCC Portal Network, access on 21.07.2022

Figure.67 Haizhu Square in the 1970s. There is the former site of the Canton Fair, Guangzhou Hotel and other buildings. Source: Guangzhou Municipal CPPCC Portal Network, access on 21.07.2022

Haizhu Square witnessed the bombing and rebuilding of Haizhu Bridge, the entry of the Chinese People's Liberation Army into the city, and other major historical events. To commemorate the 10th anniversary of the liberation of Guangzhou, the Guangzhou Municipal Government set up a statue in the center of Haizhu Square in 1959 (Yuexiu District Construction Headquarters Office, 2021). Afterward, Haizhu Square and the Liberation Memorial Statue were selected as the "Eight Views of Guangzhou City", which became the

cultural card of Guangzhou (Yuexiu District Construction Headquarters Office, 2021). Haizhu Square is not only a famous attraction, but also a well-known place of activity, always full of prosperity and bustle, and was the most popular leisure square in Guangzhou at that time. And as time passed, Haizhu Square, divided by traffic roads, was rated as the least popular Guangzhou landmark in the 2000s due to the difficulty of maintenance (avoiding enclosing main traffic roads) and the discontinuity and inaccessibility between the statue and the park (Zeng and Yuan, 2011).

As an important public space of the traditional central axis, Haizhu Square embodies a composite function: as an urban public space and an important transportation hub. And this has put Haizhu Square in an awkward position for a long time - the traffic function overwhelms its function as a public space, and the long-term enclosed construction of Haizhu Square is for the construction of road traffic facilities. For example, in 1999, Haizhu Square was fenced off due to the construction of the Haizhu Square Station of Metro Line 2. Although the original green environment was restored after the completion of the Metro Line 2 project, Haizhu Square was again walled off for the construction of Metro Line 6 in 2006, and the green environment was again severely damaged.

After seven years, Haizhu Square was finally opened to the public again. Unfortunately, at the end of 2012, due to the overhaul of Haizhu Bridge, as the traffic square connecting Haizhu Bridge, the eastern part of Haizhu Square was occupied as a construction site, and the fencing was removed gradually at the end of the project, until the end of 2015 when the site has completely removed and reopened to the public (Figure 68).



Figure.68 The construction site in 2015. Source: (Wei, 2018)

Since the 2006 metro construction project, Haizhu Square has been turned into a big construction site, and the once prosperous and lively area has become a memory. This long-

term enclosure has made it almost out of sight of the nearby residents, and the frequent construction period has made the local people feel quite dissatisfied (Zeng and Yuan, 2011). The following is the view of the residents living near Haizhu Plaza who were interviewed by *Nanfang Daily* reporters Zeng Ya and Yuan Ding on 1st September 2011 about Haizhu Square under construction for a long time:

"Haizhu Square has been enclosed since 2006, and the construction period has been delayed again and again. This is a public place, shouldn't the construction cycle take into account the views of the general public?" said Mr. Chen, who was watching people play chess in the square.

CPPCC member Han Zhipeng criticized: *"The long time of the construction of Haizhu Square is bound to have a negative impact on the life of residents and travelers. Either finish it in time or return the park to the people. Metro construction projects were originally intended for the convenience of the public, and now sacrificing the interests of the public for as long as five years for the sake of construction has, on balance, deviated from the purpose of public convenience."*

—(01.09.2011 Reported by Zeng and Yuan)

On 19th August 2013, a Guangzhou local media, the *Information Times*, commented that *"The long-term enclosure is not only destroying the Haizhu Square as a former Guangzhou landmark, but the common memories of Guangzhou people for Haizhu Square. It is not only the nearby residents who are affected, but also an irreplaceable history and an irreplaceable scenery of Guangzhou"* (Information Times, 2013).

Such a lengthy construction period is certainly due to the frequent launching of various infrastructure projects in Guangzhou city in the past decade or so (Wei and Xia, 2013), but also due to the difficulty of construction and the late start of construction. according to the response of the Guangzhou Metro, the construction schedule of Haizhu Square was postponed again and again due to land acquisition and relocation, and traffic diversion, which led to the disruption of the construction (Zeng and Yuan, 2011).

However, it is also indisputable that the construction management flaws led to the long period of fencing. The construction permit extension was issued by the Yuexiu District Municipal and Construction Bureau, but the department "did not supervise" the progress of the construction, according to the reporter of *Nanfang Daily* (Zeng and Yuan). In this regard,

some experts expressed their opinions in an interview with the Nanfang Daily on 1st September 2011:

Zhu Yongping said *"After the approval of the project, the construction department should take the responsibility of supervision. Haizhu Square was occupied for more than 5 years, this is the construction company's dereliction of duty, but also the approval and supervision department dereliction of duty, this situation should be given great importance."*

Han Zhipeng criticized *" the large-scale municipal projects should be detailed in the planning and legal system. If the construction planning had been done properly, and the government had coordinated all sections properly, and taken the opinions of many people, it would not have resulted in the present situation."* - 01.09.2011 reported by Zeng and Yuan

Faced with the fact that Haizhu Square was neglected as a public space, the Guangzhou Municipal Government carried out a new round of renewal of Haizhu Square in 2019 (Figure 69). This time, the regeneration project is based on the lessons learned by the Guangzhou Municipal Government from the previous long-term construction of Haizhu Square due to various factors, and takes the form of phased, sub-regional, small-scale short-term construction. The project was to optimize and enhance the activity space and historical sculptures of the square, to expand the public space and optimize the green environment in a micro-regeneration way, and to re-gift this public square, which lacked maintenance during the fifteen-year-long frequent engineering enclosures, with a new and important public space significance (Liang and Liu, 2019).

The improvement project mainly focuses on upgrading the spatial layout of the square and the historic building facade along the Pearl River, which can show the different architectural styles of Guangzhou, and take the Memorial Statue as the core, linking the surrounding historic buildings and connecting the traditional central axis and the Pearl River, reshaping a special place with historical memory and create an open civic waterfront cultural square (Liang and Liu, 2019). Figure 70 shows the scope of the project, from Qiyi Road to Haizhu Square, as well as buildings and waterfront spaces on both sides of the Pearl River.



Figure.69 Haizhu Square was once again enclosed in 2019. Source: China News, (2019)

Figure.70 Scope of the Haizhu Square and surrounding areas improvement project.
Source: (Guangzhou Daily, 2018)

Haizhu Square was fenced off again and still brings inconvenience to the residents: Stores near Haizhu Square were affected, some roads were blocked off, causing traffic jams and an unsafe walking environment for pedestrians. Some people also complained about this: *"Why did the previous construction not consider the long-term planning?"* People who work near Haizhu Square said. *"Why is construction going on again? These roads were paved a few years ago, and now they're being dug up again. It's not that I don't support the government to carry out this project, but I think it's a bit of a waste."* A newsstand owner lamented (Nanfang Daily, 2019).

At the end of September 2019, the environmental improvement project (Phase I) around Haizhu Plaza was completed. Although the new round of construction has annoyed residents as well as the noise pollution from the construction affecting the resident's quality of life, the project finally received quite satisfied feedback from the residents (Nanfang Daily, 2019), with the shortened construction time, the optimization of public space and the protection of historic sculptures being the main reason of satisfaction. Figure 71 shows the aerial view of Haizhu Square after regeneration, which widens the sidewalk by increasing the pavement area to optimize the walking space and walking experience.



Figure.71 Haizhu Square after regeneration in 2019. Source(Nanfang Daily, 2019)

High frequency is the characteristic of various transportation facilities construction projects that Haizhu Square has experienced since the twenty-first century. The frequent and long construction duration is a characteristic of Guangzhou's urban renewal before 2015, where the government-led renewal project lacked relatively long-term and comprehensive planning. And the improper project management and construction supervision resulted in a prolonged construction time, while the lack of opinions from various stakeholders such as residents, merchants, commuters, etc., also contributed to the public's extreme dissatisfaction with the project.

After 2019, the Guangzhou Municipal Government adopted a micro-regeneration approach with a short period for the renewal of Haizhu Square, minimizing the impact on the surrounding environment and resident's lives, and listening to the views of them. This reflects that resident's voices are given a certain degree of importance in the process of traditional central axis conservation and regeneration. Such characteristics are also reflected in other conservation and regeneration projects of the traditional central axis.

4.9 Conclusion

The two conservation and regeneration projects analyzed above both reflect the characteristic of conservation projects of the Traditional Central Axis Historic Conservation Area, as well as some drawbacks. The first characteristic is the importance of government-led planning, the organization, initiation and guidance of the projects being based on the *"Master Plan for the Protection of the Traditional Central Axis Historic Conservation Area"* issued by the Guangzhou Municipal Government. Secondly, both projects are based on the principle of micro-regeneration, which is conducted in phases, each phase take place on a small scale and in a short period, and with resident's opinions being considered in revising the project plan between phases. This "micro-regeneration" approach, as a new stage of

urban renewal, is a breakthrough from the original model of large-scale redevelopment, in which only the government and real estate developers take the lead and attempts to promote urban renewal more democratically than before.

However, both projects reflect the shortcomings and inadequacies of current conservation planning. First, In the landscape optimization and enhancement project of People's Park, although People's Park was announced by the Guangzhou Municipal Government as a Protected Historic Site, only some single architectures and structures rated as historical relics were protected during the construction period, lacking the protection of the whole park. As Chen Yuhuan states that the park is composed of many elements, including the spatial layout, important buildings and structures, and plants, all of which have a certain historical value and should be the object of protection (He and Fang, 2021a). In addition, the corresponding value assessment and current status assessment were missing before the project proposal was developed, and the entire park was not considered entirely, which led to the extensive sparse lawn and also caused public dissatisfaction.

Secondly, there is a lack of communication with various stakeholders, and there are not enough diverse communication channels provided in the project. The current preliminary planning of the project is led by the government, experts and engineers, who organize the outline of the project and the main objectives of each phase, while the public participation is mainly in the feedback session at the later stage of the project, which leads to most of the public participation in the form of negative feedback on the project (e.g. People's Park and Haizhu Square), which eventually leads to frequent and extended renovation of the project, and thus affect the quality of life of the residents and reduce their expectations and support for the project.

Haizhu Square and People's Park are important public spaces for the traditional central axis and even for the whole of Guangzhou City. These projects adopted an approach of micro-regeneration that is following the urban development requirements of Guangzhou and begins to consider the resident's concern and importance for the conservation and regeneration of these historic sites. Although there are still considerable drawbacks in these projects, the integration of residents' opinions in urban renewal can be an optimized approach compared to traditional urban renewal. Therefore, these two projects have a very typical research significance, i.e., the impact of the current frequency of the conservation

and regeneration project of the traditional central axis on residents, and whether they agree with this renewal method in the process of continuous renewal and if they can coexist with it regularly.

Chapter 5 Analysis of Questionnaire and Interviews

5.1 Introduction

This chapter focuses on the analysis of the surveys and the semi-structured interviews based on the above study of the current situation of the traditional central axis and the field observation (the details of the questionnaire and interviews can be referred to in appendix 1). This chapter uses SPSS 2.0 software to statistically analyze the data from the questionnaire and interviews and provides an analysis and interpretation of the research results.

5.2 Data analysis of surveys

5.2.1 Analysis of respondents' structure

The questionnaire was distributed via the online questionnaire platform, and 203 valid questionnaires were collected.

Figures 72 to 74 show the structure of the respondents of this survey. Because most of the respondents in the survey are acquaintance of mine, the age ratio of the chart shows a large range of ages. Approximately 54% of the participants in the survey are 40 or older, and about 40% are 18 to 30 years old (Figure 72). The ratio of male to female is 3:1.

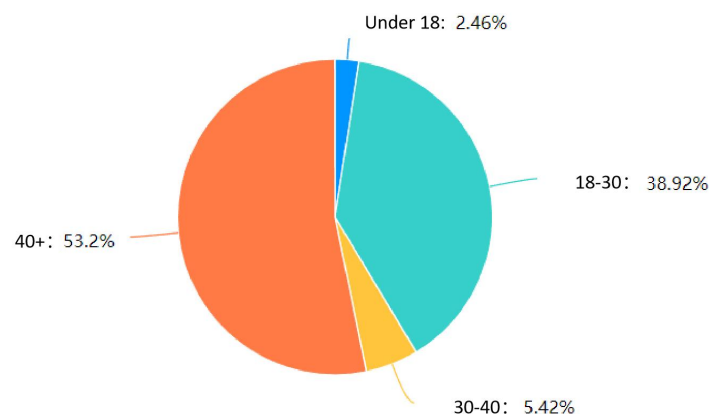


Figure.72 Age structure of the respondents. Source: Wenyi Liang, 2022

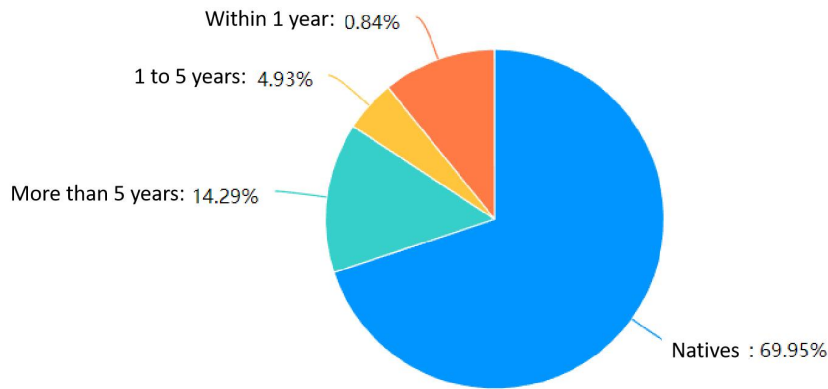


Figure.73 The Length of time the respondents have lived in Guangzhou. Source: Wenyi Liang, 2022

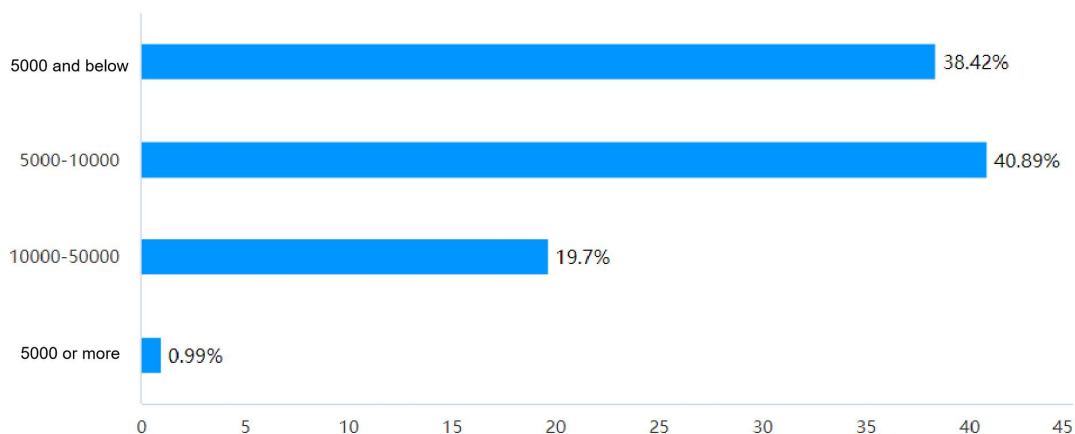


Figure.74 Monthly income of the respondents. Source: Wenyi Liang, 2022

Figure 73 shows that 70% are natives, so over 85% of respondents have stayed in Guangzhou for more than 5 years. In addition, 75% of them have experience living in the Yuexiu District. There is a relatively stable income and long-term residents in the survey (see figure 74), so the results of the survey are more realistic and universal. Since the survey mainly focuses on collecting information about the opinions of local people, the findings have some reference value for the research questions - public perception of the traditional central axis and the impact of the regeneration and conservation of the traditional central axis on the residents.

5.2.2 Analysis of results

By collecting information in the form of questionnaires about people's knowledge of the traditional central axis and their concern for its conservation and regeneration, the analysis focused on the following three dimensions.

- **The degree of people's knowledge about the traditional central axis**

As shown in figure 75, most of the people have heard of the traditional central axis (about 90%), among them, about 31% have some knowledge of the traditional central axis. Figure 76 shows that 57.7% of people know more than two attractions on the traditional central axis, especially 19.78% do know more than 4 attractions.

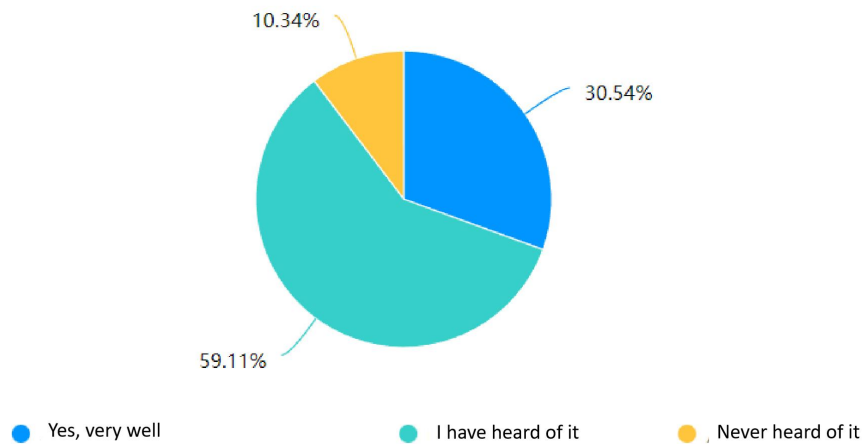


Figure.75 The extent of people knows about the traditional central axis. Source: Wenyi Liang, 2022

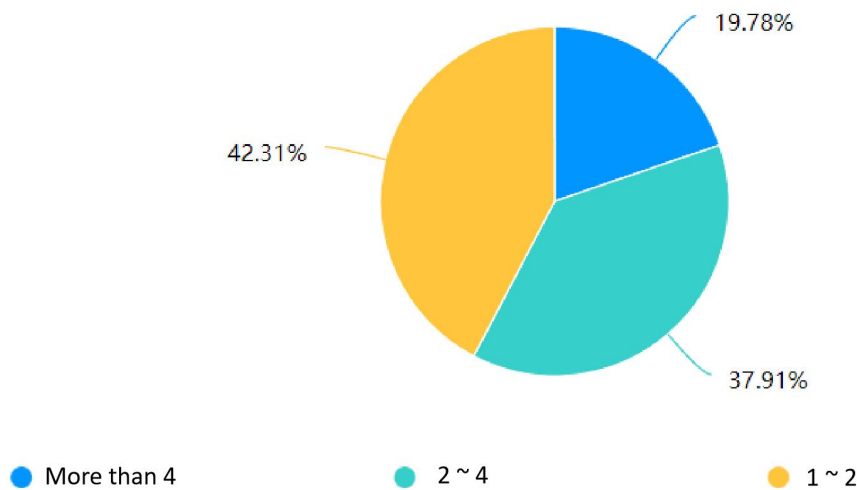


Figure.76 The number of attractions of the traditional central axis that people know.
Source: Wenyi Liang, 2022

As shown in figure 77, most people know the important landmarks or public spaces along the traditional central axis, and their perception of the traditional central axis space mainly relies on some important landmarks, such as Sun Yat-sen Memorial Hall, Municipal Government Mansion, Haizhu Bridge, as well as some public spaces like People's Park, Yuexiu Park (Zhenhai Tower and Sun Yat-sen Monument), Haizhu Square, etc. Secondly, there are answers other than landmarks and nodes, such as Qiyi Road, Gaodi Street. It is

interesting to note that a significant number of people know of attractions that are actually not part of the traditional central axis and its neighborhoods, such as the ancient central axis (Beijing Road and its landmarks), the Chen Family Ancestral Hall that is a Protected Historic Site out of Yuexiu District, and some landmarks of Zhujiang New Town axis such as the Canton Tower and Haixinsha.



Figure.77 The number of attractions of traditional central axis that people know. Author: Wenyi Liang, 2022

On the question “How often do you visit the traditional central axis and its attractions”, 65.52% would visit the central axis area several times a year, 15.57% visit the central axis area several times a month, while 12.32% of them visit the central axis more frequently (several times a week).

Overall, a large proportion of residents have a certain degree but not comprehensive knowledge of the traditional central axis, and they visit the central axis area relatively infrequently.

- **Overall evaluation of the traditional central axis**

According to the result (Figure 78), 65.02% of people have a good impression of the visual space of the traditional central axis, and the proportion of those who had a general impression of the traditional central axis was 33.5%, while only 1.48% had a poor impression of the traditional central axis.

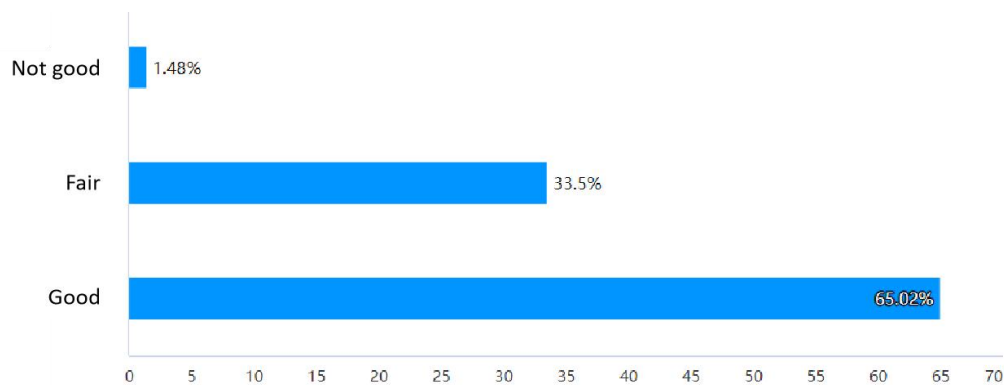


Figure.78 People's Impression of the Traditional Central Axis. Source: Wenyi Liang, 2022

As for the degree to which they identify with the traditional central axis (Figure 79), 49.75% of respondents claim that they have a high degree of the identity with the traditional central axis. Most of them thought the traditional central axis and its landmarks represent the history and culture of Guangzhou. And some of them believed it preserve the memories and sentiments of the Guangzhou people, and it brings a sense of belonging. Moreover, the proportion of those who have an average sense of identity was 42.36%, some of them expressed their opinions, such as insufficient promotion of the traditional central axis, each attractions on the traditional central axis being relatively separate, and a lack of overall promotion, making it difficult to link them together, etc. Only a small number of people have a low identification with the traditional central axis (7.88%), mainly due to their unfamiliarity with the traditional central axis.

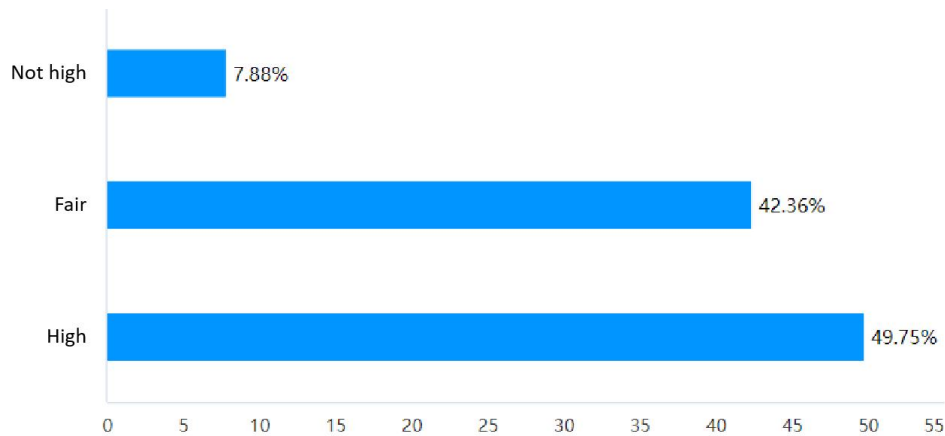


Figure.79 Result of the sense of identity with the traditional central axis. Source: Wenyi Liang, 2022

In the evaluation of the traditional central axis, a total of 91.62% of the residents agreed with the view that "the traditional central axis of Guangzhou has more attractive now" (of which, 21.67% agreed, 17.24% relatively agreed, and 52.71% strongly agreed). Also, almost 99% of the residents agreed with the view that "the traditional central axis represents Guangzhou's cultural business card", and only 1.5% disagreed.

In general, residents have a positive overall evaluation of the traditional central axis, and most of them have a good impression of the traditional central axis space, although some of them have a relatively low sense of identity with the traditional central axis.

- **The degree of people's attention to the conservation and regeneration project of the traditional central axis**

Compared with the degree of understanding and evaluation of the traditional central axis itself, there is a clear gap in the concern for its conservation and regeneration.

According to figure 80, 34% of the respondents know about the conservation plan of the traditional central axis, 42.86% have only heard about it, and the rest do not know anything about it (23.15%). Among the above-mentioned people who know about "Conservation Plan", more than 70% of them know about the ongoing traditional central axis regeneration projects, such as the People's Park Landscape Optimization and Enhancement Project (72.44%), the Haizhu Square and Its Surrounding Quality Improvement Project (80.77%), and the Conservation and Utilization Plan of Qilou Buildings (Qiyi Road and Xihu Road) (73.08%).

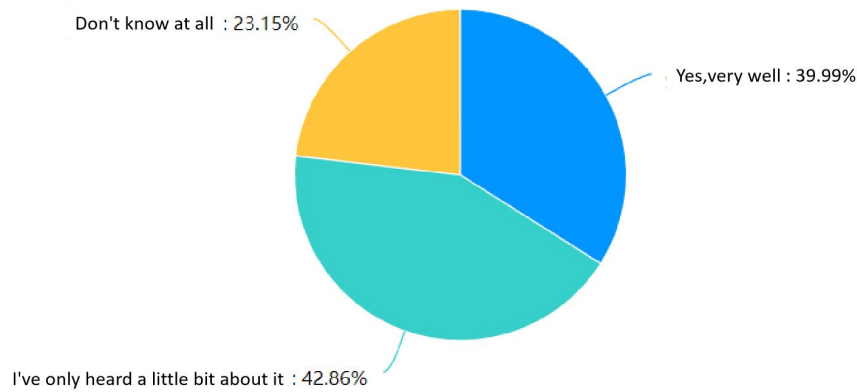


Figure.80 The extent of people knows about the conservation plan for the traditional central axis.
Source: Wenyi Liang, 2022

Moreover, more than 90% of the respondents agreed with the idea of "adopting micro-regeneration as a renewal method in the conservation plan of the traditional central axis"(Figure 81). Most of them believe that the “micro-regeneration” can renovate the old buildings and sites as they were and inherit the culture and history without destroying the original layout and structure. They also said that the innovation of “micro-regeneration” lies in the small scale and short duration, which can reduce the impact on the building and the surrounding environment. Some also believe that “micro-regeneration” can enhance the attractiveness of the traditional central axis, improve the historical value and the surrounding environment, so attract more tourists and thus generate economic benefits, and benefit the surrounding residents as well. Less than 10% disagreed, believing that “micro-regeneration” might lead to homogenization and commercialization of local culture.

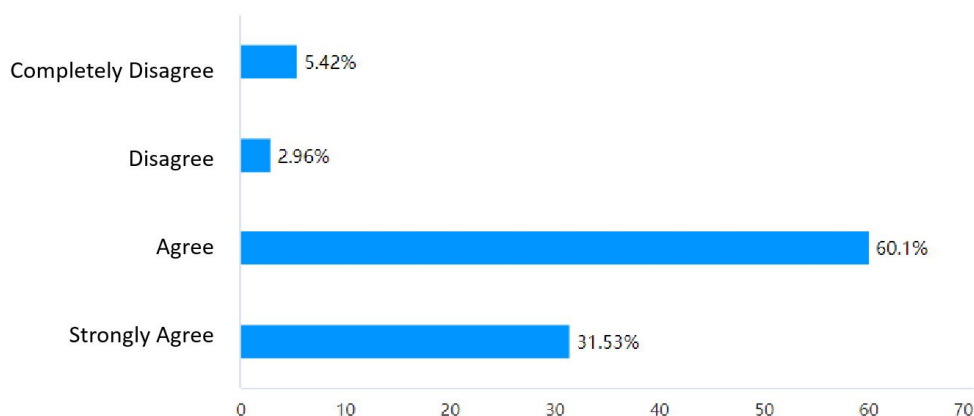


Figure.81 Views on the adoption of «micro-regeneration” for the conservation of traditional central axis.
Source: Wenyi Liang, 2022

In terms of the impact of the regeneration project on people’s lives (Figure 82). Approximately 34% of people think that the project has a significant positive impact on daily

life. People mainly believe that the regeneration projects will enhance the quality of life in Guangzhou, further enhance the sense of pride with Guangzhou and the sense of identity with the central axis, and more importantly, it will preserve and inherit the local culture of Guangzhou. Certainly, there are also negative impacts. 50.25% of them think that it has a moderate impact, people consider that the projects will affect the life of the surrounding residents, such as construction noise, traffic congestion bringing inconvenience to people, and the slightly longer constriction period.

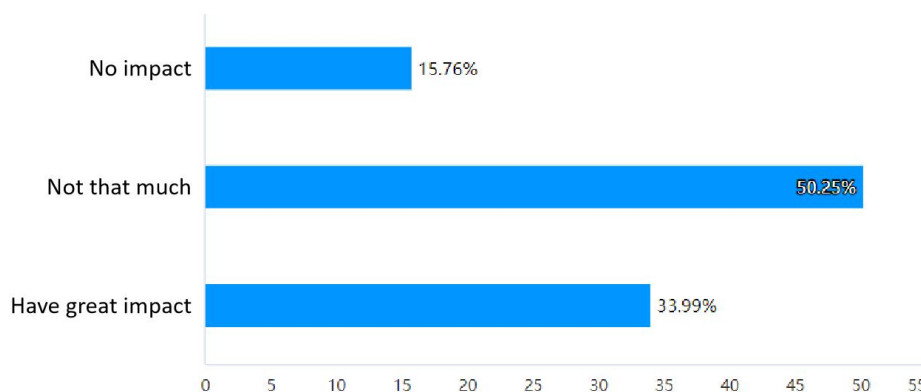


Figure.82 The impact of the regeneration project of the traditional central axis on people.
Source: Wenyi Liang, 2022

In addition, More than 95% of people agreed with the point "Do you think the current regeneration of the traditional central axis is suitable to be extended to the neighborhood where you live?" Also, 97% of people believe that "the current conservation and regeneration projects of the traditional central axis are very important for the conservation of other historic and cultural districts". Only 3% of residents disapproved of this view.

Although the residents are slightly concerned about the conservation and regeneration of the traditional central axis. After reading the interpretation about the traditional central axis and its conservation and regeneration projects, the respondents' evaluation of the project is relatively high. In addition, a large majority of residents stated that the project had a positive impact on their lives. In contrast, only a minority felt that the project would have a negative impact.

5.2.3 Correlation analysis

This section analyzes the correlation between the results of each question in the second and third part of the questionnaire based on the Pearson correlation coefficient, and considers

the two data with the Pearson coefficient greater than plus or minus 0.4 and less than plus or minus 1 as having strong correlation (Zhang and Xu, 2020), and conducts cross-tabulation analysis on them to draw valuable conclusions for the research.

According to the results calculated by SPSS 2.0, the following data have strong correlations with each other.

First of all, we can observe from table 3, there is a positive correlation between question 10 and question 9, and the Pearson coefficient between them is 0.512, which indicates a strong correlation between them.

Table. 3 Pearson correlation coefficient comparison (Source: SPSS 2.0)

	Q10: Do you have a strong sense of identity with the traditional central axis?	
	Pearson s t d	sig.
Q9: How is your impression of the axis space of the traditional central axis of Guangzhou?	0.512	0.00

In addition, four correlation coefficients related to the degree of people's knowledge about the central axis were obtained in these results (Table 4). There are correlations among question 6 "To what extent do you know the traditional central axis of Guangzhou?" question 7 "How many attractions on the traditional central axis can you identify?" question and 8 "How often do you visit the traditional central axis and its historical sites? " and question 10 "Do you have a strong sense of identity with the traditional central axis?" and question 11 "To what extent do you know about the conservation and regeneration project of the traditional central axis?"

The value of the correlation coefficient between question 6 and question 7 is 0.570, thus indicating a strong correlation between them. The correlation coefficient between question 6 and question 8 is 0.568, reflecting the importance of "the extent of people know about the traditional central axis" on "frequency of visiting the traditional central axis". The Pearson correlation between question 6 and question 11 is 0.447, which implies that "the extent of people know about the traditional central axis" has a certain influence on the "the extent of people know about the conservation and regeneration project of the traditional central axis". The Pearson correlation between question 5 and question 10 is 0.410, which shows a strong correlation.

Table. 4 Pearson correlation coefficient comparison (Source: SPSS 2.0)

	Q6: To what extent do you know the traditional central axis of Guangzhou?	
	Pearson s t d	sig.
Q8: How often do you visit the traditional central axis and its historical sites?	0.568	0.00
Q7: How many attractions on the traditional central axis can you identify?	0.570	0.00
Q10: Do you have a strong sense of identity with the traditional central axis?	0.410	0.00
Q11: To what extent do you know about the conservation and regeneration project of the traditional central axis?	0.447	0.00

5.2.4 Cross-tabulation analysis

Based on the correlation analysis above, a cross-tabulation analysis was conducted on several sets of data with relatively strong correlations, producing several meaningful analytical results.

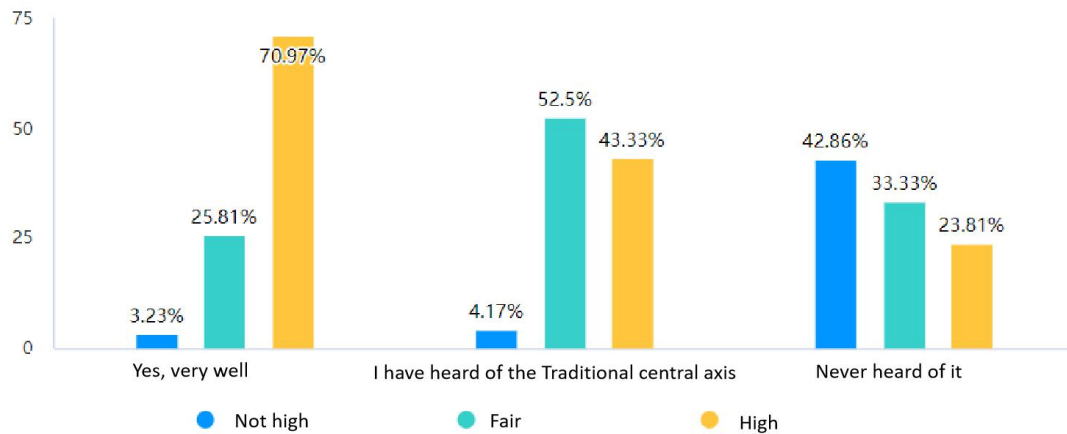


Figure.83 Cross analysis of the data of questions 6 and 10. Source: Wenyi Liang, 2022

In figure 83 we can see that the more people know about the traditional central axis of Guangzhou, the more likely they have a greater sense of identity with it. On the contrary, the lower sense of identity mainly comes from those who do not know enough about the traditional central axis.

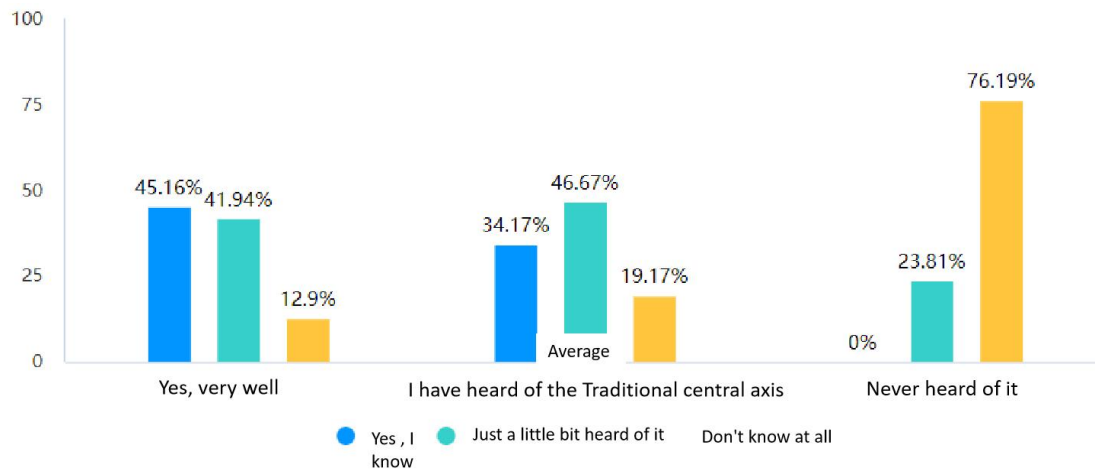


Figure.84 Cross analysis of the data of questions 6 and 11. Source: Wenyi Liang, 2022

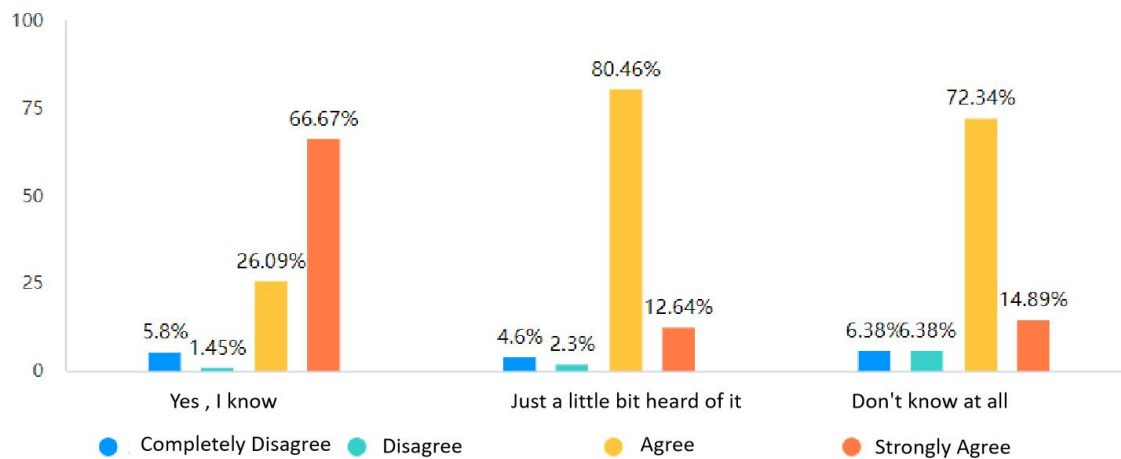


Figure.85 Cross analysis of the data of questions 11 and 13. Source: Wenyi Liang, 2022

In figure 84, the greatest concern about the conservation and regeneration project of the central axis is among those who are familiar with the central axis, but less than half of them (about 45%) are concerned about the project, which shows the poor attention of the respondents to the project. In addition, figure 85 shows the evaluation of the project by varying familiarity. Since the respondents have little knowledge of the project, most of them have no objection to the adoption of “micro-regeneration”.

5.2.5 Findings

There were some issues with the questionnaire, mainly regarding the traditional central axis when identifying the location when completing the questionnaire. Some people asked about the specific area of the traditional central axis to confirm again despite the hints about it at the beginning of the questionnaire.

- Conclusion

Based on the analysis of the questionnaire results above, the following points can be summarized.

(1) Although people have a generally good impression of the visual space of the traditional central axis, a strong sense of identity as well as a relatively high evaluation of it, the relative lack of knowledge about the traditional central axis reflects the phenomenon that the traditional central axis is not well recognized by people and the lack of people's perception of the axis space.

(2) The results of the surveys show that the residents are not paying much attention to the conservation and regeneration of the traditional central axis, and more than half of them do not know or are completely unaware of the conservation plan. But the public's reaction to the conservation plan is positive.

(3) People are in favor of the regeneration project of the traditional central axis and the adoption of "micro-regeneration". Also, the project has a considerable positive impact on people's lives.

5.3 Data analysis of interview

The purpose of this interview is to further understand the resident's perception of the traditional central axis space and their views on its conservation and renewal project based on the analysis results of the questionnaire. The interview was conducted in the form of an online call via the internet. The interviewees were mainly divided into two groups, the first group consist of four residents A, B, C, and D, and the second group is two people who are engaged in urban and rural planning (C and D). The interview would ask targeted semi-structured questions according to the type of interviewees (the interview can be referred to in Appendix 1).

5.3.1 Interviewee Analysis

The first group of interviewees was selected through the completion of the surveys above. The interviewees are all local people with experience of living in Yuexiu District, especially living near the Traditional Central Axis Historic Conservation Area and have some knowledge of Guangzhou's history. The age distribution of the respondents was more even, between 20

to 60 years old.

The second group of interviewees comes from the urban planning field. These are my friends at university and have some knowledge of urban renewal in Guangzhou. Interviewee C has participated in the regeneration project of Dongshan Road in Guangzhou, so she has experience and knowledge of “micro regeneration”. The selection of the above interviewees makes the interview reliable and valuable.

5.3.2 Analysis of results

- Results of the first group

First, there are differences in the resident's perceptions of the traditional central axis space, as shown in figure 86, where the four interviewees live, and their perceptions of the traditional central axis are marked on the diagram. Resident A believes that the axis space is the ancient central axis, namely Beijing Road. Resident B perceives that there are four locations spatially forming the traditional central axis. Resident C points out that the area formed by Zhenhai Building, Sculpture of Five Rams and Sun Yat-sen Monument in Yuexiu Mountain is the traditional central axis. Resident D assumes that the space between Yuexiu Mountain and Central Park is the central axis.

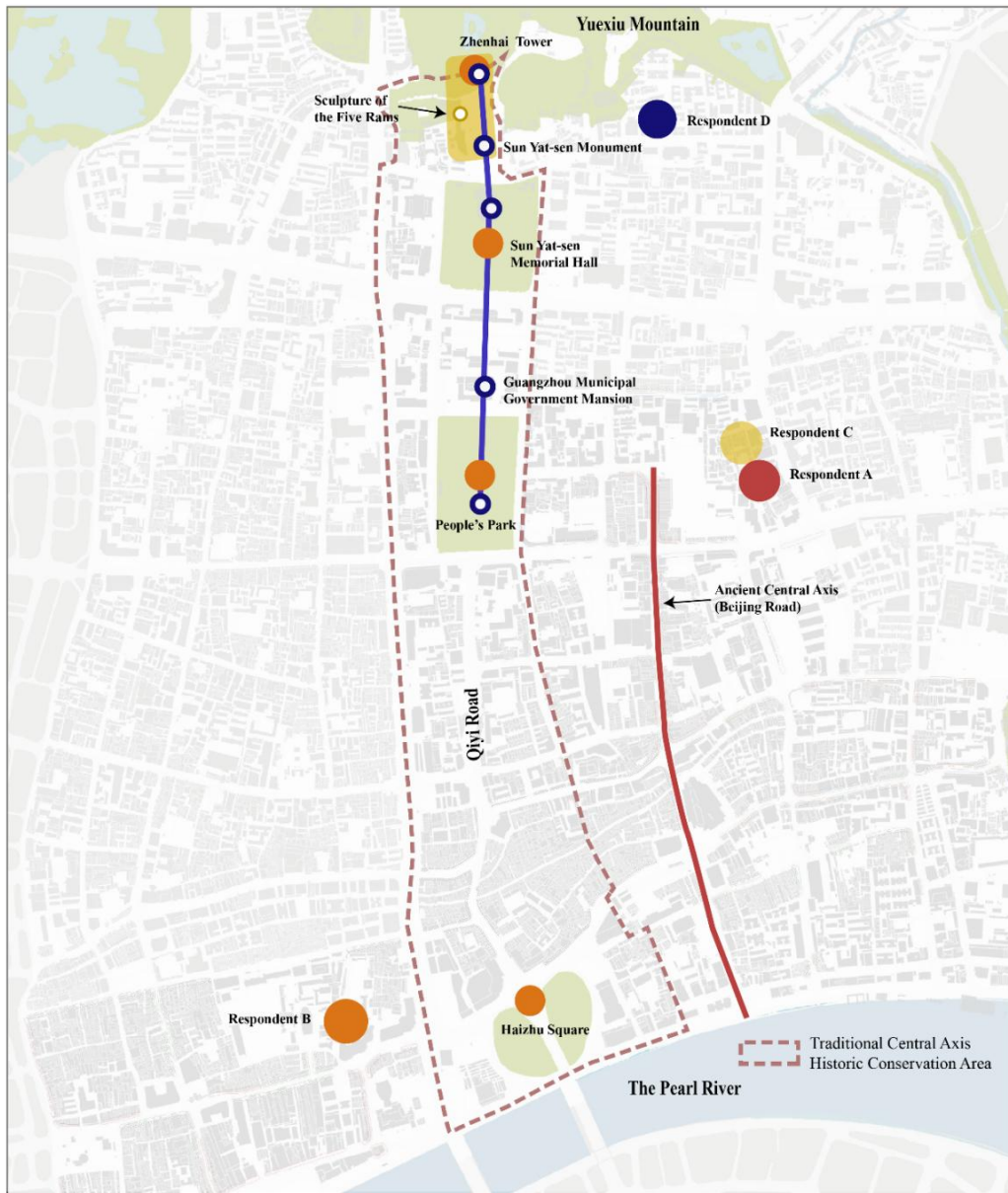


Figure.86 Diagram of the traditional central axis defined by the interviewees (The dots indicate the location where the respondent lives, and the shapes in the corresponding colors on the diagram represent the traditional central axis defined by the respondent). Author: Wenyi Liang, 2022

It is clear that resident's definition of the axis space is not the same as the official definition. This difference in perception is due to the influence of the respondents' recognition and living environment, which is reflected in the diagram. In the diagram, the central axis space they perceived is close to where they live. The diagram also highlights the discontinuous feature of the traditional central axis space from the resident's perspective. The resident's perception depends heavily on the important landmarks and the continuous space connecting these landmarks, which determines their first impression of the traditional central axis, while the discontinuity between these landmarks blocks resident's overall

perception of the continuous traditional central axis space.

Regarding the overall impression of the central axis, the interviewees all stated that the big banyan trees, Qilou building complex and the mosaic streets along the central axis are important elements that make up the traditional central axis, and these represent Guangzhou people's memories of the old city, as well as symbolic elements of the traditional central axis that they perceive in the context of their living environment.

In addition, they have a good impression of the central axis space, but suggest that the dissemination of the overall image of the traditional central axis is not strong enough, because the traditional central axis is an important channel for outsiders to understand the traditional culture and history of Guangzhou. The discontinuity in the perception of the central axis space also proves that the traditional central axis space still remains largely within the scope of the resident's spontaneous perception.

In addition, regarding the implementation of the regeneration project, they acknowledge the effect of the regeneration of the central axis space and understand the difficulties of the regeneration process, and generally have a positive attitude. For example, the renovation of building facades and the landscape enhancement of public spaces have largely improved the living environment. And they think it can better demonstrate the charm of the traditional central axis as a cultural business card.

In addition to some positive comments, there exists some dissatisfaction with the project, especially for its frequency, which directly affects the resident's quality of life, thus indirectly reducing their expectations and support for other conservation projects of the traditional central axis. Furthermore, Resident A said that although the quality improvement project of Haizhu Square has optimized the walking system and improved the walking experience and safety, it has reduced the driving experience in this section of the road for drivers. It reveals that the current project has not been able to fully consider the interests of all stakeholders.

- Results of the second group

In the interview with the second group, they believe that there are some drawbacks in the current projects using the micro-regeneration approach, although the purpose of the conservation of the traditional central axis is to preserve the traditional culture and the history, and to better promote the culture of Guangzhou. However, to some extent, it does

not achieve a real sense of preservation, ignoring some important urban elements such as trees and the environment. The People's Park Landscape Optimization and Enhancement Project is an example.

In addition, they argue that the micro-regeneration at present does not conform to the literal interpretation and does not really achieve the replacement of building functions. And that the areas after regeneration do not show the traditional central axis space in the impression of the locals, and that such regeneration is simply to repair the old as it was, to protect the historical elements reflected in appearance, which in turn leads to the loss of cultural features. Such as the uniform painting of the facade of the continuous Qilou buildings on Qiyi Road, which might cause damage to the original appearance, and result in covering the architectural features of the Qilou Building from different periods. Most importantly, interviewee D points out that preservation of history and culture is not about to create landscapes, but about to present the essence of history in a better way.

For the conservation projects of the traditional central axis, interviewee C suggests that it is a good way to carry out the delineation of the planning and protection elements with thorough research and public consultation on the local culture of local neighborhoods, and rather than being mechanized only through rational analysis and regulated provisions. If the focus is on preserving history and culture, these areas can be regenerated on a small scale, with emphasis on maintenance and improvement of the environment. In addition, public awareness of the traditional central axis might be increased by setting up tourist routes or signs, etc., and to enrich the spatial and visual experience of pedestrians.

5.4 Findings of the Survey and Interviews

Based on the above analysis of the survey and interview, the following findings have been drawn:

1. It is clear that people generally have a low perception of the traditional central axis, and there is an obvious ambiguity in their understanding, especially the proper location of nodes of the central axis from the South to the North.
2. Residents' spatial perception of the central axis reflects a discontinuity, and their perception is mainly composed of their knowledge of the surrounding environment and important landmarks.

3. The degree of knowing and paying attention to the traditional central axis is not enough, and the history and cultural value of the traditional central axis are not fully recognized by people. Due to the lack of comprehensive publicity of the traditional central axis, the overall image of the central axis is incomplete in the public.

4. At present, there is not a strong degree of public attention and participation in the traditional central axis conservation and regeneration projects.

Chapter 6 Conclusion

This research explores the development and existing problems of the traditional central axis under a specific context. Taking the traditional central axis in Guangzhou, China as the research focus, the research focus on studying the interaction between resident's perceptions and the conservation and regeneration of the traditional central axis by examining its formation and evolution, its current situation and the challenges faced in the current urban renewal context, through field observation and online surveys and interviews based on resident's perspectives in turn.

6.1 Conclusion

This research analyzes the current state of the traditional central axis and summarizes some characteristics and problems of the axis space.

(1) Disorder with the spatial layout of the axis

At present, the abundant natural and historical resources on the traditional central axis combine to form a spatial pattern reflecting the “Shan-Shui City”, but due to the lack of internal spatial connection, it is difficult for the public to perceive the spatial layout of the “Shan-Shui City”. Moreover, the axis space of the section of Qiyi Road is not easily perceived, the southern section is narrow and flanked by crowded small stores. Also, The high-rise buildings have encroached on the space of traditional streets and alleys, interfering with the connection between the important nodes on the traditional central axis.

(2) Discontinuous landscape of the axis space

The landscape of the traditional central axis does not form a clearly perceptible space. The spatial image of the northern end of the axis as the starting point is not prominent enough, and the emergence of modern architecture has enclosed the visual connection of the landscape (Yuexiu Park, People’s Park, etc.) within the axis space, leading to the spatial separation of the landscape. The open space of Qiyi Road in the southern section of the axis is insufficient, lacking proper activity space and visual guidance of the axis space by iconic attractions along the axis, leading to the public's blurred perception of part of the axis space.

(3) Discontinuity of traffic organization of the axis space

The transportation of the traditional central axis is relatively complex, with a high traffic volume and prone to traffic jams. Although the public transportation system is well developed to improve accessibility, it lacks attention to the pedestrian system. From the starting point at the north to the south, the important nodes along the axis are blocked by an east-west main road, making it difficult to have a continuous impression of the axis space from north to south on foot or by car, which largely weakens the spatial connection within the traditional central axis.

The results of the survey show that the apparent discontinuity of the traditional central axis space is one of the reasons for the resident's blurred perception of the traditional central axis space.

According to online surveys and interviews with residents, there is a clear ambiguity in the identification of the traditional central axis. Residents can not identify the specific location of the axis and mix-ups between the traditional and the new central axis. Residents generally expressed that the axis space is lacking in overall promotion, especially the lack of visual connection between the nodes and landmarks, which makes the axis space difficult to identify. In addition, residents believe that Qiyi Road, as an important part of the traditional central axis, lacks attractiveness and spatial vitality compared with other important landmarks, and its surrounding is rather depressing.

In addition, this study shows that resident's perceptions of the traditional central axis are limited by their living environment, which results in a discontinuous perception of axis space and further reduces the identifiability of continuous axis space. In surveys and interviews about the definition of the traditional central axis space, residents usually use identifiable elements such as landmarks and nodes or their living environment to describe what they perceive as the axis space, thus constituting their basic perception of the traditional central axis space, i.e. the continuous living space they are familiar with is supplemented by identifiable discontinuous landmarks to form the discontinuous axis space.

The introduction of public participation mechanisms in the process of traditional central axis conservation and regeneration can make the renewal projects more participatory and manifest respect for people, but the definition of the traditional central axis space is generally defined by the municipal government from the perspective of a larger-scale continuous axis space, which is contrary to the axis space perceived by residents as

consisting of their environment and landmarks.

For example, in the People's Park Landscape Optimization and Enhancement Project, People's Park is an important node of the traditional central axis, and the Guangzhou Municipal Government's regeneration of it focuses on improving the openness and visual permeability of People's Park to highlight the spatial image of the whole central axis, placing more emphasis on the significance of the axis and the protection of the historic architecture within the park. However, this contradicts the resident's perception of the park as a green environment made up of banyan trees and other ancient plants, leading to the opposition of the residents to the project. This contradiction has been a part of the interaction between the residents and the government-led regeneration project in the process of "micro-regeneration" of the traditional central axis.

Public participation in the conservation and regeneration of the traditional central axis is mainly concentrated in the post-project evaluation stage, due to the lack of public disclosure of government information during the pre-project and construction stages, resulting in mostly negative feedback from residents, and leading to a series of problems such as high frequency of renovation and continuous destruction of traditional landscape. The urban renewal project of the Hackesche Höfe in Berlin, Germany, has a worthwhile experience on this issue.

In the late 1990s, a series of micro-renewal took place in the Hackesche Höfe, with public participation throughout the process. The "Die Gesellschaft Hackesche Höfe." (Hackesche Neighborhood Association), a civic organization formed by the tenants of the time, played a major role in the renewal process (Jiang, 2012). During the process, workshops, preparations and planning for the renewal of the Hackesche Höfe were carried out, and the concrete plans were publicized and discussed (Schubert, 1993). This allowed the community to be involved in all phases of the project permanently, giving residents access to much of the public information about the project, fostering their general awareness of the renovated area of the project, and allowing the project to be more responsive to the needs of the residents during the pre-planning phase, ultimately allowing for more effective interaction between the residents and the project team.

In contrast to the limited participation of residents in the conservation and regeneration of Guangzhou's traditional central axis and the insufficient promotion of the axis by the

Guangzhou Municipal Government, the example of Hackesche Höfe in Germany provides a more vital experience of public participation. As the largest historic conservation area with a total area of 130.42 hectares among the 23 historic conservation areas in Guangzhou, the Traditional Central Axis Historic Conservation Areas have a high population density with a resident population of 35,000 (Yuexiu District Branch Office of Guangzhou Municipal Planning and Natural Resource Bureau, 2016), there is a certain degree of difficulty to involve all public participate in the conservation and regeneration of the traditional central axis. Although there is still a lack of various ways for public participation in the conservation and regeneration of the traditional central axis in Guangzhou, it is the first attempt to adapt a government-led, rather than a property developer-led approach to incorporating public participation in its regeneration project, and the effort is visible in the gradual increase in the percentage of public input and the gradual revision of the project in response to public feedback.

6.2 Limitation

Because the research case has a long history, most of its development and changes about the central axis can only be studied with the help of limited literature and books, and for the analysis of the current state of conservation and regeneration, only newspapers and limited official documents can be consulted. Also, my lack of knowledge in urban renewal and historical and cultural heritage conservation, and the secondary data on the study of the traditional central axis in Guangzhou might be outdated, these may have some influence on the results of the analysis.

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APPENDIX

Appendix 1

Questionnaire

Hi! I am a master student from the University of Grenoble Alpes in France, and I am conducting a survey which constitutes a major part of my research project. Subsequently, I am going to ask you a few questions based on the situation of the Guangzhou Traditional Central Axis. I sincerely hope that you can spend a few minutes on this survey, and I would definitely value your opinions! Your identity and answers are absolutely confidential!

Hints:

The traditional central axis of Guangzhou is ""Yuexiu Mountain - Sun Yat-sen Memorial Hall - Guangzhou Municipal People's Government Office Building - People's Park - Qiyi Road - Haizhu Bridge (Haizhu Square)".

In 2021, Guangzhou Municipal Planning and Natural Resources Bureau, issued the "Revised Plan for the Conservation of Guangzhou Traditional Central Axis Historic Conservation Area (2021-2035)" which emphasizes the protection of historic buildings and protected historic site at all levels in the Traditional Central Axis Historic Conservation Area by micro-regeneration. At present, a new round of conservation and renewal projects for the traditional central axis are being implemented.

"Micro-regeneration" refers to the renewal mode implemented through partial restoration and demolition, replacement of building functions, preservation and repair, as well as improvement, protection and revitalization of infrastructure («*Guangzhou Urban Renewal Measures*", 2016).

Q1: Your age

A: Under 18 years old

B: 18-30 years old

C: 31 - 40 years old

D: 40 years old or above

Q2: Your gender

A: Male

B: Female

Q3: How long have you lived in Guangzhou?

A: Natives

B: More than 5 years

C: 1 to 5 years

D: Within one year

Q4: Have you ever lived in the old city (Yuexiu District)?

A: Yes, I have

B: No,I haven't

Q5: Your monthly income is

A: 5000 and below

B: 5000-10000

C: 10000-50000

D: 50000 or more

Q6: To what extent do you know the traditional central axis of Guangzhou?

A: Very well

B: I have heard of the Traditional central axis

C: Never heard of it

Q7: How many attractions on the traditional central axis can you identify?

A: more than 4, _____.

B: 2 to 4, _____.

C: 1 to 2, _____.

(Please fill in the blank.)

Q8: How often do you visit the traditional central axis and its historical sites?

A: More than once a week

B: Couple of times a month

C: Couple of times a year

D: Never

Q9: How is your impression of the traditional central axis space?

A: Good

B: Fair

C: Not good

Q10: Do you have a strong sense of identity with the traditional central axis (e.g. sense of belonging)?

A: Not high, _____.

B: Fair, _____.

C: High, _____.

(Give more details if you wish)

Q11: To what extent do you know about the regeneration project of the traditional central axis?

A: Yes, very well

B: I've only heard a little bit about it

C: Don't know at all

Q12: Which ongoing traditional central axis regeneration projects do you know of? [Multiple choice]

A: People's Park Landscape Optimization and Enhancement Project

B: Improvement project of Haizhu Square and Surrounding Areas

C: Gaodi Street Regeneration Project

D: Conservation and Utilization Planning of Qilou Building (Qiyi Road, Xihu Road)

E: Yudaihao Water System Protection Project

F: Other, _____. (Please fill in the blank)

Q13: What do you think about the adoption of micro-regeneration in the conservation and protection of the traditional central axis?

A: Completely Disagree, _____.

B: Disagree, _____.

C: Agree, _____.

D: Strongly agree, _____.

(Give more details if you wish.)

Q14: How much do you think the traditional central axis conservation and regeneration work has affected daily life of residents in the city?

A: Basically, no impact, _____.

B: Not that much, _____.

C: Have great impact, _____.

(Give more details if you wish)

Please select 1-6 after reading the following opinions to express your degree of agreement with them, one is disagree completely, six is totally agree.

Q15: Do you think the traditional central axis of Guangzhou has more attractive today

★ ★ ★ ★ ★ ★

Q16: Do you think the traditional central axis represents the history and culture of Guangzhou'?

★ ★ ★ ★ ★ ★

Q17: Do you think the way of regeneration of the traditional central axis (Micro - regeneration) can be promoted to the neighborhood you live in?

★ ★ ★ ★ ★ ★

Q18: The current conservation and regeneration projects about the traditional central axis have very important implications for the conservation of other historical and cultural districts

★ ★ ★ ★ ★ ★

Interview

The interview will start with the following semi-open questions, and the discussion on the traditional central axis will be tailored according to the type of interviewees, including their occupation and the place where they live. The questions will be adjusted according to their answers to the following questions. The questions are divided into two main groups:

Group 1

1. What do you think is the traditional central axis, specifically certain locations? Or some spaces?
2. What is your impression of the traditional central axis space? Which places along the central axis are important and indispensable to you?
3. At present, the conservation and regeneration projects of traditional central axis are being implemented, for example, the People's Park Landscape Optimization and Enhancement Project has been completed now, the first phase of Haizhu Square improvement project is also completed, and the building facade along Qiyi Road is being renovated. Does it have any impact on your life? Do you accept the current frequency of the regeneration project (the long-term enclosure of Haizhu Square) and the current status of the regeneration?

Group 2

1. What is your impression of the traditional central axis of Guangzhou?
2. What do you think about the efforts of the Guangzhou Municipal Government to protect and regenerate the traditional central axis?
3. Do you have any ideas or suggestions on the conservation and regeneration of Guangzhou's traditional central axis or other historical and cultural districts?

Appendix 2

Table.1 List of protected historic sites.

Source: (Yuexiu District Construction Headquarters Office, 2021)

Number	Name	Level	Period
1	Sun Yat-sen Monument	State	Republic of China
2	Sun Yat-sen Memorial Hall	State	Republic of China
3	Old Site of Guangzhou Commune	State	Republic of China
4	City Wall in Ming Dynasty	State	Ming Dynasty (1368–1644)
5	Old Site of the Central Bank	Provincial	Republic of China
6	Nanyue Empire Well	Municipal	Qin Dynasty (221 b.C. - 207 b.C.)
7	Guangzhou Liberation Memorial Statue	Municipal	1959
8	Monument of Sun Yat-sen's academic and administrative office	Municipal	Republic of China
9	Municipal Government Mansion	Municipal	Republic of China
10	Former Residence of Xu Guangping	Municipal	Qing Dynasty (1636–1912)
11	Baiting Xu Dafu Family Temple	Municipal	Qing Dynasty
12	Sanyuan Palace	Municipal	The Eastern Jin Dynasty (317-420)
13	Old Site of Wuxianmen Power Plant	Municipal	Qing Dynasty (1636–1912)
14	Yuexiu Mountain Water Tower	Municipal	Republic of China

15	The old site of the People' s Liberation Army parade stage	Municipal	Republic of China
16	Dounan Academy	Municipal	Qing Dynasty (1636–1912)
17	Old Site of China Import and Export Fair (Canton Fair)	Municipal	1959
18	Old Site of the Communist Party of Guangzhou Committee	Municipal	Republic of China
19	Old Site of First Park	District registered	Sui Dynasty (518 - 618)
20	Old Site of Guangdong Propagandists' Training Center	District registered	Republic of China
21	Qingyun Academy	District registered	Qing Dynasty (1636–1912)
22	Former Residence of Xu Zhuo	District registered	Republic of China
23	Former Residence of Xu Yingwei	District registered	Qing Dynasty (1636–1912)
24	Former Residence Xu Xiangguang	District registered	Qing Dynasty (1636–1912)
25	Xu Clan Gatehouse	District registered	Qing Dynasty (1636–1912)

Table. 2 Historic Buildings. Source: (Yuxiu District Construction Headquarters Office, 2021)

Number	Name	Current Usage
1	The Old Site of Kaoting Academy	Residence
2	The Old Site of He's Academy	Shops
3	No. 19-27 Yan Yun West Main Street Residence	Residence
4	No. 26 and 28, Yan Yun West Main Street	Office and Residence
5	No. 1, 3, 5, 7, 9, 11, Yan Yun West Lane 3	Residence
6	No. 2, Yan Yun West Lane 2 (Guangzhou Private Education Association)	Office
7	Wulu No. 4, Yan Yun West Lane 2	Residence
8	No. 1, 3, 5, Yan Yun West Main Street	Residence
9	No. 2, 2-1, 2-2, Yan Yun West Lane	Residence
10	No. 5 Yan Yun West Lane	Residence
11	No. 13, 15, Yan Yun West Lane	Residence
12	No. 14, Yan Yun Xi Lane	Residence
13	No. 18, 20, Yan Yun West Lane	Residence
14	No. 401, 403 East Huifu Road,	Shops and Residence
15	No. 413, 415, East Huifu Road	Shops and Residence
16	No. 57, 59, 61, 63, Mu Pai Tou	Shops and Residence

17	No. 5, Tieh-Li	Residence
18	No. 29, Yianli	Residence
19	No. 84, 86, 88, Tai Kang Road	Shops, residence
20	Guangzhou Hotel No. 2, Qiyi Road	Hotel
21	Guangdong Science Museum Mansion	Office
22	Old Fok Chi Ting Mansion	Office
23	Wah On Building	Office and Hotel
24	Tong'an South York Gate Building	Residence