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Research on the Cultural Genealogy of Guangzhou

Guangfunan Historical and Cultural District and its

Inheritance Methods

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Abstract

As a representative of China's famous historical and cultural city, Guangzhou carries a profound Lingnan cultural heritage. As a witness of the city's cultural development process and a typical representative of Guangzhou's traditional mixed commercial and residential districts, the Guangfunan Historical and Cultural District carries rich historical and humanistic resources and unique Lingnan cultural characteristics, which are representative of the region, so the conversion and renewal of the Guangfunan Historical and Cultural District is also a matter of great concern. This study takes Guangfunan Historical and Cultural District as the research object, and explores its conservation and renewal strategies from the perspective of cultural genes. By extracting and analyzing the cultural genes of Guangfunan Historical and Cultural District in Guangzhou, this study aims to provide practical paths for the continuation of local culture in Lingnan as well as the protection and development of Guangfunan Historical and Cultural District.

Taking the theory of cultural genes as a starting point, the paper explains its origin and development in the West and China, and its application in the conservation and renewal of historic districts, analyzes the characteristics and roles of cultural genes, as well as the principles of classifying and determining cultural genes in historic districts. Through several practical case studies of historic districts, the classification method of cultural genes and the specific strategies of conservation and renewal are explained in detail, and the experiences that can be learned from the conservation and renewal of historic districts are summarized.

As far as the Guangfunan Historical and Cultural District is concerned, the cultural genes of the district can be divided into material and intangible cultural genes according to their different forms. Through the field research and data collection of Guangzhou Guangfunan Historical and Cultural District, we comprehensively analyzed its material and non-material cultural genes, constructed the cultural genealogy of Guangfunan Historical and Cultural District, classified different forms of cultural genes according to their own attributes, summarized the existing problems of the district, and then put forward the principles of preservation and updating, and put forward three modes of cultural gene inheritance: gene

conservation, gene repair, and gene recombination for the cultural genes with different attributes.

In the specific design, the development positioning and objectives of the Guangfunan Historical and Cultural District are proposed in the light of the actual situation, and the design is explored from the planning structure to the spatial details according to the three cultural gene inheritance modes, such as the cultural gene conservation mode which protects the core cultural genes of the district through the establishment of cultural places, the planning of cultural activities, and the guidance of cultural paths, etc., the cultural gene repair mode which continues the urban living scene and enhances the living standards of the residents through the restoration of the historical features, and the improvement of the living. The Cultural Gene Recombination Mode activates the contemporary value of the cultural genes through the reorganization of the industrial functions, spatial sharing and reshaping, etc., realizing the multicultural symbiosis and innovation, and providing effective suggestions and paths for the conservation and updating of the Guangfunan Historical and Cultural District.

This study provides useful references and practical cases for the conservation and renewal of historic districts, which can promote the sustainable development of Guangzhou's historic districts while preserving the historical and cultural heritage, and also open up new ideas for the revitalization of historic districts in other cities.

Keywords: Guangfunan; Cultural Gene; Historic and Cultural District; Inheritance Methods

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Chapter1 Introduction

1.1 Research Background

(1) The Protection and Inheritance of Cultural Heritage In Historic and Cultural Districts Is of Great Significance

Historic and Cultural districts, as a unique part of urban space, are vibrant cultural heritage, carrying deep local history and cultural deposits, and are the key remains of the city's historical lineage. In the future development competition, historical and cultural heritage will become one of the core elements. Cultural inheritance refers to the process by which a nation or ethnic group preserves the integrity and continuity of its culture over a certain period. This inheritance is manifested in the socio-cultural system, where the social and cultural framework of individuals or ethnic groups is passed down and transferred vertically in a regular and uninterrupted manner^[1].

In the context of accelerated global urbanisation, historic and cultural districts, as carriers of urban cultural memory, are facing the double crisis of “cultural convergence” and “local dissolution”. UNESCO's 2030 Agenda for Sustainable Development clearly points out that the protection and innovation of cultural heritage is the core path to maintain cultural diversity. General Secretary Xi Jinping put forward in the report of the 20th Party Congress^[2], in the process of urban renewal, emphasis on cultural heritage, the integration of historical and cultural protection, use and inheritance, to deal with the relationship between urban renovation and development and the protection and use of historical and cultural heritage, and to effectively achieve the development in the protection of the development of the development of the protection of the city, to make the city building better reflect the regional characteristics, national characteristics and the style of the times. Therefore, it is necessary to actively explore new roads and ways for the protection and inheritance of cultural heritage in China's historic districts.

(2) The Concept of Cultural Genetics Influences Multidimensional Urban Spatial Development

In recent years, the concept of “cultural genes” has been widely used in the interpretation

of outstanding traditional Chinese culture. Traditional culture is the foundation and bloodline of culture, carrying the spiritual code and historical memory of the nation. As the core unit of traditional culture, cultural gene is not only the basic link of cultural inheritance, but also the intrinsic power of cultural innovation and regeneration^[3]. Through its own mechanism, it ensures that culture maintains both stability and adaptability in intergenerational transmission. Although social changes constantly reshape the external manifestations of culture, its internal genes remain the same^[4], maintaining the essential characteristics of culture like biological genes.

In the spatial evolution of districts, cultural genes play a dominant role. The social structure, economic model and cultural environment of different regions have shaped different cultural genes, which in turn have profoundly influenced the formation and development of urban spatial patterns. For example, the commercial culture of the Lingnan region has given birth to the continuous interface of the Qilou and the vertical functional mixing pattern of “lower commercial and upper residential”, while the agricultural culture of the Jiangnan water town has given birth to the settlement pattern of “small bridges and flowing rivers and homes”. These genetic attributes rooted in regional culture not only shape the unique urban landscape, but also profoundly influence the individual's way of thinking and psychological structure. Therefore, the study of the cultural genes of a specific region can not only reveal the logic of urban spatial patterns, but also provide a theoretical basis and practical guidance for the protection and renewal of historic districts.

(3) Continuous Promotion of Renewal and Revitalisation of Guangzhou Guangfunan Historical and Cultural District

As an important historical and cultural city, Guangzhou has more than 2,000 years of historical and cultural heritage and is one of the birthplaces of Lingnan culture. Located in Liwan District of Guangzhou, Guangfunan Historical and Cultural District is a typical representative of Guangzhou's traditional mixed commercial and residential district, carrying rich historical and human resources and unique Lingnan cultural characteristics. The district has not only witnessed the transformation of Guangzhou from ancient times to modern times, but is also an important area for the diversified integration and inheritance of Lingnan culture. However, under the impact of rapid urbanisation and consumerism, the district is facing

multiple challenges, such as the fragmentation of material cultural carriers, the inactivation of intangible culture, and the weakening of the district's historical and cultural identity, which urgently calls for the exploration of a new paradigm for the conservation of historical district through theoretical innovation and methodological restructuring.

In this context, the theory of cultural genes provides a new perspective for the conservation and renewal of historic districts. Taking “cultural genes” as an entry point, we analyse the Guangfunan Historical and Cultural District from the surface to the inside and extract key cultural elements, construct a cultural genealogy that fits the Guangfunan Historical and Cultural District, study and analyse the cultural inheritance paths of the district, and put forward corresponding renewal strategies. The aim is to achieve a harmonious symbiosis between the historic and cultural district and the urban development and construction as well as a green and balanced development, and at the same time to protect the “cultural genes” of the Guangfunan Historical and Cultural District.

1.2 Research Objectives and Significance

1.2.1 Research Objectives

In the past, there was a lack of in-depth excavation and systematic categorisation of the cultural connotations of historic districts, and many renovation measures were overly focused on the economic benefits of tourism, neglecting the core cultural values of the districts themselves. On the other hand, with the continuous change of social structure, the innovation of business environment and the rapid development of science and technology, the culture inheritance of historic districts has become more and more complicated, involving multiple interests and functional needs.

The Guangfunan Historical and Cultural District has a unique historical lineage and rich cultural heritage, and its street texture, architectural style and traditional trade atmosphere carry the urban memory of Guangzhou. This study aims to analyse the Guangfunan Historical and Cultural District from the perspective of cultural genes. By systematically sorting out the composition of its cultural genes, excavating the explicit and implicit cultural gene carriers, clarifying the attributes and interrelationships of each type of genes, and exploring the key

factors affecting the evolution of cultural genes, this study aims to provide an in-depth analysis of the district from the perspective of cultural genes. At the same time, the current situation and future planning direction of the district will be closely combined to provide a solid basis for the development of a scientific, reasonable and targeted protection and renewal strategy for the Guangfunan Historical and Cultural District, so as to promote the synergy of cultural heritage and development, economic vitality enhancement, and optimisation of the social functions of the district, and to give the Guangfunan Historical and Cultural District new vitality in the new era, making it an exemplary area for the inheritance and innovation of the historical and cultural heritage of Guangzhou. Model area for Guangzhou's historical and cultural inheritance and innovation.

1.2.2 Research Significance

(1) Theoretical Significance

In recent years, the theory of cultural genes has attracted much attention in the international and domestic academic circles, and its scope of application has been constantly expanding and has penetrated into a number of disciplinary fields. After searching and analysing the relevant literature, we found that in the field of architecture, although many scholars have carried out research on traditional architecture from the perspective of cultural genes, there are not many results of systematically combining the cultural genes and its multiculturalism of Guangzhou Guangfunan Historical and Cultural District.

This study combines the research results of cultural gene theory at home and abroad, and deeply integrates this theory into the research scope of urban heritage protection and inheritance. By constructing the cultural genealogy of Guangfunan Historical and Cultural District, we can not only analyse the uniqueness of the cultural genes of the district in a deeper way, but also open up new theoretical paths for exploring the protection and inheritance of urban heritage from the perspective of the cultural genes, enrich the contents and perspectives of related theoretical research, and provide important theoretical references for subsequent similar studies.

(2) Practical Significance

Historic and cultural districts usually carry deep cultural heritage and distinctive regional

characteristics, and the Guangfunan Historical and Cultural District in Guangzhou is a typical representative of this. Its unique architectural style, traditional trade pattern and rich folk culture are all precious cultural assets. An in-depth study of the cultural genes of the district, moving from a single “material renewal” to an “overall rejuvenation”, can provide a vivid case for the cultural inheritance of the contemporary city, so that the ancient culture can be continued and developed in the modern society; at the same time, it can also provide a useful reference for regional development. It can also provide useful reference for regional development, such as optimising the functional layout of districts and cultivating characteristic industries and so on, thus promoting the innovative development of cities in cultural inheritance and enhancing the cultural soft power and comprehensive competitiveness of cities.

1.3 Research Objects

This paper selects Guangzhou Guangfunan Historical and Cultural District as the research object(Figure 1-1). The scope of this research and design refers to the scope of Guangfunan Historical and Cultural District, with an area of about 17.06 hectares, of which the core protection area is 9.50 hectares and the construction control zone is 7.56 hectares.

Guangzhou Guangfunan Historical and Cultural District is located in Liwan District of Guangzhou City, in the centre of Xiguan area of the old city of Guangzhou, with a good location and geographical environment. The northern part of the block is adjacent to the Shangxiajiu - Dishifu Historical and Cultural District, west to Huaiyuanyi and Kangwang South Road, east to Houchong Street and Guyi Street, and south of the east side is connected to the People's South Historical and Cultural District, which together constitute a historical area with a complete spatial structure. The boundary between its core protection area and construction control zone is clear, starting from Yangxiang Road in the west to Houchong Street in the east, and starting from Deningli street in the north to Jianglan Road in the south, in the shape of a ladder. According to the “*Guangzhou Guangfunan Historical and Cultural District Protection Plan (2021-2035)*”, there are many historical relics in the district, including one municipal cultural relics protection unit, 1 municipal registered cultural relics protection unit, 3 district registered cultural relics protection units, 53 historical buildings, 8

traditional style buildings and 90 traditional style building clues, all of which are strictly protected.



Figure 1-1 Research Objects and Design Scope
(Source: Drawn by Author)

There are several main reasons why the author chose the Guangfunan Historical and Cultural District as research objects:

(1) The Deep Historical and Cultural Resources of the Guangfunan Historical and Cultural District

The Guangfunan Historical and Cultural District, as a relatively complete historical district of Guangzhou with the characteristics of typical traditional commercial streets in Guangdong, is an important part of Guangzhou as a national historical and cultural city, bearing rich historical memories. The development process from the Ming and Qing Dynasties to the present day is a microcosm of Guangzhou's urban historical changes, reflecting the transformation of Guangzhou from a traditional trading city to a modern city, and witnessing the friendly exchanges between Chinese and foreign commercial cultures. The district has preserved the architecture and street layout from the late Qing Dynasty to the early

Republic of China in remarkably intact condition. Its architectural style blends Lingnan characteristics with a fusion of Chinese and Western elements, making it a quintessential representation of urban fabric and architectural features from that era. The historical and cultural resources embedded within hold significant potential for in-depth exploration.

(2)The Guangfunan Historical and Cultural District Is Currently at A Critical Juncture of conservation and renewal.

The Guangfunan Historical and Cultural District entered a pivotal phase of conservation and renewal following the official release of its “*Conservation and Utilization Plan*” in April 2022 and the subsequent public consultation on the “*Implementation Scheme for Conservation and Adaptive Reuse*” in August 2023. This transformation process inevitably generates tensions between ecological development priorities and the preservation of original historical-cultural assets, necessitating in-depth deliberation on balancing heritage protection with urban renewal. The current transitional period not only offers researchers a critical opportunity to document the district's authentic fabric but also underscores the urgency of examining its cultural core and regional distinctiveness. Notably, academic investigations focusing on Guangfunan remain scarce, rendering this research domain both novel and intellectually significant.

1.4 Definition of Relevant Concepts

1.4.1 Meme and Cultural Gene

Genes, as the basic unit of inheritance and evolution of organisms, carry the genetic information of organisms and drive their evolution^[5]. Similarly, cultural genes, as an academic concept, are used to describe the mechanism of storing and transmitting cultural information.

In the Western academic context, cultural genes are often referred to as “memes”, a concept first introduced in 1976 by British biologist and behavioral ecologist Richard Dawkins in his book *The Selfish Gene*. Richard defined it as “a unit of cultural transmission and imitation”, the essence of which is the perpetuation of cultural traits and values through imitation and transmission. In 1988, the Oxford English Dictionary included the term meme,

defining it as “an organism that can be thought of as transmitted in a non-genetic way, especially by imitation”.

Compared with “meme”, the term “cultural genes” is more widely accepted and studied in China domestic academic circles, sharing the same semantic meaning and context. Theories emphasize the uniqueness of cultural genes, and study the core concepts, ways of thinking, development and evolution laws of human culture, for example, Liu Changlin defines cultural genes as “the underlying structure of the heart and the way of thinking that has had a profound impact on the cultural and historical development of the nation” [6], and Wang Dong defines it as “the genetic code of the human cultural system, the core content of which is the way of thinking and values, especially the core concept of how to deal with the relationship between the four main subjects: man and nature, man and man, country and country, and mind and matter.”[7]

Taking into account the current research situation at home and abroad, it can be seen that there is no uniform statement on the concept of “cultural genes”. Therefore, this paper defines the concept of “cultural genes” on the basis of agreeing that they have the same characteristics as biological genes in the process of cultural transmission, in other words, agreeing that they have the characteristics of inheritance and mutation in the process of transmission as biological genes do, and at the same time, emphasizing their uniqueness. Cultural genes are the basic units in the process of cultural transmission, transmitted through imitation, possessing both tangible and intangible forms of expression, and possessing the characteristics of self-replication, heredity, selection and mutation.

1.4.2 Historic and Cultural Districts

The “*Regulations on the Protection of Famous Historical and Cultural Cities and Towns and Villages*” define a historic and cultural district as “an area of a certain scale where the people's governments of provinces, autonomous regions and municipalities directly under the Central Government have approved and announced the preservation of particularly rich cultural relics and the concentration of historic buildings in patches, which are able to reflect the traditional pattern and historical features in a more complete and authentic manner”. A historic and cultural district is a special area with both tangible and intangible cultural

heritage values. It is a living cultural heritage space of great cultural value and social significance, based on the concentration of historical buildings and cultural relics, characterized by the integrity of traditional patterns and historical styles, and with an authentic social network and traditional way of life as its soul.

1.5 Literature Review

1.5.1 Domestic and International Research on Cultural Gene Theory

From the perspective of biogenetics, “Gene” is the basic functional unit for the inheritance and evolution of life, and based on this biological metaphor, academics have derived the new concept of “Cultural Gene”. Meme” is often used to refer in western studies, while in domestic theoretical studies, it is called “Cultural Gene”, which essentially characterizes the storage unit of cultural information, and its internal mechanism reflects the basic law of cultural communication. With the deepening of research, the theory of cultural genes has gradually become a hot research topic in various fields in recent years.

1.5.1.1 Origins and Development of Western Cultural Gene Theory

(1) Conceptualization

The origins and development of Western cultural gene theory began with the theoretical conceptualization of cultural genetic material by Kroeber and Kluckhohn. In the 1950s, Kroeber and Kluckhohn raised the question of whether or not cultures have genetic material similar to that of genes. In 1976, Richard Dawkins, a British biologist and behavioral ecologist, first proposed the term “meme” in his book *The Selfish Gene*, and defined it as “a unit of cultural transmission and imitation”^[8].

(2) Theoretical Refinement

Since the concept of “cultural genes” was proposed, the theory has been continuously refined, explaining and applying the inheritance, mutation and selection of culture from three aspects: language, concept and behavior (Table 1-1).

Table 1-1 Stage of Refinement of Western Cultural Genetic Theory

(Source: Drawn by Author)

Time	Scholar	Introduction
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1980	Edward.O.Wilson、 Charles Lumsdon	Co-authored the Gene-Cultureco Coevolution model, which seeks to construct a mathematical explanation for the mechanisms by which different cultural genes influence genetic adaptations. ^[9] .
1990	Grant	Memes refer to patterns of information that can influence the human psyche.
1991&1995	Daniel Dennet	Meme refers to an idea that is transmitted in the communication process, which carries specific ideas, culture and other contents. The physical object that can carry the meme and plays a key role in the transmission process is regarded as its carrier ^{[10][11]} .
1997	Gabora	Analogizing genotypes to the mental representations of the meme, and analogizing expressive types to the mental representations of the behavior of the meme ^[12] .
1998	Hans-Cees Speel	Compare memes to DNA and RNA in biology, both replicating and acting as intermediaries ^[13] .
1999	Susan Blackmore	In <i>The Meme Machine</i> , the author suggests that modalities are analogous to biological genes in their functional roles, and that just as biological genes determine biological traits and are involved in heredity, so memes are crucial in the transmission of culture. ^[14] .

In 2003, scholars He Ziran and He Xuelin summarized the meme theory into four schools of thought, namely, the information view, the thought contagion view, the cultural evolution view, and the modal symbol view, with differences in the nature of the meme, the form of its existence, and its relationship with other fields.^[15]:

① Information View: represented by Lynch and Dennett, meme is regarded as information schema, Dennett thinks that meme carriers are both in the mind and embodied in objects, different from Dawkins' view, Lynch advocates the establishment of a non-metaphorical meme science, and empirically explores the basis of the meme's biological reality in the brain, and he thinks that meme is the memory information components in the brain's nerves, and the memory replication unit, which can explain the abstract thinking characteristics of the brain, i.e. people group similar ideas into the same set based on the essence of idea replication.

②Thought Contagion View: Gatherer, as a representative, adheres to the initial definition of meme as a culturally inherited or mimetic unit, and rejects the equating of memes with the

brain's neuroinformational units, informational viruses, and their separation from their hosts. They consider memes to be observable cultural phenomena, covering both concrete and abstract levels, deny their basis in biological reality, and question the ability of the informational view of meme theory to judge belief replication. The aim is to construct a theory of cultural communication based on observation and quantification that distinguishes it from other cultural theories.

③ Cultural Evolutionary View: Gabora, as a representative, sees meme as a bridge between biological and cultural evolution, with both biological and cultural characteristics, and believes that cultural and biological evolution are similar and evolvable; Gabora proposes that meme is another way of evolution, which explains the problems related to culture and brain representations. Biology and culture interact with each other, as in the case of primitive man's cold meme. This viewpoint has contributed to research in social and cognitive sciences, with the goal of exploring the processes by which real experiences are transformed into memes and developed.

④ Modal Symbolic View: Represented by Deacon, this view, from an anthropological perspective, aims at solving the difficulties of meme research in terms of biological foundation. This viewpoint regards meme as a symbol carrier, and the introduction of modality theory can solve the semiotics problem and explain the process of symbol generation, evolution and connotation enrichment. If linguistic symbols are regarded as memes, they can have the functions of reproducing shapes and transmitting information. At the same time, Deacon explains the possibility of combining semiotics and meme theory, such as the similarity between the two in the communication of ideas, the evolution of symbols, the competition of replication, etc., and they are both affected by the intrinsic system.

(3) Theoretical Applications

With the establishment of the theoretical system, scholars from different disciplinary backgrounds have conducted different studies and applications with the help of meme.

In 2001, Gatherer used the meme theory to analyze and solve social problems, while Kendal & Laland used meme to argue for the etiology of mental illnesses^[16].2008, in TED Conference 2, Daniel Dennet pointed out that meme, as a new entity in the ecosystem of the human brain, possesses the functions of competition, coexistence, replication and

reproduction. . Susan Blackmore, on the other hand, puts forward a new idea that humans have created new modalities called “teme”, which are spread through “technology” and “invention” and replicated by the human brain^[17]. In 2009, John Paul proposed the “8” map model, which can visualize the diffusion of memes in space and time and is more practical^[18]. In 2015, Gideon Mazambani analyzed the propagation mechanism, rate, and extent of meme in virtual space and found that the propagation rate was positively correlated with the extent^[19]. In 2019, Benjamin L. Mazer used modality theory to study the logic of information about deaths of patients in the United States as a result of misdiagnosis^[20].

1.5.1.2 Origin and Development of Cultural Gene Theory in China

In China, a term with the same semantic context as “meme” is “cultural gene”, which is a concept with Chinese characteristics formed in the local development. Compared with the foreign “meme theory”, which focuses on the biological interpretation of modality, the Chinese concept of “cultural genes” focuses more on its similarity with genes, which can be copied, transmitted and mutated, and does not pay attention to the existence of “cultural genes” in the human brain. The concept of “cultural gene” in China focuses more on its similarity to gene, which can be copied, transmitted and mutated, and does not focus on whether there really exists the substance “cultural gene” in human brain.

In 1990, Liu Changlin believed that the national “cultural gene” is the psychological substructure and way of thinking that has a profound influence on the development of national culture and history, and that it runs through the national culture and social practice. By analyzing traditional Chinese philosophy and management, he found that the consistency of national cultural activities is controlled by a unified “gene”, which is reflected in the traditional way of thinking and psychological infrastructure^[6]. In 1997, Wang Wei suggested that the role of complementary consciousness in practice is an important foundation for the historical development of Chinese natural gardens. The “dialog with heaven”, on the other hand, is specifically embodied in the praise of transcendent natural order and natural vitality, as well as in the spiritual pursuit of transcendent social rites and music, which together constitute the culture's unique inheritance genes^[36]. In 2003, Wang Dong believed that cultural genes, as the genetic code of the human cultural system, have as their core content the way of thinking and values, especially in dealing with the four main relationships between human

beings and nature, human beings and people, the country and the state, and the mind and things. In his opinion, the enduring Chinese culture benefits from the excellent cultural genes, which have four major characteristics: “5,000 years of history - Continuous without interruption - Five peak periods (Tang, Song, Yuan, Ming and Qing) -Three major fields (philosophy, practical technology and ancient natural science theories)”, as well as five core concepts, namely, “the cosmic view of the unity of heaven and mankind, the inter-subjective view of benevolence and love for others, the developmental view of the intersection of yin and yang, the cultural view of tolerance, and the unity of righteousness and profitability, and the value of harmony^[7].” In 2008, Xu Jieshun argued that cultural genes are the basic elements of cultural connotations, which exist in the collective memory of the nation and store specific genetic information^[21]. In 2015, Lv Jia put forward the idea that “culture also has life”. He pointed out that the vitality of culture lies in its ability to realize the transformation of human life. Animals are different from human beings in that animals do not have culture, nor do they have cultural needs. The “gene” of Chinese culture is actually Confucianism, which is based on conscience and expounds the truth about human beings. This cultural “gene” contains the genetic information for the continuation of cultural life, that is, human truth^[22].

1.5.2 Domestic and International Research on the Development of Historic and Cultural District Conservation

1.5.2.1 Development of Western Historic and Cultural Districts Conservation

The evolution of the western historic district protection system began in the 1930s, and went through three stages: the initial stage presented a mono-type protection mode, focusing on the appearance and structural restoration of the building body, and did not take the environmental texture into the protection vision; In the middle stage, it will develop into holistic protection, and the protection objects will be expanded to the spatial sequence of architectural buildings, the correlation of regional context and the interaction mechanism of urban space, so as to establish the dynamic balance relationship between historical relics and urban development. In contemporary times, the concept of living protection has been formed, and the scope of protection extends from material entities to the spiritual inheritance of places.

Through the establishment of two dimensions of “material-immaterial” protection framework, the continuous evolution of historical environment and the regeneration of cultural value have been realized. The transformation of conservation concept marks the systematic upgrading of Western built heritage protection from static conservation to dynamic conservation, from spatial restoration to cultural ecological maintenance(Table 1-2).

Table 1-2WesternHistoric and Cultural District Conservation and Development Processes
(Source:Drawn by Author)

Time	Documents/Meetings	Related Events and Contents
1933	<i>The Athens Charter</i>	It proposes to protect valuable historical buildings and districts and summarizes the corresponding principles..
1964	<i>The Venice Charter</i>	Emphasizing the concept of “historical lot”, pointing out that it is the location of a cultural heritage site and its surrounding environment, and proposing, for the first time, a reflection on the authenticity and systematicity of the conservation of historical buildings. ^[23] .
1966	<i>The Ancient Capital Protection Law</i>	Emphasize the preservation of “historic districts” rather than just “historic districts.”
1976	<i>Nairobi Proposal</i>	Proposing conservation perspectives and methods for historic sites, and recognizing that the social activities of people in historic sites and their interaction with the surrounding space are also important parts of conservation. ^[24] .
1977	<i>Charter of Machu Picchu</i>	Conservation of historic districts needs to be integrated with urban development to maintain neighborhood vitality ^[25] .
1987	<i>Charter for the Conservation of Historic Towns and Urban Areas</i>	The concept of “historic city” was first introduced, emphasizing the protection of the surrounding environment ^[26] .
1994	<i>Nara Document on Authenticity</i>	Emphasize the “authenticity” of historic heritage preservation and give due consideration to cultural ties ^[27] .
2005	<i>Xi'an Declaration</i>	Emphasize the protection of the estimated surrounding environment of the site and realize the sustainable management of the surrounding environment; protect the related folk customs, social systems, behavioral activities and other elements ^[28] .
2011	<i>Valletta Principle</i>	To propose that the conservation of historic towns should be considered at the regional level and that historic towns should be treated as a basic resource and an integral part of the urban ecosystem in order to promote the harmonious development of historic towns and their areas ^[29] .

1.5.2.2 Development of China Historic and Cultural Districts Conservation

The 1980s marked the beginning of the research on the protection of historic districts in

China, and academics began to pay systematic attention to this field (Table 1-3). With the promulgation and implementation of the Law of the People's Republic of China on the Protection of Cultural Relics, “historic and cultural district” was formally established as a legal concept, and assumed a key role in the protection system of “Famous Historical and Cultural Cities - Historic and Cultural Districts - Cultural Relics Protection Units”. The establishment of this level of protection is not only the first step, but also the second step. The establishment of this level of protection covers not only macro dimensions such as the functional layout, landscape, economic development and social structure of the city, but also micro elements such as the protection of architectural monoliths and the maintenance of the district texture, forming a multiscale and synergistic framework for the protection of historic districts.

Table 1-3 China Historic and Cultural District Conservation and Development Processes
(Source: Drawn by Author)

Time	Documents/Meetings	Related Events and Contents
1961	<i>Provisional Regulations on the Management of Cultural Heritage Protection</i>	National key cultural relics protection units were announced ^[30] .
1964	<i>Guidelines for the Protection of Cultural Relics and Monuments in China</i>	Synergistic preservation of the architectural heritage itself and the historical information and values it contains ^[31] .
1982	<i>Law of the People's Republic of China on the Protection of Cultural Relics</i>	Announcement of the First Batch of National Famous Historic and Cultural Cities ^[32] .
1996	<i>(International) Seminar on Conservation of Historic Districts</i>	Emphasizing that the conservation of historic districts has become an important part of the conservation of historic and cultural heritage ^[33] .
2002	<i>Law of the People's Republic of China on the Protection of Cultural Relics</i>	Introducing the concept of “Historical and Cultural Districts”, including them in the scope of immovable cultural relics, and safeguarding the protection system of Historical Districts at the legal and institutional levels..
2008	<i>Regulations on the Protection of Famous Historical and Cultural Towns and Villages</i>	Establishing a list of famous historical and cultural cities, towns, villages and districts and implementing graded protection ^[34] .
2018	<i>Opinions on the Reform of Strengthening the Protection and Utilization of Cultural Relics</i>	Adhere to the five basic principles of protection, and do a good job in the protection and utilization of cultural relics and the protection and inheritance of cultural heritage ^[35] .

The protection, inheritance and revitalization of culture have always been the core of the protection and renewal of historic districts, and the socio-economic value orientation based on culture is gradually being presented. Although the practice of historic district protection in China started relatively late, it has gradually established a complete cultural protection system for historic districts covering value assessment, technical standards and implementation paths. The concept of protection has evolved from material space restoration and landscape recovery to a holistic protection strategy that emphasizes the spiritual inheritance of the place and the continuation of the urban cultural lineage. At the practical level, the renovation method of simply copying foreign models has been abandoned, and a shift has been made towards exploring conservation paths that are in line with local cultural characteristics. The current conservation work emphasizes refinement and sustainability, and the implementation mode has shifted from large-scale overall renovation to small-scale progressive renewal, through “micro-renewal”, “acupuncture renovation” and other precise interventions, to achieve optimal allocation of resources while preserving the historical texture, and to promote the protection of historic districts to the connotative, high-quality development transformation.

1.5.3 Study on the Integration of Cultural Gene Theory and the Conservation and Renewal of Historic Districts

As the research on cultural genetics in the social sciences continues to deepen, more and more scholars from different disciplinary backgrounds and specialties have been attracted to participate in it. The scope of research is no longer limited to cultural genes in traditional Chinese culture, but also in the fields of urban planning and architecture, research results from the perspective of cultural genes have begun to emerge one after another.

(1) Theory Expansion Aspects

In 1997, Wang Wei proposed that the role of the complementary consciousness of heaven and earth's rites and music in practice is an important root of the historical development of Chinese naturalistic gardens. The “dialogue with heaven”, on the other hand, is specifically embodied in the praise of transcendence of natural order and natural vitality, as well as the spiritual pursuit of transcendence of social rites and music, which together constitute the

deeper significance of the art of Chinese gardens and the inheritance genes unique to the culture of gardens^[23].

In 2008, Haining Wang took Qingyan Ancient Town as the research object, and regarded the cultural and psychological characteristics of Qingyan Ancient Town that significantly affect the spatial morphology as an important cultural gene complex. He proposed that cultural genes control and influence the material space of the town, and stone culture and military culture are its deep cultural genes, which affect the morphology of the ancient town to this day, and that emphasizing and preserving the presentation of cultural genes is the key to maintaining the traditional settlement style^[24].

In 2009, Wu Zairong focused on the controlling effect of the variation of Wu cultural genes in the process of social change and urban spatial evolution in the ancient city of Suzhou. The variation of cultural genes is not an accidental phenomenon, but as an internal force, it actually drives the continuous change of urban society and the evolution of urban space. Research has confirmed that cultural genes control urban space from two dimensions: social and material^[25].

In 2011, Liang Hennian pointed out that most planning concepts contain cultural genes. In the West, cultural genes merge with the elements of the times to determine the evolution of Western civilization. He argued that Chinese urban development should not copy Western planning principles, but should explore its own planning theories based on its own culture^[26].

In 2011, Liu Peilin introduced the concept of biological genes and drew on the method of settlement typology to carry out the work of “gene identification” of traditional settlement landscapes, and then constructed a “gene map” as a way to excavate the core historical and environmental memories in traditional settlement landscapes. Liu Peilin also proposes that the determination of settlements should follow the “principle of intrinsic uniqueness, extrinsic uniqueness, local uniqueness and overall dominance, and divides traditional settlement genes into four categories: main genes, attached genes, mixed genes and variant genes^[27].

In 2020, Niu Xiong, Tian Changfeng, Sun Zhitao, and Huang Qin wrote an article proposing the concept of cultural genes in Chinese urban space, and demonstrating its influence on the construction of ancient capitals and its inheritance in modern urban construction through evidence and empirical analysis. The aim is to reveal its historical

connotation, pass on its cultural value, and provide reference for planning in the new era^[28].

(2) Practical Application Aspects

In 2014, Zhao Heling, Wang Jun, and Yuan Zhongjin took the cultural genes of ancient Yunnan as the research object, elaborated its strong regional characteristics, tried to construct a complete cultural genealogy of ancient Yunnan, and expected to promote the transformation of ancient Yunnan's cultural resources into cultural capital. The article closely combines the concept of gene with biology, deconstructs the regional culture into material and intangible cultural genes, completes the classification of cultural genes, and constructs a cultural genealogy that highlights the regional characteristics^[29].

In 2015, through in-depth combing and research on Xi'an's cultural genes and spatial planning mode of the ancient city, Tian Tao established a theoretical system of spatial and temporal structure with the revival of the ancient city as the core orientation, explored the revival of the ancient city planning strategy for Xi'an's actual situation, and committed to promoting the revival of Xi'an's ancient city in the context of the new era, realizing the organic fusion of cultural inheritance and urban development^[30].

In 2017, Huo Yanhong took the water cultural heritage of the Jinghang Grand Canal as the research object, and explored the inheritance methods and evolution paths of the main, attached, mixed and variant “cultural genes”. At the same time, using the method of biological phylogenetic analysis, she constructed a phylogenetic tree model of the water culture of the Jianghang Grand Canal, which can visualize the evolutionary relationship between water cultures^[31].

In 2018, Li Yunyan, Zhao Wanmin and Yang Guang divided cultural genes into explicit and implicit genes for Cuntan Historical and Cultural Neighborhood. They proposed renewal and restoration strategies including explicit material spatial genes such as spatial texture, street space, architectural style; and implicit intangible cultural genes such as historical culture, characteristic economic and industrial restoration, special social functions, etc^[32].

In 2024, Sang Wanchen and Liu Manyun use the cultural corridor of the Jiaxing section of the Jinghang Grand Canal as an example to construct a framework for the extraction, inheritance and innovation of the Grand Canal's cultural genes, and to explore the path of its cultural heritage conservation and renewal planning. Meanwhile, the cultural genes are

categorized into general genes (including main genes and attached genes) and variant genes, and the variant genes need to be screened to retain the benign variants and eliminate the malignant variants^[33].

It can be seen that in the practice of conservation and renewal under the perspective of cultural genes, the designer needs to collect as much relevant information about the research object as possible by means of literature reading, field research, personnel visits, questionnaire surveys, etc., and through a series of abstract analyses such as categorization, induction, deconstruction, etc., to strip out the cultural factors from the key historical scenes, and ultimately distill the cultural kernel, i.e., the cultural genes, of the research object. Based on the refined cultural genes, a cultural genealogy is formed, and according to the properties of the genes themselves, targeted conservation and renewal strategies are proposed, and corresponding “transcription” carriers are selected to pass on the cultural genes.

Up to now, there are relatively few research results related to cultural gene theory in the field of Guangzhou's urban development or the protection of historic districts, while cultural gene theory has formed systematic research results in the field of historic district protection in China since its inception. Based on the multidisciplinary research of sociology, architecture and urban-rural planning, scholars have constructed an intrinsic correlation system between cultural genes and the protection of regional characteristics through empirical investigations, and the relevant academic results not only verify the guiding value of cultural genes for urban space protection from the theoretical level, but also confirm its scientific and operability in the renewal of historic districts through a large number of practical cases, which also provides a basis for the study to carry out the work of identifying and extracting cultural genes in historic districts.

1.6 Research Methods and Framework

1.6.1 Research Methods

(1) Comparative Literature Analysis

This approach involves examining historical records, local chronicles, and archival documents related to Guangfunan Historical and Cultural District, alongside a comprehensive

review of domestic and international academic journals, books, and outstanding master's/doctoral theses. It focuses on summarising and comparing the research results of combining the theory of cultural genes with the renewal of historic districts at home and abroad in recent times, in order to understand the current status of research in this field and the existing problems, and to find the entry point and innovation point for its own research, so as to ensure that the research has the theoretical depth and the value of practical guidance.

(2) Field Investigation

Through on-site surveys, targeted fieldwork is conducted in Guangzhou's Guangfunan Historical and Cultural District to collect primary data, supplementing and updating existing archival materials.

(3) Interdisciplinary Synthesis

In the research process, multidisciplinary thinking and methods are applied to analyse the cultural gene carriers of Guangzhou Guangfu South Historic District with the help of sociobiology, typology, semiotics and other related theories combined with the cultural gene theory, and to extract, sort out and analyse the related problems exposed in the protection and renewal of the district.

(4) Inductive-Deductive Analysis

By situating the study within specific socio-historical turning points of Guangfunan Historical and Cultural District, the research analyzes patterns of historical development and transformation. As a dynamic and long-lasting process, the renewal of the historic district needs to be addressed in the context of the historical environment and conditions, and in-depth research on the history and culture of the district, as well as the living habits of the aboriginal inhabitants, needs to be carried out.

1.6.2 Research Framework

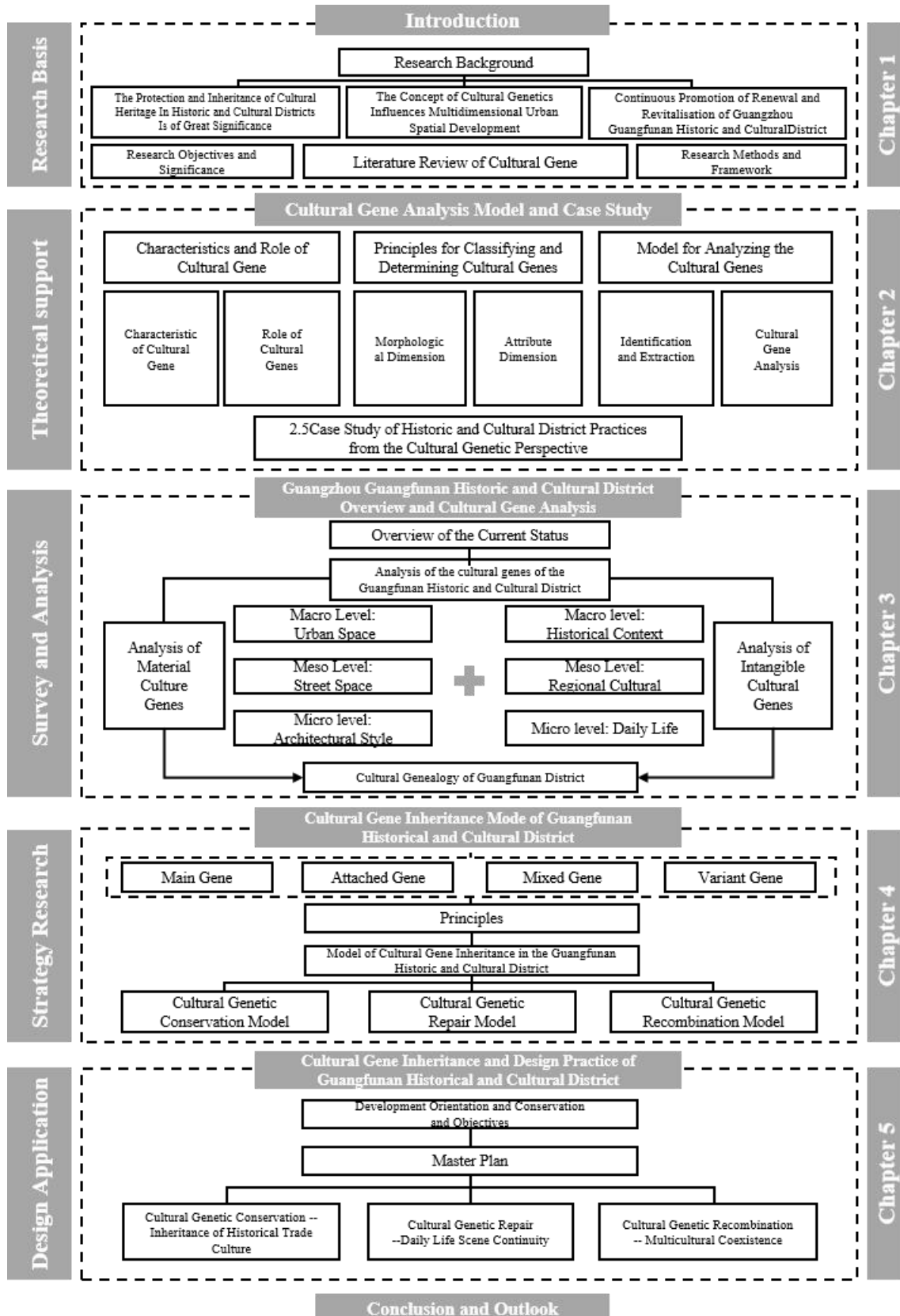


Figure 1-2 Research Framework
(Source: Drawn by Author)

Chapter2 Cultural Gene Analysis Model and Case Study

As an interdisciplinary concept, cultural genetics has attracted widespread attention in recent years in the fields of architecture, urban planning, anthropology and sociology. It provides a unique perspective for understanding the inheritance and evolution of culture and its expression in space. In this chapter, we will explore the characteristics and roles of cultural genes, classification methods and determination principles, and construct a model for analyzing cultural genes. Through analyzing practical cases, we will summarize the practical experience in different cases by combining the perspective of cultural genes, so as to provide theoretical support and practical reference for the subsequent research.

2.1 Characteristics and Role of Cultural Gene

2.1.1 Characteristics of Cultural Gene

The inheritance mechanism of cultural genes is more difficult to visualize than that of biological genes, and its transmission path and diversified forms of expression are influenced by multiple factors. Combined with the research results at home and abroad, the main features of cultural genes can be summarized as follows:

(1) **Externality:** Cultural genes are transmitted through physical space, political economy, production and life style, and their transmission paths are multi-dimensional and permeable, covering almost all aspects of human activities.

(2) **Geographic Uniqueness:** Similar to the population specificity of biological genes, cultural genes show significant spatial differences in different countries, ethnic groups and even different cities and regions, which originate from the constraints of the geographic environment and are subject to the uniqueness of the social and historical process.

(3) **Dynamic Evolution:** In the process of spreading cultural genes, there exists an evolutionary mechanism of “mutation-selection-adaptation”, which, through interaction with other cultural systems, creates a cultural hybrid phenomenon similar to that of biological diversity, and this dynamism ensures the ability of the cultural system to be continuously renewed. This dynamic nature ensures the ability of the cultural system to be continuously

renewed.

(4) Interactive Transmission: In contrast to the unidirectional inheritance of biological genes, cultural genes are characterized by two-way transmission. This is reflected in the fact that a single cultural gene can act on multiple receptors at the same time, as in the case of Confucianism's simultaneous influence on architecture, rituals and art in East Asia; and that multiple cultural genes can converge on the same carrier, as in the case of the spatial form of traditional districts, which combines the concepts of feng shui, the clan system, and the culture of trade and commerce.

(5) Diversity of Carriers: Cultural genes are expressed in various forms, which can be presented explicitly through material entities or transmitted implicitly through non-material carriers.

(6) Selective mobility: Unlike the strict replication mechanism of biological genes, the recipients of cultural genes have the ability to make subjective choices. Under the influence of social changes, technological innovations or changes in values, specific cultural genes may be actively discarded, selectively retained or innovatively transformed, and this selection mechanism constitutes the intrinsic power of cultural evolution.

2.1.2 The role of Cultural Genes

In terms of the evolutionary mechanism of civilization, cultural genes, as the basic genetic units of human civilization, profoundly influence the evolutionary process of social forms through multi-dimensional pathways. Similar to the information-carrying function of biological genes in the inheritance of species, cultural genes play a role in the construction logic of material space forms through regulatory mechanisms, and fundamentally shape the core qualities of intangible culture. The cultural diversity of specific ethnic groups and regions is essentially rooted in the uniqueness of their cultural gene coding system - this deep cultural code not only shapes the cognitive patterns and value orientations of individuals, but also promotes the shaping of regional cultural circles and the orientation of the trajectory of social development through the cultural practices of the group.

Focusing on the scope of urban space research, cultural genes and the formation and development of historic districts are inextricably linked. As an important symbol of human

civilization, the emergence of urban settlements is essentially a product of the continuous accumulation of cultural genes, and the iterative updating of its spatial form is always controlled by the expression law of cultural genes. Specifically, cultural elements such as living patterns, communication methods and consumption habits in the urban spatial organization are projected into the streets, buildings and other material carriers through spatial translation. When cultural genes are materialized through the process of transcription, the superposition of different forms constitutes regional spatial characteristics with significant recognition, which provides a key theoretical basis for the interpretation of the spatial production mechanism of “locality”.

2.2 Principles for Classifying and Determining Cultural Genes

2.2.1 Purpose of Cultural Genes Classification

In the process of studying the cultural gene inheritance of Guangzhou Guangfunan Historical and Cultural District, it is clear that the primary goal of the conservation and renewal of this historic district is to realize the protection and inheritance of the cultural characteristics and historical lineage of the historic district on the basis of meeting the needs of the residents' modern life, so the study of the cultural genes of the Guangfunan Historical and Cultural District of Guangzhou is a key link in the theoretical support of the formulation of the renewal program. In the face of complex resource information, it is necessary to categorize the cultural genes:

(1) Assist in resource sorting and integration. By studying the commonalities and characteristics of the material and intangible cultural elements in Guangzhou Guangfunan Historical and Cultural District, it can divide the hierarchical relationships, organize and systematize the resources, and facilitate the protection, development and research of the historic district.

(2) Maintaining overall cognition and identity. Establishing a cultural gene classification system to form an overall knowledge of the district, respecting the local characteristics, creating the spirit of place, and enhancing the residents' sense of identity and belonging to the district.

(3) Provide the basis for renewal strategies. Based on the classification of cultural genes and the characteristics of different attributes of cultural genes, propose targeted renewal strategies to ensure the scientificity and appropriateness of the strategies and provide theoretical support for design practice.

2.2.2 Classification of Cultural Genes

(1) Morphological Dimension

According to the difference in the physical form of cultural genes in historic districts and drawing on the classification of cultural heritage, cultural genes can be classified into material genes and immaterial genes according to the dimension of form. The two kinds of genes are only different in the way of expression, but their essence is that they are the key elements of cultural inheritance, which are closely related to each other and can be transformed into each other under certain conditions (Table 2-1).

Material genes are important components of cultural genes, which are presented as visible and touchable spatial entities. Material cultural genes are the figurative expressions of material and non-material culture in the historic districts, such as the urban space, street space, architectural style, etc., which record the production and life style of human beings in the region in the form of physical objects, reflecting the construction and renovation activities of human beings in order to satisfy the needs of survival, and at the same time show the trajectory of the development of the region.

Table 2-1 Material Culture Genetic Classification
(Source: Drawn by Author)

Classification of Material Culture Genes	Impact on Historic Districts
Urban Space	The spatial architecture and functional zoning of the city lay the foundation for the structure of the districts. The overall planning and development trajectory of the city determines the functions and social attributes of districts in a certain period of time. Districts are part of the city, and their cultural genes are branches of the city's cultural system.
Street Space	The road network, public space layout, commercial area and house combination form of the historical districts constitute the overall spatial pattern of the street. This affects people's intuitive feeling and experience of the district, reflecting regional cultural connotation, characteristics and interpersonal interaction patterns, in which the cultural gene carriers have high research value.

Architectural Style	Historic districts have a wide variety of buildings, covering public, residential, religious and other types, with a large time span and different styles. The form, construction method, spatial logic and other aspects of the buildings are the cultural heritage and visual presentation, carrying information about the economy, society, humanities and technology of different periods.
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Intangible cultural genes are different from material cultural genes in that their main characteristics are implicit, abstract, and free from the bondage of material carriers, such as historical veins, regional cultures, and city life , but intangible cultural genes can be expressed and perceived through symbolic translation and media reconstruction(Table 2-2)..

Table 2-2Historic Districts Intangible Cultural Genetic Classification
(Source:Drawn by Author)

Intangible Cultural Genetic Classification	Impact on Historic Districts
Historical Context	Historical Context covers a wide range of areas and is a pattern system based on human activities and products within a specific space and framed by explicit or implicit patterns of cultural behavior. Districts are the concentrated manifestation of history and social culture, and the cultural genes of historical veins include historical origins, celebrity deeds, historical events, etc., which are broad in content and complex in relationship, and can help to verify the disappeared or mutilated local culture.
Regional Culture	Regional culture nurtures folklore that is a blend of beliefs and ethnic characteristics. Different historic districts in the same city may have very different folklore and experiences due to differences in historical development and the situation of the original inhabitants.
Daily Life	The daily production and life of the residents not only carries the historical memory of the district, but also gives the district a unique cultural atmosphere and living atmosphere, such as the way of commerce and trade, handicrafts, food culture, etc., which shapes the unique economic and social structure of the historic district, influences the spatial layout of the historic district, and enhances the vitality of the district.

(2) Attribute Dimension

Similar to biological genes, cultural genes are also inherited, transferred, integrated and mutated in the process of transmission. According to Huo Yanhong, “whether cultural genes are significant and dominant in regional culture; whether they are culturally recognizable and unique to a certain region; whether they are culturally related and shared by two or more regions; and whether they are mutable and incorporate new elements in the historical evolution.” Classify cultural genes according to their own attributes into four categories(Table

2-3).: main genes, attached genes, mixed genes and variant genes.^[31]

Table 2-3 Classification of cultural gene attribute dimensions
(Source: Drawn by Author)

Classification	Content	Role	Pathways to Transmission
Main Gene	A very prominent position and role in the regional cultural system, dominating the attributes of the regional culture.	Dominant cultural attributes, identification of regional cultures and maintenance of cultural diversity.	Actively adopting conservation measures and setting up a core protection circle in order to achieve a comprehensive revitalization of regional culture.
Attached Gene	Dependence on the main culture, with a high degree of reflection of regional cultural identity.	Identifying regional cultures and maintaining cultural diversity.	Extracting typical cultural symbols and implanting them in the field of planning and design, so that the culture has more regional characteristics and a sense of cultural belonging.
Mixed Gene	Cultural genes that are not specific to a geographical area but that record important historical information about that area at a particular time in history	Maintaining cultural diversity	Adopting a “symbiotic” attitude requires the right guidance, not only to preserve and improve their material carriers, but also to strengthen the living transmission of the spirit inherent in the mixed genes.
Variant Gene	On the basis of the main gene, foreign elements are absorbed and integrated, and the regional cultural characteristics are formed through innovation and refinement.	Maintaining cultural diversity	“Survival of the fittest” mode, continuing to maintain genes with benign mutations and removing genes with malignant mutations

2.2.3 Principles for Determining Cultural Genes

Cultural genes play an important role in the preservation and renewal of historic and cultural districts due to their uniqueness. After the long development and evolution of the original culture and the continuous absorption of different new cultures, different historic districts have developed their own characteristics. In the face of the complex cultural elements to be extracted and stripped, it is also necessary to screen the different elements to determine the reasons for their formation and whether they have a decisive role. Therefore, when

selecting cultural genes for historic and cultural districts, the following four principles should be followed(Table 2-4).: intrinsic uniqueness, extrinsic uniqueness, local uniqueness and overall superiority^[28].

Table 2-4 Principles for Determining Cultural Genes
(Source:Drawn by Author)

Principles	Content
Intrinsic Uniqueness	Unique and typical of this type in historic districts.
Extrinsic Uniqueness	The material and immaterial products resulting from the genetic transcription of cultural genes are representative of the external typicality.
Local Uniqueness	Irreplaceable among similar types of cultural genes in the historic district.
Overall Superiority	Genes that are strongly dominant have a strong influence and are genetically dominant.

2.3 The Significance of Cultural Gene Theory in the Cultural Gene Inheritance of Historic Districts

Since the 18th National Congress of the Communist Party of China (CPC), the strategic goals of “cultural power” and “cultural renaissance” have been frequently mentioned, and the government and related organizations have taken many initiatives to stimulate cultural development and the cultural market. In this context, cities in China are paying more and more attention to the excavation of the cultural connotation of historic districts, hoping to pinpoint the characteristics of the city and define the main direction of development. With the help of cultural gene theory, the historical and cultural carriers in the protection and renewal of historic districts can be clearly identified, which has a positive effect on the inheritance of historical and cultural lineage, and is of great significance in shaping the uniqueness of the city and promoting the coordinated development of the city:

(1) Cultural Inheritance and Innovation

Cultural genes not only record the long evolution of regional civilization, but also deeply reflect the regional characteristics of a specific historical period. The self-replicating function of cultural genes is essentially the inheritance and promotion of humanistic history. Through in-depth study of cultural genes, we can understand the past in a more systematic and comprehensive way, and on this basis, better adapt to the needs of modern society and

scientific and technological development, and realize the innovative development of culture.

(2)Value Excavation and Release

The study of cultural genes enables us to gain a clear insight into the internal logic and constituent elements of district culture, which provides an important reference basis for the current transformation and renewal of the district. It helps us determine the entry point for renovation, clarify the direction of future development, and provide strategic support for stimulating economic and social vitality. All kinds of cultural genes found in the research process may become new highlights for releasing the cultural value of the district and injecting new impetus for the sustainable development of the district.

(3)Shaping Local Characteristics and Cultural Identity

Traditional Chinese culture emphasizes “harmony and difference”, but nowadays the phenomenon of homogenization among cities is becoming increasingly serious. Regional culture is the unique culture created by people of different nationalities and regions in their specific living areas and historical periods. Through in-depth study of the unique cultural genes of historic districts, we can better explore and shape the unique cultural characteristics of the districts, create recognizable local “business cards”, and become iconic symbols of regional and even urban cultural characteristics.

2.4 Model for Analyzing the Cultural Genes of Historical and Cultural District

2.4.1 Identification and Extraction of Cultural Genes

Similar to the extraction of biological genes, the identification of cultural genes in historic districts follows the cognitive logic of “deconstruction-transcription-reconstruction”. The essence of the methodology is to analyze the material remains and non-material traditions of the district, and to analyze the explicit material carriers (architectural form, spatial sequence) and the implicit non-material carriers (collective memory, cultural symbols) in combination with the built environment, local history, oral history and other data, so as to get the cultural genes of the district in the end(Table 2-5).

Table 2-5 Cultural Gene Comparison Table for Guangfunan Historical and Cultural District
(Source:Drawn by Author)

Classification	Level of Expression	Scope
Material Carrier	Urban space	Spatial Layout, Historical Evolution, Natural Environment, Regional Climate, Geological Features, etc.
	Street Space	Age Composition, Structural Layout, Street Type, Street Interface, Spatial Scale, Etc.
	Architectural Style	Historical Remains, Building Layout, Building Structure, Façade Style, Building Materials, etc.
Intangible Carriers	Hirtorical Context	Historical Origin, Development And Evolution, Celebrity Deeds, Historical Events, Folklore, etc.
	Regional Culture	Ideology, Thoughts, Religious Beliefs, Literature, Folk Art, etc.
	Daily Life	Trade Methods, Work Patterns, Types Of Business, Distinctive Clothing, Handicrafts, Culinary Specialties, etc.

The steps of extracting the cultural genes of Guangzhou Guangfunan Historical and Cultural District are mainly as follows:

(1)Information Data Collection

In the process of extracting the cultural genes of Guangzhou Guangfunan Historical and Cultural District, the data collection work needs to ensure the comprehensiveness and systematicity, and the quantity and scope of the data will directly affect the construction and logical formation of the cultural genealogy. In the preliminary stage of the study of Guangzhou Guangfunan Historical and Cultural District, data collection and accumulation of cultural elements are carried out through various channels on the historical history, folklore, historical architectural remains, spatial morphology of streets and alleys, architectural forms, customs and habits, and residents' lifestyles of the Guangfunan District. The specific methods used include literature review, combing of academic results, field research, and oral history records.

(2)Qualitative Classification of Elements

After completing the collection of district cultural elements, it is necessary to classify the information data and construct a database. Based on the perceptibility difference of cultural carriers, the elements are divided into two categories: explicit cultural gene carriers and

implicit gene cultural carriers. The former directly characterizes cultural information through material forms, while the latter relies on material carriers to realize symbolic expression. According to the breadth of cultural genes, they are divided into three levels of dimensions: macro, meso, and micro, and through this kind of hierarchical classification and analysis, the cognitive transformation from cultural appearances to genetic core is realized.

(3) Logic Structure Construction

There are significant differences between material and non-material cultural genes in terms of their origin, nature, function and mode of action. By analyzing these cultural genes at multiple levels (macro, meso and micro), specific cultural gene elements can be identified. Different genetic elements have different underlying components, characteristics and mechanisms of action. By further sorting out the interrelationships between cultural elements and constructing their internal logic, it is possible to form “fragments” of cultural genes, and then “chains” of genes.

(4) Gene Transcription Profiling

Cultural genes are the core elements of culture, and the underlying connotations of individual cultural genes are unique, but in the process of transcription and after its completion, the results derived from them are not homogeneous, and may take various forms. Instead of sequencing genes at the macro level, it is necessary to transcribe the different elements of cultural genes, trace them back to their origins, and explore their underlying causes of expression and motivating factors.

2.4.2 Cultural Gene Analysis Model

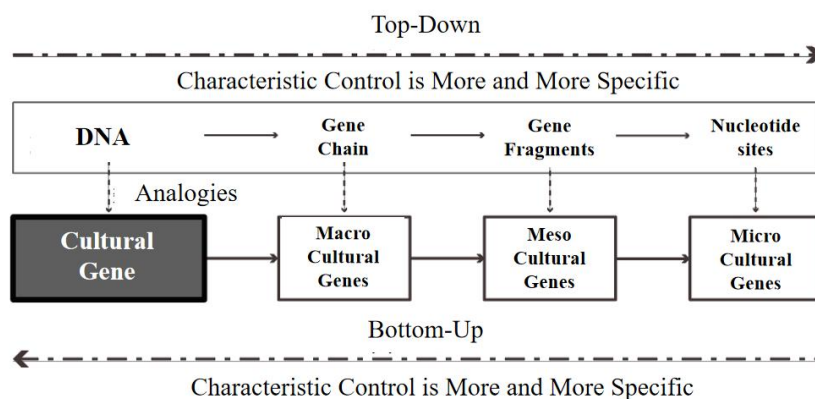


Figure 2-1 Cultural Genes vs Biological Genes Structural Logic

(Source:Drawn by Author)

Cultural genes are similar to biological genes in that they have a multi-layered structure and different functions. In the case of biological genes, for example, there are both core coding regions in the DNA sequence, which control genetic characteristics, and non-coding regions, which play a spacing role. Each base is like a character of a program code, and subtle changes will affect the biological characteristics. Similarly, in the process of formation and transmission of cultural genes, there is also a logic of hierarchical control from the whole to the local: the general direction is determined by the macro elements, while the specific details are presented by the combination of micro elements(Figure 2-1).

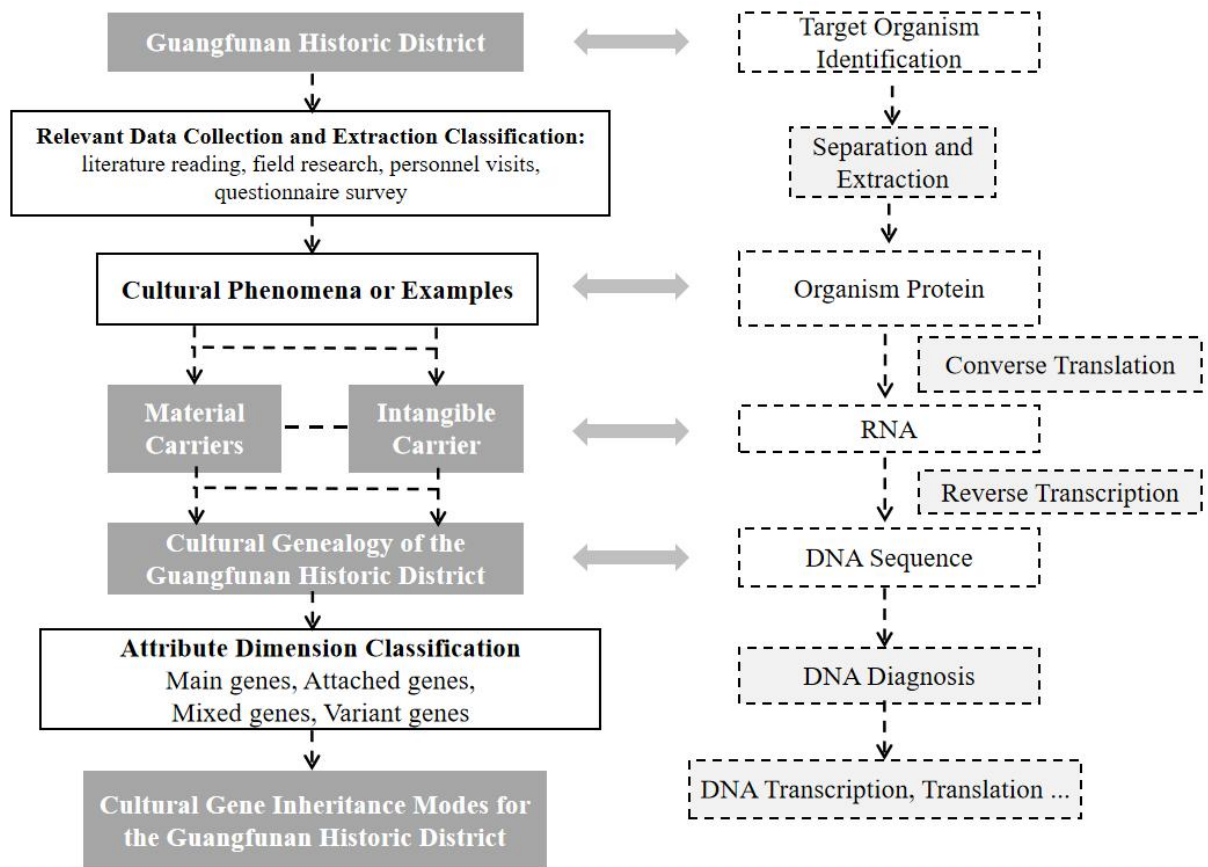


Figure 2-2 Model for Analyzing the Cultural Genes of the Guangfunan Historical and Cultural District
(Source:Drawn by Author)

Focusing on the study of Guangzhou Guangfunan Historical and Cultural District, this paper firstly completes the preliminary identification and classification of the cultural genes of the district based on the collected and collated data, dividing them into two categories: material cultural genes and immaterial cultural genes, and then analyzes the cultural genes in three levels, namely, “macro - meso - micro”, and forms a cultural genealogy reflecting the

characteristics of Guangzhou Guangfunan Historical and Cultural District through this layered analysis from “whole to details”, and according to the different attributes of the cultural genes, a secondary division is carried out, which will provide support for the subsequent targeted proposal of the conservation and renewal strategy(Figure 2-2).

2.5 Case Study of Historic and Cultural District Practices from the Cultural Genetic Perspective

2.5.1 Renewal of Brera Historic District, Milan, Italy

2.5.1.1 District Overview

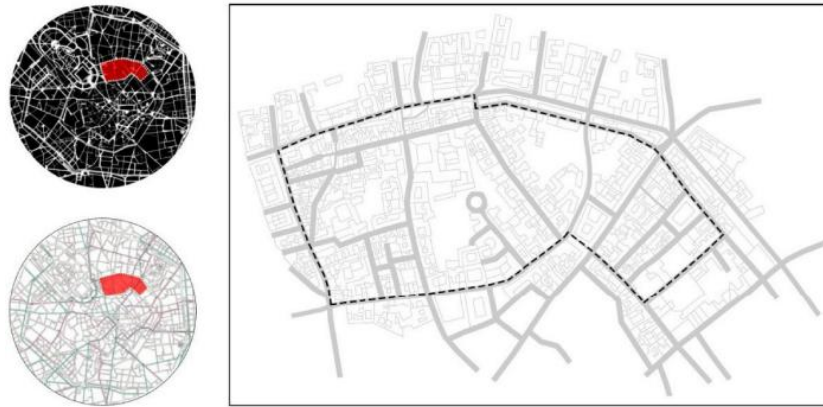


Figure 2-3 Scope of the Brera Historic District Study
(Source: Redrawn from references^[47])

The Brera Historic District, comprising the Brera area, with the Academy of Fine Arts of Brera at its heart, and the Monte Napoleone area, the “Golden Quadrangle”, has a high cultural and artistic profile in Milan and around the globe(Figure 2-3), and its cultural identity was laid down by the founding of the Academy of Fine Arts of Brera in 1776, which has evolved into a center of art and literature. Its cultural identity has been consolidated in recent times by a flourishing cultural industry and by cultural events such as Milan Design Week^[47].

2.5.1.2 Identification of Cultural Gene Carriers in the Brera Historic District

(1) Identification of Material Culture Genes

The original meaning of “cultural space” is a physical space, place, locality of cultural significance or nature^[48].

The latest governmental territorial plan (Piano di Governo del Territorio)^[49] and planning plan (Piano delle Regole)^[37] and the actual situation of the City of Milan, developed in 2009

and revised in 2016, classify the cultural spaces in the historic district of Brera into 3 major categories and 11 medium categories. Monolithic buildings are subdivided into ancient buildings (groups) with historical and architectural value, modern buildings (groups), gardens and ancillary buildings (groups) with historical and artistic witness, buildings (groups) with aesthetic value of façade, and general buildings (groups); streets and alleys are classified into traffic streets, living streets, and social streets according to their attributes and traffic capacity; and the combination of parcels is classified into enclosure, townhouse along the street, and social street according to the internal architectural form and spatial texture. According to the internal architectural form and spatial texture, the combination of plots is divided into enclosure, townhouse along the street and open space with cultural spatial identity(Figure 2-4). This classification helps to understand the spatial structure of the district and the distribution of cultural values.

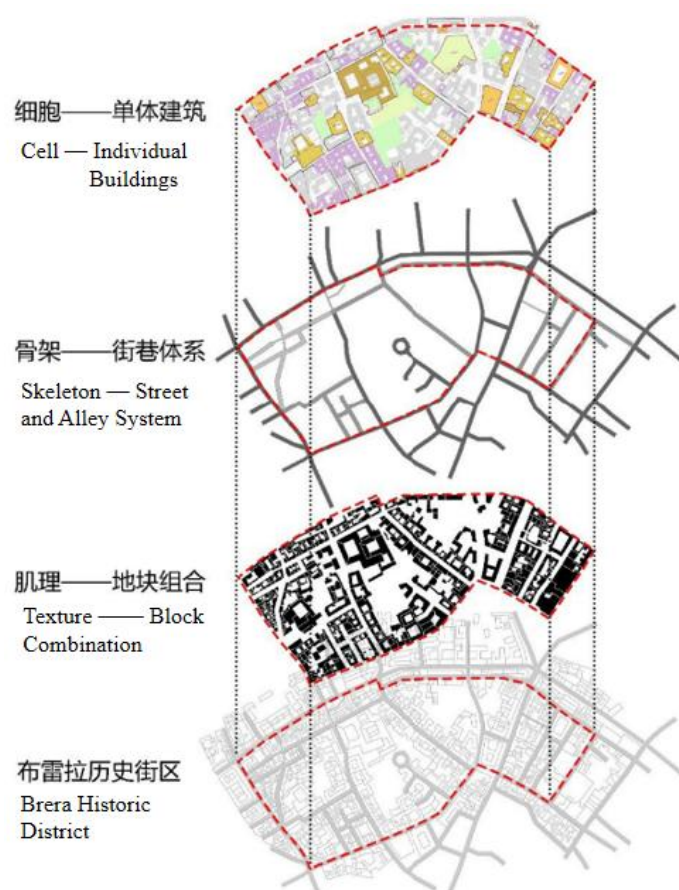


Figure 2-4 Identification of Material Culture Genes in the Brera Historic District
(Source: Redrawn from references^[47])

(2) Identification of Intangible Cultural Genes

Under the perspective of cultural genes, cultural industries in historic districts are defined

as a series of activities that are conducive to the transmission of cultural genes and compatible with the cultural characteristics of the place. Combining the *UNESCO Framework for Cultural Statistics* issued by UNESCO in 2009^[51] and the final report released by the European Statistical System Working Group on Cultural Statistics in 2012^[52], and taking into account the actual situation of the district, the existing cultural industries are classified into 2 major categories, 10 medium categories, and 33 subcategories, with the major categories covering the cultural domain and related fields, where the cultural domain covers heritage, performing arts, The cultural sector covers heritage, performing arts, visual arts and crafts, books and publishing, audio-visual and interactive media, and design and creative services; while the related sector includes education and training, tourism, retail, and real estate. Cultural genes are the soul of cultural industries, and cultural industries provide economic support for the inheritance of cultural genes^[53], but in practice, it is necessary to build a reasonable industrial chain to avoid cultural industries from being detached from the constraints of cultural genes.

From the perspective of activities, the cultural activities in the Brera Historic District are classified into 3 major categories and 12 medium categories of inherited cultural activities (e.g. art education, art collection and exhibitions), derived cultural activities (e.g. art popularization, art lectures, cultural bazaars, art restoration and preservation) and new-born cultural activities (e.g. fashion shows, design exhibitions, cultural design weeks). Different types of cultural activities enrich the cultural connotation of the district in different time dimensions, and enhance the dissemination and influence of cultural genes.

2.5.1.3 Conservation and Renewal Practices in the Brera Historic District

(1) Protection and Creation of Space

In Italy, urban morphology and architectural typology are the core theories in the protection of historical sites, analyzing the historical relevance of the street system and the texture of the plot, predicting future development and resolving spatial conflicts. Taking the Academy of Fine Arts in Brera as an example, the facade adopts the “repair the old as the old” method to restore the historical style, and the interior space is transformed by using the “parallel” and “tandem” methods, such as the use of glass, The steel structure transforms the function of the outdoor arcade and opens up the space of adjacent buildings, so that the

functions of the building are constantly superimposed(Figure 2-5), and it develops from a single fine arts college into a cultural complex, adapting to the needs of the cultural industry and activities^[54].



Figure 2-5 Functional Layout of the Levels of the Brera Complex
(Source: Redrawn from *Progetto Brera*)

(2) Inheritance and Renewal of the Industry

The Brera area represents the high level of art and design in Milan, while the Monte Napoleone area leads the fashion trend, and together they build a perfect cultural industry system(Figure 2-6). The Brera Academy of Fine Arts attracts a large number of people, leading to the development of art, handicrafts and fashion stores in the surrounding area; the flagship fashion stores in Monte Napoleone Street attract the attention of the world. Milan city government stabilizes the rental level around the Academy of Fine Arts through financial subsidies and encourages students to stay and start their own business after graduation, forming a virtuous circle of cultural characteristics retention, social and economic development and cultural genes inheritance.

(3) Continuation and Organization of Activities



Figure 2-6 Brera Historic District during Milan Design Week
(Source: References^[47])

Brera Design District is responsible for the work of the district, planning multicultural

activities. For example, during Milan Design Week 2017, more than 180 cultural events were planned and more than 300 exhibitions were held, attracting a large number of tourists and citizens to participate. In addition, the antique jewelry market on the third Sunday of every month, Milan Architecture Week and the Milan Triennale have made the district an important place for cultural exchanges, allowing cultural genes to be inherited in the activities, and enhancing the district's popularity and commercial value.

2.5.1.4 Lessons Learned and Summaries

The renewal of our historic districts can learn from the experience of the historic district of Brera in Milan(Table 2-6):

Table 2-6Lessons Learned from the Brera Historic District

(Source:Drawn by Author)

Element		Strategies
Material Culture Gene	Spatial Integration	<p>(1) Conservation of individual buildings: Promote the conservation and renewal method from point to line and face to face.</p> <p>(2) Optimization of street planning: Plan building openings and setbacks according to street attributes to ensure space utilization and accessibility, with different emphasis on different functional streets.</p> <p>(3) Integration of overall texture: applying professional theories to make new buildings coordinate with the surrounding area in terms of texture and scale, and continue the spatial lineage of the district.</p>
	Industrial Activation	<p>(1) Understanding of cultural genes: Some of our districts have insufficient understanding of cultural genes when they are protected and renewed, and their business forms are homogenized. It is necessary to dig deep into the cultural genes and clarify the connotation.</p> <p>(2) Innovative industrial forms: Extend the industrial chain based on cultural genes, incorporate new forms, and create a characteristic industrial system.</p>
Intangible Cultural Genes	Activity Planning	<p>(1) Tapping into traditional folk activities: Tapping into local folk culture and organizing inherited activities such as festival celebrations and folk exhibitions.</p> <p>(2) Derivative new cultural activities: Combining hotspots and public demand, it conducts creative workshops, cultural lectures and other derivative activities.</p> <p>(3) Introducing fashionable and trendy activities: following the trend and introducing new activities such as fashion shows and technological experience exhibitions.</p>

Emphasis is placed on the organic combination of the three, space to support industrial activities, industry to help activities, activities to stimulate the vitality of space, integrated planning, the formation of a virtuous cycle of mutual promotion, and the promotion of

sustainable development of the district.

2.5.2 Chongqing Cuntan Historic District Protection Plan

2.5.2.1 District Overview

Cuntan Historic District is located in the eastern part of the Bonded Port in Jiangbei District of Chongqing, on the north bank of the Yangtze River, about 5 kilometers away from the centre of Chongqing, which is the first stop of the lower reaches of the Yangtze River to enter Chongqing by water(Figure 2-7). Cuntan was founded as a water dock, and has been a good dock on the Yangtze River in the main city of Chongqing since ancient times, and is known as the “Ancient Ferry Head of Bayu”. The district embodies the typical mountainous culture, witnesses the historical development of Chongqing, and is the largest window of Chongqing's foreign exchange from ancient times to the present.



Figure 2-7 Location of Cuntan Historical and Cultural District
(Source: Redrawn from Reference^[44])

The total area of the district is 12.54 hectares, of which the core protection area is 2.20 hectares, the construction control area is 1.93 hectares, and the style coordination area is 8.41 hectares. The current site of the district is mostly green land with barren slopes and a small number of residences, and the overall historical atmosphere is strong, with two district-level cultural relics - Guanyin Pavilion and Zhishan Bridge, as well as Cuntan old street and the old bazaar, and the conditions for the protection of historical buildings are relatively backward. Many of the historic buildings have collapsed and fallen down, and the site is deserted, in urgent need of protection and restoration.

2.5.2.2 District Cultural Gene Extraction and Repair Ideas

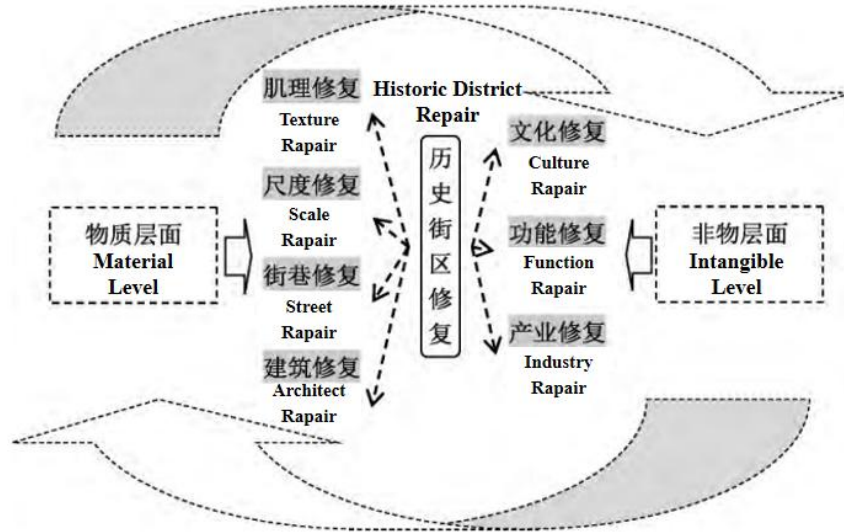


Figure 2-8 Framework for Cultural Gene Extraction and Repair

(Source: Redrawn from Reference^[44])

The repair and development of Cuntan Historic District is aimed at awakening urban memory, restoring the characteristics of mountain streets and passing on history and culture through the in-depth excavation of historical and cultural resources, identification of mountain street texture, and repair of the characteristic functions of the district. The repair idea emphasizes the dual restoration of material cultural genes and intangible cultural genes (Figure 2-8), in which the main carrier of material cultural genes is the physical space, including streets, buildings, courtyards, etc., while the intangible cultural genes are targeted to extract the cultural connotations carried by Cuntan's special functional status as a water dock and ferry terminal. By combining the repair of physical space and the recovery of intangible culture, the cultural development idea of “display-experience- preservation” is established to enhance the historical and cultural atmosphere.

2.5.2.3 Lessons Learned and Summaries

Table 2-7 Lessons Learned from Cuntan Historic District

(Source: Drawn by Author)

Element		Strategies
Material Culture Gene	Spatial	(1) Taking the early Cuntan's map relationship as the base, reshaping the layout order of streets, buildings and courtyards, inheriting the relationship between the advancement and retreat of old Cuntan's street space, the enclosure of public space, and the retraction and release of courtyard space.
	Integration	(2) Control the D/h value (width to height ratio) of the streets, optimize the

Intangible Cultural Genes		building height and yard scale, restore the low-rise architectural environment of the old street, and create the old scene of the district with distinctive layers of heavy eaves and tiles.
		(3) Restore the types of streets and alleys, such as half streets, hill city walkways, and gable streets.
		(4) Linking public spaces, linking major public spaces through the old streets, such as entrance plazas, bazaars, and riverfront spaces.
		(5) Restore the architectural features and functions on the premise of originality and integrity, adopting the Bayu residential courtyard style, with white walls and wooden frames as the main facade features, reflecting the freshness and serenity of traditional districts.
	Industrial Activation	(1) Preserve traditional forms of life and commercial functions, restore public activity spaces, restore handicraft workshops, traditional cuisine, sightseeing tours and other functions, and establish a poetry and monument gallery, a historical and cultural exhibition hall, etc., to display red culture and historical memories.
		(2) Restore traditional industries, such as eating and drinking establishments, teahouses, weaving stores, and agricultural tool stores.
		(3) Improve the traditional industry chain, such as supporting small workshops for food stores with special soybean flower grinding and bean curd making, and providing sites for farming practice to attract urban residents to experience rural farming practice.
	Activity Planning	(1) Protecting surviving cultures, such as bazaar culture and Buddhist culture.
		(2) Excavating and restoring disappeared historical cultures, such as poetry culture and antiwar culture.
		(3) Introducing intangible cultural heritage, such as opera culture, folklore, and handicraft production.

The repair of the Cuntan Historic District is carried out on two levels: explicit material space and implicit intangible culture(Table 2-7). In terms of material space, the traditional appearance of the district is restored through repairing the spatial texture, optimizing the spatial scale, and restoring the street space and architectural style. In terms of intangible culture, the historical and cultural connotations of the district are inherited through the protection of surviving culture, excavation and restoration of historical culture, introduction of intangible cultural heritage, and repair of social functions and industrial economy. This comprehensive restoration strategy aims to realize the comprehensive revival of the historical and cultural districts, inherit the regional culture of Chongqing, and store the nostalgia of the city.

2.5.3 Renewal of the Xi'an Yisu Theater Historic District

2.5.3.1 District Overview



Figure 2-9Xi'an Yisu Theater Historic District

Source:<https://mp.weixin.qq.com/s/ZyffRNX-lvnnTRqEzGFa8w>

The Yisu Theater Historic District is located in the Xin Cheng District of Xi'an (Figure 2-9). It is bordered by Anban Street to the east, East Street to the south, North Street to the west, and Xiyi Road to the north. The block covers a total area of 7.5 hectares. Within this area are three cultural relics units of modern and contemporary historical value: the Yisu Theatre, the Zhonglou Post Office, and the Zhonglou Branch of Xian Xinhua Bookstore. Since 2020, Yisu Theater has launched a comprehensive upgrade and renovation project aimed at optimizing the business formats in the area. The renovation of the Yisu Theater Historic District focuses on the Yisu Theater, an ancient Qinqiang opera troupe in Xi'an. It integrates various functions and forms of expression such as “museum, exhibition, performance, and commerce” and has successfully created the first comprehensive opera cultural district in China that combines Qinqiang opera performance, a cluster of Qinqiang museums, and opera cultural and creative industries.



Figure 2-10Historical photographs of Yisu Theater

Source:<https://mp.weixin.qq.com/s/ZyffRNX-lvnnTRqEzGFa8w>

Founded in Xi'an in 1912, Yisu Theater was originally named Yisu Lingxue Theater and later renamed Xi'an Yisu Theater(Figure 2-10). It is known as the “progenitor troupe” and “revolutionary cultural troupe.” Yisu Theater is the first new type of art group in China that integrates opera education with script writing, directing, and acting. It has trained a large number of opera talents. In 2014, Yisu Theater was designated as a key national intangible cultural heritage protection unit by the Ministry of Culture. In 2020, it was rated as a research and experimental education base for middle and primary school students in Shaanxi Province by the Education Department of Shaanxi Province.

2.5.3.2 Identification of cultural genes in the Yisu Theater Historic District

(1)Material Culture Gene Identification

Material culture gene is concerned with the spatial carrier of culture, and spatial texture, street scale and architectural style are the three main forms of external expression of culture gene.

Spatial texture intuitively reflects the structural form and type of a city, the historical pattern of the people living in it, and the cultural characteristics of the geographical environment in which the city is located. The scale of the street determines the behavior and feelings of people in the street space, and the construction of the street, especially the change of the street scale, directly affects the daily life of the residents and the foreign tourists' perception of the characteristics of the city. The buildings in the districts record the changes of the times, contain the regional cultural characteristics, filled with different architectural wisdom, is the most direct spatial carrier of the city's intangible cultural genes. For example, the Yisu Theater and the Bell Tower Post Office in the Yisu Theater Historic District.

(2)Intangible Cultural Gene Identification

Intangible cultural genes are different from tangible cultural genes in that they are mostly manifested in living phenomena such as living habits, traditional skills, local customs, national spirit and national ethos, which are preserved and inherited in the course of historical development. Intangible cultural genes emphasize the participation of human beings, reflecting the intrinsic meaning of cultural genes.

Since becoming a cultural landmark in Xi'an in the 1930s, Yisu Theater has continued to fulfill its primary cultural functions. The Qinqiang opera culture carried by Yisu Theater is

one of the widely influential folk art forms in the northwestern region. In the inheritance of artistic genes, efforts are made to protect the scripts, costumes, musical instruments, makeup, and props contained in the Qinqiang opera genre. Through opera teaching and performances, the uniqueness and particularity of Qinqiang art in the northwestern region are promoted and continued. Centering on the protection, display, and inheritance of Yisu Theater and Qinqiang opera, the functions and spaces of the entire block are restructured, which is of great significance for the continuation and development of Xi'an's unique opera cultural lineage.

2.5.3.3 Lessons Learned and Summaries

Table 2-8 Lessons Learned from the Yisu Theater Historical and Cultural District
(Source: Drawn by Author)

Element		Strategies
Material Culture Gene	Spatial Integration	(1) Protecting core buildings: with the protection of the characteristic local opera culture of Qinqiang as the core, the cultural heritage buildings such as the Yisu Theater, the Yisu Mansion and the Xi'an Postal Mansion will be retained and used in their entirety, so as to preserve Xi'an's characteristic opera cultural symbols and memories of the times.
		(2) Building renovation and new construction: demolish the buildings that are not in harmony with the cultural heritage buildings, upgrade and renovate the Yisu Theater Centennial Museum in conjunction with the original site of the Yisu Theater, and construct a new dialect square with a theater and the Chinese Qinqiang Art Museum, etc., so as to strengthen the protection and development of the functions of the Qinqiang opera performances, teaching of opera, script creation, and design of opera costumes.
		(3) Building facade restoration: transforming the characteristic Qinqiang cultural symbols into the basic principles and characteristic elements of public space and architectural design of the district, uniformly upgrading and renovating the facades of the preserved buildings, and strengthening the sense of spatial atmosphere of Qinqiang culture.
Intangible Cultural Genes	Industrial Activation	(1) Relocate the Xinhua Bookstore back to the original site of the Zhonglou Bookstore, a cultural heritage building, and add a variety of commercial formats such as Xi'an's characteristic old commercial street and Dongbango situational themed cultural block, to awaken the youthful memories of the old generation of Xi'an and the trendy inspiration of the new generation of young people.
		(1) Expand the influence of Qinqiang and cultivate a new generation of Qinqiang enthusiasts through up-to-date Qinqiang repertoire and regular Qinqiang charity performances.
	Activity Planning	

The Yisu Theater Historic District has achieved the inheritance and development of

Xi'an's characteristic opera culture by protecting and revitalizing the cultural gene of Qinqiang, a distinctive local opera(Table 2-8). In terms of material cultural genes, it has preserved the historical and cultural connotations of the Ming and Qing city walls, recreated the spatial texture of the Tang Chang'an city, and properly protected modern and contemporary cultural relics buildings. Regarding intangible cultural genes, it has continued Xi'an's opera tradition and social life through opera teaching, performances, and the construction of scenario-based thematic cultural blocks. By adopting the approaches of gene conservation and gene repair, the Yisu Theater Historic District has not only protected traditional culture but also injected new vitality, becoming a new cultural landmark in Xi'an.

2.6 Summary of the Chapter

This chapter analyzes the characteristics and roles of cultural genes, classification methods and principles of determining cultural genes, and constructs a model for analyzing the cultural genes of Guangfunan Historical and Cultural District. Under the perspective of cultural genes, it analyzes the practice cases of several historic districts, interprets the methods of constructing the cultural genealogy and the specific strategies of updating, and summarizes the experiences that can be learned from them,so as to provide theoretical support and practical reference for subsequent research..

Chapter3 Guangzhou Guangfunan Historical and Cultural District Overview and Cultural Gene Analysis

Based on the study of the theory of cultural genes, this chapter focuses on the specific research object of Guangzhou Guangfunan Historical and Cultural District. Through comprehensive research and analysis of its current situation, we will explore the rich cultural genes contained in the Guangfunan Historical and Cultural District, and analyze its manifestations in the material and intangible levels. The purpose of this chapter is to analyze the cultural genes of the Guangfunan Historical and Cultural District, reveal the inheritance and evolution law of its cultural genes, construct the cultural genes of the Guangfunan Historical and Cultural District, and provide the basis and guidance for the subsequent development of the inheritance strategy of the cultural genes.

3.1 Overview of the Current Status of the Guangfunan Historical and Cultural District

3.1.1 Location of Guangfunan Historical and Cultural District

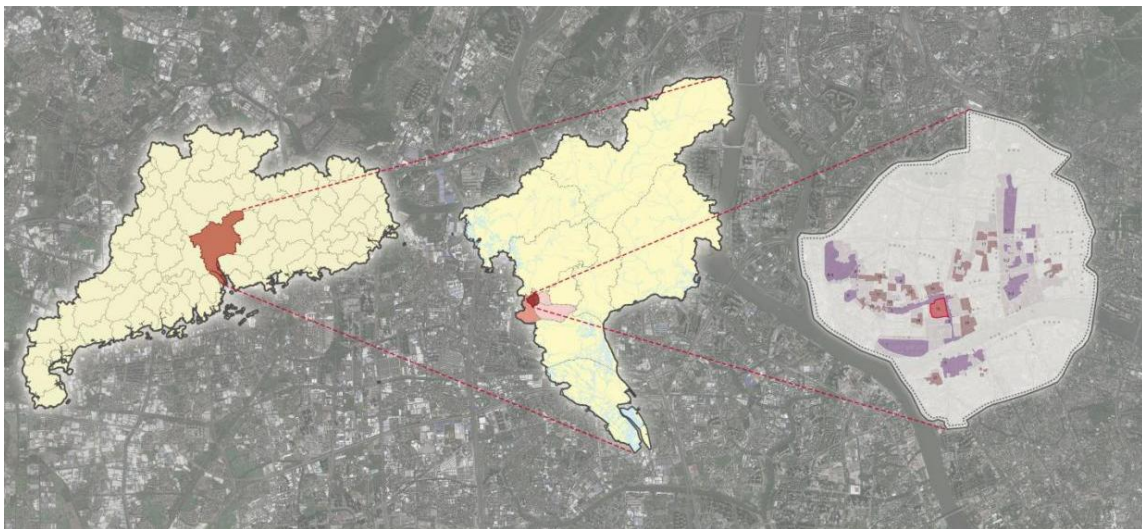


Figure 3-1 Guangfunan Historical and Cultural District Location Analysis
(Source: Drawn by Author)

Located in the southwest of Liwan District, Guangzhou City, Guangdong Province (Figure 3-1), Guangfunan Historical and Cultural District is a well-preserved historic

district in the old city of Guangzhou, featuring a typical traditional commercial street pattern, and an important part of the core area of Guangfu's commerce and culture. The planning scope of the historic district extends from Thirteen Row Road and Cedar Bar Road in the south to Deningli and Wanzhongshouyue in the north, from Huaiyuanyi and Kangwangnan Road in the west to Houchong Street and Guyi Street in the east.

3.1.2 Functional Format Analysis

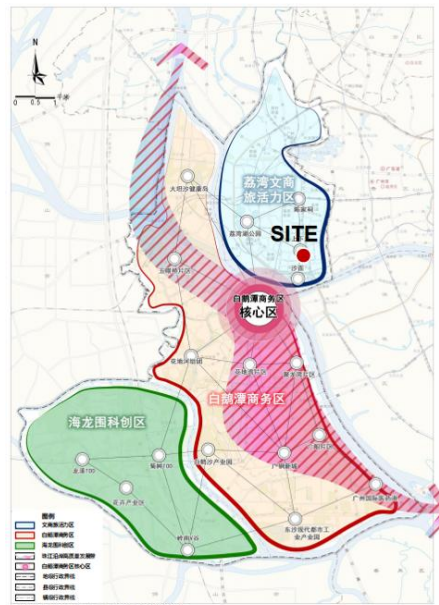


Figure 3-2 Plan of the Spatial Structure of the Land in Liwan District

Source: *Liwan District, Guangzhou City Land Space Master Plan (2021-2035)*

According to the “*Liwan District, Guangzhou City Land Space Master Plan (2021-2035)*”, Liwan District has constructed a spatial structure of “one core, one belt and three platforms”(Figure 3-2), i.e. the core area of the Baigutan Business District, the high-quality development belt along the Pearl River, the vibrant area of the Liwan Cultural, Commercial and Tourism District, the Baigutan Business District, and the Science and Technology Creation District of Hailongwei. The “Liwan Culture, Commerce and Tourism Vitality Zone” in which the Guangfunan Historical and Cultural District is located, as the core area of Guangzhou's famous historical and cultural city, is extremely rich in historical and cultural resources, and aims to promote the deep integration and synergistic development of culture and tourism, and comprehensively enhance the protection of cultural and historical districts through the promotion of the protection and adaptive use of historical and cultural

districts, the improvement of transportation infrastructure, the comprehensive management of the environment and the micro-renovation of the old districts.

At present, the Guangfunan Historical and Cultural District is one of the few composite districts in Guangzhou's historic urban areas with multiple functional attributes, focusing on commerce, warehousing, catering and residential functions(Figure 3-3). Relying on the Shangxiajiu Pedestrian Street and Thirteen Houses Clothing Trade, the area has formed a diversified economic pattern with clothing wholesale and retail, catering services, tourism and other businesses. Due to the properties of the traditional wholesale trade market and warehousing logistics, most of the buildings in the district have functions related to it, and the stores as wholesale and retail also take on the warehousing function, while there are relatively few public service facilities, restaurants, retail businesses, hotels, and other businesses.

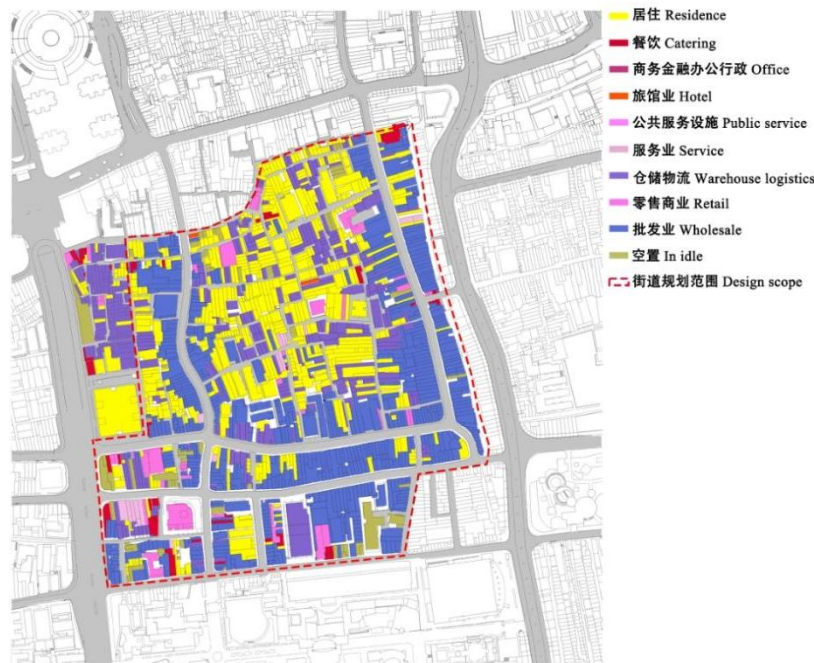


Figure 3-3 Distribution of businesses in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

3.1.3 Status of District Construction

3.1.3.1 Community Overview

The Guangfunan Historical and Cultural District consists of four communities(Figure 3-4), namely, Yangren East Community, Yangren West Community, Guyi Street Community and Huaiyuan Community. The current number of permanent residents and floating

population in the district is about 30,090 in total, with 3,701 household residents and 3,707 foreign residents; the number of renters in the permanent population is slightly higher than the number of owner-occupants, but at the same time, the large number of floating population promotes the spatial vitality of the local urban streets.



Figure 3-4Guangfunan Historical and Cultural District Community Zoning
(Source:Drawn by Author)

The aging characteristics of the local population is more obvious, according to the community statistics in 2023, people aged 60-65 accounted for 15.01%, and those aged 65 or above accounted for 17.53%; people aged 0-14 accounted for 6.10%, and those aged 15-59 accounted for 61.36%.

3.1.3.2 Street System

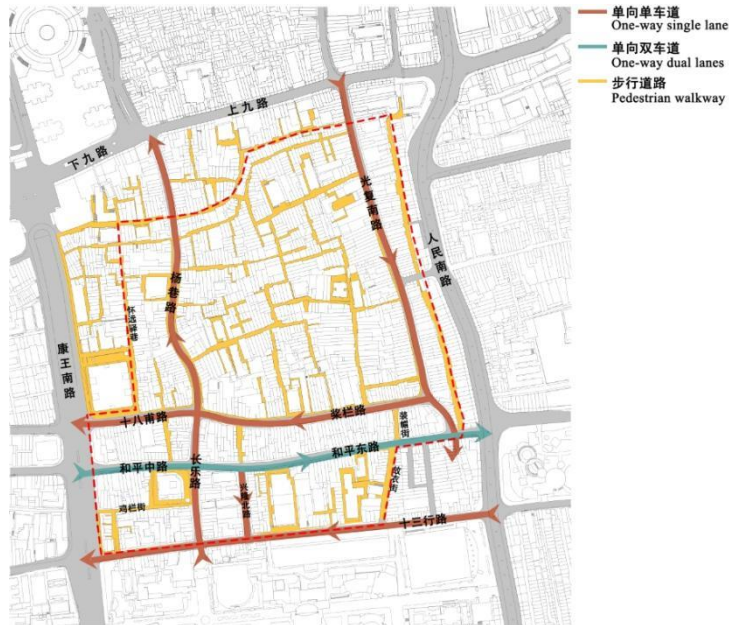


Figure 3-5Analysis of the Current Conditions of the Streets and Alleys
(Source:Drawn by Author)

The street and alley layout of the Guangfunan Historical and Cultural District is the crystallization of long-term historical development, and its spatial structure is closely linked to the natural environment, socio-economic factors and historical evolution. The street system of the district consists of vertical Guangfunan Road, Yangxiang Road, Changle Road and Xinglongbei Road, and horizontal Jianglan Road, Shibafu Road, Hepingdong Road, Hepingzhong Road and Thirteen Hongs Road as the main vehicular arteries, supplemented by pedestrian streets such as Guyi Street, Zhuangmao Street, Jilan Street and Huayuanyi Alley, as well as a number of narrow masonry streets and alleys, such as Yang Rennan Alley, Yangrenli Alley, Yangxin Alley, Xirong Alley, etc. The district is a one-way two-lane road except for Hepingdong Road and Hepingzhong Road, which are one-way two-lane(Figure 3-5). These streets and alleys not only form the basic skeleton of the district, but also form rich node squares, corner spaces and transitional gray spaces.

However, the street space of Guangfunan Historical and Cultural District has become narrow and crowded under the impact of commercial activities(Figure 3-6). The prosperity of the garment wholesale industry has increased the daily flow of people in the district, but it has also led to the accumulation of a large amount of goods on both sides of the street, and the frequent movement of handcarts and trucks carrying goods, which affects the experience of the district and the hygiene condition of the street, which seriously affects the passage of the streets and the lives of the residents. In addition, some streets are occupied by temporary stalls and billboards, further squeezing public space.



Figure 3-6 Street Space Occupied by Goods and Battery-Operated Vehicles
(Source: Photographed by Author)

3.1.3.3 Status of the Building

As a well-preserved traditional historic district, Guangfunan has a large span of time for the construction of buildings in the district, most of which were built in the late Qing Dynasty to the Republic of China, or after the establishment of New China, with street houses and bamboo houses as the main ones; a small number of them were built after 1990, which mainly consist of multi-storey modern residences, high-rise or small high-rise modern residences, and office buildings(Figure 3-7). The traditional buildings of the late Qing Dynasty and the early Republic of China coexist with the modern style buildings, interlacing and distributing, and even some of the buildings have been linked together, presenting diversified architectural styles and rich architectural levels.

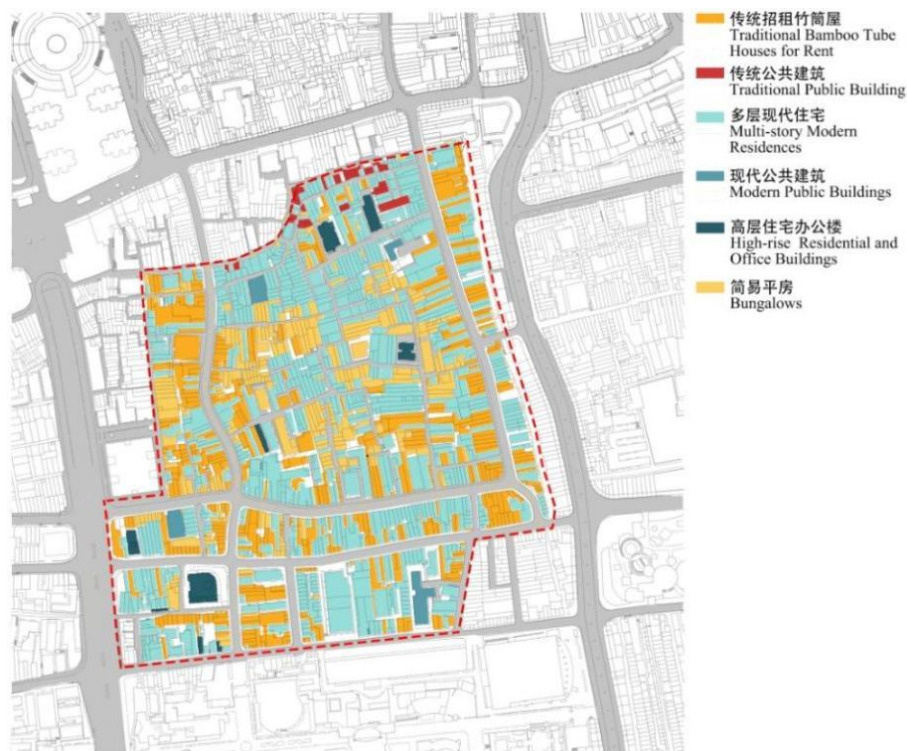


Figure 3-7 Status of Buildings in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

The overall height of the buildings in the district is relatively low and gentle, and most of the building heights are kept below 18 meters, basically continuing the building heights of the Republican construction period. Localized buildings are higher than 18 meters, mostly multi-storey modern residences, high-rise or small high-rise modern residences, and office buildings. There is one building in the block with 10 floors and above, i.e. the Harmony Building, which is located on the south side of Hepingzhong Road and is a residential

building.

Most of the buildings in the block are brick and concrete structures, and some of the buildings have different degrees of deterioration in their structures and facade materials due to their age or being vacant and unoccupied, and the residents' own remodeling has also affected the original form and facade of the buildings to different degrees.

3.1.4 Division of Building Ownership

According to the information provided by the community and site visits and surveys, “public housing” in the Guangfunan Historical and Cultural District can be categorized into four types of ownership: public, escrow, leasehold and trustee (Figure 3-8). Two types of houses, namely, double-generation houses and private houses, are also included in the category of public housing. The public housing in the area is dominated by the rental and public property types, with 135 public property buildings, 315 rental property buildings, 48 escrow property buildings, and 12 trust property buildings in the district.

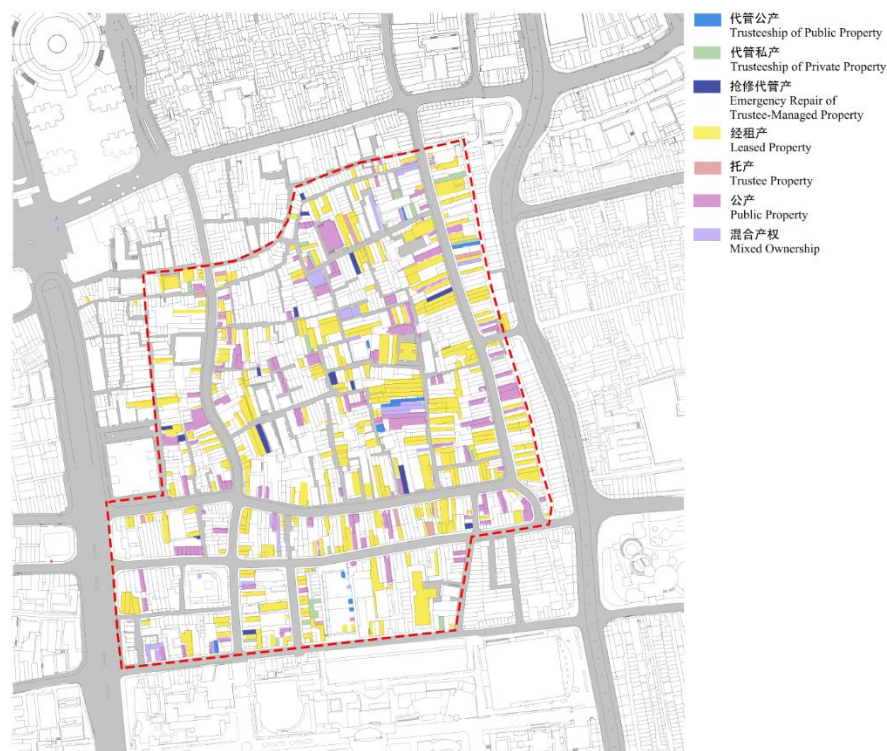


Figure 3-8 Distribution of Public Housing in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

Public housing along the main roads is dominated by first-floor stores and second-floor accommodations, with fewer whole commercial buildings or whole buildings for

accommodations; while public housing in streets and alleys is dominated by public housing with whole accommodations, with fewer commercial stores, which has led to a number of residents directly utilizing the space in streets and alleys to set up stalls for sale(Figure 3-9).

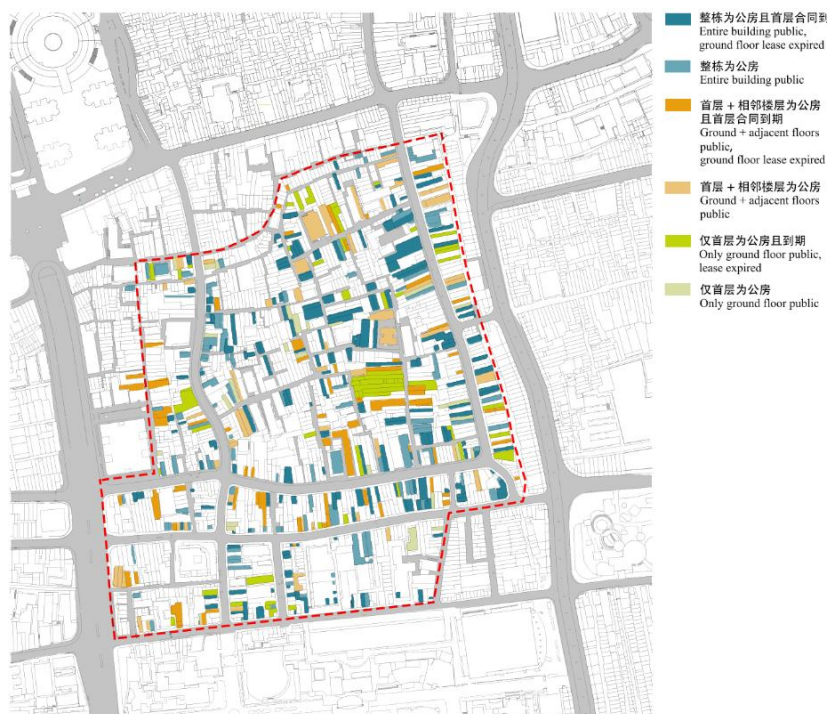


Figure 3-9 Division of Available Space for Public Housing
(Source: Drawn by Author)

3.2 Analysis of Material Culture Genes in Guangfunan Historical and Cultural District

When exploring the material cultural genes of Guangfunan Historical and Cultural District, the material space of Guangfunan Historical and Cultural District is regarded as a complex of cultural genes, and the cultural genes of Guangfunan Historical and Cultural District are identified in terms of macroscopic urban space, mesoscopic street and alley space, and microscopic architectural styles.

3.2.1 Macro Level: Urban Space Genes

3.2.1.1 Pattern of Guangzhou Historic City and Distribution of Historic Districts

As a famous historical and cultural city, Guangzhou has 27 historic districts, of which 24 are located inside the historic district and 3 outside(Figure 3-10). The Guangfunan Historical

and Cultural District is strategically located in Liwan District, which has 14 historic districts and is the most concentrated area of historic districts in Guangzhou. According to the “*Conservation Plan for Famous Historic and Cultural Cities of Guangzhou (2021-2035)*”, the district is adjacent to the Shangshangjiu-Tenth Fu Historic District to the north, the Guangzhou Cultural Park to the south, the Renminnan Historic District to the east, and the Hepingzhong Historic District to the west, which gives it a significant comprehensive advantage in terms of commercial, cultural and social functions.

The historic districts in the old part of Liwan are dominated by traditional buildings such as Xiguan Mansion and riding streets, such as the Enning Road and Duobao Road districts, which show a strong Xiguan culture. These districts not only carry traditional residential functions, but also integrate various functions such as commerce and cultural experience, making them a living museum of Guangzhou's traditional culture.

These 27 historic districts fully reflect the deep cultural genes and heritage of Guangzhou. These districts not only preserve historical buildings and traditional features, but also integrate modern functions, showing the unique charm of Guangzhou as a famous historical and cultural city.

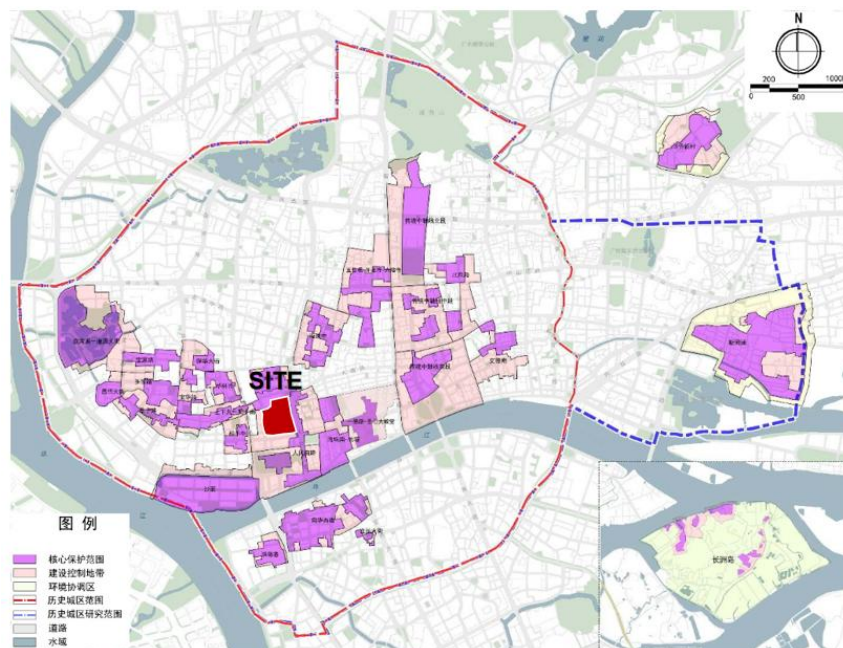


Figure 3-10 Pattern of Guangzhou Historic City and Distribution of Historic Districts
Source: *Conservation Plan for Famous Historic and Cultural Cities of Guangzhou (2021-2035)*

3.2.1.2 Morphological Evolution of the Guangfunan Historical and Cultural District

(1) Song and Yuan Dynasties Period

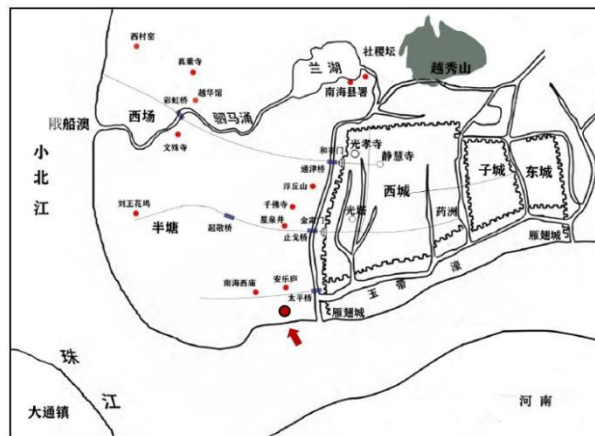


Figure 3-11 Key Construction Elements in the Xiguan Area After the Establishment of the Western City in the Song Dynasty

(Source: Redrawn from references^[42])

The Western Moat outside the West Gate served as a natural defensive moat, and its entrance to the Pearl River had been the closest anchorage to Guangzhou since the Qin and Han dynasties, fostering bustling commercial activities since ancient times.

During the Song Dynasty, the Inner City was rebuilt (1045) following the Nong Zhigao incident, and later the Eastern City (1066) and Western City (1071) were successively constructed (Figure 3-11), enclosing the residential areas outside the Inner City and forming a “tri-city spatial configuration.”

In the Yuan Dynasty's Zhiyuan era, a “Taiping Bridge” was built at the southern entrance of the Western Moat. Spanning the high embankments on both sides of the moat, it connected Xiguan with the southern riverside streets. To the east, the bridge led to the emerging commercial district south of the city, while to the west, it extended to Xilaichudi and Bai Tian Town. This land route followed the Pearl River shoreline, forming the southern transportation framework of the Xiguan area. It provided the spatial foundation for commercial activities along the Yudai Moat and corresponds to today's Shangxiajiu Road.

(2) Ming Dynasty Period

In the fourth year of the Yongle reign (1406), the Huaiyuan Post—a facility dedicated to receiving tributary envoys—was established at Xianzibu in the western suburbs of the city.

The Huaiyuan Post was a product of the Ming Dynasty’s “tributary trade system.” During the early Ming period, strict maritime prohibitions were enforced nationwide, banning private overseas trade, making tributary trade the primary form of foreign commerce.



Figure 3-12 Space Distribution of Xiguan Shibapu Street
(Source: Redrawn from Reference^[42])

By the late 15th to early 16th century, the “Shibapu Long Street” emerged, running parallel to the Xihao Channel and the Pearl River (Figure 3-12). This commercial space was built upon the existing urban thoroughfares, district streets, and wharves in the western suburbs, and its development was further influenced by the southern city’s commercial district^[42].



Figure 3-13 The Xiguan Water System after the Excavation of the Daguan River
(Source: Redrawn from Reference^[42])

In the fifth year of the Jiajing reign (1526), Tu Xiang, the Guangdong Censorate

Inspector, excavated the Daguan River to improve shipping conditions toward the Yudaihao, significantly boosting Xiguan's growth(Figure 3-13) . During the excavation, the north-south waterway at the Western Moat's entrance was blocked, and the Taiping Bridge was relocated east of the Fourteenth Pier. In the late Ming Dynasty, the Daguan River underwent multiple modifications due to two major reroutings. By the Qing Dynasty, sections of the Daguan River silted up and ceased operation, with the stretch from Ruixing alley to Copper Street being converted into an underground culvert.



Figure 3-14 River Channel Encroached by Residential Houses after Siltation of Daguan River
(Source: Redrawn from Reference^[44])

After shipping halted, residents along the riverbanks encroached on the riverbed, constructing houses that eventually occupied the original waterway entirely. This led to the formation of densely compact “Bamboo Houses”(Figure 3-14) . Initially used as shops, these structures gradually transitioned into residential dwellings as commercial activity faded along the former canal, mirroring the fate of nearby riverside businesses^[44].

(3) Qing Dynasty Period

In the 28th year of the Kangxi reign (1684), the Qing government lifted maritime trade restrictions, leading to increased foreign vessel traffic in Guangzhou. Foreign merchants rented hong merchants' warehouses near the Huaiyuan Post as temporary residences and storage, primarily along the riverfront south of the post. Sediment deposition and deliberate land reclamation expanded the Pearl River's shoreline, enabling the development of streets like Denglong Street (modern Hepingzhong/dong Roads) and Thirteen Hongs Street. The Thirteen Hongs district became the new trade hub for foreign merchants, replacing the

Huaiyuan Post(Figure 3-15) .



Figure 3-15 A map of the commercial streets of Xiguan, Guangzhou, drawn by John Friedrich Dalman in 1748

(Source: *During the journey from Gothenburg to Canton and back, starting 19 February 1748 and ended 11 July 1749.* The Swedish Royal Academy of Science.)

The “Single Port Trade Policy” (1757) under Emperor Qianlong further accelerated the area’s prosperity, designating Guangzhou as China’s sole foreign trade port. The Thirteen Hongs peaked as the “Southern Treasury of the Emperor.” As the Pearl River’s north bank shifted southward, the Foreign Factories emerged south of the now-inland Huaiyuan Post.

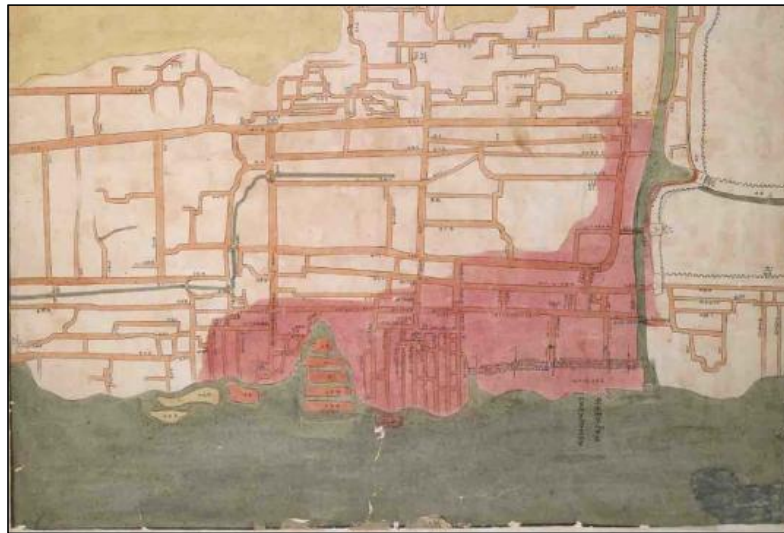


Figure 3-16 Part of the 1822 map of Xiguan, Guangzhou
(Source:The British Library)

The Great Fire of Xiguan on November 1, 1822, began at a bakery in the Seventh Pu, spreading to Copper Street (Guangfunan Road), the Thirteen Hongs by dawn, and Shanmulan by noon, lasting three days. The fire devastated the Thirteen Hongs’ spatial order, destroying nearly all factories.

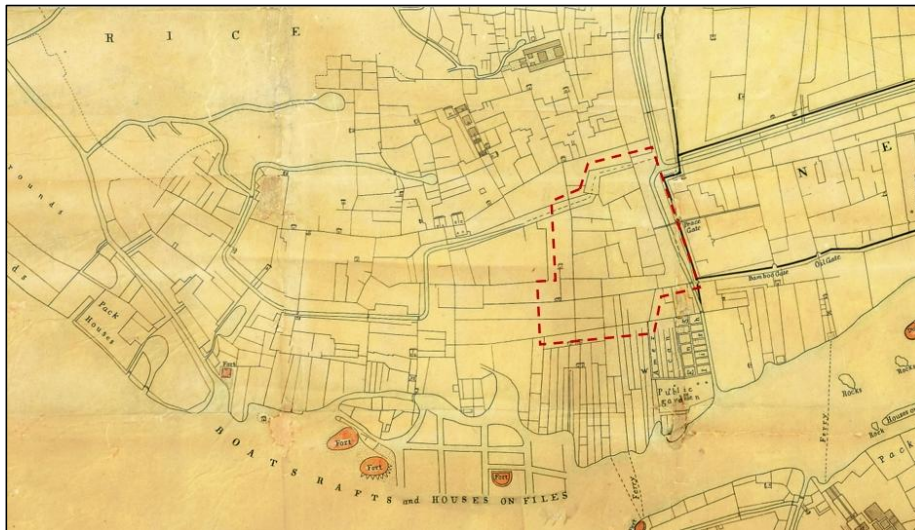


Figure 3-17 Spatial Pattern of the 1855 Guangfunan Historical and Cultural District

Source: 1855 Map of Fowen

A contemporary 1822 map of Xiguan uses four colors(Figure 3-16) : red (fire-affected zones), dark gray (rivers), white (urbanized areas), and light yellow (undeveloped land). Post-fire redevelopment shifted land use from commercial to residential^[45].



Figure 3-18 Spatial Pattern of the 1855 Guangfunan Historical and Cultural District

Source: 1860 Map of Fowen

From the Song to Qing dynasties, Shameen served as a key trade and leisure hub. The Ming Dynasty built the Huajie Pavilion) on Shicui Zhou as a merchant wharf(Figure 3-17) . In 1859, Britain and France forced the Qing to excavate the Shaji Chong, isolating Shameen as a concession. Two bridges connected it to the mainland(Figure 3-18) .

(4) Republican period



Figure 3-19 Spatial Pattern of the 1908 Guangfunan Historical and Cultural District (Black Dotted Line Is the City Wall)

Source: Partial Map of Guangzhou City, 1908.

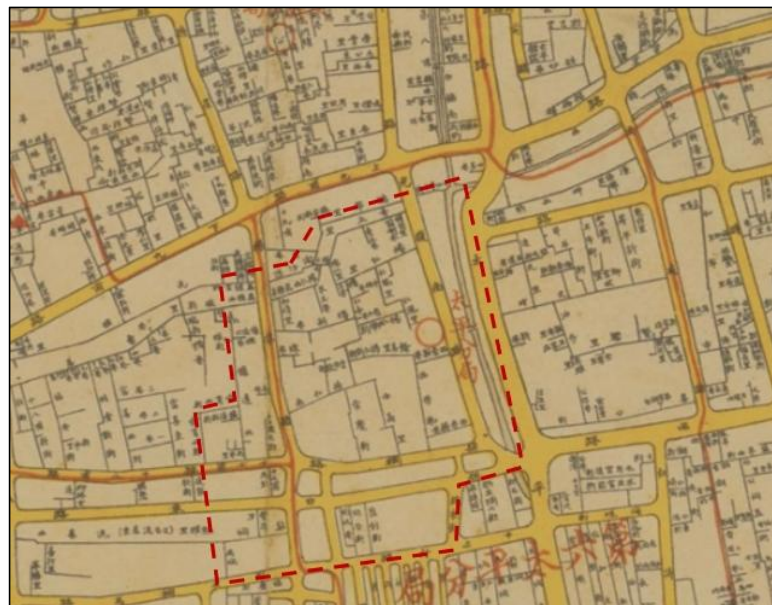


Figure 3-20 Spatial Pattern of the 1924 Guangfunan Historical and Cultural District

Source: Complete Road Map of Guangzhou City, 1924

During the traditional period, city walls served not only as the core component of urban defense systems but also functioned as an institutional mechanism for spatial control and class governance. Beyond their role as boundary markers and defensive installations, these walls were integrated with garrison troops and patrol offices, forming a comprehensive urban defense system that combined spatial configuration with administrative control (Figure 3-19). The walled urban space stood as the central locus of feudal authority, with the city walls

themselves symbolizing the established social order. Consequently, the demolition of these walls represented not merely the overthrow of Qing rule but also embodied aspirations for establishing a new social paradigm.

The Guangzhou Military Government prioritized wall demolition from its inception. In February 1912, the dismantling of the Great East Gate marked the commencement of this urban transformation initiative. Following the establishment of the Municipal Office in 1918, the demolition process became systematized. Adhering to the principle of converting wall foundations into roadways, the Municipal Office completed the removal of the ancient walls by autumn 1920. The former wall foundations, combined with pre-existing official thoroughfares and riverfront embankments, formed the skeletal framework of a new urban road network, facilitating the gradual development of prosperous commercial districts along the waterfront^[42].

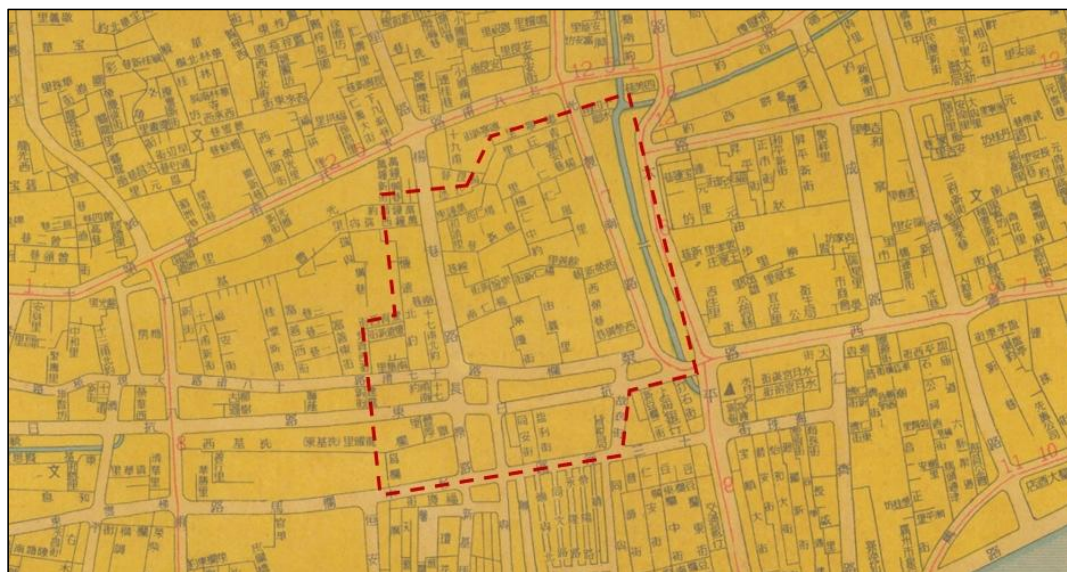


Figure 3-21 Spatial Pattern of the 1948 Guangfunan Historical and Cultural District

Source: Detailed street map of Guangzhou in 1948

While the Municipal Office's 1918 demolition and road construction efforts focused primarily on the Old City and New City areas, large-scale road development in Xiguan district was delayed until after 1925 (Figure 3-20). This infrastructure expansion eliminated the previous fragmented urban fabric characterized by numerous street gates. By the late 1930s, key arteries in the Guangfunan Historical and Cultural District - including Copper Street (now Guangfunan Road), Yangxiang alley (now Yangxiang Road), Denglong Street (now

Hepingdong Road), Jianglan Road, Thirteen Hongs Road, and Shibafu Road - had been widened and connected, establishing the district's fundamental urban pattern(Figure 3-21) . Meanwhile, merchants gradually occupied and developed the formerly fire-ravaged Thirteen Hongs area, constructing street-front commercial buildings for general merchandise trade.

(5)From the Founding of New China to the Present

Following the liberation, new transportation routes were established. Beginning in the 1960s, Guangzhou constructed a trolleybus system, with Line 2 and Line 3 connecting Cultural Park on the southern edge of the Guangfunan Historical and Cultural District to Tianhe Airport and the Canton Fair complex respectively. In 1966, Taiping South Road (formerly located east of Guangfunan Road) was renamed Renmin South Road. With the completion of Guangzhou Railway Station in 1974, traffic along Renmin Road (originally Taiping Road) became increasingly congested. To alleviate and reorganize traffic flow, China's first elevated highway was built along Renmin Road in 1987, connecting Xidi with the Liuhua Exhibition Hall of the Canton Fair and strengthening north-south connectivity. This development contributed to the rise of the Thirteen Hongs garment wholesale market. Construction of Kangwang Road began in 1996.



Figure 3-22Current Spatial Pattern of Guangzhou's Guangfunan Historical and Cultural District
Source: Amap Satellite Image

During the post-reform and opening-up era, the Guangfunan and Thirteen Hongs areas experienced revitalization, benefiting from Guangzhou's robust garment manufacturing and


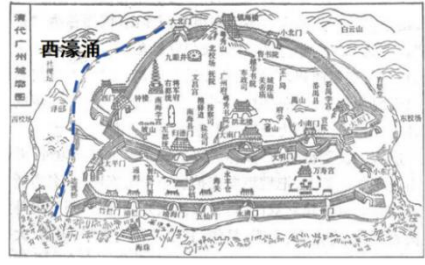
commercial trade industries. Gradually expanding in scale, the area became one of China's largest garment wholesale markets(Figure 3-22) . In the early 21st century, impacted by the rise of Taobao e-commerce, the overall business model transformed from wholesale operations (dealing in accessories, fabrics, and garments) to retail, e-commerce livestreaming, and online wholesale stores.

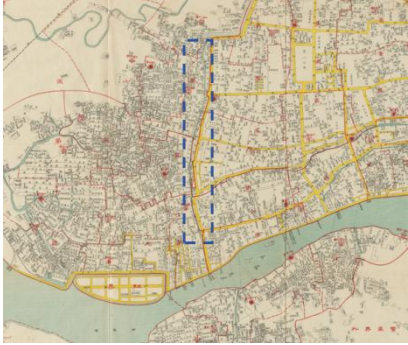
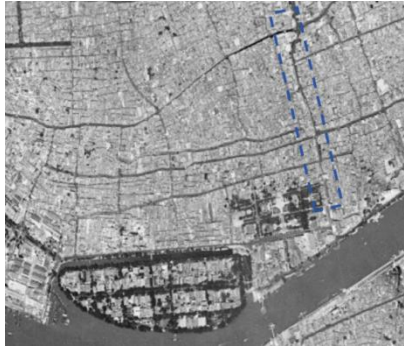
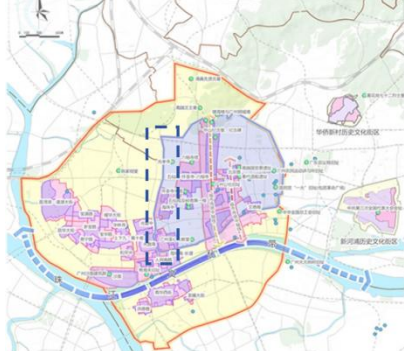
3.2.1.3 History of Xihao Channel

Located east of Guangfunan Historical and Cultural District, Xihao Channel served as a vital watercourse along Guangzhou's ancient western perimeter. Dating back to the Song Dynasty (960-1279 AD), this approximately 5-kilometer waterway witnessed Guangzhou's urban development, commercial prosperity, and cultural evolution(Table 3-1).

Table 3-1History of Xihao Channel

(Source:Drawn by Author)

Period	Regional Analysis Map	Changes
Song Dynasty	 <p>the Three Cities of Guangzhou during the Song Dynasty Source: Baidu Images</p>	<p>According to the “Historical Manuscript of Yuexiu”, when Cheng Shimeng built the western city of Guangzhou during the Xining period of the Northern Song Dynasty, he utilized the natural waterways in the western part of the city to excavate Xihao Channel, which was used as a moat. In the third year of Song Jia Ding (1210), Chen Xian, a strategic envoy, dredged Xihao Channel and opened it up to the Pearl River, making it officially an important defensive waterway for the city of Guangzhou. According to the “Historical Geography of Guangzhou” written by Mr. Zeng Zhaoxuan, the width of Xihao Channel in the Song and Yuan Dynasties was more than 20 zhang, which translates to more than 70 meters.</p>
Mid-Qing Dynasty (1806)	 <p>Qing Jiaqing “The Castle of Guangzhou” Source: Yangcheng Ancient Notes</p>	<p>According to the “History of Yuexiu”, until the middle of the Qing Dynasty, Xihao Channel was still accessible to oars.</p>

<p>Around 1921</p>	 <p>Part of the 1924 Guangzhou City Road Map</p> <p>Map</p> <p>Source: 1924 Guangzhou City Road Map</p>	<p>In 1921, the government cleaned up Xihao Channel and changed the section from Hepingdong Road to Xihakou into a stone-arch culvert, so that small boats could still go up through the culvert, and further north, they could also travel in the open air.</p>
<p>1964</p>	 <p>Satellite view of Guangzhou City in 1964</p> <p>Source: Google Earth</p>	<p>In 1964, all the surface of Xihao Channel was covered and became a culvert, and street pavement was built on the surface of the canal, and Xihao Channel disappeared from people's view from then on.</p>
<p>2018-Present</p>	 <p>Source: <i>The Guangzhou Municipal Territorial Spatial Master Plan (2018-2035)</i></p>	<p><i>The Guangzhou Municipal Territorial Spatial Master Plan (2018-2035)</i> will in the future promote the full uncovering and resurfacing of Xihao Channel, Guangzhou's ancient moat.</p>

Wanli years of the Ming dynasty “*Nanhai County*” recorded: “Hao wide ten zhang have odd^[46]”, the Qing dynasty Jiaqing years of ancient books “*Yangcheng Ancient Notes*” recorded the gradual encroachment of residential process of the city of Hao: “now encroachment of the people of the Hao, began to be a wooden fence, followed by the stone, day after day and month after month, Hao more and more narrow carry on. Than the initial amount, not half of it.^[47]” That is to say, at that time, the width of Xihao Channel was still at least five zhang

(about 20 meters). 1964, Xihao Channel was completely covered by the channel, and now the width is only three or five meters^[48]. Nowadays, there have been excavations of ancient ship masts and marine supplies along Guangfunan Road, and these findings prove the former width of Xihao Channel. Combining the historical maps and the pattern of siltation in Xihao Channel, the changing spatial relationship between the Guangfunan District, Xihao Channel, and the old city wall can be deduced and summarized(Figure 3-23) :

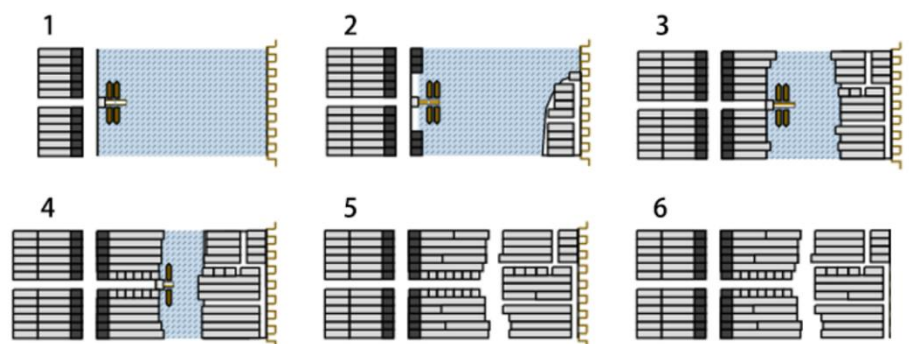


Figure 3-23 Historical Derivation of the Spatial Relationship among Guangfunan District, Xihao Channel and the Ancient City Walls

(Source: Redrawn from references^[44])

(1) Construction of a pier at the foot of the Xihao Channel and stores adjacent to the water.

(2) As the Xihao Channel began to silt up, elevated dry-structure buildings were built at the foot of the water, forming a commercial street together with the existing waterfront stores. The scale of internal settlement in “Fu” gradually expanded, and the layout became relatively free. On the wall side, siltation and residential buildings began to appear from the vicinity of the city gate.

(3) Siltation on both sides of Xihao Channel intensified, and the original timber-framed dry-rail buildings evolved into timber-stone masonry structures and expanded towards the riverbed; the function of the rows of rails in this period was basically the same as that of the riverbank push pattern, with the presence of processing workshops, and warehouses for piling up materials, and so on.

(4) The continuous narrowing of Xihao Channel reduced the commercial value, but the accessibility of the road made the early rows of barriers near Water Lane divided into

north-south oriented residential buildings with shorter depths, and the emergence of the backstreet also made some of the buildings with longer depths divided into front and back parts.

(5) Due to siltation, the shipping function of Xihao Channel gradually disappeared, and part of it was covered and turned into a culvert.

(6) The city wall was demolished and widened to become a road, and in 1964, the entire surface of Xihao Channel was covered and became a culvert, eventually forming the existing spatial pattern.

3.2.2 Meso Level: Street Space Genes

The term “streets and alleys” collectively refers to both “streets” and “alleys”. In ancient times, Shuowen Jiezi defined “street” as “a four-way passage”, while describing “alley” as “a path within a district”. The Book of Songs further distinguished them as: “straight and large passages are streets”, and “curved and small passages are alleys”. Today, “street” refers to a roadway that accommodates both vehicles and pedestrians, typically lined with buildings, plants, and facilities on one or both sides to form continuous interfaces. “alley” refers to narrow alleys or passages primarily for pedestrian use.

In the field of architectural planning, “street and alley spaces” are regarded as open voids enclosed by buildings. They are the public spaces most closely connected to urban and rural residents, important showcases of regional character, and the most recognizable and memorable spaces. Through long-term development and evolution, the street and alley spaces formed in different periods have witnessed the historical changes of Guangfunan, carrying rich historical memories and cultural information, and becoming important carriers of the distinctive cultural identity of the historic district.

3.2.2.1 Street History

The evolution of streets and alleys can generally be divided into two modes: "top-down" and "bottom-up". Similar to the logic of urban evolution, streets and alleys can also be classified into spontaneously formed streets that evolved according to residents' needs, and

secondarily formed streets shaped by administrative directives^[50]. Overall, the development of Guangzhou's Guangfunan Historical and Cultural District combines both modes. Under the dual influence of natural environment and social factors, it gradually formed a distinctive urban street and alley spatial system.

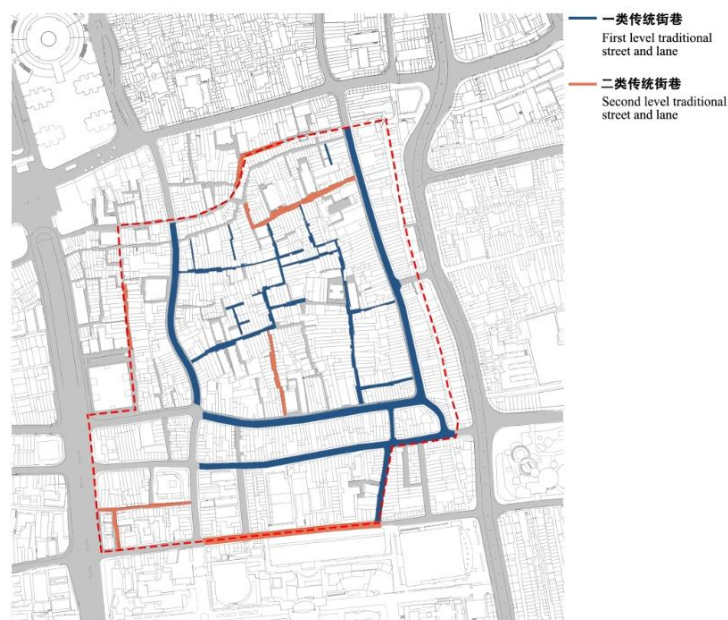


Figure 3-24 Distribution of Traditional Streets and Alleys in Guangfunan Historical and Cultural District
(Source: Drawn by Author)

There are 23 protected historical and traditional streets and alleys in the Guangfunan Historical and Cultural District (Figure 3-24), including 18 Class I traditional streets and alleys and 5 Class II traditional streets and alleys (Table 3-2):

Table 3-2 Traditional Street Delineation in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

Traditional Street Category	Name of the Street	Quantities
Class I Traditional Streets and Alleys	Main Street: Guangfunan Road, Yangxiang Road, Hepingdong Road, Zhuangmao Street, Guyi Street, Jianglan Road Internal Streets: Hejingli, Yangxin alley, lurenli, Yangrendong, Renfengli, Yangrenzhong, Yangrennan, Chongjianxinjie, Yangrenxin, Xirongxin, Xirong Alley, and Xironghong	18
Class II Traditional Streets and Alleys	Main Street: Thirteen Hongs Road East, Jijian Street Inner Streets: Yangrenli, Changqing Street, Huaiyuanyi St	5

As for the elements of the historical environment, there are 15 existing streets and alleys

with hemp stone slabs(Figure 3-25) : Deningli, Wanzhongdong, Yangrenzhong, Yangrennan, Yangxin alley, Shixian Alley, Yangrenli, Huaiyuanhengbei Alley, Youyiheng, Shiqifu Alley, Juji Alley, Youyii Alley, Changqing Street, Xirong Alley, Chongjianxin Street; and one historical water system, i.e., the water system of Xihao Channel.

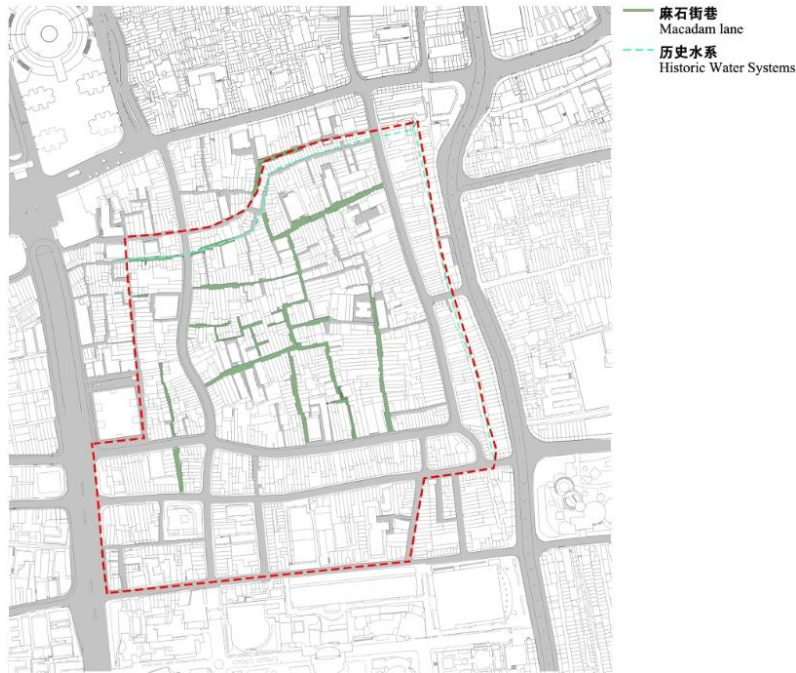


Figure 3-25 Distribution of Masonry Streets and Alleys in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

(1) Guangfunan Road (Copper Street)

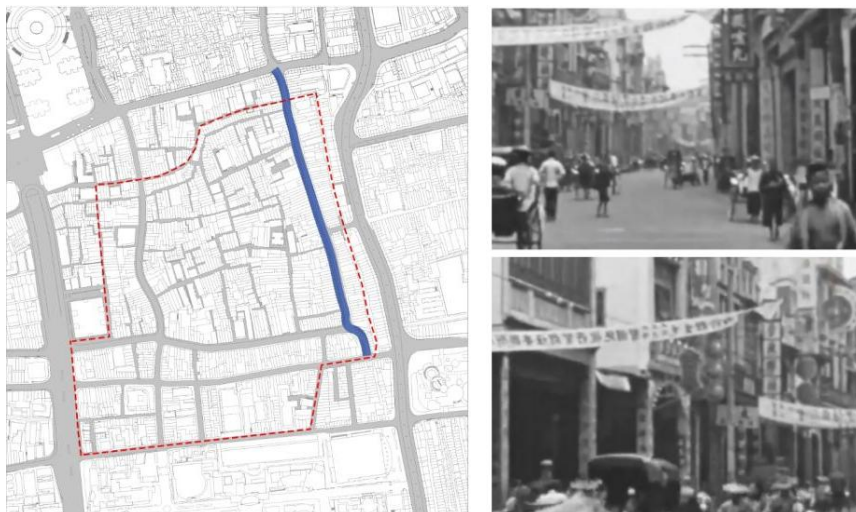


Figure 3-26 Location of Guangfunan Road and Related Historical Photos
(Source: Drawn by Author and Baidu Images)

Guangfunan Road(Figure 3-26) is 375 meters long and 12 meters wide, with asphalt surface. The road is oriented to the north and south, starting from Shangjiu Road in the north

and connecting to Guangfu Road in the middle; south to Heping Road in the east, and most of the multi-storey buildings along the road are of brick and wooden structure.

Xiguan's "Copper Street" (now Guangfunan Road), also known as "Taiping Street", in the Qianlong period of the Qing Dynasty when the name of the place, as a concentration of copper industry, is the production and sale of copper utensils of a professional street, so it is known as "Copper Street". During the Qing Dynasty, it was not only a gathering place for copper-beating industry, but also a place for big silk houses, silver houses and cloth streets. The development of these industries made Guangfunan Road one of the important commercial centers in Guangzhou at that time. In the 15th year of the Republic of China (1926), the road was expanded to a width of 40 feet and was divided into three sections, south, central and north, in commemoration of the Xinhai Revolution that overthrew the Qing Dynasty and restored the river and mountains, giving Guangfu South Road its official name. In the 1930s, Guangfunan Road, together with Guangfuzhong Road, was known as Guangzhou's "Newspaper Street", a place where newspaper offices were concentrated, and in the 1950s, the commercial function of Guangfunan Road gradually shifted from traditional handicrafts and finance to cloth wholesaling, and around 1985, the whole road gradually became a place for cloth wholesaling, becoming the new "Cloth Company". It became a new "cloth street". In the 21st century, the business pattern of Guangfunan Road changed again. With the rise of e-commerce, the garment industry on Guangfunan Road gradually transformed from traditional wholesale and retail to new business forms such as live e-commerce and online wholesale stores. This transformation not only reflects the innovative development of Guangzhou's commerce industry, but also leads to certain changes in the historical appearance of the district.

(2) Yangxiang Road

The total length of Yangxiang Road (Figure 3-27) is about 400 meters with an asphalt surface. The road runs in a north-south direction and is adjacent to Dexing Road in the north and Changle Road in the south, which is adjacent to Shangxiajiu. Along the road, there are mostly low-rise buildings of brick and timber structure.

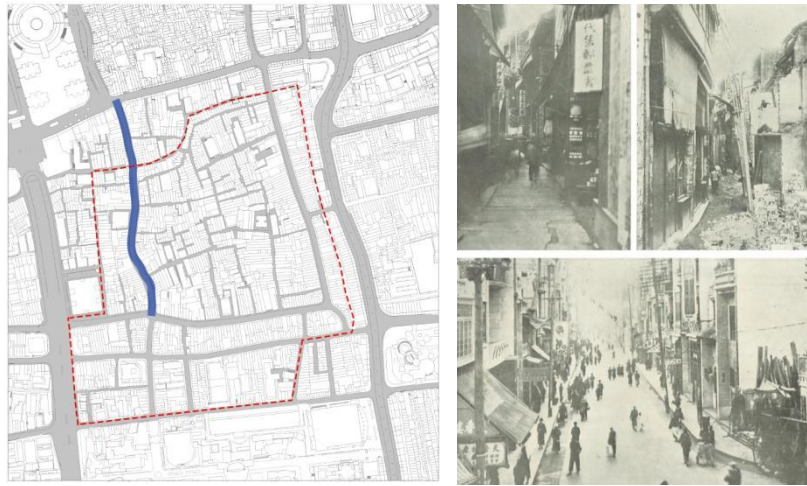


Figure 3-27 Location of Yangxiang Road and Related Historical Photos
(Source: Drawn by Author and Baidu Images)

The history of Yangxiang Road can be traced back to the Ming Dynasty, when it was known as “Yangxiang” or “Yangxiang”, and when commerce in Xiguan gradually flourished and interactions between Guangzhou and foreign countries became more and more frequent. The government built a post station on Yangxiang Lu to receive foreign merchants and emissaries. During the Qing Dynasty, the Thirteen Hongs became the exclusive area for foreign trade, and Yangxiang Lu became an important commercial street because of its commercial atmosphere due to its proximity to the Thirteen Hongs. During the Republic of China period, Yangxiang Lu became a distribution center for cloth, foreign groceries and other commodities when it was enlarged into a road from 1928 to 1929. According to the New Guangzhou Street Detailed Map of 1949, there were already commercial streets in the vicinity of Yangxiang Road, and the cloth industry was particularly prosperous. 21st century to the present, with the rise of e-commerce, the business form of Yangxiang Road also changed, and some stores began to transform into e-commerce live, online batch stores and other new business forms.

(3) Jianglan Road

Jianglan Road(Figure 3-28) is 302 meters long, 12 meters wide and asphalt. The road runs east-west, starting from Guangfunan Road in the east and ending at the intersection of Yangxiang Road and Changle Road in the west, and most of the low-rise buildings along the road are of brick and wooden structure.

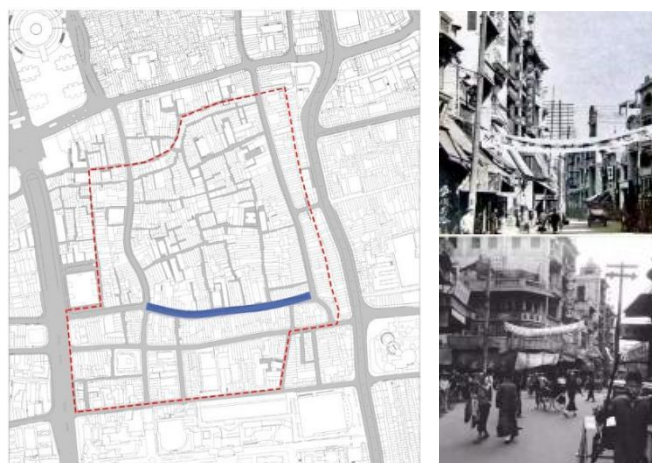


Figure 3-28 Location of Jianglan Road and Related Historical Photos

(Source: Drawn by Author and Baidu Images)

Jianglan Road used to be called “Jianglan Street”, which was originally named after the sale of oars, and is a witness to the development of shipping in Guangzhou. During the Qing Dynasty, when Guangzhou was an important trading port, a bazaar specializing in the sale of oars and other shipboard equipment appeared in the vicinity of Jianglan Road. With the emergence of ferries, the demand for oars gradually decreased, and Jianglan Road was gradually transformed into a distribution center for traditional Chinese medicine stores during the Republic of China period, and was expanded into a road from 1928 to 1931. After the founding of New China, the commercial function of Jianglan Road continued to evolve, and by the 1980s, Jianglan Road had become a distribution center for clothing, especially wholesale children's clothing. However, in the early 1990s, as the government opened a special market for children's clothing, the wholesale of children's clothing on Jianglan Road gradually declined, and it became a specialized market for clothing accessories and fabrics, and from the early 21st century to the present day, it has become a distribution center for wholesale clothing, along with Guangfunan Road and Yangxiang Road.

(4) Hepingdong Road

Hepingdong Road (Figure 3-29) is about 340 meters long, connecting Renminnan Road in the east and Changle Road in the west to Hepingzhong Road.

The predecessor of Hepingdong Road can be traced back to the end of the Qing Dynasty, when it was called “Lantern Street” and later “Denglong Street”, which was the location of

the lamp workshops, which gathered piping craftsmen and brass craftsmen, and was able to make light bulbs and chandeliers after the Second Opium War^[51]. Hepingdong Road was expanded into a road in 1931 and named Gongri Road, the Japanese invaded China in the 1930s, so it was renamed Anti-Japanese Road, and after the victory in the Anti-Japanese War, it was renamed the present name, which implies the meaning of celebrating the victory and winning the peace.

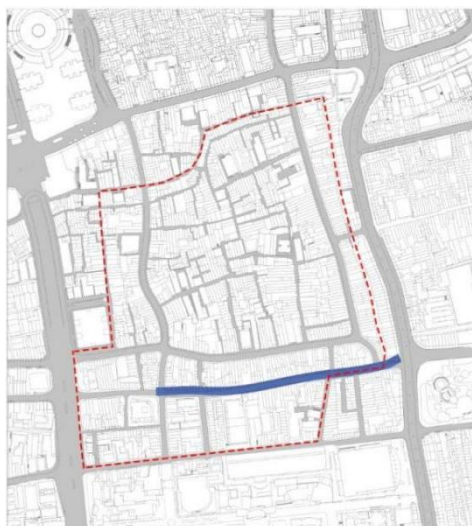


Figure 3-29 Location of Hepingdong Road
(Source: Drawn by Author)

◦ Hepingdong Road near the Changle Road in the Republic of China for the firecracker street, after the victory in the war, the firecracker industry once flourished, as many as 20 stores, from Changle Road to the resistance to the Anti-Japanese dong Road (now Hepingdong Road), a wide range of varieties, rich in styles, and marketed all over the province and Hong Kong, Macao, Southeast Asia and other places. This “professional street of firecrackers”, which had become a market, gradually disappeared between 1948 and 1949 due to rising prices and social unrest, and then changed its name to Hepingdong Road.

(5)Thirteen Hongs Road

Thirteen Hongs Road(Figure 3-30) used to be called “Thirteen Hongs Street”, its name originated from “Thirteen Hongs of Guangzhou” established in the Qing Dynasty. Thirteen Hongs can refer to Chinese merchants engaged in foreign trade; it can also refer to a specific area of foreign trade of the Qing Dynasty; it can also refer to foreign merchants engaged in

international trade in the area of Thirteen Hongs on the western outskirts of Guangzhou City.



Figure 3-30 Location of Thirteen Hongs Road and Related Historical Photos

(Source: Drawn by Author and Baidu Images)

“Guangzhou Thirteen Hongs” was founded in the Kangxi period, in 1757, the Qing Dynasty implemented the policy of “Single Port Trade Policy”, Guangzhou became the only foreign trade port, Thirteen Hongs became the center of trade between China and foreign countries, monopolizing the import and export trade of the Maritime Silk Road at that time; in 1856, the Thirteen Hongs were transferred to Shameen and rebuilt. Thirteen Hongs Road was constructed as a new road from 1927 to 1928. Nowadays, the area centered on Thirteen Hongs Road, including Guyi Street, Doulan Shang Street and Hepingdongt Road, constitutes a large-scale garment wholesale market.

(6) Other Historic Streets

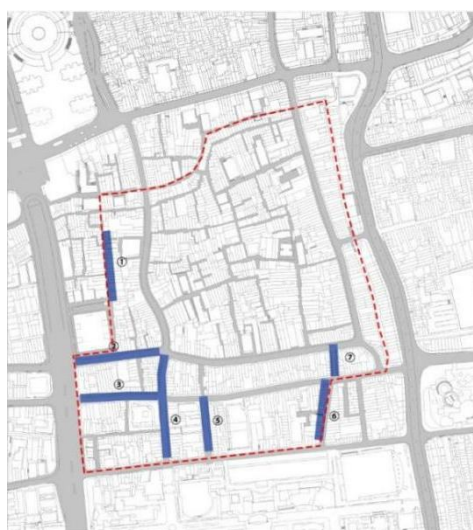


Figure 3-31 Location of Other Historic Streets

(Source: Drawn by Author)

①**Huanyuanyi Alley:** the remains of the “State Guesthouse” in the Ming Dynasty, one of the earliest road names around Thirteen Houses. In the fourth year of the Yongle period of the Ming Dynasty (1406), the Huaiyuan Post was set up, located in the 18th store on the bank of the Xiguan River, in order to receive the “tributary envoys of all the tombs”, with a total of about 120 houses, to receive the foreign envoys or missions to trade and live in China, which was the “State Guesthouse” at that time, and was called the “Ghost Post” in the folklore. It was the “State Guest House” at that time, and was also called “Ghost Post” by the people. In the Qianlong period, the Huaiyuan Post was already far away from the riverbank, and was later abandoned, but the name of the alley was preserved, and the 120 houses disappeared into thin air.

②**Shibafu Road:** running east to west, starting from Shibafu North Road and ending at Yangxiang Road, the former 18 commercially prosperous street poles along the two sides of Xihao originated in the Ming Dynasty. In the Qing Dynasty, there were eighteen streets, and in 1928, eighteen streets were opened up as roads, named eighteen streets. In the Ming Dynasty, there was the Huaiyuan Post, which was used by the government to receive emissaries and foreign merchants who came to Guangzhou from the sea to pay tribute and trade. During the Daoguang and Xianfeng Dynasties of the Qing Dynasty, Pan Shicheng, a wealthy merchant who built the Lizhi Wan Hai Shan Xian Guan and compiled and published the Hai Shan Xian Guan series of books, built his mansion here. There is Aiyu Shantang, one of the nine major charity halls in Guangzhou; Chen Liantai Machine Factory was opened here in 1876, and Guangshang Department Store, the first counter-type department store in Guangzhou, was opened in 1907. There are produced cardamom oil and other proprietary Chinese medicines Qihetang.

③**Hepingzhong Road:** running east-west, starting from Shibafu North Road and ending at Changle Road. The predecessor is in the Qing Dynasty Gongrimen, the old Doulan, Ronghuadong and other streets. 1931 opened up into a road, initially called Gongrimen Street, after the outbreak of the Anti-Japanese War, the road was changed to Anti-Japanese Middle

Road. 1950s by the Anti-Japanese Middle Road was renamed Peace Middle Road, sent in the victory of the war in the hope of a peaceful life.

④**Changle Road:** Originally called “Changle Street”, it used to be a small street specializing in the sale of cannonballs, and was expanded into a road from 1927 to 1928.

⑤**Xinglong North Road:** Specialized in selling firewood and wood, it gave birth to a firewood alley, which was opened as a road from 1930 to 1932 and later renamed Xinglongbei Road.

⑥**Guyi Street:** in the alley on the west side of the south section of Renminnan Road, from Hepingdong Road in the north to Thirteen Hongs in the south, it was mainly specialized in old clothes in the 1920s and 1930s.

⑦**Zhuangmao Street:** Western-style hat store. In the Qing Dynasty, Guangzhou hat industry developed and formed a professional market.

3.2.2.2 Street Space Interface Analysis

The street space includes the enclosing interface on both sides, the bottom interface and the top interface. The buildings on both sides of the street as the enclosing interface are easy to observe and memorize in the space, and the difference in their form and openness will cause different atmosphere feelings, so they are important material culture gene elements in the street space.



Figure 3-32A Street Scene from Shshibafu

(Source: *Illustrated Current Affairs*)

The Guangfunan Historical and Cultural District was the core area of Guangzhou's

prosperous trade and commerce in the past(Figure 3-32) , and its combination of commercial and residential buildings and the distribution of professional markets on a piecemeal basis made the function of the buildings near the main street to be dominated by “upper residential and lower commercial”, with stores on the ground floor and residences on the upper floors, and this vertical functional mixing pattern not only improved the efficiency of land use, but also created a vibrant street style with a succession of stores. This vertical mix of functions not only improves the efficiency of land use, but also creates a vibrant street style with a series of shops.

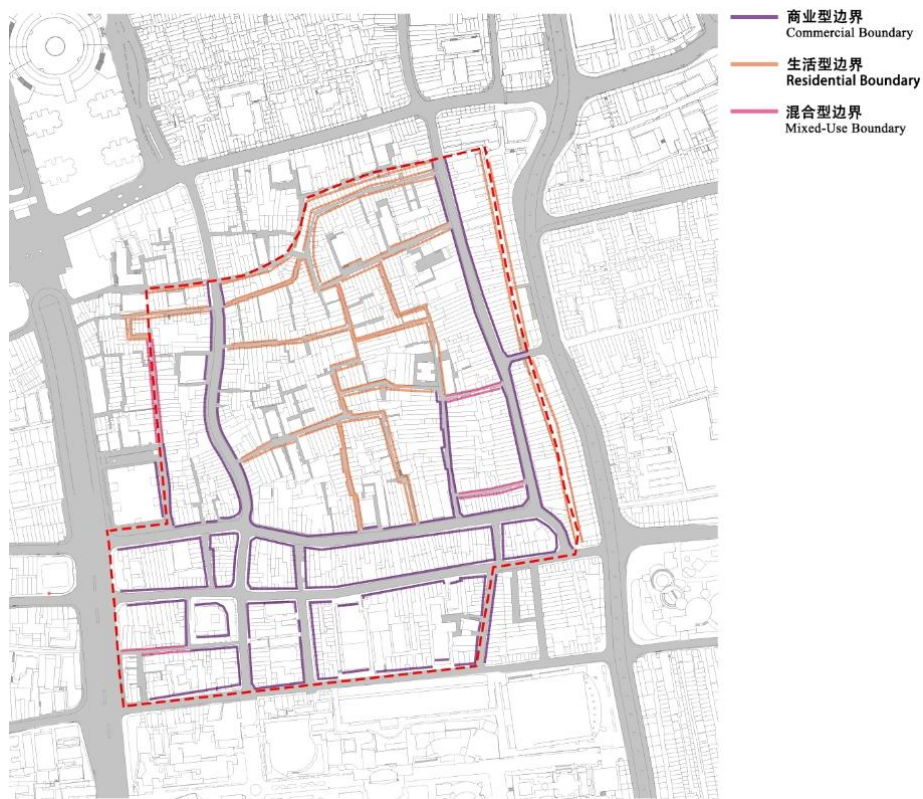


Figure 3-33 Street Interface Analysis for the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

In terms of the current situation, the spatial interface of the streets on both sides of the main streets still continues the strong continuity and high openness of the interface of the past period(Figure 3-33) , and the ground floor of the buildings are mostly stores, with a high degree of interaction between indoors and outdoors. Deep inside the district, the pedestrian streets and alleys used by the aborigines are mostly residential boundaries, the ground floor is paved with hemp stone slabs, and most of the buildings along the road are only used as

residential functions and are not open to the public, except for some stores scattered along the road. In general, the degree of openness gradually decreases from the outside to the inside of the residential area.



Figure 3-34 Delineation of Building Interfaces along Jianglan Road
(Source: Drawn by Author)

The prosperity of the garment wholesale industry has brought people flow to the district and at the same time brought about the destruction of the district's appearance. Many merchants have carried out large-scale alterations to traditional buildings in pursuit of fashion and trend, and even removed the core value elements of the protected buildings, and completely wrapped or covered the facade of the traditional buildings with advertisement signboards. “The upper half of the Republic of China dress, the lower half of the Japanese and Korean dress” has become the most prominent features of the interface along the street of the Guangfunan Historical and Cultural District (Figure 3-34), how to balance the restoration of the traditional architectural appearance and the modern clothing industry needs to display in the future there will be no great changes in the situation of the block business has become a difficult problem in the current conservation planning.

3.2.2.3 Spatial Scale Analysis of Streets and Alleys

Street scale is one of the basic attributes of street space, and its formation and evolution are deeply influenced by the behavior of production and life. During the long development process of Guangfunan Historical and Cultural District, a street space system with rich and characteristic scales has been gradually formed. The height ratio between buildings and streets, the relationship between the width and depth of streets and alleys, and the spatial proportions between people, buildings, and streets and alleys not only record the functional changes of the districts, but also reflect the inheritance process of its cultural genes. These scale features, as

explicit elements of urban spatial culture, are not only the material carriers of historical information, but also an important source of the unique atmosphere of the district.



Figure 3-35 Qing Dynasty Jianglan Street (Left and Center) and Shibafu (Right)

Source: Left J. Paul Getty Museum; Center Historical Photographs in China; Right Library of Congress, Washington

The main streets within the Guangfunan Historical and Cultural District were centrally opened to roads in the late 1920s. Prior to the expansion, most of these streets were between 3 and 4 meters wide (Figure 3-35), and the alleys within the residential areas were about 2 to 2.5 meters wide, with most of the buildings on both sides of the main streets being 2 to 3 stories, and most of the storefronts being between 5 and 6 meters wide. After the expansion, the width of the roads was mainly 40 feet and above, and the width of the un-expanded streets and alleys has continued to this day (Table 3-3).

Table 3-3 Data on commercial streets in the Xiguan in 1822 (incomplete)

Source of data: Reference^[42]

Street Name	Street Length (Meters)	Number of Houses (Rooms)	Average Store Width (Meters)
Copper Street (Guangfunan Road)	510	183	5.48
Zhuangmao Street	42	15	5.18
Guyi Street	62	50	4.80
Thirteen Hongs Street (Thirteen Hongs Road)	288	83	6.62

In terms of existing conditions, the streets in the Guangfunan Historical and Cultural District have been widened due to the construction of new roads, and the width of vehicular streets in cross-section is mostly controlled to be between 9-11 meters. The width of pedestrian-oriented streets has not changed much, with the width of pedestrian streets of

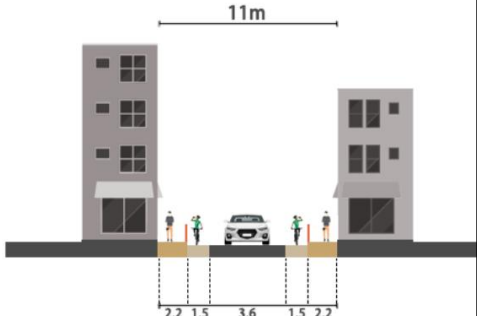

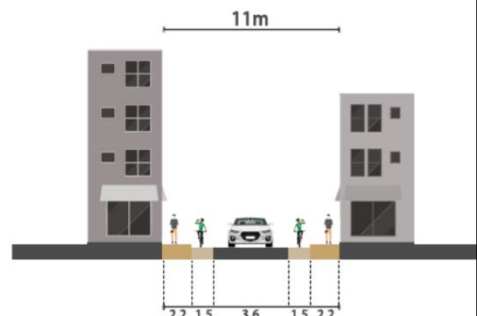

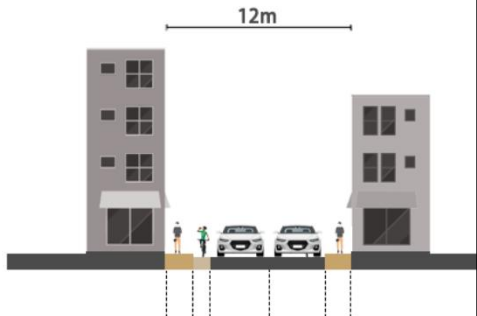

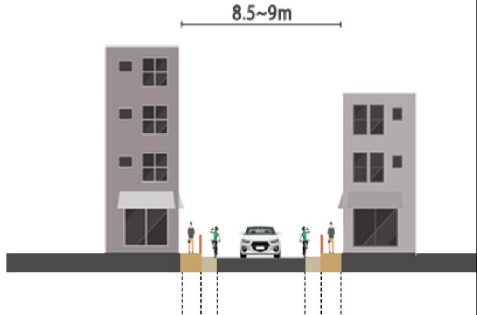

commercial nature ranging from 4-6 meters, and the width of alleys of living nature being controlled at 2-4 meters, with the width of some narrow alleys just reaching 1 meter. Most of the traditional buildings on both sides of the alleys are mainly 2-4 floors, with a small number of 1-floor buildings, and most of the buildings above 4 floors are built in recent times or privately added on the original traditional buildings, and the newly built structures in recent times generally have a certain setback distance from the original alleys.

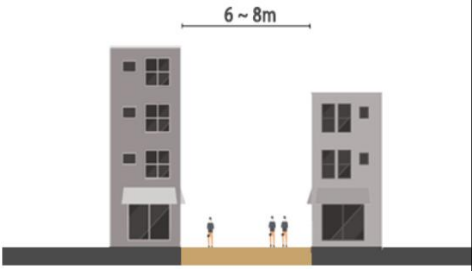
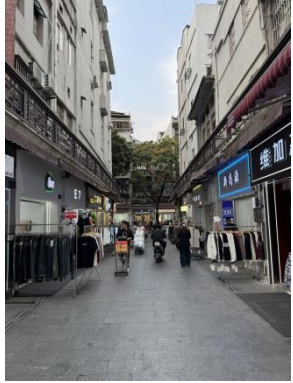
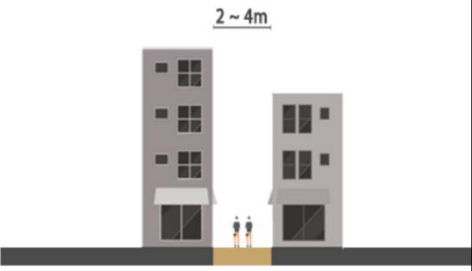

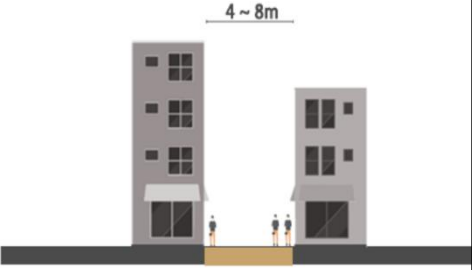

In order to quantify the spatial perceptual characteristics of streets and alleys and to analyze the scale pattern of the Guangfunan Historical and Cultural District, this study draws on the spatial theory proposed by Japanese architect Ashihara Yoshinobu in *The Aesthetics of Streets*. According to Ashihara Yoshinobu, the proportionality between street width (D) and building height (H) along the street (D/H) is a key factor influencing the spatial quality: when the D/H value is between 1 and 2, the spatial scale is the most intimate and pleasant, which can form a moderate sense of enclosure without causing the negative experience of oppression or emptiness. Different D/H ratios will trigger differentiated psychological responses from users, which in turn affects the spatial effect and cultural atmosphere of the street and even the whole district. For example, when the D/H value is less than 1, the space may appear confined and depressing; and when the D/H value is more than 2, it may weaken the affinity of the space and the sense of place.

Streets at different scales accommodate different behaviors (Table 3-4). Narrow alley-type streets (2-4 meters in width) can only accommodate two-way pedestrian flow with slow-moving bicycles and electric vehicles, while major streets in districts (8-12 meters in width) can accommodate two-way pedestrian, non-motorized, and one-way/two-way lanes of traffic at the same time; they can also be used to place temporary commercial out-of-home displays along the street, and emergency lanes of appropriate widths can be set aside for municipal maintenance use.

Table 3-4 D/H Analysis of Major Streets and Alleys in the Guangfunan Historical and Cultural District
(Source: Drawn and Photographed by Author)

Chapter3
Guangzhou Guangfunan Historical and Cultural District Overview and Cultural Gene Analysis

Attributes	Street Name	Street Section	D/H	Street View
Street	Yangxiang		0.73– 1.83	
	Guangfunan Shibafu Jianglan Changle Xinglongbei		0.73– 1.83	
	Hepingdong Hepingzhong		0.80– 2.00	
	Thirteen Hong's		0.6–1 .5	

	Guyi Zhuangmao Jilan		0.66– 1.33	
Alley	Huaiyuanyi Yangrenli Yangrennam Yangxin Xiyong, etc.		0.16– 0.66	
	Xihao Channel		0.26– 0.88	

As a whole, the width-to-height (D/H) ratio of the streets in the Guangfunan Historical and Cultural District is generally maintained at around 1-2, while most of the living streets have a D/H ratio of less than 1:1, which makes the spatial experience of the users walking on the main streets highly comfortable and pleasant, with a good walking experience, while the alleys of the daily walks of the local residents seem to be a bit narrow and closed. However, at the same time, most of the stores and businesses along the street have added 0.5-1 meter stalls in the direction of the street, displaying their own products to increase the business area, and the passageway has been taken over, making the pedestrian flow even more dense and destroying the walking experience.

After a long period of development, the street-scale cultural genes of the Guangfunan Historical and Cultural District have been better inherited in the historical evolution. The district retains a relatively complete continuity of architectural interfaces, and traditional and new buildings show certain similarities in scale and appearance, such as building height control and similar ratios of face width and depth, and this consistency maintains the historical characteristics of the street scale to a certain extent. These scale relations are not only the core elements of the spatial form of the district, but also the important material carrier of its cultural genes, which provide samples for the study of the spatial logic of the traditional streets and alleys in Lingnan.

3.2.3 Micro level: Architectural Style Genes

Architecture, as a material carrier of cultural genes, carries information about systems, beliefs, lifestyles and values formed in the process of development of local society and civilization, and expresses cultural genes explicitly through structural forms, decorative symbols, materials and techniques, as well as color choices, etc., and is the basic constituent unit of the genetic information of local history and culture.

The research on the current situation of the architectural style of Guangfunan Historical and Cultural District is aimed at exploring the characteristics and development rules of Guangfunan Historical and Cultural District in the architectural dimension, so as to provide a basis for extracting the cultural genes of the architectural style of the district.

3.2.3.1 Historical Building Remains

Guangzhou Guangfunan Historical and Cultural District is known as the “Museum of Universal Architecture”, which is located in Liwan District with 226 historical buildings, accounting for 27.3% of the city. Among them, there are 53 historic buildings in Guangfunan Historical and Cultural District, accounting for 23% of the total number of historic buildings in Liwan District; there are 5 immovable cultural relics, 8 traditional style buildings and 90 traditional style architectural clues, making it the historic district with the largest number of historic buildings and traditional buildings (including clues) in Liwan District(Figure 3-36).

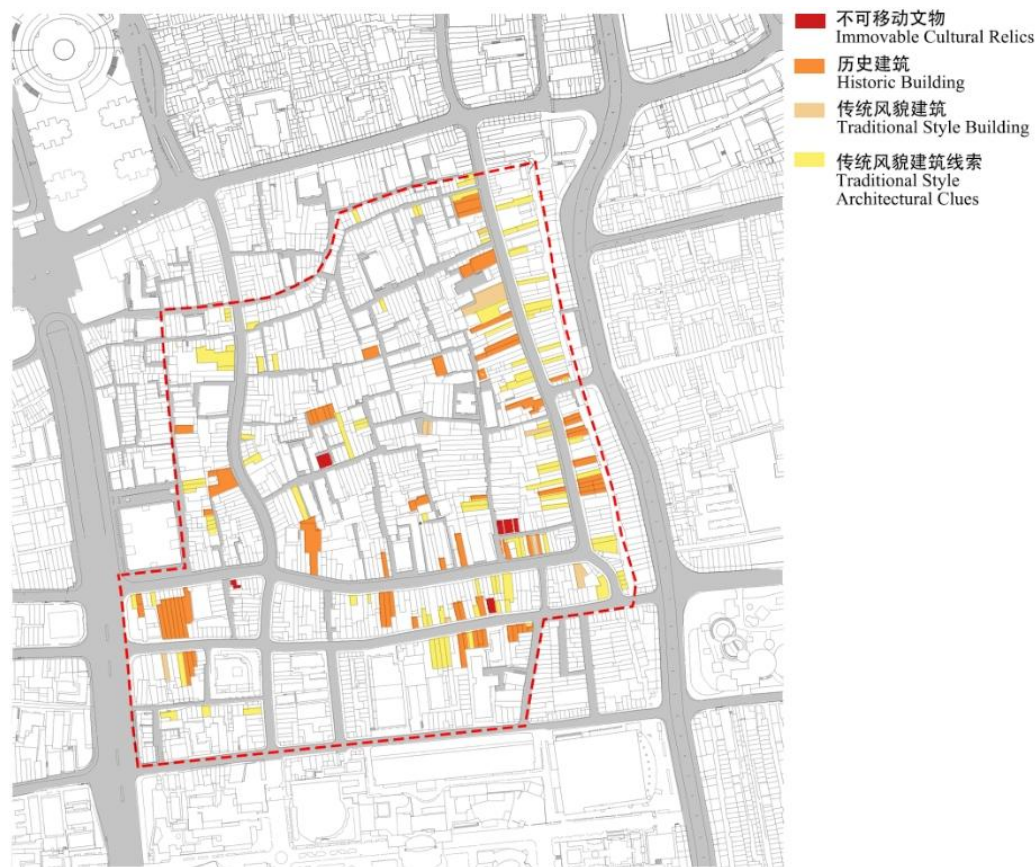


Figure 3-36Distribution of Historic Buildings in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

As the number is too large to be enumerated, the current status of some representative historical building remains is organized as follows(Table 3-5) :

Table 3-5 Status of Representative Historic building remains in the Guangfunan Historical and Cultural District
(Source:Drawn and Photographed by Author)

Level	Name	Address	Introduction
	Huangshanghuang Barbecue Restaurant	No.13, Shibafu Road	Built in the period of the Republic of China, sitting in the south facing north, for the four-story concrete frame structure building, the building for the study of modern Guangzhou food culture has a certain value. In recent years, the facade has been renovated, the original facade finish has been covered with stucco, and the windows have been replaced with aluminum windows. Now the first floor is a clothing store, the second floor is a warehouse, and the third and fourth floors are for residential function.
			

Heping Road Overseas
Chinese Wholesale Bureau



No.50,
Hepingdong
Road

At the end of the Qing Dynasty, because of the large number of overseas Chinese in Guangdong, Guangzhou's civil mail agencies were engaged in the business of sending letters to overseas Chinese and organized the "Overseas Chinese Bureau". Overseas Chinese sent remittances and family letters to the country through it, which was a special mail carrier combining letters and remittances, and was the predecessor of today's National Post Office.

Built in the late Qing Dynasty, it is a three-storey double-roomed building of brick structure facing south, with a square plan and a Chinese-style pavilion on the roof. The outer wall of the building is made of green bricks with stone footings, and the main door in the center of the main room is well preserved in terms of architectural form and basic structure.

Former site of Wanyuantang
Ginseng & Antler Co.



Immovable
Cultural
Relics

No.2, Xirong
Alley,
Guangfunan
Road

The district was once a distribution center for Chinese and Western pharmacies during the Republic of China (R.O.C.) period, with Wanyuantang Ginseng and Antler Company and Xirongheng Ginseng and Antler Company located in this section, operating ginseng and antler and high-grade medicinal herbs business, and closed down during the Anti-Japanese period. Built in the Republic of China, it is a three-room, four-story concrete frame building. Currently, the first floor is rented out for stores and warehouses, while the second, third and fourth floors are used for residential purposes, and the overall state of preservation is average.

Former site of Xirongheng
Ginseng & Antler Co.



No.12 &
No.14-1,
Xirongheng
Street,
Guangfu South
Road

Built in the Republic of China period, sitting in the north and facing the south, it is a three-room, four-story concrete structure house with a square building plan. The building is a double-room residence in the west and a warehouse in the east, which was originally built by the same owner, and then the house was split into three door signs.

Historic Buildings	Shicui Courtyard		No.17, Yangrennan Alley, Yangxiang Road	Built in the early years of the Republic of China, sitting north to south, for the brick structure of the Chinese and Western combined style building. The building is square in plan, divided into two blocks, the front floor height of three floors, the rear floor height of four floors.
	Former site of Tairu Teahouse		No.57 &59, Guangfunan Road	。 Built in the Republic of China period, it is a 4-story building of brick structure facing east. Because of the good meaning of the character “Ru”, people liked to name the teahouse with this name, and there were at most thirteen teahouses, which were called “Thirteen Ru's in Guangzhou”. Tai Ru Teahouse, opened in 1885 (Guangxu 11), was one of the “Guangzhou Thirteen Ru” teahouses in the past, famous for its Kirin mooncakes, second only to Lianxianglou. The building is owned by the state, and the first floor is now used as a bakery, while the rest of the floor is rented out as a warehouse.
	Former site of Tiannan Teahouse		No.130, Jiangnan Road	Built in the Republic of China period, it sits in the south and faces the north, is a 4-storey building of brick structure, with a total width of about 6.6 meters, a depth of about 46.93 meters, and a land area of 530.68 square meters. The building is a street house with Chinese and Western styles.
	Guangzhou Branch of China Fuan Insurance Company		No.59, Hepingdong Road	Founded in Hong Kong in 1901, China Fuan On Insurance Company was the earliest Chinese insurance company to underwrite life insurance and warehouse mortgage business. in 1925, the Guangzhou branch of China Fuan On Insurance Company had its office here. Built in the Republic of China period, it is a 4-storey building of brick structure, facing south and north. It is a street house with a combination of Chinese and Western styles.

Former site of the Yellow River
foreign exchange office



No.80,
Hepingdong
Road

Built in the Republican period, it is a 4-storey high street house in Chinese and Western styles, with a picket balcony on the facade and exquisite railings, and the overall preservation condition is average.

The former site of Huang
Xianghua Ruyi Oil



No.68,
Jianglan Road

“Huang Xianghua Ruyi Oil” was created in the 10th year of the Qing Dynasty, and the founder of Foshan Ancestral Shop, Huang Zhaoxiang (Huang Xianghua), became a rich man in Foshan by specializing in this medicinal oil.

Built in the Republic of China period, it is a 3-storey brick structure street house with a combination of Chinese and Western styles, sitting in the southeast and facing the northwest, which is a more typical Lingnan modern city street house building.

Former site of Huang Yao Nan
Old Medicine Shop



No.93,95 &97,
Jianglan Road

Built in the Republic of China period, there are 3 buildings of 4-storey high. They are street houses of Chinese and Western styles, and the main structures of the three buildings are relatively well-preserved, while the overall preservation condition is average.

Former site of the Tianquan
Silver Company



No.17, Xirong
Alley, Jianglan
Road

Built in the Republic of China period, it is a 4-storey building of brick concrete structure, sitting in the west and facing the south. The building is a modern urban single-room building with a combination of Chinese and Western styles, and the overall layout and form of the building are basically preserved. The overall layout and form of the building are basically preserved. The building is well preserved and is a physical material for the study of the history of commercial development around the Thirteen Houses area in Liwan District.

As can be seen from the table, the top half of the “Republic of China” and the bottom half of the “fashion” are the most distinctive features of the current state of conservation of historic buildings in the Guangfunan Historical and Cultural District. The overall level of protection varies from well-preserved historical buildings to vacant and dilapidated buildings that are not in use, and more buildings have been renovated due to the iteration of business functions that drive the “face-lifting” and “facelift” of the historic district.

3.2.3.2 Building Space Layout Analysis

As the most common form of traditional architecture in the Guangfunan Historical and Cultural District, the bamboo house is not only a representative of traditional architecture, but also an important material carrier of Lingnan culture, which shows the historical style and living atmosphere of the Guangzhou area.

(1) Typical Space Layout of A Bamboo House

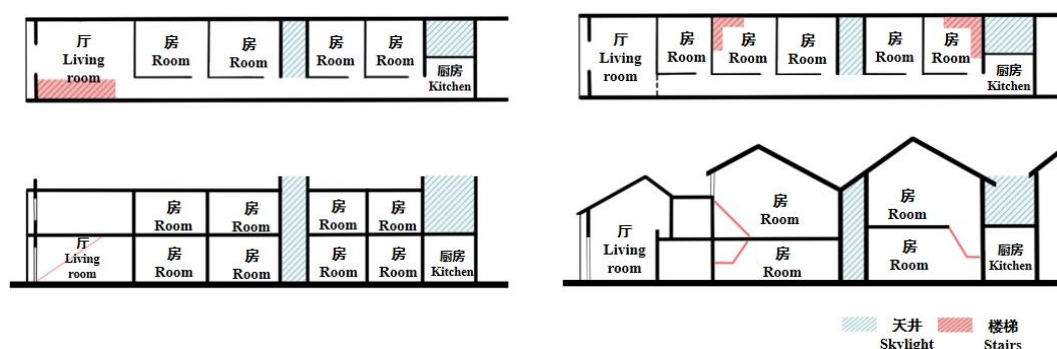


Figure 3-37 Plan and Section of Two Typical Bamboo Houses

(Source: Redrawn from Reference^[52])

The bamboo house has a narrow frontage of about 3-5 meters, and the overall layout is deep and narrow, with the halls and rooms arranged vertically along narrow alleys, and the kitchen and toilets are usually set up at the end of the house (Figure 3-37). In the middle section of the house, there will be one or more skylight, which play a key role in ventilation, lighting, drainage and transportation. Of course, there are some more specialized bamboo houses without skylight. The layout and separation of the rooms in the longitudinal direction show a bamboo-like extension, hence the name “Bamboo House”^[53], and some places also call it “Straight House”^[54]. This unique layout is the key to the adaptation of the bamboo house to the hot and humid climate of Lingnan towns (Figure 3-38).

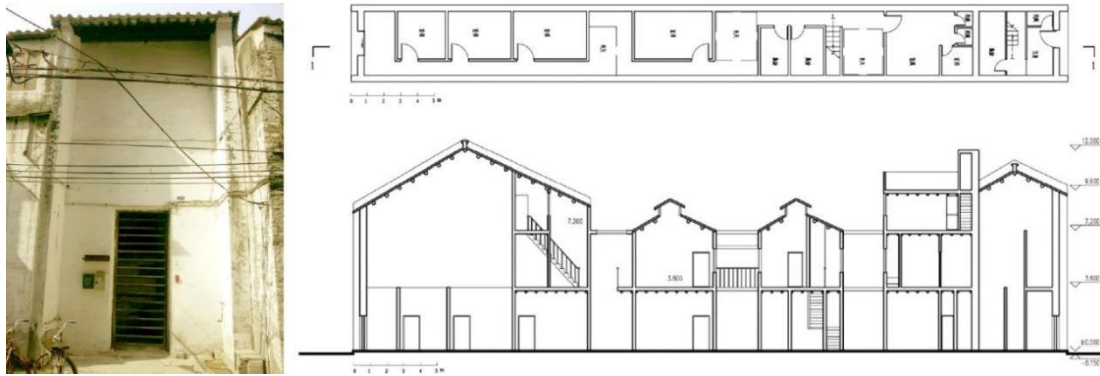


Figure 3-38A bamboo house in Guangzhou's Guangfunan Historical and Cultural District
(Source:Redrawn from Reference^[55])

(2)A Bamboo House Variant in the Guangfunan Historical and Cultural District

Within the Guangfunan Historical and Cultural District, a variant of the bamboo house with a shorter depth, referred to in the literature as the “Compact bamboo house”^[45], is found, with a depth of only 6 to 8 meters. This variant is one of the more common compact variants in the district (Figure 3-39) , it first appeared in the former River Road area, when the Daguan River began to dry up, and some plots in this area were initially only 6 to 8 meters deep. Since the size and location of the plot affects the order in which the rooms are arranged, the orientation and position of the entrance, and the availability of light, the shorter depth means that the houses do not rely on skylight for light and ventilation, and thus some of these compact bamboo houses do not have skylight .

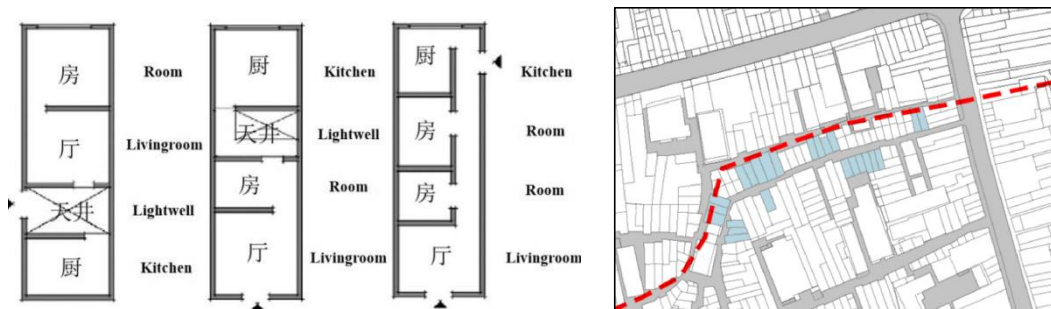


Figure 3-39Plan of Compact Bamboo Houses Variants Commonly Found in the Guangfunan Historical and Cultural District and Examples of Their Distribution Locations
(Source:Redrawn from Reference^[44])

After the 19th century, as the economy grew, the former river area triggered demands for commercial space, and these demands led to the emergence of two other variants of the compact bamboo house(Figure 3-40) , where the foyer inside the building was converted into a store and the other rooms into warehouses. In the 1930s, the cutbacks in a number of parcels

as a result of street extensions and road construction also led to the development of this type of compact bamboo house buildings of greater strength.

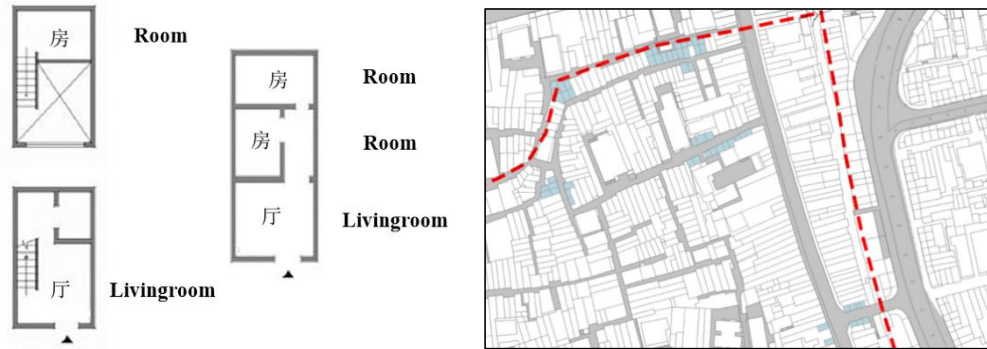


Figure 3-40 Examples of Other Two Types of Compact Bamboo Houses and Their Locations in the Guangfunan Historical and Cultural District
(Source: Redrawn from Reference^[44])

Taking No. 121 of Guangfunan District as an example (Figure 3-41), the building was constructed in the Republic of China period, and is a 3-storey building of brick structure, sitting in the south-west and facing the north-east. The building is owned by the state, and overall layout and form of the building are basically preserved, with the first floor rented out as a store and the rest of the floors used for residential functions or warehouses.

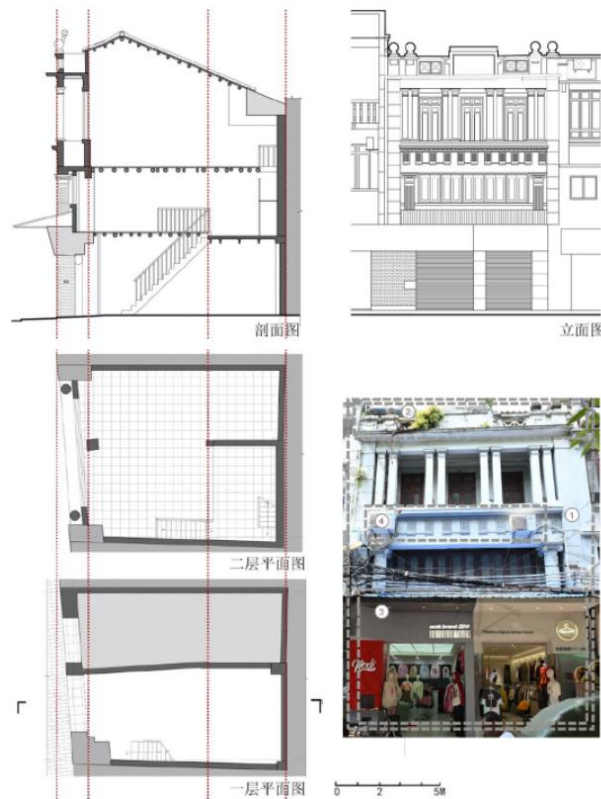


Figure 3-41 Plan, Elevation, Section and Current Situation of No. 121 Guangfunan Road
(Source: Institute of Oriental Architecture and Culture, SCUT, Redrawn by the Author)

This distribution of short-depth bamboo houses also reflects, to a certain extent, the development of the form of the Guangfunan Historical and Cultural District.

3.2.3.3 Elevation Style Analysis

The facade styles of historical buildings in the Guangfunan Historical and Cultural District are a blend of Chinese and Western styles, with rich decorative elements. These characteristic facade styles carry the historical heritage and cultural memory of the Guangfunan District, and are also the witnesses of Guangzhou's history and culture.

(1) Typical Combination of Characteristic Elements

As the bamboo house continued to evolve, new living needs drove gradual changes in the facade characterizing elements, resulting in a fixed pattern of combinations. Initially, windows were not provided in the facade design of traditional buildings, but in order to satisfy the need for ventilation and light, people began to open a large window directly above the door or a small window on each side of the door. These windows were located high up, and although they could not meet the need for a view, they effectively guaranteed the privacy of the interior. Over time, some of the buildings have grown to two stories and added second story balconies. Tall windows were sited on the second floor and wooden partitions were used as second floor facade elements. Later, windows and doors were added to the second floor, further enriching the facade style character of the building(Figure 3-42) .

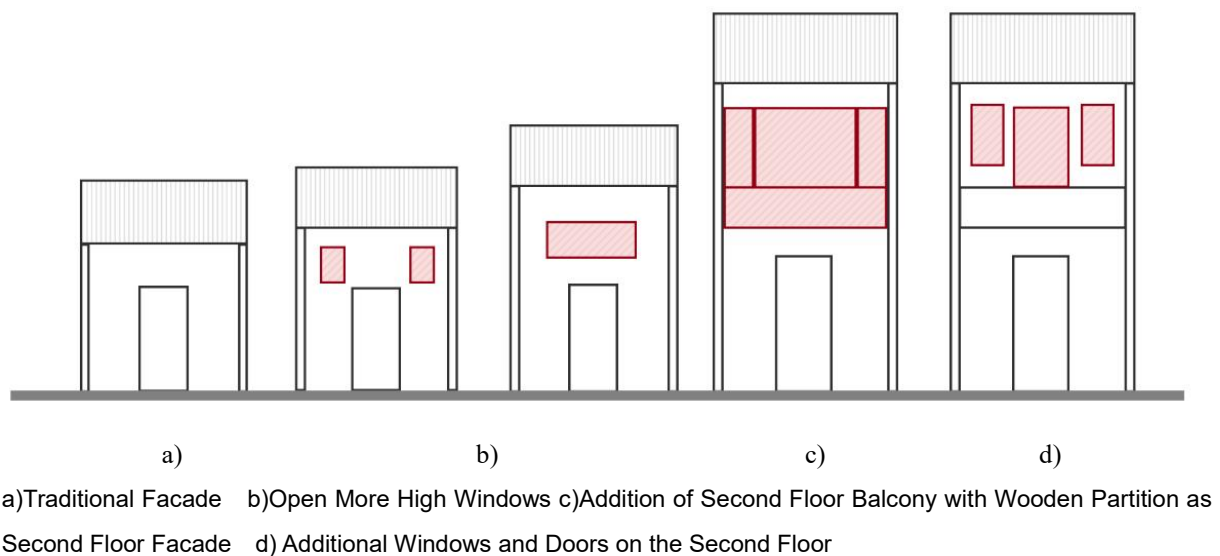


Figure 3-42Trends in the Evolution of Character-Defining Elements of Building Facades

(Source:Redrawn from Reference^[52])

Typical is the “one door, two windows” door and window layout(Table 3-6a) . Specifically, there is a barred door in the center of the ground-floor facade, with a window on each side of the door, flush with the upper edges of the door and windows, and both with masonry door and window casings. The tops of the doors and windows are usually provided with one or three brighteners to enhance ventilation and light. The second floor has a balcony embedded in the recessed door hopper, and the layout of the windows and doors remains the same as on the first floor, except that the doors on the second floor are made of relatively narrow wooden doors. This typical combination shows a clear central symmetry, in which the common combination of barred doors, brick walls, and recessed door buckets shows a relationship with the Xiguan Mansion and traditional street houses.

Table 3-6Forms of Combining the Characteristic Elements of Building Elevations in the Guangfunan Historical and Cultural District

(Source:Redrawn from Reference^[52] and Photographed by Author)

Form	a)Typical features “One door, two windows”	b)Western-style mountain flower balcony	c)Western-style columns on both sides	d)Arch Element
Schematic				
Photo	 Wanyuantang Ginseng & Antler Co.	 Guangzhou China Fuan Insurance Company	 Former site of Wei yuantang	 No.105, Guangfunan Road

			
Residence at No. 29 Jilan Street	Zhang Anchang Chinese Medicine Shop	Yellow River foreign exchange office	No.14, Thirteen Hongs Road

With the advancement of construction technology, water-brushed stone and red bricks were gradually applied to the facade of the buildings, and this classic layout of “one door, two windows” was combined with new finishing materials. With the popularity of western architectural styles, the typical combinations of traditional residential facades evolved, and various changes occurred. The decoration of street houses was gradually westernized, and elements such as mountain flowers and balconies became typical representatives of western decoration. In addition to rich decorations on elements such as mountain flowers, railings, and balconies, some street houses have Western facade elements such as arches, columns, and pilasters above doors and windows(Table 3-6b,c,d) . Although the windows and doors on the first floor still maintain the traditional style, the characteristics of the traditional facade are gradually diluted with the increase of Western decorative elements.

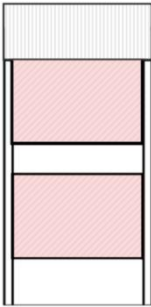
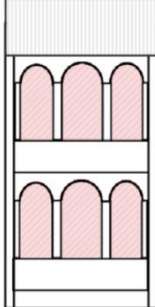
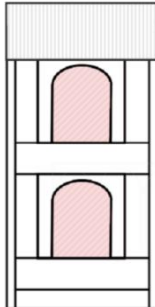



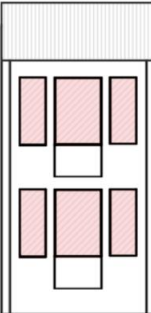
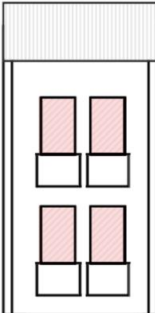
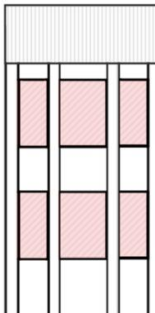



(2)Facade Style with Windows as the Main Element

With the development of time, the expressive power of windows in architectural facades has gradually come to the fore and become a key element in design(Table 3-7) . In addition to the continuation of the sill window design in the traditional stores, the window design of some buildings in the Guangfunan District also adopts a variety of decorative techniques: e.g., combining the element of arched coupons, where the coupon columns are attached to the wall in a flat manner and are in the same plane as the windows; combining small balconies with windows to emphasize the symmetrical beauty of the facade; and arranging the windows in groups to form a sense of rhythm in the visual sense. Overall, the expressive power of windows was further enhanced in the 20th century with the popularity of modernism in

modern architecture in Guangzhou.

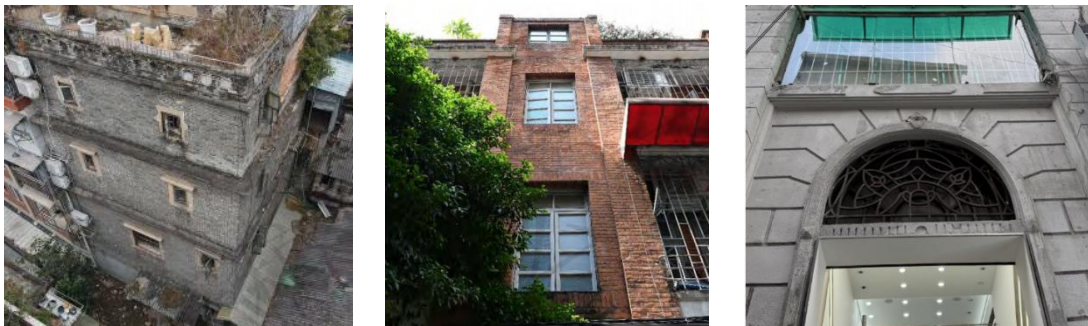
Table 3-7 Facade Style with Windows as the Main Element

(Source: Redrawn from Reference^[52] and Photographed by Author)

Form	a) Full Casement Opening Threshold Window /Manchurian window	b) Combination of Arch Voucher Elements	b) Combination of Arch Voucher Elements
Schematic			
Photo	 Tiannan Teahouse	 No.14, Thirteen Hongs Road	 No.33, Shibafu Road
Form	c) Window + Small Balcony	d) Window Group	d) Window Group
Schematic			
Photo	 No.41, Guyi Street	 No.1, Jianglan Road	 No.102, Jianglan Road

(3) Construction Materials

People's visual and spatial perception constitutes the first impression of a district. As people interact more and more frequently with the buildings in the district, increase their stay time and shorten their distance from the buildings, the material texture of the buildings and streets will trigger a deeper and more delicate psychological experience. As a material carrier carrying regional characteristics and cultural connotations, building materials record information about the building's period background, design style and local living customs.



In order: a) Blue Brick wall: No.32 Xirong Alley b) Red Brick Wall: No.37, Huaiyuan Yi
c) Water-brushed Stone: Tianquan Silver Company

Figure 3-43 Wall Materials for Buildings in the Guangfunan Historical and Cultural District
(Source: Photographed by Author)

In general, the building materials used in the Guangfunan Historical and Cultural District are of various types and textures, reflecting the development history of the district and the preferences of residents in different historical periods (Figure 3-43). The blue brick walls, red brick walls, and water-brushed stone walls commonly used for residential buildings in the district reflect the cultural characteristics of traditional local residential buildings; while the use of plastered and bricked walls, on the one hand, is related to the self-built behaviors of the residents, and on the other hand, reflects the influence of the modern architectural culture on the traditional district.

3.3 Analysis of Intangible Cultural Genes in Guangfunan Historical and Cultural District

In the development of the Guangfunan Historical and Cultural District, in addition to the

rich material cultural genes, the intangible cultural genes also play an indispensable role. These intangible cultural genes, including historical traces, folklore, social relations, values, regional customs, etc., are an important part of the district's historical lineage, which profoundly affects people's daily life and cultural perceptions. In this section, we will analyze the intangible cultural genes of the Guangfunan Historical and Cultural District from three dimensions: macro, meso, and micro.

3.3.1 Macro level: Historical Context Genes

As one of the core areas of Guangzhou's historical city center, Xiguan area has witnessed the changes of Guangzhou from ancient times to modern times. In the late Qing Dynasty and early Republic of China, Xiguan became the economic center of Guangzhou due to the policy of “Single Port Trade Policy”, and the prosperity of trade and culture promoted the rise of Xiguan culture, which formed the unique Lingnan cultural characteristics. Introducing the history and culture of Xiguan is necessary for the study of the macro-level cultural genes of the Guangfunan Historical and Cultural District.

3.3.1.1 Xiguan Traceability



Figure 3-44 Guangzhou Xiguan during the Qing Dynasty (1884)

Source: Redrawn by the author from *the Guangdong Coastal Defense Chart*

Historically, Liwan District was located outside the western gate of Guangzhou, commonly known as “Xiguan”. “*Yue Tai Zhengya Record*” records: “Yangcheng West City Wall outside, the land collectively known as the West Garden, that is, commonly known as Xiguan also.” And the name of Liwan, originated in the jurisdiction of “a bay of green water, both sides of the Lychee red” of the Lizhi Bay. Xiguan history is the river network across the waterfront area, because the Pearl River and the confluence of the Xiaobei River, Xiguan

plains continue to expand to the southwest. With the development of history here gradually expanded into a street, and because of the prosperity of commerce and trade became a market, until the founding of the country became “Xiguan”, administratively by the Republic of China in June 1950, seven districts were merged into three districts, in September 1952 in the river and the West District, West District and part of the Central District was merged into the Liwan District in 1960^[48].

(1) Before the Ming Dynasty

Before the Ming Dynasty, the Xiguan area, as an urban and rural adjunct of Guangzhou, had a unique cultural and historical landscape. The area around Lizhi Bay has been the location of successive generations of levirate gardens. During the Southern Han Dynasty, Chang Hua Garden was built here, which was more than 30 miles wide and became an important royal garden at that time. In addition, numerous gardens and buildings were built in the area of Pantang, collectively known as the “Western Garden”, which further enriched the landscape of the area.

In terms of agriculture and handicrafts, the Xiguan area was famous for the “Pantang Wu Xiu” (lotus root, mushroom, horseshoe, wild bamboo shoots, and water bamboo shoots) during the Song and Yuan dynasties. Meanwhile, the Song Dynasty kiln site in Xiguan also witnesses the prosperity of handicrafts at that time.

Religion and foreign culture also have a long history in the Xiguan area. During the Southern Dynasty, Dharma left the mark of “the first place to come from the west” after his eastward journey. During the Tang and Song dynasties, the Nanhaixi Temple was built in the dock area of Xiajiulu Road, which became an important religious site. During the Southern Han Dynasty, the Xiguan area also built the “Western Seven Temples” of Qianfo, Zhencheng, Shuiyue, Dinglin, Zhaorui, Jifu, and Weichi, which became an important spreading place of Buddhist culture. In 1052, the Renwei Temple was built in Xiguan Pantang, further enriching the religious and cultural landscape of the area.

(2) the Ming and Qing Dynasties

During this period, the Xiguan area was already a special economic zone for commerce

and trade, gradually emerging and becoming an important center for domestic and foreign trade(Figure 3-45). In the fourth year of Ming Yongle (1406), the Huaiyuan Post was established in Xian Zibu (the area of present-day Shibafu Road), which was used to receive foreign envoys and merchant groups who came to pay tribute and trade. During the Kangxi period of the Qing Dynasty, Guangzhou established the public trade system, and the Thirteen Hongs monopolized foreign trade, with the Thirteen Houses Street as the center of the distribution of merchant houses as the trading base for foreign merchants coming to Guangzhou, replacing the function of the original Huaiyuan Post, which was transformed into a pavilion specializing in entertaining Siamese tributary envoys, and marked as “Siamese Tribute Pavilion” on many maps^[42]. During the Daoguang period, Guangzhou became the only foreign trade port in the country. During this period, the Xiguan area, with its favorable geographic location and policy support, rapidly developed into the core area of prosperous commerce.



Figure 3-45 Prosperous Maritime Trade Economy in the Ming and Qing Dynasties
(Source: Baidu Image)

The prosperity of trade and commerce not only promoted the economic development, but also gave birth to the architecture and garden culture with Lingnan characteristics. During the Qing Dynasty, Guangzhou formed a pattern of “East Village, West Pretty, South Rich, North Poor”, and during the Tongguang period in the late Qing Dynasty, Xiguan area formed a high-class residential area represented by Xiguan Mansion. These residences were a fusion of traditional Lingnan architecture and Western architectural elements, reflecting the level of architectural art at that time. Meanwhile, there are many famous gardens in Xiguan, such as the “Hai Shan Xian Guan” built by Pan Shicheng, a huge merchant at the end of the Qing

Dynasty, which has become an outstanding representative of Lingnan garden culture. In addition, the Western-style buildings in the Shameen Concession symbolize the fusion of Chinese and Western cultures in modern Xiguan.

(3) Late Nineteenth Century to the Present

Since the end of the 19th century, Xiguan has been the pioneer area of modern construction and transformation in Guangzhou.

In 1925, a large-scale road construction program was initiated in the Xiguan area. With the gradual improvement of the road system, the commercial spatial pattern underwent a remarkable transformation: the traditional riverine street commerce, which relied on water transportation and wharves, gradually declined, while the emerging commercial activities shifted to along the road(Figure 3-46). This change marks the transformation of Xiguan business from traditional mode to modern mode.

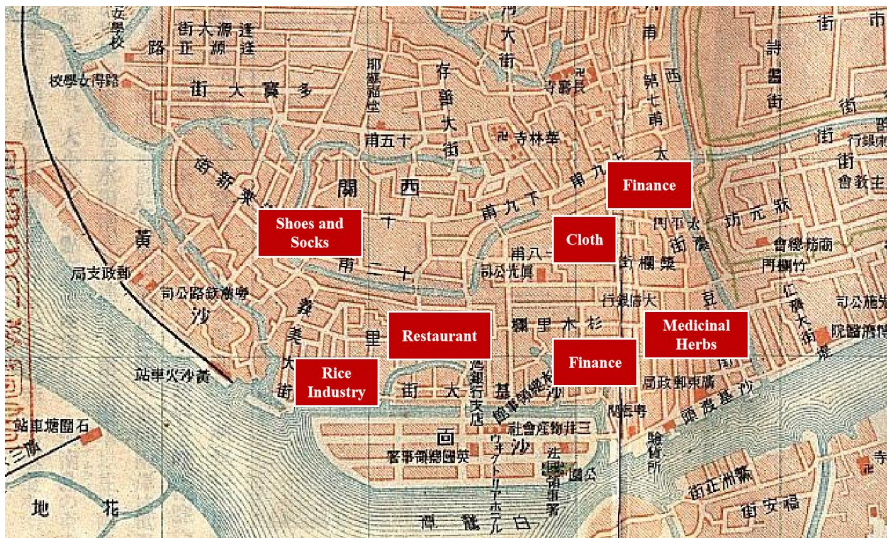


Figure 3-46 Distribution of Major Industries in Xiguan in 1919
(Source:1919 Road Map of Guangzhou City)

Table 3-8Distribution of Main Street Businesses in the Guangfunan Historical and Cultural District
before and after the Opening of the Roadway

Source: *Guangzhou Guide, 1919; Guangzhou Business Directory, 1947*

1919		1947	
Street	Business Distribution	Street	Business Distribution
Taiping Street	Silk, Gu Embroidery, Floss, Paper, Ink, Tea, Silver, Insurance,	Guangfunan Road	Banks, Cotton Weaving, Silks (large quantities), Cloth, Pigments (large

	Newspapers and Magazines		quantities), Glass, Teahouses, Cooked Medicines
Yang Alley	Cloth, Tweed, Shoes, Pollen, Perfume, Pharmacy	Yang Road	Weaving, Cloth, Sarees (bulk), Cloth, Make-up, Banks
Jianglan Street	Pen and Ink, Tea, Silver, Insurance	Jianglan Road	Ink and Oil, Groceries, National Medicines, Proprietary Medicines, Pharmacy, Wine Shop, Light House
Shiqifu	Teahouse, Shoes, Pen and Ink, Gold Store, Foreign Goods, Pharmacy, Winery, Printing	Shibafu Road	Kerosene, Bicycle Dealers, Restaurants, Ice Rooms, Theaters, Printing, Antiques, Printing, Stationery, Bookstores, Clothing, New Medicines (large quantity), Proprietary Medicines, Pharmacies, Footwear, Hats, Pinwheels, Groceries, Preserved Meats, Sugar Cakes, Clocks and Watches (large quantity), Make-up, Electrical Appliances, Beauty Parlors, Hardware, Furniture
Shibafu	Teahouse, Restaurant, Theater, Cloth, Tweed, Leather Goods, Shoes, Bookstore, Goldsmith, Watch, Pollen, Perfume, Foreign Goods, Tea, Pharmacy, Copper and Ironware, Wood Shop, Photography, Insurance, Newspaper, Printing		
Denglong Street	Silverware Store	Kangridong Road (Hepingdong Road)	Medicine, Silver, Insurance, Lamps and Lanterns, Firecrackers.
Gongrimen	Insurance	Kangrizhong Road (Hepingzhong Road)	Printing, Ink and Oil, Bleaching and Dyeing, Electrical Appliances, Glass, Advertising, Groceries
Thirteen Hongs Street	Teahouse, Tea, Apothecary, Porcelain & Tile Ware, Wax Pickles, Silverware, Printing	Thirteen Hongs Road	Banks (bulk), Tobacco, Tea Rooms, Printing Brushes, Paints, Hardware
Changle Street	Paper, Pigment	Changle Road	Paper lines, Paints, Fireworks, Electrical Appliances
Xirong Alley	Silverware Store	Xirong Alley	/
Xinglong Street	Brush, Ink, Flour, Pigment, Silver, Customs Declaration	Xinglong Road	Banks
Guyi Street	Drugstore	Guyi Street	Banks, Pharmacies
Jilan Street	Lacquer, Porcelain and Tile	Jilan Street	/

Before and after the construction of the road, the commercial pattern of Xiguan showed

obvious differentiation and reorganization (Table 3-8). The cloth and garment industry, as a core industry, remained concentrated in traditional commercial areas such as Shangxiajiu Road, Yangxiang Alley and Shibafu Road; while export-oriented decorative handicrafts such as lacquerware, porcelain and woodcarving gradually declined. At the same time, some traditional industries, such as banking houses and pawnshops, began to transform into modern banking and insurance industries, mainly concentrated in the area of Thirteen Hongs Road. New industries, such as electrical appliances, printing, hardware, travel agencies and transportation, have emerged rapidly, and the main spatial carrier for their development is along the river road. The prosperity of the catering and entertainment industries further highlighted the modernization of Xiguan's commerce. Shangxiajiu Road, Shifu Road, Shibafu Road, and the roads near the new residential areas became the focus of catering and entertainment activities. Among them, the area around Shibafu Road, as a densely populated area for department stores, gave birth to the embryo of Guangzhou's modern department store industry. the establishment of the Guangshang Company in 1907 marked the emergence of this industry, while the rooting of old brands such as the Guangzhou Restaurant, Tao Tao Ju, Panshi Restaurant, Lianxianglou, and Huangshanghuang Barbecue Restaurant promoted the prosperity of consumer entertainment culture, reflecting the pursuit of a modern urban lifestyle by the city's inhabitants. The construction of the road not only reshaped the commercial space pattern of Xiguan, but also promoted the modernization and transformation of some of the industries, many of which are still in existence today, becoming an important witness to the fusion of history and modernity in Xiguan.

After the opening of Xiguan roadway the houses on both sides of the road that were demolished and set back were faced with the task of reconstruction. These houses generally abandoned the traditional architectural styles and adopted new architectural forms, materials and structures. However, due to the differences in government planning and the degree of commercialization, the houses on both sides of the road were rebuilt in different ways. According to the planning of the Public Works Bureau, the Longjin Road - Enning Road - Shifu Road - Shangxiajiu Road, which connects Xiguan to the inner city, and the liuersan

Road - Xidi, are allowed to build Qilou; while other streets are not allowed to build Qilou. In the commercial streets where no Qilou were built, the houses on both sides were rebuilt as shop using Western-style elevations; in the non-commercial streets, they were rebuilt as residences using Western-style elevations(Figure 3-47).



Figure 3-47 Distribution of Commercial Streets in Xiguan in 1947

Source:1947 Complete Map of Roads in Guangzhou City

As an important urban planning strategy to demolish the city and build roads, the core purpose of the Qilou is to control the scope of the building retreat and to ensure the smoothness of the pedestrian system^[56]. 1912, the military government issued the “Guangdong Provincial Police Department first outlawed the construction of the statute and the implementation of the rules”, which explicitly stipulated that “where the embankment and the construction of the road to build the store house, should be in the self-proprietary private land, leaving a width of eight feet to build footed Qilou to facilitate traffic”, making the construction of the Qilou became an institutional measure after the new roads were opened. Municipal office period, the Qilou system is further improved, the introduction of a large number of laws and regulations and implementation of measures to promote the construction of riding buildings on both sides of more than 20 newly opened roads in the old city. By the 1920s and 1930s, Changdi and Xidi in Xiguan and Renminnan Road together constituted the most prosperous commercial area of Guangzhou with Qilou, which became a

typical representative of modern urban style.

After the founding of New China, Xiguan continued to play an important role. In 1952, Xidi hosted the South China Souvenir Exchange Conference and became a window on socialist construction (Figure 3-48). In the early years of the founding of the PRC, tram lines and China's earliest viaducts led to Xidi, further consolidating its position as a transportation and commercial hub. 1983 saw the construction of the White Swan Hotel, the earliest five-star hotel in the mainland, in Shameen, marking Xiguan's pioneering role in reform and opening up. From the construction of the Long Causeway to the rise of the Qilou, from the prosperity of the department store industry to the window of reform and opening up, Xiguan has always been at the forefront of the times and has become the epitome of Guangzhou's modernization and transformation.



Figure 3-48 Aerial View of the 1952 South China Souvenir Exchange Conference

Source: *Lingnan Excellent Modern Architecture 1949-1990 Volume*

3.3.1.2 Celebrity History

(1) Sun Yat-sen and Chen Shaobai set up the East-West Medicine Bureau to practice medicine and help the world.

In the spring of 1893, Dr. Sun Yat-sen arrived at the famous Chinese medicine street in Guangzhou. With the help of his good friend Chen Shaobai, Sun opened the East-West Pharmacy at No. 33 Xianji and invited Yin Wenkai, the son-in-law of his former Chinese language teacher, to serve as an assistant clinic. Dr. Yin was also a renowned medical practitioner of our time, and the partnership between Dr. Sun and Dr. Yin was instantly recognized as the “twin banners of the apricot grove”.

At the beginning of the opening of the East-West Pharmacy, a notice was published in

the then Guangzhou “*Chinese and Western Daily News*”: “Dear Sir, this Council urges the great doctor Sun Yixian to come to the province to help the world, Mr. Sun has always been to help people and benefit the people for the sake of the heart, if there is an accident with the husband's difficult birth, poison and other illnesses, report the critical situation, regardless of the rich and the poor, can be immediately invited to try to save, please do not look forward to. The first thing you need to do is not to wait and see, so as not to make mistakes. This cloth. Xianji East and West Pharmacy respectfully.”

(2) Chen Gongzhe and Huo Dongge organized the Guangdong Jingwu Sports Association.

Chen Gongzhe (1890-1961), has been the leading core personnel of Jingwu, together with Lu Weichang and Yao Chanbo, they are known as “Three Masters of Jingwu” and “Three Companies of Jingwu”. Huo Dongge (1895-1956), the second son of Chinese martial artist Huo Yuanjia, announced the establishment of the Guangdong Jingwu Association in Guangzhou Haizhu Theater in April 1919, initially set up an address in the Ningbo Hall at No. 112 Jianglan Road and used it until 1927, and then moved to South Taiping Road (today's Renminzhong Road) in the Canaan Hall, and then to Lizhi Bat in Xiguan, and finally to Fengning Road (now People's Middle Road), where a number of northern boxers were sent from the Shanghai Association to Guangzhou. Many fighters from the north were sent by the Shanghai General Association to teach in Guangzhou. At the beginning of the Jingwu Association, northern boxing was the main focus, and after the opening of the Guangzhou and Foshan branches, the Jingwu Association also absorbed a number of southern masters, further promoting the integration of north and south. For the Guangdong martial arts community, the establishment of the Guangdong Jingwu Association is the first large-scale modern history of the northern boxing south activities.

3.3.2 Meso Level: Regional Cultural Genes

The regional cultural characteristics of Guangfunan Historical and Cultural District do not exist in isolation, but are the result of continuous evolution and refinement under the macro historical and humanistic framework of Guangzhou's urban development. As the core

component of Guangzhou Xiguan culture, Guangfunan district carries rich historical resources and a complete evolution trajectory: from the Ming and Qing dynasties as a trade hub, to the Republic of China's prosperous commercial area of the Qilou, to the individual economic testing ground after the reform and opening up, its cultural genes have always been tightly intertwined with the urban development vein, and making “The trade cultural gene” the most distinctive mark of the regional culture of Guangfunan Historical and Cultural District.



Figure 3-49 Distribution of Old Shops in and around the Guangfunan Historical and Cultural District

(Source: Drawn by Author)

The many old shops preserved in the district are an important carrier of the “Trade cultural genes” of Guangfunan (Figure 3-49). From the Qing Dynasty to the Republic of China, this area was the traditional commercial center of Guangzhou, where various trades and industries, such as pawnbrokers, silver money changers, copper-beaters, textile firms, herbal medicine firms, tea houses, and catering establishments, gathered. For example, the old “Tai Ru Teahouse” in the district was opened in 1885 (Guangxu 11) and is a five-star high-grade tea house. “*Disappearing Guangzhou old*” said, due to the use of the word “Ru” meaning good, people like to name the tea house, up to thirteen, known as “Guangzhou

Thirteen Ru”. Because of its high-grade configuration, the guests are mostly a high-income senior editors, journalists and bosses from all walks of life. According to the “*Guangzhou Silver Industry*” published in 1932, in the early 1930s, Guangzhou had 544 silver companies throughout the city, of which only too such as the tea house around the Thirteen Hongs road, Guyi Street, Heping Road, Jianglan Road, Xirong Alley, Yu Shan Li, Fushan West Street, the “four vertical and four horizontal” eight adjacent narrow streets, there are 251 silver companies, showing that this area was prosperous at the time. This shows the prosperity of this area at that time.



a)Clothing Wholesale/Retail

b)Warehouse/Logistics

c) Catering

Figure 3-50Distribution of businesses in the Guangfunan Historical and Cultural District

(Source:Drawn by Author)

Nowadays, as a famous garment wholesale distribution center, Guangfunan's trade culture not only continues Guangzhou's historical business tradition, but also innovates with the modern market demand. The district is home to a large number of garment wholesalers and retailers, and many of the buildings are used as warehouses and logistics terminals in order to meet the needs of goods storage and logistics(Figure 3-50).

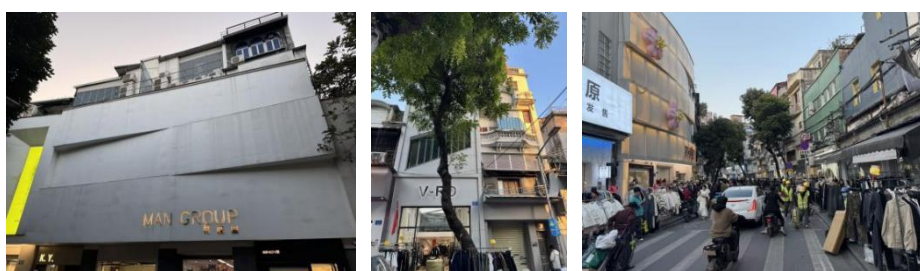


Figure 3-51The Facade of the Business was Remodeled by the Businessmen Themselves in Response to the Demand for Trendy Clothing.

(Source:Photographed by Author)

However, while the garment wholesale industry in Guangfunan has brought economic vitality, it has also challenged the appearance and preservation of the historic district. Some of the historic buildings and traditional style buildings have been affected by commercial activities, such as billboards covering the building facades and damaging the historic monuments(Figure 3-51). Therefore, there is also a need to actively promote conservation and adaptive use, and to achieve sustainable commercial development through repairs and renovation while preserving the historical features.

3.3.3 Micro level: Daily Life Genes

The cultural genes of daily life at the micro level are not only an important reflection of the vitality of the district, but also the core carrier of cultural heritage. Historically, intangible cultural heritage such as traditional handicrafts, special food, traditional textiles, etc. together carry the deep historical memory and cultural connotation of the Lingnan area, and are an indispensable part of the historic district. Meanwhile, as a typical representative of Guangzhou's traditional mixed commercial and residential districts, the cultural genes of the Guangfunan Historical and Cultural District are not only embodied in the material spatial carriers, but are also deeply rooted in the residents' lifestyles, social relationships and collective memories. As the living carriers of cultural genes, the residents' daily life practices are the core driving force for the inheritance and continuation of district culture. The study of cultural genes in daily life is not only a record of past lifestyles, but also a powerful support for current and future community development.

3.3.3.1 Traditional Handicrafts

(1)Xiguan Copper

Guangfunan Road was also known as “Copper Street” in the past. According to historical records, Xiguan “Copper Street” had its name in the Qianlong period of the Qing Dynasty, and it was a professional street for the production and sale of copper utensils at that time(Figure 3-52). At the end of the Qing Dynasty and the beginning of the Republic of China, with the prosperity of the thirteen lines, the copper-beating process reached its peak, and the

number of workers in the copper-beating line in Guangzhou was up to more than 2,000, and there was a proverb that said, “Suzhou-like, Guangzhou craftsmen”. At that time, “into the black and white lead is cooked copper, into the tin is raw copper, all made by the workers, consignment in the copper and iron store”. Copperware from Xiguan was not only a necessity for large families, but was also exported overseas through the Maritime Silk Road as a valuable commodity.



Figure 3-52Xiguan Copper-beating Technique

Source: <https://mp.weixin.qq.com/s/sLOKWluBbmir5PozEsub9g>

Xiguan copper-beating craft was in decline in the mid-20th century, but gradually rebounded after the reform and opening up. 2009, Xiguan copper-beating craft was selected as one of the second batch of municipal intangible cultural heritage list in Guangzhou. Nowadays, the copper-beating street is mainly concentrated in the area of Enning Road in Liwan District. In the copper stores on Enning Road, there is a wide variety of copper furniture ranging from small copper spoons that cost tens of dollars to those that cost tens of thousands of dollars. The inheritors of the copper-beating craft have not only continued the craftsmanship of their ancestors, but also revitalized this ancient skill through innovation.

(2) Textile Culture.



Figure 3-53Canton Embroidery and Jinlun Hall

Source: https://mp.weixin.qq.com/s/juojuO_51HNgtjnBifWwAQ


“A boatload of silk goes, a boatload of silver returns. Five silk eight silk wide satin good,




silver money piled up thirteen rows.” During the Qing Dynasty, with the prosperity of the Thirteen Houses, the textile industry developed rapidly, and the Xiguan area became a dense area of textile workshops. In the Guangfunan Historical and Cultural District, there are many textile houses and big silk houses(Figure 3-53).

Not far from the Guangfunan Historical and Cultural District, the Jinlun Hall is the general organ of the silk industry in Guangzhou, playing a great role as an industry manager to establish rules and regulations and coordinate the relationship between various parties. Each Hong had its own scope of business, and the division of labor was meticulous, including the Fangji Hong, the Chaomang Hong, the Jincai Hong, the Gongzhuxian Hong, the Niulang Hong, the Zase Hong, the Foreign Goods Hong, the eleven Hong, the eighteen Hong, the silk Hong, the Yarn Hong, the Canton Yarn Hong, the Shao Yarn Hong, the San Yarn Hong, the Eight Silk Hong. Jinlun Hall is the only completely preserved industry hall of the Qing Dynasty in Guangzhou, which is a historical witness of the early sprouting of Chinese capitalism and an important relic of the Maritime Silk Road and the foreign trade of the “Thirteen Hongs” , testifying to the former glory of Guangzhou's textile industry and the export of silk fabrics and has important historical and cultural relics value. 2008, the Jinlun Hall was announced by the Guangdong Provincial Government as the first “Hall of the Qing Dynasty ” in Guangzhou. In 2008, the Jinlun Hall was announced by the Guangdong Provincial Government as a cultural relics protection unit in Guangdong Province.

3.3.3.2 Traditional Food Culture

Table 3-9Traditional Food Culture
(Source:Drawn by Author)

Name	Picture	Introduction	Related Historic Buildings
Cantonese -style Morning Tea		Cantonese Morning Tea is an important part of Guangzhou's food culture, with deep historical roots and unique cultural characteristics. Its origin can be traced back to the reign of Xianfeng in the Qing Dynasty, when the “Erli Hall” used bungalows as stores to serve simple refreshments. Over time, the tea house	Tairu Teahouse Tiannan Teahouse

	 (Source:Baidu Image)	gradually developed into a modern tea house, which became an important place for people to socialize and relax. The Tairu Teahouse in the district opened in 1885 (the eleventh year of the Guangxu reign). In the past, editors and journalists from the district newspaper industry as well as owners of silver shops used to visit the Tairu Teahouse to enjoy tea.	
Cantonese -style Barbecue	 (Source:Baidu Image)	Cantonese style barbecued pork is a very representative traditional food of Guangdong, which is famous for its unique production process and flavor. It consists of a variety of meats such as roasted pork, roasted goose, roasted duck, barbecued pork, etc., which are marinated and roasted. Huangshanghuang Barbecue started in 1940 and was honored as a “Chinese Old Brand” in 1993.	Huangshanghuang Barbecue(Closed)
Snake Soup	 (Source:Baidu Image)	Snake Soup is a traditional dish of Lingnan region, especially Guangzhou, which is famous for its unique flavor and nutritional value. Snake Soup is usually made with snakes such as cobra and golden ring snake as the main ingredients, and boiled with pork bone and old chicken.	Former site of “Snake King Man”

3.3.3.3 Neighborhood Life Gene

(1)Infrastructure and User Behavior

The construction of the neighborhood social network in the Guangfunan Historical and Cultural District is usually influenced by two main aspects: the physical environment and the socio-cultural environment. The compact architectural layout of the neighborhood objectively facilitates the daily contact of residents. Compared with the open public space in modern communities, the high density of buildings in the district, the lack of public activity areas, and the lack of public space for residents' activities have made semi-private small-scale areas such as alleys, corners, and in front of mansions become the main nodes of people's interactions, but this also shortens the distance of interpersonal relationships and accelerates the generation

of community cohesion(Figure 3-54).



Figure 3-54 Distribution of Public Service Facilities in the District and Photos of the Actual Scene
(Source: Drawn by Author)



Figure 3-55 Street User Behavior
(Source: Drawn by Author)

On the other hand, the strong commercial atmosphere in the Guangfunan Historical and Cultural District also has a two-way impact on the public space of people's daily life. As the district is mostly populated by related businesses, buying and selling are the most common behaviors in the district, while for tourists, the relatively homogenous nature of the businesses results in a lack of things to do other than shopping. The predominantly one-way road system also makes walking, electric bicycles, and flatbed trucks the primary means of transportation for the residents of the district, which poses a new challenge to the carrying capacity of the public space of the traditional district: wholesale goods, commercial outlets, and electric

vehicles occupy the road space, which exacerbates the congestion of the street space(Figure 3-55).

(2)Questionnaire Research and Interviews

In order to ensure a comprehensive and in-depth understanding of the real situation of the Guangfunan Historical and Cultural District, this study uses questionnaires and oral interviews to understand the residents, merchants, and tourists of the Guangfunan Historical and Cultural District's awareness of the district and their intention to renew the district. At the same time, the residents of Guangfunan Historical and Cultural District are the most important part of the cultural heritage of the district, so it is of great practical significance to select them as the subject of evaluation, because only the cultural genes that have been recognized and selected by them can continue to be inherited and remain vital. A total of 55 questionnaires were distributed offline and 50 valid questionnaires were collected, of which 34 were from local residents and merchants and 16 from tourists.

As far as tourists are concerned, 11 questionnaires mentioned that the main attraction for them to come to the Guangfunan South District is the wholesale clothing stores in the district, which attract a large number of tourists to come and buy because of their affordable prices, while the other tourists who visited the neighborhood mostly passed by the area on their way to the Cultural Park. In terms of district experience, 87.5% of visitors mentioned that the walking experience inside the neighborhood is inconvenient, with goods piled up on the streets in a chaotic manner; the relatively homogeneous commercial business and the lack of explanation of traditional historical buildings that are not prominently featured are also the problems currently faced by the Guangfunan Historical and Cultural District, accounting for 68% and 56%, respectively.

In terms of local residents and merchants, according to the field survey, it can be seen that the respondents have high support for the installation of public facilities with cultural characteristics (such as special sitting chairs, landscape lighting systems, guide devices and classified garbage bins), the strengthening of illegal building remediation and the management of encroachment of public space, the establishment of a restrictive list of

business entry to prevent the transformation of the community functions into over-commercialized ones, the introduction of supporting facilities such as catering services and creative offices, and the planning of corresponding cultural activities to enhance the vitality of the district. The planning of corresponding cultural activities to enhance the vitality of the neighborhood has a high degree of support. According to the statistics of the community in 2023, the aging characteristics of the local population are more obvious, with 15.01% of the population aged 60-65 years old and 17.53% aged 65 years old or above, which can also improve the quality of life and sense of well-being of the local residents through targeted improvement of public facilities, remediation of the environment, and regulation of the business model.

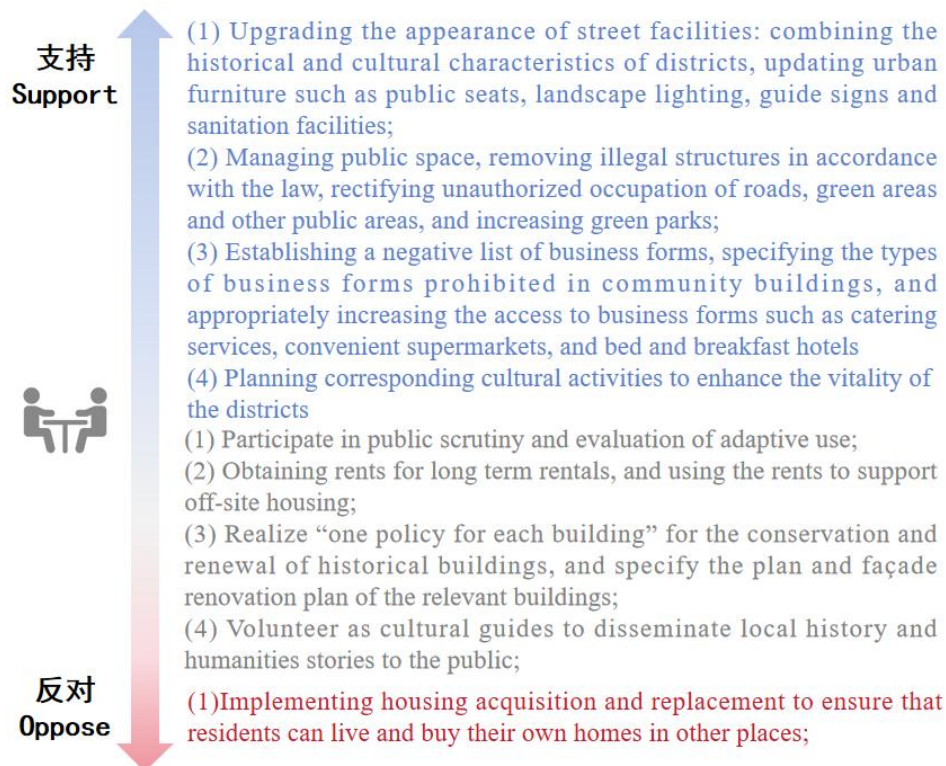


Figure 3-56 Voice of the Community - Record of Willingness to Renewal

(Source: Drawn by Author)

On the other hand, from the residents' perspective, they are not inclined to adopt the expropriation compensation method to implement off-site resettlement, which shows that local residents are not willing to leave their familiar living environment and district because of the regeneration project. On the other hand, the residents are neutral about participating in

public monitoring, renting their own houses to realize off-site resettlement, serving as volunteers for cultural guides, and adopting a “one-building-one-plan” approach for the conservation and renewal of historic buildings. Particularly regarding the work of preservation and renewal of historic buildings, for the residents and store operators who support the conservation and renewal, the conservation of the original appearance of historic buildings plays an important role in cultural inheritance, while the opponents of the viewpoints come from the “original restoration is good, but it is not suitable for the clothing industry” , the historical buildings are not suitable for Japanese and Korean fashionable clothing business. At the same time, for supporting the restoration of the original appearance of the merchants and relevant law enforcement, hope to clarify “how to change, where the boundaries of the transformation”, and more to achieve the unity of the district, “if only their own transformation and other businesses have not transformed, it is not very meaningful to enhance the overall appearance!”

From the perspective of inheritance of cultural genes in Guangfunan Historical and Cultural District, respondents have a unanimous positive attitude towards the inheritance of cultural genes in order to enhance the sense of cultural identity and promote the industrial and economic development of the district, and the renovation and updating of the buildings can be moderately transformed to the original cultural heritage on the basis of modern aesthetics, while the core elements need to be retained in their original form. At the same time, the respondents believe that in the process of passing on the cultural genes of the Guangfunan Historical and Cultural District, the preservation of historic buildings and traditional streets and alleys (4.76 points) and the continuation of the living scenes of the aboriginal people and the improvement of public facilities (4.63 points) should be emphasized, and attention should be paid to the combination of the industrial functions of the district (4.42 points), and to the inheritance and preservation of intangible cultural heritage, such as traditional food and handicrafts, and the related customs (4.27 points), which also provides a direction for the conservation and renewal of subsequent historic districts.

3.4 Cultural Genealogy Structure

The cultural genes of the Guangfunan Historical and Cultural District that were analyzed and sorted out earlier in this chapter were summarized to obtain the corresponding genealogical structure(Figure 3-57):

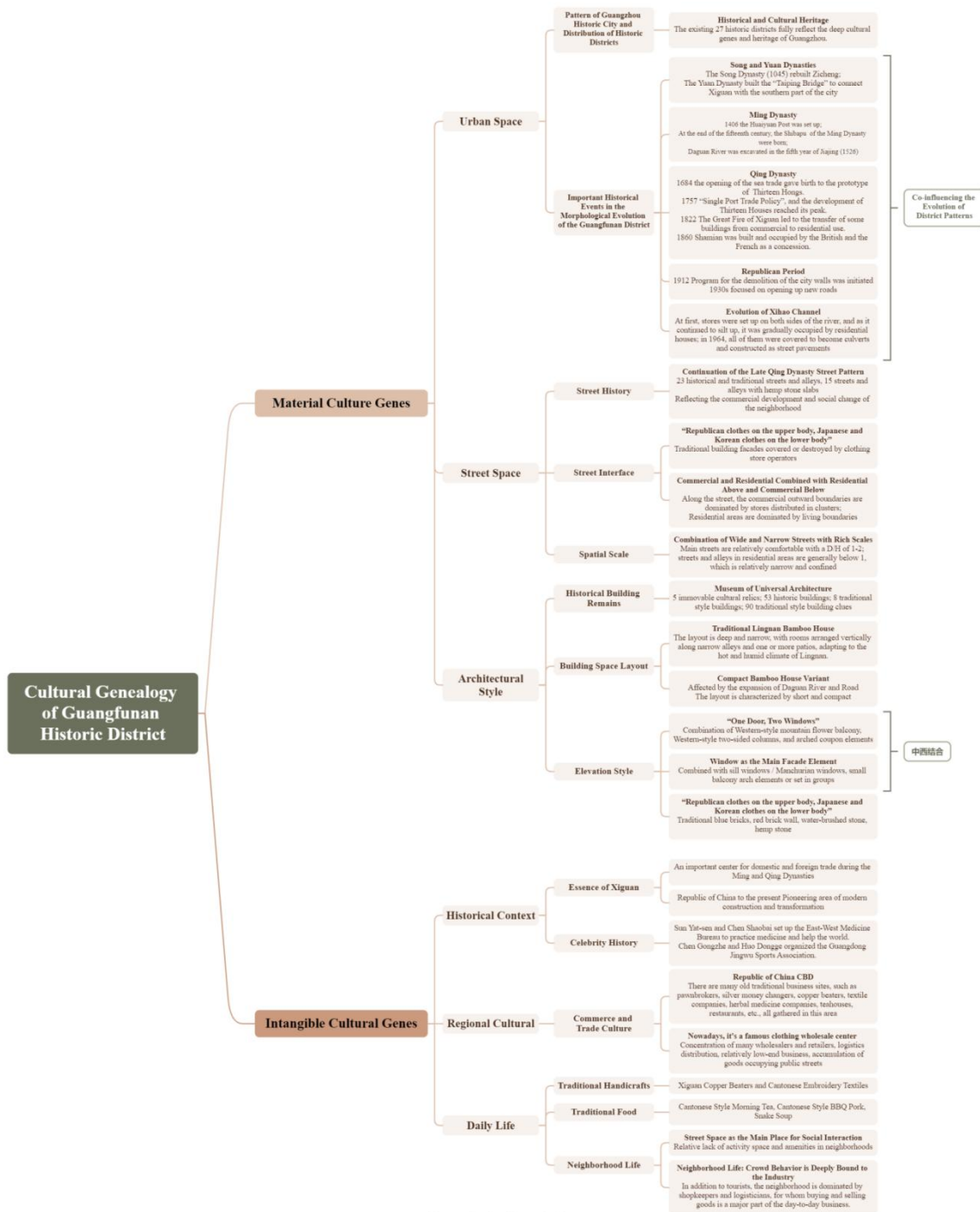


Figure 3-57 Cultural Genealogical Structure of the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

3.5 Summary of the Chapter

This chapter analyzes the Guangfunan Historical and Cultural District in Guangzhou, firstly starting from the overview of the district, describing the current characteristics of the district in terms of location, function, construction status, building ownership and other dimensions, and applying the mode of cultural genes analysis to systematically analyze its material and intangible cultural genes from the macroscopic, mesoscopic and microscopic levels. By analyzing the cultural genes, the cultural connotation of the Guangfunan Historical and Cultural District is shown, and the trajectory of the inheritance and evolution of its cultural genes in different historical periods is revealed. These results provide the orientation and direction for the cultural gene inheritance of the Guangfunan Historical and Cultural District.

Chapter4 Cultural Gene Inheritance Mode of Guangfunan Historical and Cultural District

Based on the previous research on the theory of cultural genes and the analysis of the cultural genes of Guangfunan Historical and Cultural District, this chapter will divide the cultural genes of Guangfunan Historical and Cultural District from the perspective of cultural genes' attributes, point out the existing problems, and explore the inheritance mode of the cultural genes of the Guangfunan Historical and Cultural Neighborhood in the perspective of cultural genes. Through the secondary division of cultural gene attributes, we will clarify the principles to be followed in the cultural gene inheritance of the district, propose three inheritance modes of cultural gene conservation, repair and recombination for the different attributes of the cultural genes, and elaborate the specific implementation methods of each mode by combining the case studies and the actual situation of Guangfunan Historical and Cultural District.

4.1 Classification of Cultural Genetic Attributes and Existing

Problems

Scholar Huo Yanhong based on “whether cultural genes are significant, with regional cultural dominance; whether they are culturally recognizable, unique to a certain region; whether they are culturally related, shared by two or more regions; whether they are mutated, incorporating new elements in the historical evolution.” The cultural genes are divided into four categories according to their own attributes: main genes, attached genes, mixed genes and variant genes^[46]. District cultural genes contain cultural genetic information through the process of transcription, recombination and substitution to achieve the dissemination and evolution of the local cultural system. Nowadays, we urgently need to explore more accurate methods of cultural gene transmission.

The classification of attribute dimensions is the core connecting point between the

cultural genealogy and the inheritance pathway, and the most suitable inheritance pathway is identified through the identification of gene types. The cultural genealogy of the Guangfunan Historical and Cultural District has been constructed according to the previous section, according to this division rule, the secondary classification of cultural genes in Guangfunan Historical and Cultural District is as follows, so as to facilitate the subsequent proposal of corresponding inheritance modes for cultural genes with different attributes(Table 4-1):

Table 4-1Cultural Genetic Attribute Dimension Classification of Guangfunan Historical and Cultural District

(Source:Drawn by Author)

Main Gene	Attached Gene
Urban Space Historical and Cultural Heritage of Guangzhou Morphological Evolution of the Guangfunan Historical and Cultural District under the Influence of Important Historical Events Historical Context Xiguan Heritage Regional Culture Commerce and Trade Culture	Street Space Street History: Continuation of the late Qing Dynasty Street Pattern Street Interface: Commercial and Residential Combined with Residential Above and Commercial Below Street Scale: Combination of Wide and Narrow Streets with Rich Scales Architectural Style Historical Building Remains: Museum of Universal Architecture Architectural layout: Traditional Lingnan Bamboo House and Compact Bamboo House Variant Elevation Style : “Republican clothes on the upper body, Japanese and Korean clothes on the lower body” Daily Life Traditional Handicrafts, Traditional Food Neighborhood life: Street Space as the Main Place for Social Interaction
Mixed Gene	Variant Gene
Architectural style Elevation style: “One Door, Two Windows” Window as the Main Facade Element Historical Context Celebrity History Daily life Neighborhood Life: Crowd Behavior is Deeply	Street Space Street Interface: “Republican clothes on the upper body, Japanese and Korean clothes on the lower body” Commerce and Trade Culture Mixed and Disorganized Traffic, Accumulation of Goods Occupying Public Space

The main genes usually have a significant status and regional cultural dominance, and are important markers of the cultural identity of the Guangfunan Historical and Cultural District. The morphological evolution of the Guangfunan Historical and Cultural District at the level of urban space in the material cultural genes; the Xiguan heritage at the level of historical context, and the commerce and trade culture at the level of regional culture in the intangible cultural genes, these cultural genes are the core cultural characteristics of the Guangfunan Historical and Cultural District, which embody its unique value in the cultural inheritance of the district. They are the basis for understanding the cultural connotation of Guangfunan Historical and Cultural District, and have been preserved and inherited to a certain extent during the long development and evolution of the district, but at the same time, the historical water system such as Xihao Channel as well as all kinds of cultural activities have gradually disappeared from people's view, and are in urgent need of preservation and restoration.

Attached genes are dependent on the main genes, providing richer cultural details and historical information, which often have strong cultural recognition, are unique to the Guangfunan area, and are important elements that constitute its unique cultural landscape. For example, the history, street interface, and street scale at the street space level of the material cultural genes, the remains of historical buildings, spatial layout, and facade features at the architectural level, and the traditional handicrafts, traditional food, and daily social life of the residents at the level of the intangible cultural genes are the specific expressions of the cultural characteristics of the Guangfunan Historical and Cultural District, which help to understand the cultural connotation and historical value of the district in-depth. However, the relative imbalance of the material carriers attached to the genes of the Guangfunan Historical and Cultural District, the lack of related cultural places, the relative backwardness of the supporting service facilities of the district, and the poor spatial interaction experience all affect the display and inheritance of the cultural genes of the district to varying degrees, and

the original life scenes of the district are gradually disappearing.

Mixed genes are the result of the interaction of multiple cultures, and they reflect the expression of cultural genes under the influence of different conditions, reflecting the diversity and complexity of the cultural characteristics of the Guangfunan Historical and Cultural District. Similar to the facade style characteristics at the architectural level of the Guangfunan Historical and Cultural District, and the phenomenon that crowd behavior is deeply bound to the clothing industry at the level of daily life, such mixed genes are usually culturally related and may be shared in two or more areas, reflecting cultural exchange and integration.

Variant genes reflect the external influences and internal changes in the development process of the Guangfunan Historical and Cultural District, and they reveal the variation and adaptability of the district's cultural characteristics, providing a dynamic perspective for preservation and renewal. Variant genes have both benign and malignant variant qualities: benign variant integrates new elements in the historical evolution, which can reflect the dynamic development and innovation of culture; while in the Guangfunan Historical and Cultural District, such as the “Republican clothes on the upper body, Japanese and Korean clothes on the lower body” of the street interface, as well as the mixed traffic and disordered placement of goods in the district due to the characteristics of industry, the phenomenon of piling up and occupying the streets should be considered as the malignant variant. Foreign culture is gradually eroding the original cultural system of the district, which leads to the overall appearance of the district as well as the original authenticity of the relevant historical building facades being seriously damaged by unauthorized renovation by store operators, modern decoration makes the interface color elements mixed, a variety of decorative styles filled with the entire street, the original traditional architectural components have been arbitrarily altered, and the encroachment on the public space leads to the significant decline in the sense of spatial experience, and so on. The cumulative situation has led to the loss of the original cultural genes of the district, which should be taken seriously by the relevant managers.

After the matching and classification of attribute dimensions, the main, attached, mixed and variant cultural genetic elements become clearer, which facilitates the selection and formulation of subsequent conservation and renewal strategies.

4.2 Principles of Cultural Gene Inheritance in Guangfunan Historical and Cultural District

4.2.1 Integrity and Authenticity

The renewal of historic districts, as a complex of multiple heritages, is far more complex than a single built heritage. Urban theorists such as L. Mumford and John Friedmann have repeatedly emphasized that the history and culture of a city are the core elements of urban planning and construction. They believe that the healthy development of the city as an organism cannot be separated from a complete and authentic cultural system and cultural soil [57] No city can be detached from its rooted civilization and history, otherwise it will lose its unique spiritual core. In the protection of Guangfunan Historical and Cultural District, it is necessary to consider the existing resources and historical lineage with a rigorous attitude and global thinking, avoiding superficiality, and truly realizing the integrity and originality of the historical heritage.

The cultural genealogy of a historic district records fragments of cultural information from different historical periods and is an objective carrier of the cultural characteristics of the district. When analyzing from the perspective of cultural genes, it is necessary to avoid the one-sided approach of fixing the culture of a district to a certain historical period. Just as biological genes shape biological characteristics under the dual role of heredity and environment, cultural genes also evolve in the tension between historical continuity and external intervention. This evolution is a dynamic and unpredictable macroscopic process, and its integrity and authenticity are crucial to the study of the evolutionary patterns of districts and the prediction of future development. If we only speculate on the whole with local fragments, the conclusions we draw often lack rigor and accuracy. Therefore, conservation

work should be based on systematic thinking, avoiding out-of-context or simplistic treatment.

With the acceleration of modernization, the tangible and intangible cultural heritage of historic districts is facing serious threats. The cultural elements of many districts are no longer intact and are even on the verge of disappearing. Taking Guangfunan Historical and Cultural District as an example, its street commercial interface, street texture, historical buildings and daily life scenes are partially preserved, but gradually fragmented in the rapid urbanization. At the same time, the renovation and renewal of the Renminnan and Haizhuzhong Historic Districts are also underway. Despite the positive significance of these preservation and renewal efforts, more attention should be paid to the excavation of historical data and the systematic collection of information in practice. Only by restoring as much as possible the true and complete elements of cultural genes can we build a specific and detailed regional cultural system, which is not only a respect for history, but also a responsibility to the city and its residents.

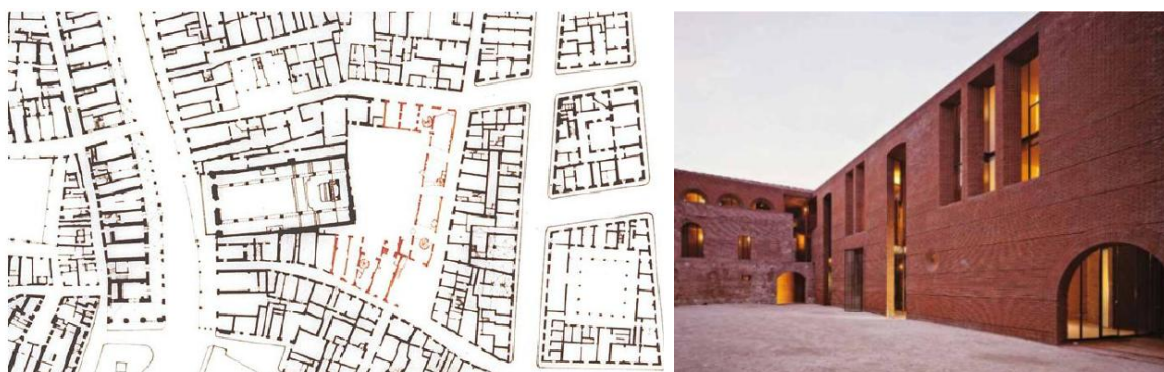


Figure 4-1 Renovated St. Michele complex
(Source:Reference^[58])

In concrete implementation, the principle of “integrity and authenticity” should run through the whole process from macro-planning to micro-restoration. Taking the Guangfunan Historical and Cultural District as an example, in the restoration of the street interface, reasonable and compliant repair techniques are adopted to avoid damaging the overall form. The materials, styles and colors of new structures should be coordinated with the surrounding historical environment to maximize the continuation of the original cultural lineage and district atmosphere. For the protection of authenticity, we can learn from the experience of

excellent cases in Italy. For example, in order to obtain the continuity effect with the existing preserved part of the buildings in the St. Michele complex project in Pisa, Italy(Figure 4-1), the designers referenced and repaired the original district texture, and used red solid bricks of strong and uniform color for the walls of the complex, overlapping without joints, hiding the mortar and adding specially designed special bricks to match with the original bricklaying method.^[58].

4.2.2 Inheritance of the Essence

“Taking the best and removing the dross” is the core attitude of our traditional culture towards things, which is also in line with today's socialist core values. In the renewal of historic districts, many local governments have taken this concept as the guiding principle of renewal strategy; however, in reality, the renewal cannot be simply divided into “essence” and “dregs” by the “dichotomy”. As a social existence, a historic district is an organic whole composed of complex and diverse components, and its cultural system has been precipitated and evolved over many periods of time, with interconnections and mutual influences among the various parts. Our analysis and definition of these cultural elements are often subjectively attached rather than a direct reflection of their natural attributes.

Through the extraction and analysis of the cultural elements of the Guangfunan Historical and Cultural District, a relatively complete cultural gene system has been initially constructed. However, the complexity and diversity of cultural phenomena in the district make it difficult to classify some of the elements in a concrete way. In order to deeply analyze and realize effective protection and utilization, it can be divided into two attributes: entity and value. Entity focuses on the inherent existence and innate attributes of culture, and tries to distinguish between “benign” and “malignant” components, but the reference value of this one-dimensional judgment is limited; value is based on a specific historical background and practical needs, and assesses the significance and role of cultural elements from a dynamic perspective, which is more in line with the historical and practical needs of the district. Value, on the other hand, is based on the specific historical background and practical needs, and

assesses the significance and role of cultural elements from a dynamic perspective, which is more in line with the logic of the protection and renewal of the historic district.

Culture is a reflection of history, and its phenomenon and evolution are objective products of a specific context. The influence of existing cultural genes on the future development of a city is not static, and the attributes of its “essence” or “dregs” are not inherent, but depend on its significance to the development of people and society. The “essence” of cultural genes is not the decisive factor, the key lies in “how to utilize” and “how to transform” them in the process of conservation and renewal. Regardless of the role played by these cultural elements in the past, their value should be re-examined in terms of whether they are conducive to contemporary development and social progress. The implementation of the principle of “inheritance of the essence” is not only a guarantee for the healthy development of the cultural genetic system, but also a source of sustainable vitality for historic districts.

4.2.3 Dynamic Adaptation

The core value of culture lies in its advancement, which is not only reflected in its “newness”, but also in its driving force and educational significance for the development of contemporary society. History and the future are not opposites, but complementary: the cultural genes of historic districts carry a great deal of excellent traditional culture, which played an important role in a specific period of history, and even continues to this day. However, with the drastic changes in the way of production and life of the society and the arrival of the information age, the traditional districts are facing unprecedented challenges. Although the cultural gene system of the Guangfunan Historical and Cultural District has gone through many integrations and evolutions, it still needs to be dynamically adapted to achieve value reconstruction in the current context of rapid changes.

The principle of “dynamic adaptation” emphasizes the promotion of innovative transformation of cultural genes on the basis of preserving historical authenticity. Combined with contemporary needs, traditional space functions can be transformed into multiple

composite uses, and temporary and dynamically replaceable spaces can be implanted in the district to meet the needs of different time periods; or digital technology can be used to recreate historical scenes, so as to enhance the interactivity and attractiveness of cultural dissemination; and at the same time, emphasis should be placed on the organic grafting of local cultural genes with modern elements, so as to avoid blindly copying popular modes. This kind of adaptive updating is not only a continuation of history and culture, but also a deep excavation of its contemporary value.

However, dynamic adaptation is not the same as pursuing “modernization” or “trendiness”. Currently, the renewal of some cities' historic districts has fallen into the misunderstanding of blind imitation, neglecting the uniqueness and adaptability of the local cultural genes. The conservation and renewal of Guangfunan district should be based on the premise of “integrity and authenticity”, the foundation of “inheriting the essence”, and the path of “dynamic adaptation”: for the cultural genes with poor status and weak social viability, priority should be given to preserving them. For cultural genes with poor status and weak social viability, priority should be given to protection and restoration, rather than forcibly grafting modern elements, so as not to cause cultural distortion and value dissolution. Only by realizing innovative transformation on the basis of respecting history can the cultural vitality of a district be truly activated and revitalized in contemporary society.

4.3 Model of Cultural Gene Inheritance in the Guangfunan Historical and Cultural District

In the process of contemporary urban development, the conservation and regeneration of historic districts has become an important issue, but in the course of practice, it has given rise to the tendency of homogenization and formalization. At present, many renovation projects stay on the surface processing, lack of deconstruction and combing of the cultural origin of the district, in the form, contrary to the law or the “protective development” of quick success and instant profits, in fact, exacerbated the crisis of the break of cultural genes, so that the

precious historical memory faces the risk of fading; even worse, on the basis of cultural packaging, through the demolition of buildings and construction of collage or Worse still, the development of cultural packaging through the demolition and collage of buildings or the implantation of modern aesthetic paradigm, this commercial profit-seeking behavior will trigger the alienation of regional cultural qualities, which will ultimately lead to the dissolution of the city's identity.

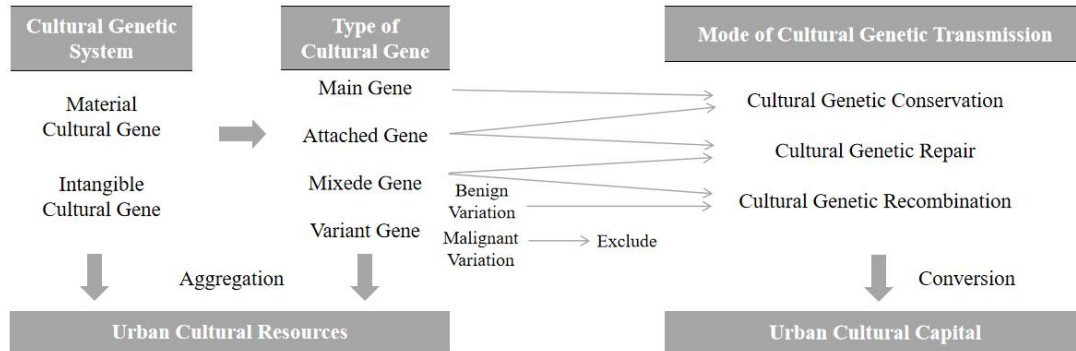


Figure 4-2 Logic Diagram of the Inheritance Model of Cultural Genes

(Source: Drawn by Author)

Cultural genes, as the basic carriers of genetic information in the cultural system, bear the function of cultural transmission and inheritance through information exchange, reorganization and mutation. As a representative of Lingnan regional culture, the renewal strategy of Guangfunan Historical and Cultural District needs to take into account the inheritance of traditional cultural lineage and the integration of the spirit of the times, and build three inheritance modes of cultural gene conservation, cultural gene repair and cultural gene recombination under the principle of “Integrity and Authenticity, Inheritance of the Essence, and Dynamic Adaptation”, so as to provide a new way of thinking for the protection of Guangzhou's cultural heritage and the planning of spatial resources in the national territory(Figure 4-2).

4.3.1 Cultural Genetic Conservation Model

The cultural genetic conservation(Figure 4-3), which is a model of protecting and nurturing the main genes and attached genes in cultural genes, is a sustainable path for cultural heritage conservation, especially widely applied in the field of intangible cultural heritage conservation. This model realizes the sustainable reuse of cultural heritage by

protecting the existing cultural genes and their environment as a whole, and carrying out supplementary cultivation.

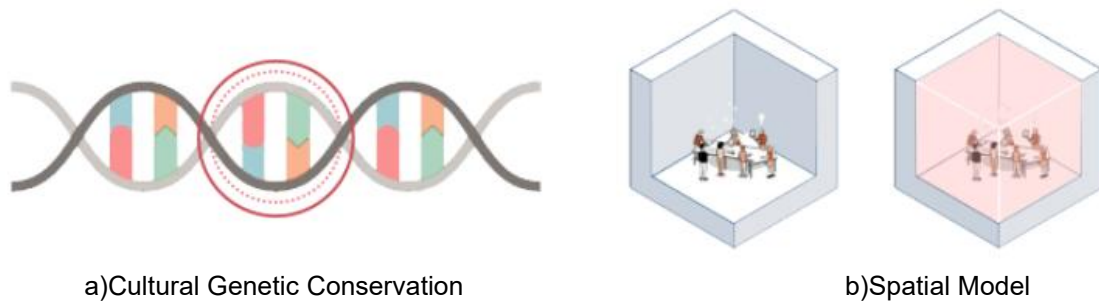


Figure 4-3 Cultural Genetic Conservation Model

(Source: Drawn by Author)

The evolution of human civilization is essentially a process of continuous interaction between the humanistic system and the natural ecosystem. From the unidirectional nature transformation practices of the early days to the harmonious coexistence advocated by contemporary civilization, human beings have gone through the transition from confrontation to symbiosis, and have gradually constructed a holistic view of cultural ecology. This concept puts the maintenance of cultural genetic diversity at the core, and emphasizes the maintenance of cultural ecological balance through systematic protection. Historic districts are generally faced with the problems of poor external material environment and loss of internal intangible cultural carriers, so it is particularly important to rescue and excavate the elements of cultural genes and protect the existing cultural environment as a whole.

(1) Establishment of Museums and Cultural and Ecological Reserves

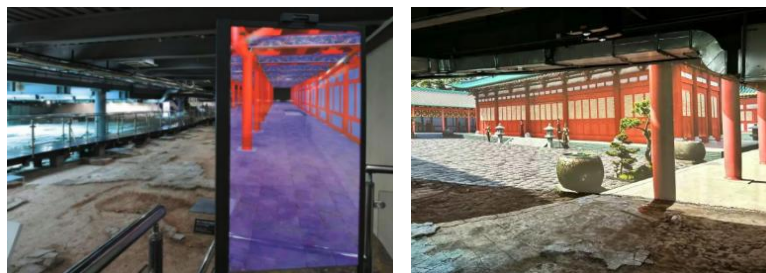


Figure 4-4 Guangzhou Nan Yue Wang Museum uses MR augmented reality technology to restore historical scenes

Source: <https://mp.weixin.qq.com/s/7KY1gn5rBRa2WnI43JRfRw>

Museums are a more traditional and universal way of preserving cultural genes (Figure 4-4), which not only provide channels and venues for preservation, but also disseminate culture to the outside world. Because museums exist independently of historic districts, they

are relatively less affected by fluctuations or adverse effects of the external environment, and can better preserve tangible cultural heritage and endangered intangible cultural genes that are in poor condition. Museums usually preserve independent, physical carriers of material cultural genes, such as excavated artifacts and existing objective entities on display. With the national emphasis on intangible cultural heritage after 2010, intangible cultural heritage has also begun to appear in museums in various forms. Nowadays, with the advancement of science and technology, some of the extinct cultural genetic elements can be digitally regenerated through 3D modeling, virtual reality and other technological means, and the historical scene narrative can be reconstructed with the help of immersive exhibitions. As a platform, the museum can combine the existing and historical cultural elements to show the development history of the historical district more clearly and comprehensively, and play a role in the protection and dissemination of the district's cultural system through vivid storylines and a clear timeline.

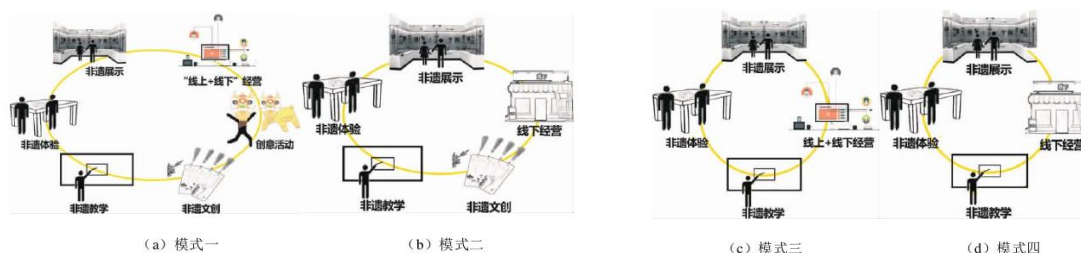


Figure 4-5 Guangzhou Yongqingfang Intangible Cultural Heritage Transmission Model
(Source:Reference^[59])

Similar to animal and plant protection zones, cultural ecological protection zones focus on the protection of intangible cultural genes, and provide holistic protection for cultural forms with deep historical and cultural deposits, important values and distinctive features, as well as regional cultural activities(Figure 4-5). Their purpose is to ensure the holistic preservation of culture, maintain and balance the cultural environment, pass on and promote outstanding traditional Chinese culture, and strengthen cultural self-confidence.

As the core city of Lingnan culture, the tangible and intangible cultural heritage of the Guangfunan Historical and Cultural District in the core area of Guangzhou's old city is a vivid manifestation of local culture and a precious “living” testimony. Culture and environment

complement each other and are indispensable; culture is rooted in the regional environment and the environment nurtures local culture. Cultural heritage with unique historical value is not a standardized product, but an unrepeatable individual. The value of culture lies not only in the district itself, but also in its external natural environment and the complex network of relationships formed between people. In the case of Guangfunan Historical and Cultural District, the core protection area and construction control zone have been delineated (Figure 4-6), and the construction activities and building heights within the district have been regulated in detail, which well protects the spatial pattern of the Guangfunan Historical and Cultural District, and the protection of the related cultural genes will not be repeated in the subsequent design.

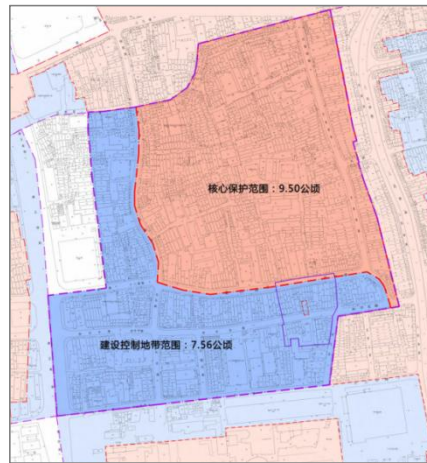


Figure 4-6 Map for Delineation of the Conservation Area

Source: Guangzhou Guangfunan Historic and Cultural District Conservation Plan (2021-2035)

At the same time, the space as a platform for displaying humanistic landscape can be combined with cultural phenomena such as historical allusions, folklore, world customs, etc. Through the design of spatial flow organization in the renovation of Guangfunan Historical and Cultural District, the intangible cultural heritage can be displayed in the core traffic flow line, emphasizing the intangible cultural gene elements and creating a block space effect with a wide range of categories and multiple nodes.

(2) Cultural Identifier Implantation

Under the premise of maintaining the cultural genes of existing historic districts, cultural gene symbols are implanted, from which the most recognizable core elements are extracted

and transformed into recognizable cultural symbols through modern design language and integrated into the contemporary built environment and derivatives, so as to strengthen the sense of identity and cultural continuity of the place and to realize the value-added of the culture^[60]. The essence of the translation and implantation of cultural symbols or elements lies in the superposition and emphasis of symbolic elements, which can influence the audience unconsciously and prompt them to identify with the local culture. This path of cultural identity construction needs to accurately grasp the fit point of cultural interaction, and the accumulation of symbols without positioning not only makes it difficult to form effective communication, but also may lead to cognitive bias towards the cultural content.

As an important practical path in the visual communication system, the implantation of cultural symbols plays a significant role in cultural communication. For districts with damaged historical features, the injection of cultural symbols can not only alleviate the lack of culture caused by the destruction of the cultural environment, but also break through the original genetic framework through the creative qualities of the symbols, realizing the dialogue between traditional genes and contemporary culture.

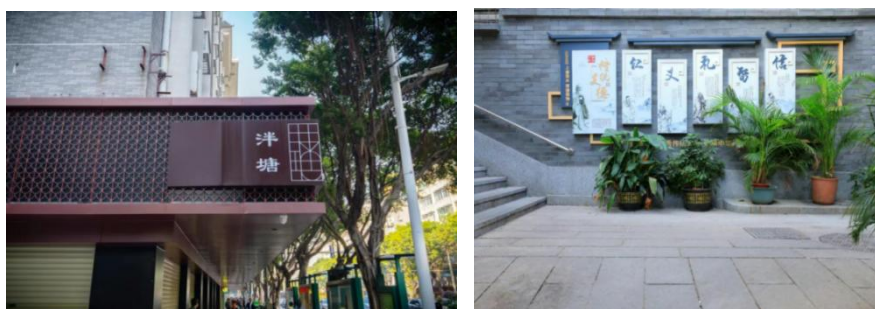


Figure 4-7 Implantation of Local Cultural Symbols in the “Xiguan Memory” Project in Pantang, Guangzhou

Source: https://mp.weixin.qq.com/s/XellXiPCvC_o6eJHBgldRQ

This approach takes the local cultural symbols as the main display objects, and combines them with public elements such as urban furniture, landscape installations and visual guide systems to form a collective memory place with a sense of identity and belonging. For example, Pantang in Guangzhou has formed a distinctive logo by integrating the traditional Lingnan elements of the “three pieces of eaves” symbols (drip tiles, Jixiong Feizi, and sealing eaves boards), and transformed them into a series of visual signage systems to form a cultural symbol system that runs through the district, so as to make the history and modernity blend

harmoniously in the visual sense(Figure 4-7).

4.3.2 Cultural Genetic Repair Model

The cultural genetic repair mode (Figure 4-8) is aimed at the attached genes and mixed genes in the cultural genes of historic districts, through such methods as continuing the historical style, recreating iconic cultural symbols, and reshaping the humanistic environment to enhance the lives of residents, to protect and pass on the cultural heritage by combining with modern technology, to satisfy the modern needs, and to promote the integration of culture and modern life.

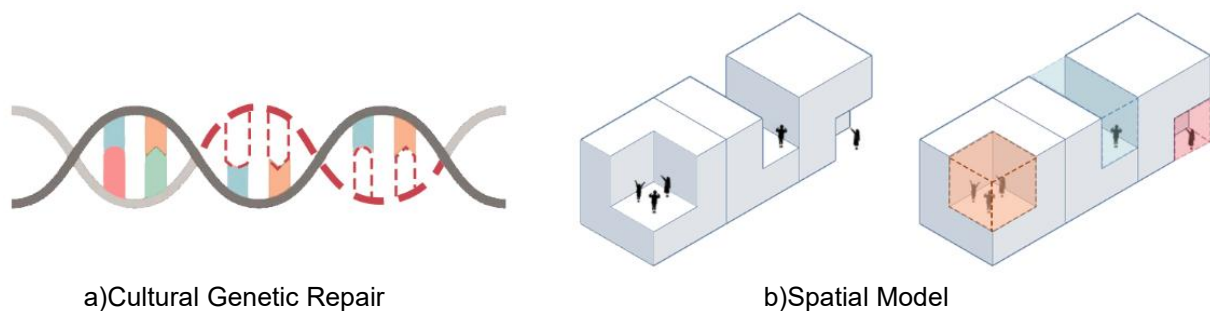


Figure 4-8 Cultural Genetic Repair Model

(Source: Drawn by Author)

(1) Continuing the Historic Landscape

The Guangfunan Historical and Cultural District has formed a rich and unique internal and external spatial texture during its long-term historical development, but these features have been seriously damaged by years of urban development and private alterations by residents. In the process of reconstructing the cultural space of the street, the characteristic regional texture and style should be restored and inherited to realize the inheritance of the traditional spatial pattern, and at the same time to meet the behavioral habits and spiritual and cultural needs of the contemporary people.

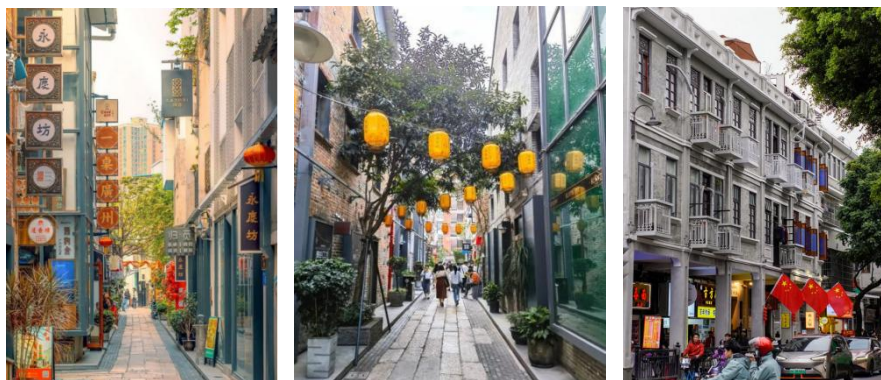


Figure 4-9 Street space in Yongqingfang, Guangzhou

Source: <https://mp.weixin.qq.com/s/VAnoKvaCXUKgG8mt9kVedQ>

The renewal of the Yongqingfang Historic District in Guangzhou has adopted this approach(Figure 4-9): using “Embroidery” to ultimately present a cultural place with a sense of local identity. For the preservation and renewal of the Guangfunan Historical and Cultural District, the continuation of the traditional style of the district can not only maintain cultural continuity, but also inject spatial vitality into the historic district in line with contemporary aesthetics.

(2)Recreating iconic cultural symbols

In the process of real development, there are a lot of cultural heritage and the original landscape has been destroyed, the destruction of the cultural survival environment, resulting in the destruction of some historically important influence and significance of the building due to various reasons, but they play a vital role in the local characteristics, and the symbolic role of the city, so in the case of the conditions permit can be based on the historical documentation, archaeological records, research data, etc. on these buildings Reconstruction. Reconstruction of these landmarks, which have disappeared or are seriously damaged, can enhance the iconicity of the external spatial image of the district, and improve the historical, spatial and recognizable sense of the district space.

At the same time, for some buildings that can no longer be rebuilt, you can use signage devices, material substitution or virtual reality technology to assist in the restoration, to help the streets and alleys for the creation of a detailed atmosphere. For example, if the Tang Daming Palace in Xi'an puts a huge piece of transparent glass or other transparent materials

near the site, and puts an imaginary picture on it after restoration, then visitors can see this effect in the picture through a certain angle; there are also examples of the Crypta Balbi Museum displaying architectural fragments, and at the same time, it makes up for the full picture of the structure with the metal frame, leaving a certain space for imagination, which also enables visitors to understand better the history of the building(Figure 4-10).



a)Xi'an Daming Palace Ruins Standing Plaque Installation
b) Crypta Balbi Museum's Approach to Restoration of Localized Areas

Figure 4-10 Different Forms of Rehabilitation

(Source:Reference^[58])

As far as virtual reality technology is concerned, through the combination of panoramic scanning technology with VR and AR technology, there is a new way to exist and display cultural space, and then by utilizing the fast data transmission capability of today's 5G technology, remote travel and remote experience become possible.

(3) Remodeling the Humanistic Environment to Enhance the Living Standards of Residents



Figure 4-11 Nanjing Xiaoxihu Area Urban Renewal

(Source:Reference^[74])

The cultural genes of historic districts are not only embodied in the material space, but also deeply rooted in the residents' lifestyles, social relations and collective memories. As the

living carriers of cultural genes, the residents' daily life practices are the core driving force for the inheritance and continuation of the district's culture. Therefore, in the renewal of historic districts, the improvement of infrastructure and living standards centered on residents is not only a livelihood project, but also a key strategy for the protection and revitalization of cultural genes.

In terms of the renewal of the Guangfunan Historical and Cultural District, the residents should be the core of the project, and through infrastructure improvement and living standard enhancement, the living inheritance of the cultural genes should be maintained and the vitality of the community should be stimulated, so as to realize the dual goals of cultural conservation and livelihood improvement. For example, in the case of urban renewal in Nanjing's Xiaoxihu district(Figure 4-11), a comfortable “symbiotic courtyard” and “shared courtyard” were created by vacating space and introducing new functions. This “people-oriented” renewal model is not only the protection of the historic district, but also the continuation and innovation of the city's cultural lineage.

4.3.3 Cultural Genetic Recombination Model

The model of cultural genetic recombination(Figure 4-12) is analogous to biological genetic recombination, emphasizing the importance of cultural diversity, channels of transmission and the social environment for the evolution of culture. The rational recombination of cultural genes is an important source of cultural innovation, through which culture can evolve and adapt to new environments.

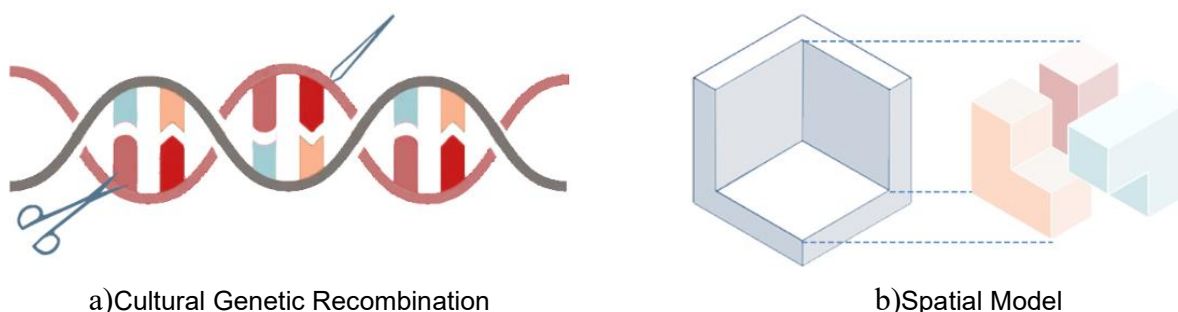


Figure 4-12 Cultural Genetic Recombination Model

(Source: Drawn by Author)

The inheritance of cultural genes does not mean copying or completely restoring the

form of the old historic districts. In the context of the modern information society, the protection of historic districts and the inheritance of their cultural genes should not be limited to a mere patchwork of traditional cultural elements, and a formal restoration of the district culture cannot reach the depths of the hearts of the local people. The specific implementation mode should meet the needs of contemporary ideology, production life and spiritual inheritance, and at the same time strengthen and highlight the identity of the Lingnan cultural field of the Guangfunan Historical and Cultural District.

(1) Integration with Industry

Combining cultural industries, i.e., realizing the revival of urban culture by integrating cultural genes into business combinations, products, emerging technologies, activity planning and other fields, is an effective way to transform cultural resources into cultural capital^[62]. It is possible to combine cultural genes with cultural strategies in two ways in order to maximize the comprehensive benefits of the city:

On the one hand, combining cultural genes with economic elements needs to be considered at the urban planning and design stage, taking advantage of the reorganization of urban space and the shift in consumption to accurately locate the main genes of a city or a cultural system and integrate them into the cultural industry as a core element, so as to form innovation-intensive cultural and creative clusters and to promote the economic development of the city and the cultural and creative industries(Figure 4-13).

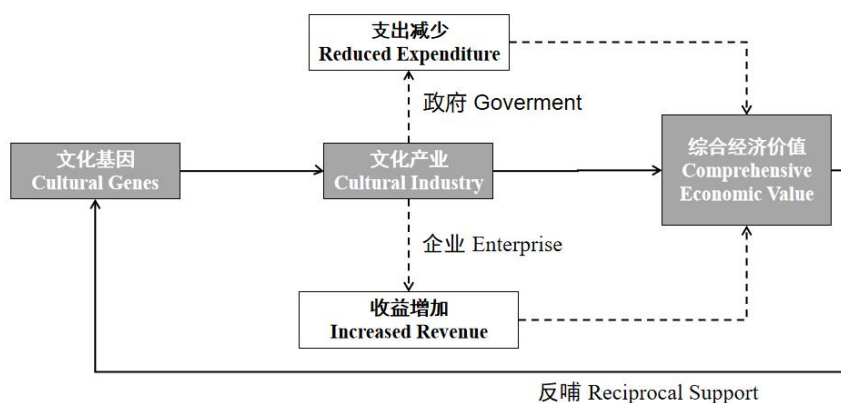
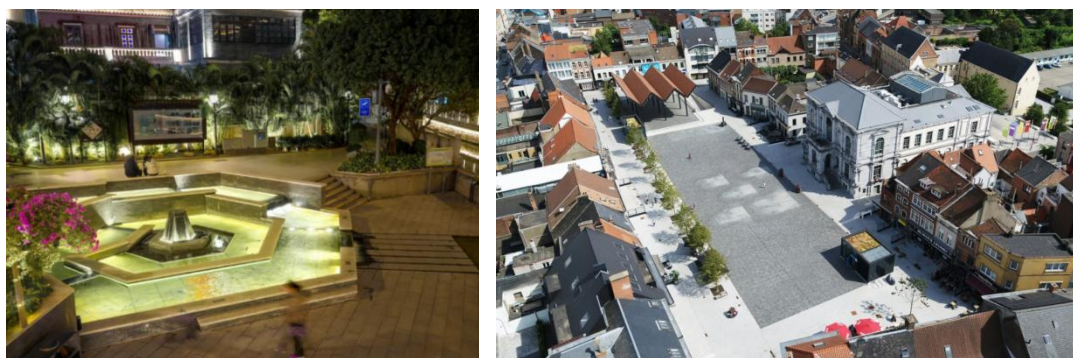


Figure 4-13 Relationship between Cultural Genes and Cultural Industries
(Source: Drawn by Author)

As far as the Guangfunan Historical and Cultural District is concerned, it currently

undertakes the functions of garment wholesale and warehousing logistics while taking into account the city's commercial consumer service functions and part of the residential and office functions. In the future, the Guangfunan Historical and Cultural District can, on the basis of retaining the original commercial atmosphere, transform itself into a fashion and cultural district with clothing boutiques, fashion design, cultural and creative offices, art galleries, and clothing exhibitions and sales, and form a fashion and cultural district of its own scale, and apply the cultural gene strategy transfer model to the planning to protect the cultural resources of the Historic District. The cultural gene strategy transfer model is applied in the planning to protect the cultural resources of the historic district.

(2) Integration with Landscape Space



a) Night view of Liuhe Ink Pond, Lizhi Bay

b) Grote Markt Vilvoorde

Figure 4-14 Combination of Cultural Genes and Landscape Elements

Source: a: https://mp.weixin.qq.com/s/XeIXiPCvC_o6eJHBgldRQ

b: <https://www.gooood.cn/grote-markt-vilvoorde-by-omgeving.htm>

On the other hand, combining cultural genes with landscape elements requires the attention and efforts of urban designers, for example, implanting cultural genes into ecologically sound urban open spaces to enhance urban image and residents' quality of life, and to alleviate the ecological pressure brought about by urbanization. For example, in urban parks, green spaces, squares and other places, by implanting cultural genes, they are made into ecological and cultural core areas with cultural characteristics. For example, the landscape node of Liuhe Ink Pond in Litchi Bay, Guangzhou, presents the Lingnan cultural imagery of “ink, paper and inkstone” through symbolic design language to enhance the humanistic atmosphere of the Wenta Plaza and give new vitality to the urban eco-space; and in the design of Belgium's Grote Markt Vilvoorde, it echoes the culture of the historical

districts through spatial creation to create an open space atmosphere of the districts(Figure 4-14).

(3)Design Translation of Site Culture

This approach emphasizes the modernization and translation of regional culture as architectural components or spatial elements embedded in the design of new buildings or renovations, or embodied in the detailed decorative elements of the interface.



a)New body block embedded in the Annunziata Church Museum

b)Pathways to Forming Experiential Overlays in the Dukasequa Castle

Figure 4-15Design Translation of Site Culture

(Source:Reference^[58])

For example, in the design of the Annunziata Church Museum in Italy(Figure 4-15a), while ensuring the protection of the value of the historical building, the new volume is partially inserted into the historical building to produce a collision between the old and the new, and while expanding the new functional space, it highlights the texture of the historical building and creates a certain visual and behavioral penetration correlation with the surrounding environment of the historical building. In LD+SR Architecture Studio's reuse of the Dukasequa Castle(Figure 4-15b),, a separate pathway was created to allow visitors to read about the building's history, from its construction to its destruction and gradual deterioration by fire, through a perceptual experience while walking. The original parts of the site of this metal corridor are superimposed in a parallel but discrete way, based on a spatial and temporal juxtaposition, and the paths are oriented to gradually convey the historical information^[58].

4.4 Summary of the Chapter

On the basis of analyzing the cultural genealogy of Guangfunan Historical and Cultural

District, this chapter carries out a secondary division according to the attributes of cultural genes, summarizes the main problems of the district, specifies three major principle, namely, integrity and authenticity, inheritance of the essence, and dynamic adaptation, and creatively constructs three modes of inheritance: conservation of cultural genes, gene repair, and gene restructuring according to the cultural genes of different attributes. Each model combines the actuality of the district, and puts forward specific and operable implementation strategies from space, function, industry, residents' life and other dimensions, forming a set of inheritance models, which provides a feasible path for the cultural gene inheritance of the Guangfunan Historical and Cultural District.

Chapter5 Cultural Gene Inheritance and Design Practice of Guangfunan Historical and Cultural District

Based on the analysis of the theory of cultural genes, the analysis of the cultural genes of Guangfunan Historical and Cultural District and the construction of the inheritance model, this chapter will focus on the specific design practice of Guangfunan Historical and Cultural District from the perspective of cultural genes. Based on the cultural genealogy and inheritance model constructed in the previous section, this chapter will start from the development positioning and inheritance target setting to elaborate the overall design idea and planning structure of Guangfunan Historical and Cultural District. Then, it will carry out specific design from the three dimensions of gene conservation, gene repair and gene recombination, and put forward targeted spatial interventions and strategic measures, aiming to integrate the inheritance and revitalization of cultural genes into the spatial form, functional layout and node design of the district, so as to realize the manifestation of the cultural value of historical districts, the enhancement of social vitality and the sustainable development of historical districts.

5.1 Development Orientation and Cultural Gene Inheritance

Objectives of Guangfunan Historic and Cultural District

5.1.1 Development Orientation

From the previous analysis, it is easy to see that the Guangfunan Historical and Cultural District is not only a living carrier of urban cultural genes, but also a concentrated microcosm of conflicts in the process of modernization. On the one hand, as the spatial crystallization of Lingnan traditional trade culture, Guangfunan District has preserved the cultural relics and historical buildings, and its spatial interface of streets and alleys, street texture and market life visually present the unique style of Guangfu commercial port in the late Qing Dynasty and early Republic of China. On the other hand, with the accelerated functional iteration of the

urban core area, the districts are facing the double dilemma of aging material space and backward functional modes, and under the pressure of foreign cultural impact and excessive commercialization, they have even given rise to the dissolution of cultural carriers, weakening of the spirit of the place, and the fading of the collective memory, etc. The contradiction is further reflected in the renewal of the districts.

This contradiction is further reflected in the complexity of district renewal: compared with modern urban areas, historical districts involve challenges such as multiple interests, entanglement of historical property rights, and constraints of cultural preservation regulations. The renewal of Guangfunan District not only needs to realize the inheritance and revitalization of cultural genes, but also needs to respond to the functional needs of the modern city, and its planning positioning needs to seek a dynamic balance between the protection of authenticity, the maintenance of the community network, and the stimulation of economic vitality, so as to form a multi-objective and synergistic path of sustainable development.



Figure 5-1 Xiguan Historic District Seven Characteristic Functional Areas Plan
Source: Development Plan for Lingnan Cultural Center District (Liwan District) of Guangzhou City (2019-2025)

Combined with the existing planning or renewal strategy for the Guangfunan Historical and Cultural District (Figure 5-1), the Guangfunan Historical and Cultural District has been positioned as a showcase for Guangzhou's Thirteen Hongs City culture and historical clothing

trade culture. Utilizing the profound humanistic deposits of the Guangfunan Historical and Cultural District, retaining the original commercial atmosphere, encouraging the apparel boutique, fashion design, cultural and creative office, art gallery, and garment exhibition and sales industries as the core, and gradually removing the low-end wholesale and warehousing functions of the district, the district will be turned into a historical district with historical legacy as well as full of vibrant creativity.

In the author's opinion, the district should break through the traditional thinking pattern in its development orientation. Under the premise of ensuring effective protection of heritage, more attention should be paid to its identity and development potential in contemporary society. In addition, it should not be limited to the display of traditional features, but on the basis of static protection, emphasize the integration and application of cultural resources with the functional areas of the city and innovation and reconstruction. Specifically, the Guangfunan Historical and Cultural District should be given a distinctive and unique image and positioning, so that it will become an urban area with the flavor of “old Guangzhou” and the vitality of “new Guangzhou” in the future construction. On the basis of the principle of “preserving all that should be preserved”, with the protection of the overall space as the premise and the revitalization of cultural functions as the core, the Guangfunan Historical and Cultural District will be turned into an urban historical and cultural showcase with a strong cultural atmosphere, distinctive regional characteristics, and complete living and tourism service facilities.

5.1.2 Cultural Gene Inheritance Objectives

The cultural gene inheritance of the historical and cultural district involves a wide range of levels and many dimensions, and requires the assistance and consideration of multiple disciplines. Combining the extraction and categorization of the cultural genes of the district in the previous section and the government's planning and positioning of the district, the cultural gene inheritance objectives are proposed on the premise of increasing feasibility (Figure 5-2).

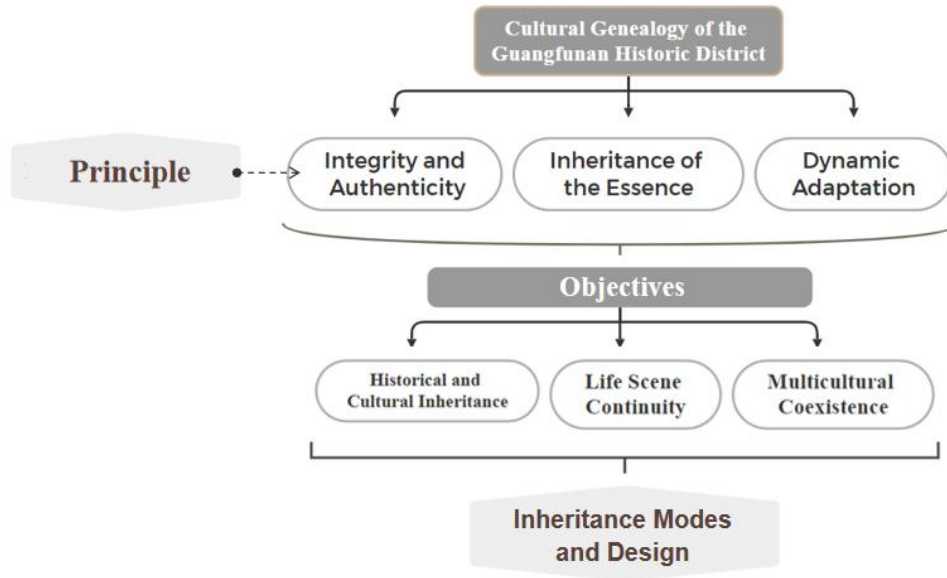


Figure 5-2 Target Path of Cultural Gene Inheritance of Guangfunan Historic and Cultural District

(Source: Drawn by Author)

(1) Historical and Cultural Inheritance

The Guangfunan Historical and Cultural District, as a typical representative of Guangzhou's traditional districts, contains unique cultural genes. These genes originate from the historical background, natural environment, climatic conditions and material resources of the Lingnan area, and have gradually formed the existing material form over a long period of time. This form is reflected in the street layout, architectural style, decorative symbols and color details of the districts, showing the diverse cultural characteristics of the Guangzhou area.

The progress of the city is not only reflected in the pursuit of modern technology and innovative practices, but also in the inheritance of history and cultural presentation. In the future revitalization and renewal of the Guangfunan Historical and Cultural District, excessive materialization should be avoided to prevent the erosion of modernism on the style of the historic district. Through a deeper understanding of the nature of regional architectural and cultural genes, we should explore new ways to pass on and develop the material culture of traditional districts in modern society, so as to present the unique landscape of the Lingnan region to the world in a clear and healthy way.

(2) Life Scene Continuity

The unique living scenes in the Guangfunan Historical and Cultural District stem from the cultural accumulation of generations of people's living practices. It is difficult to realize the active inheritance of cultural memory by relying solely on the environmental improvement of material space. The individuality of the district is a joint product of its morphological structure and social development, involving complex behavioral logic behind it, which originates from history, which cannot be reproduced, transformed or processed at will.

In the practice of historical environmental protection, the value orientation of “people-oriented” should be established. The daily life of residents is not only the basic unit of social functioning, but also the fundamental guarantee for the continuation of urban civilization. There exists a dynamic interactive relationship between people and the built environment: the collective memory of daily life shapes the urban form, while the spatial place continues to feed the social behavior pattern. The core value of historic districts lies not only in the visual characteristics of the material form, but also in the social network and place attachment they carry - an intangible cultural capital that is difficult to regenerate through off-site reconstruction or formal imitation.

The conservation strategy should aim to “continue the living scene”, effectively protect the traditional lifestyle, commercial forms and participation of the indigenous people in the district, and fully respect the regional living habits and behaviors in the district.

(3) Multicultural Coexistence

The combination of the old and the new, and the blending of the ancient and the modern can constitute a complete city image. At present, the Guangfunan Historical and Cultural District is one of the few composite districts in Guangzhou's historic urban areas with multiple functional attributes, with commercial, warehousing, catering and residential functions as the main ones. At present, the relatively low-end wholesale, warehousing, logistics and other functional modes to a certain extent restricts the development of this area, focusing on the future, we need to promote the industrial transformation of the Guangfunan Historical and Cultural District, and promote the traditional clothing wholesale market to the transformation and development of high-end trade, culture and creativity, and other modern

service industries. Through the introduction of new business models, industry, reorganization of the district space, the economic vitality of the district has been enhanced, and then the Guangfunan Historical and Cultural District has been carefully built into a comprehensive area integrating cultural tourism, leisure and entertainment, and residential life, which makes multi-cultural and harmonious coexistence.

5.2 Master Plan

5.2.1 Overall Design

Under the perspective of cultural genes, the overall design of Guangfunan Historical and Cultural District aims to realize the integration of historical and cultural heritage with modern functions(Figure 5-3). The design takes “protecting historical texture and activating cultural vitality” as the core concept, and “Inheritance of Historical Trade Culture, Daily Life Scene Continuity and Multicultural Coexistence”as the updating goal, and takes“cultural genetic conservation, cultural genetic repair, and cultural genetic recombination”as the main protection means to sort out the spatial structure of the district, optimize the functional layout and create a comprehensive area with both historical and cultural display and modern life service functions. In the overall design, emphasis is placed on the protection and restoration of historical places and streets, and the preservation of the original street pattern and spatial scale in order to maintain the historical appearance and cultural atmosphere of the district. Combined with the culture of the district, relevant cultural activities are planned and cultural trails are designed to enhance the cultural soft power of the district. Adhering to the principle of “people-oriented”, improve the living facilities of the district and repair the cultural genes of residents' daily life. At the same time, introduce modern design elements and functions, such as cultural exhibition spaces, creative studios, specialty businesses, etc., set up shared streets, reshape the corner space, and inject new vitality into the district to revitalize it in the modern society.



Figure 5-3 Master Plan of Guangfunan Historical and Cultural District

(Source: Drawn by Author)

5.2.2 Planning Structure

The Guangfunan Historical and Cultural District is adjacent to the Shangxiajiu Commercial Pedestrian Street in the north, the Hepingzhong Historic District in the west, the Renminnan Historic District in the east, and the Cultural Park and the Thirteen Hongs Cultural Museum in the south.

The relationship between the Guangfunan Historical and Cultural District and the surrounding districts is extremely important (Figure 5-4). From the perspective of cultural

heritage, Guangfunan District, as a composite district combining commercial and residential areas, highlights the characteristics of the old city of Guangzhou, with a strong historical style and cultural atmosphere. It complements the commercial culture of the Shangxiajiu Commercial Pedestrian District, and together they show the evolution of Guangzhou from traditional handicrafts to modern commerce. In addition, the Renminnan Historical and Cultural District retains a high degree of continuity of the Qilou Streets, which is one of the typical examples of Lingnan architectural art in Guangzhou. The architectural features of the Guangfunan Historical and Cultural District and the Renminnan District complement each other and together constitute a unique cityscape of the Old City of Guangzhou.

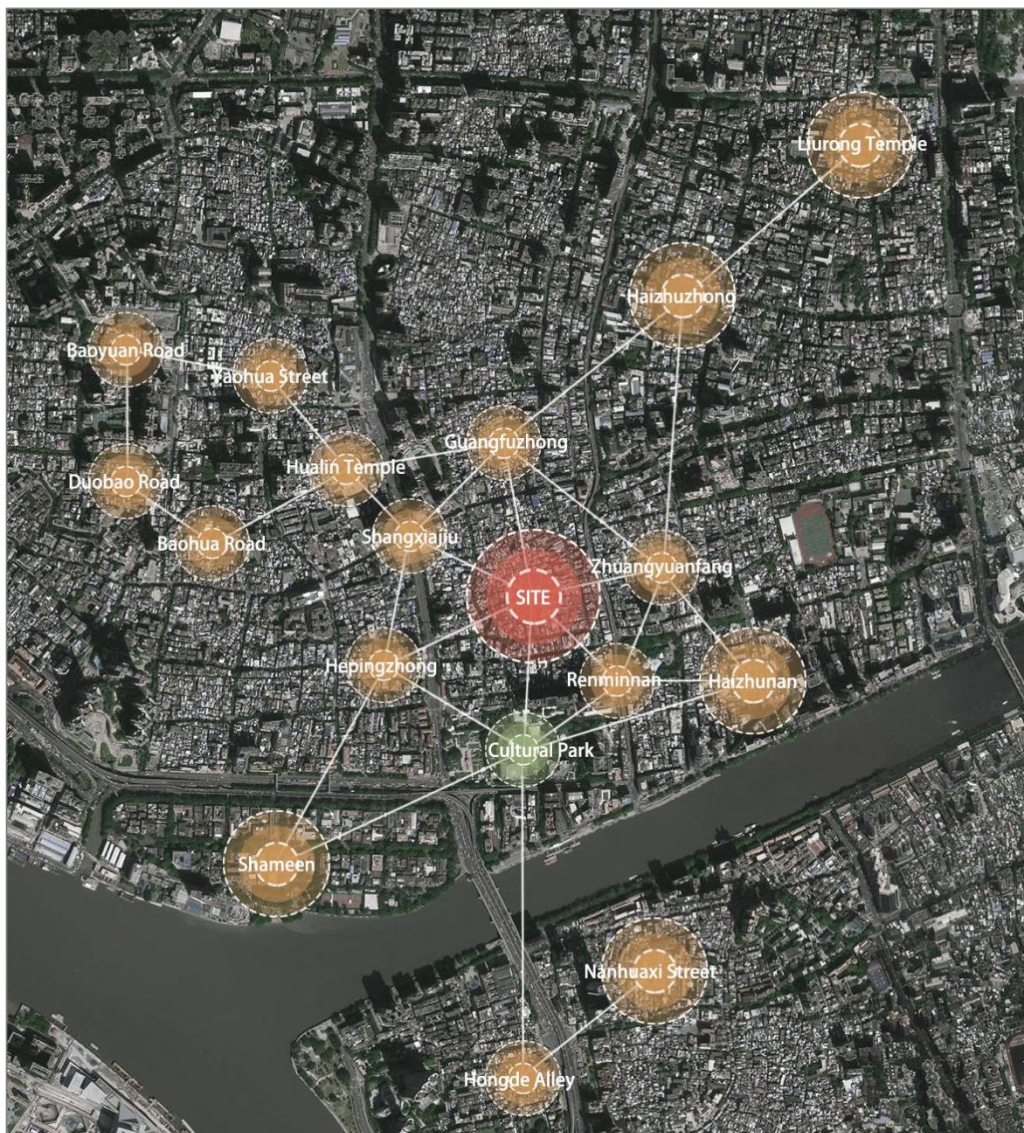


Figure 5-4 Distribution of Surrounding Historic Districts
(Source: Drawn by Author)

The planning structure of the Guangfunan Historical and Cultural District is based on the original infrastructure of the district(Figure 5-5), with “cultural gene conservation, repair and recombination” as the design framework. Among them, “Cultural Genetic Conservation” refers to linking the main historical buildings and cultural nodes of the district with Yangxiang Road and Guangfunan Road as the main axis and Qingyunli and Yangrenxi as the secondary axes, forming a clear cultural display axis and passing on the historical trade culture; The “Cultural Genetic Repair” focuses on the repair of street interfaces and daily life cultural genes, with Yangrenxin street, Yangrennan alley, and Xihao Channel Street as the axes respectively, with one linking up the main convenient facilities and community space nodes of the traditional settlements, and the other serving as a newly-planned waterfront commercial street to continue the traditional daily life scenarios; “Cultural Genetic Recombination”, on the other hand, mainly focuses on the integration and implantation of business functions, with Jianglan Road and Shibafubei Road as the main axes, and pedestrian streets such as Zhuangmao Street as the secondary axes, to set up a shared street for business and tourism, and to form a sequence of public space through the remodeling of street corner space, to guide the cultural park flow into the site. Different inheritance modes are superimposed and combined to enrich the cultural connotation of the district and promote the organic combination of cultural, commercial and leisure functions of the Guangfunan Historical and Cultural District, in order to form a multifaceted symbiotic urban space(Figure 5-6).





Figure 5-5 Decomposition of the Planning Structure
(Source: Drawn by Author)



Figure 5-6 Guangfunan Historical and Cultural District Master Plan Structure
(Source: Drawn by Author)

5.3 Cultural Genetic Conservation -- Inheritance of Historical Trade Culture

5.3.1 Cultural Places Cultivation



Figure 5-7 Cultural Places Cultivation in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

In terms of cultural genetic conservation, the focus is on fostering cultural places related to historical trade and commerce culture (Figure 5-7). Through the utilization of representative historical buildings and spaces in the district, a series of cultural exhibition halls, museums, non-heritage craft workshops and other cultural experience places will be created. For example, the Shicui courtyard will be transformed into a “community history and culture center” to tell the story of the community, and the Tairu teahouse will be transformed into a chamber of commerce museum to show the history of Guangzhou as an important node of the Maritime Silk Road and trade culture; The “Traditional Handicrafts Exhibition Area” is set up in other historical buildings to display the cultural genes of daily life, such as Xiguan

copper-beating, Canton embroidery and specialty food. These cultural places not only provide a platform for displaying and experiencing traditional culture, but also provide a window for tourists and residents to gain an in-depth understanding of Lingnan culture and promote cultural inheritance and development.

5.3.2 Cultural Activities Planning

The organic combination of activities and commercial operations can effectively enhance the cultural vitality and commercial benefits of the districts. As one of the core intangible cultural genes of the Guangfunan Historical and Cultural District, the historical trade culture can be conserved through the garment industry, which is the core industry of the district, and corresponding cultural activities can be planned.

The apparel industry is affected by seasons and holidays, during which consumers' consumption demand is released centrally and businesses take this opportunity to market and promote their brands. Due to the geographical environment, Guangdong has a relatively long summer, which makes the garment industry in the Guangfunan Historical and Cultural District show a different sales cycle from other regions(Figure 5-8).

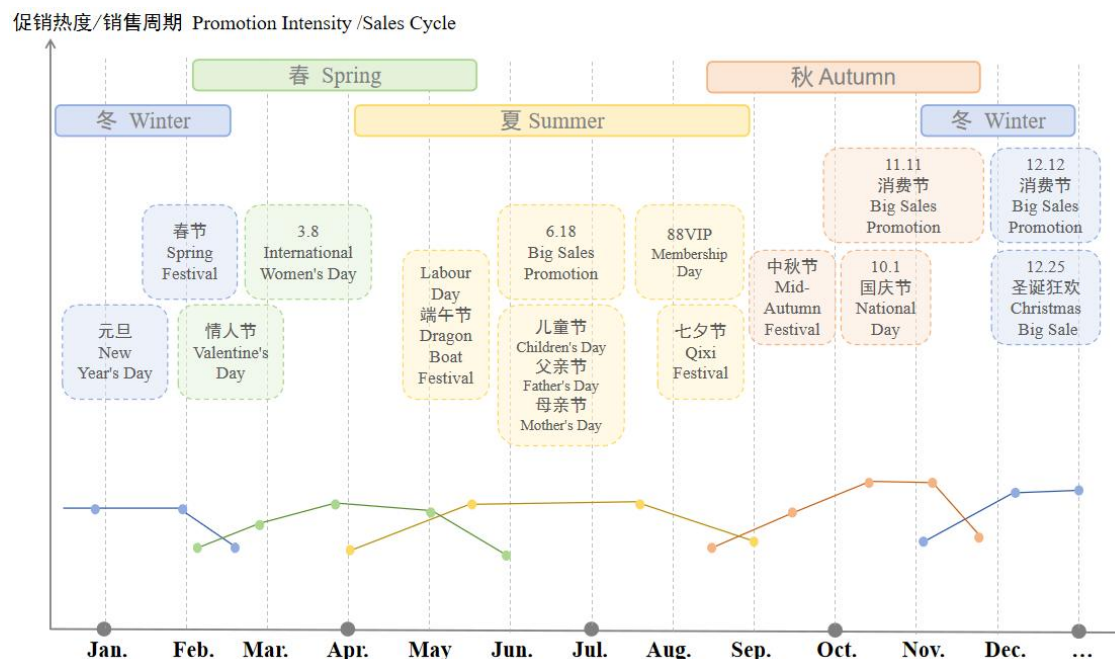


Figure 5-8Apparel Industry Promotional Fever and Sales Cycle

(Source:Drawn by Author)

The planning of cultural activities can take into account its seasonal and nodal

characteristics and match the corresponding sales cycle(Figure 5-9). For example, in spring and fall, in conjunction with the corresponding traditional festivals and large-scale consumer festivals, large-scale Fashion Shows, Fashion Exhibitions, Cantonese Culinary Festival and other activities can be held to attract tourists and consumers, and enhance the popularity and commercial efficiency of the district; in conjunction with the characteristics of the population structure of the Guangfunan Historical and Cultural District, the Warmth of Autumn activities can be held to care for the elderly in the community, and enhance the cohesion of the community. In summer and winter, activities such as Summer Market, Handicraft Workshops, New Year's Eve stages, and New Year's lantern festivals are planned to not only pass on the historical and cultural genes, maintain the vitality of the district, but also provide new growth points for the district.








Figure 5-9 Cultural Activities Planning in the Guangfunan Historical and Cultural District

(Source: Drawn by Author)

5.3.3 Cultural Trail Guidance

Table 5-1 Cultural Trail Guidance in the Guangfunan Historical and Cultural District
(Source: a: Drawn by Author b: <https://mp.weixin.qq.com/s/U5wCCZlmtXbTX2mRICqfqg>)

a) Trail Guidance	b) Guidance system reference	
	General Layout Guidance	Spiritual Fortress
 <p>不可移动文物 Immovable Cultural Relics</p> <p>历史建筑 Historic Building</p> <p>传统风貌建筑 Traditional Style Building</p> <p>传统风貌建筑线索 Traditional Style Architectural Clues</p>		
	<p>Directional Guidance</p> 	<p>Public Facility Signs</p> 

Designing and guiding cultural trails to connect the cultural nodes and activity places in the district, and providing clear routes for tourists and residents (Table 5-1). With the theme of history, commerce and culture, the cultural trail implanted the characteristic cultural symbols of the Guangfunan Historical and Cultural District through the installation of a guidance system and cultural signs, and guided tourists along the trail to visit the history and culture museum, traditional handicrafts exhibition area, characteristic streets and alleys, and other cultural experience places, so as to cultivate a cultural atmosphere. In the design of the trail, attention is paid to the protection and restoration of historical buildings and alleys, preserving the original spatial scale and style, so that tourists can feel a strong historical atmosphere

during their visit. At the same time, combined with the organization of cultural activities, the content and experience of the trail is enriched, so that it becomes an important carrier for the inheritance and display of historical trade and culture.

5.4 Cultural Genetic Repair --Daily Life Scene Continuity











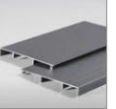
5.4.1 Historic District Interface Repair





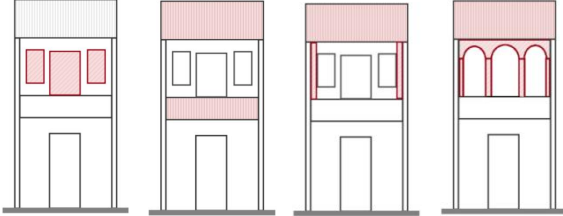
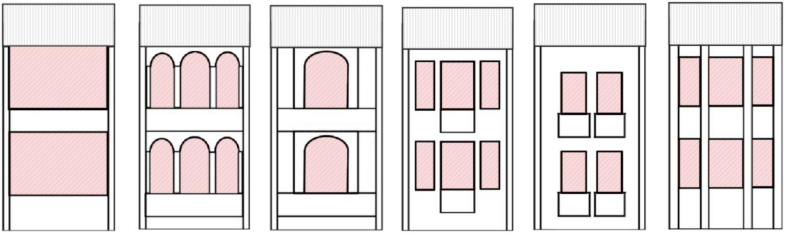
(1)Interface Repair Guidelines

In terms of cultural genetic repair, the focus is on the repair of the interface of historical streets and alleys. Combining the cultural genes related to street space and architectural style extracted in the previous section, the facades of buildings on both sides of the streets and alleys are repaired and protected to restore their original historical style. For severely damaged buildings, traditional materials and techniques are used to restore them and preserve their historical traces and cultural connotations. At the same time, the pavement of the streets and alleys will be renovated, and traditional materials such as hemp stone slabs will be used to restore the historical texture of the streets and alleys. For the existing immovable cultural relics, historical buildings, traditional style buildings, traditional style building clues and historical streets and alleys in the district, the following guidelines can be referred to for repair and protection work(Table 5-2):

Table 5-2Interface Repair Guidelines of Guangfunan Historical and Cultural District
(Source:Drawn by Author)

Categories	Introduction	Categories	Introduction
Building Height and Number of Floors	They shall be retained in their present state, and undue additions and unauthorized parts that are inconsistent with the original architectural style shall be removed.	Facade Materials and Colors	The characteristic styles, materials and colors of the building facades shall be retained as they are.
			The characteristic materials and colors of the facade that have problems such as surface pollution, weathering and erosion, and hollow drums and spalling shall be repaired with the original styles and materials.

			The materials and colors of the facade that are inconsistent with the original style shall be adjusted with the original materials and colors, so that the whole building can maintain the unity of style.
Body Structure	While retaining the original form of the main structure, the special situation of potential safety hazards, combined with the structural appraisal and the actual use of the demand for appropriate reinforcement and adjustment.	Decorative Components	Decorative elements identified as core value elements shall be retained as they are.
			Decorative elements that are missing, broken, cracked, faded, etc. shall be restored in the original style and material.
			Decorative elements that are missing or inconsistent with the original style shall be adjusted with the original materials and colors so that the whole building can maintain the unity of style.
Bottom Interface	The layout and materials of the base interface identified as core value elements shall be retained in their original form.	Environmental Factor	The layout and materials of the base interface identified as core value elements shall be retained in their original form.
	The layout and materials of other bottom interface that do not involve core value elements can be adjusted appropriately in accordance with the needs of use, and the changes must follow the principles of reversibility and recognizability.		The layout and materials of other bottom interfaces that do not involve core value elements can be adjusted appropriately in accordance with the needs of use, and the changes must follow the principles of reversibility and recognizability.
Material and Color Advice	Positive Material List	Traditional Materials	Modern Material
		 Water-Brushed Stone  Blue Brick  Red Brick  Hemp Stone  Timber  Roof Tiles  Manchurian windows	 Grey Paint  Woodgrain Aluminum Alloy  Grey Aluminum Alloy  Antique-style Blue Bricks

	Negative Material List	<div style="display: flex; justify-content: space-around; align-items: center;">     </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <p>High Saturation Metal Panels</p> <p>Colorful Steel Tiles</p> <p>Colored Glazed Tiles</p> <p>Stainless Steel Windows and Doors</p> </div>
Buildings in the District Elevation Style Reference		<div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;"> <p>One Door+Two Windows</p> </div> <div style="flex: 4;">  </div> </div> <hr/> <div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;"> <p>Elevation Style with Windows as the Main Element</p> </div> <div style="flex: 5;">  </div> </div>

(2)Taipingqiao Pedestrian Street



Figure 5-10Location and Status of Taipingqiao Pedestrian Street

(Source:Drawn and Photographed by Author)

Taipingqiao Pedestrian Street is not only an important part of the Guangfunan Historical and Cultural District, but also a key node connecting the Scholar's Square District and the north-south waterfront commercial street of Xihao Channel(Figure 5-10). While preserving the pedestrian scale of the district, the facade renovation of the buildings along the street continues the appearance and living scene of the traditional historic district, while implanting cultural experience places in conjunction with the historic buildings, providing a diversified cultural experience for the residents and tourists(Figure 5-11).

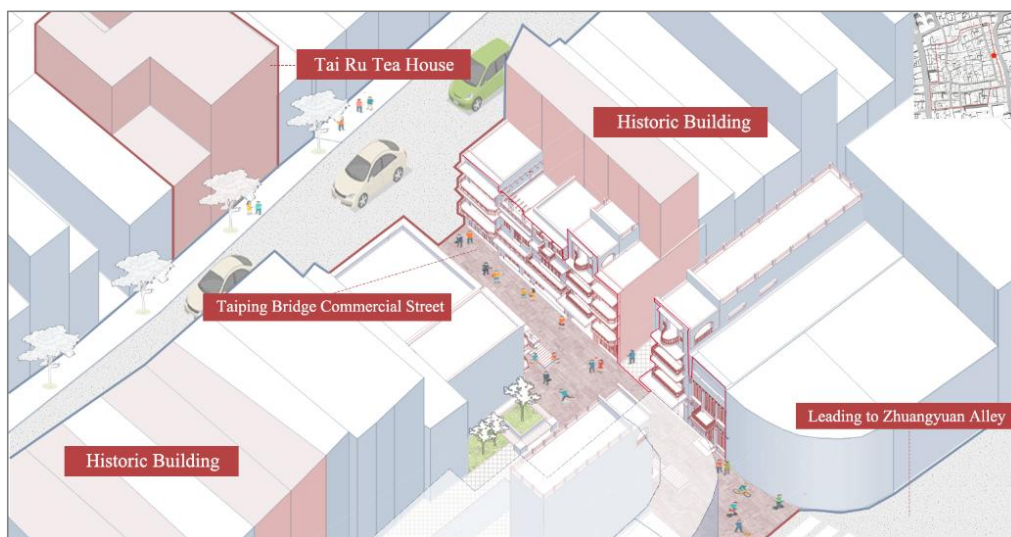


Figure 5-11 Axonometric Drawing of Taipingqiao Pedestrian Street
(Source: Drawn by Author)

5.4.2 Complete Living Facilities

Residents are the living carriers of historic districts, and their lifestyles, social relations and collective memories constitute the cultural core of the district. Without the participation and daily life practices of residents, historic districts will lose their vitality and soul as cultural heritage. Residents not only witness the historical changes of the district, but also continue the cultural traditions of the district through their lifestyles and community activities.



Figure 5-12 Complete Living Facilities in the Guangfunan Historical and Cultural District
(Source: Drawn by Author)

Improving living facilities is an important part of cultural gene repair for daily life. Reasonable layout of public facilities in the district, such as community parks, leisure plazas, convenient supermarkets, elderly canteens, community services, electric car parking spots, public toilets, etc., provide residents with convenient living space. At the same time, existing living facilities are renovated and upgraded, such as street greening, improving street lighting conditions and optimizing the garbage collection system, so as to enhance the environmental quality of the district(Figure 5-12).



Figure 5-13Axonometric View of Shicui Park
(Source:Drawn by Author)



Figure 5-14Perspective view of Shicui Park
(Source:Drawn by Author)

Through the analysis in Chapter 3, the Guangfunan Historical and Cultural District has a

high density of buildings and lacks public activity venues. According to the location of Parks and Green Spaces planned in the *Guangzhou Guangfunan Historical and Cultural District Plan (2021-2035)*, author combines the distribution of historical buildings and community service facilities, and selects two locations(Figure 5-13,5-15), removes some of the dangerous buildings, and implants community parks and plazas to meet the needs of residents' activities. By perfecting the above living facilities, we aim to realize the enhancement of residents' sense of well-being and the continuation and inheritance of the city life scene.



Figure 5-15 Axonometric View of Community Park
(Source: Drawn by Author)

5.4.3 Conceptualization of Spatial Patterns for Rehabilitation in Xihao Channel



Figure 5-16 Location and Status of the Former Xihao Channel
(Source: Drawn and Photographed by Author)

As an important historical water system in the Guangfunan Historical and Cultural District, the resurgence of Xihao Channel is of great significance to the continuation of the daily life scene. Xihao Channel is now an inner street with main entrances at the north and south ends, and Taipingqiao Pedestrian Street is located in the middle of the street, which is rarely visited due to its narrow entrance(Figure 5-16).

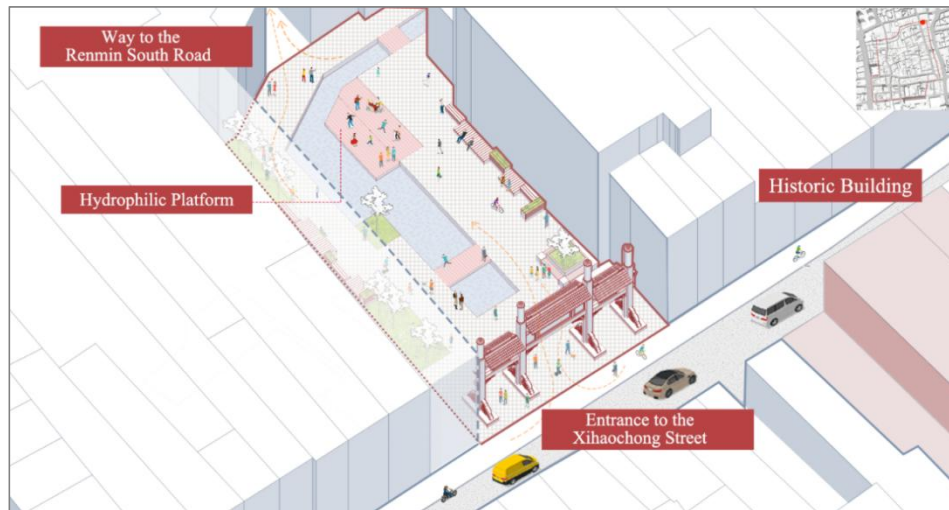


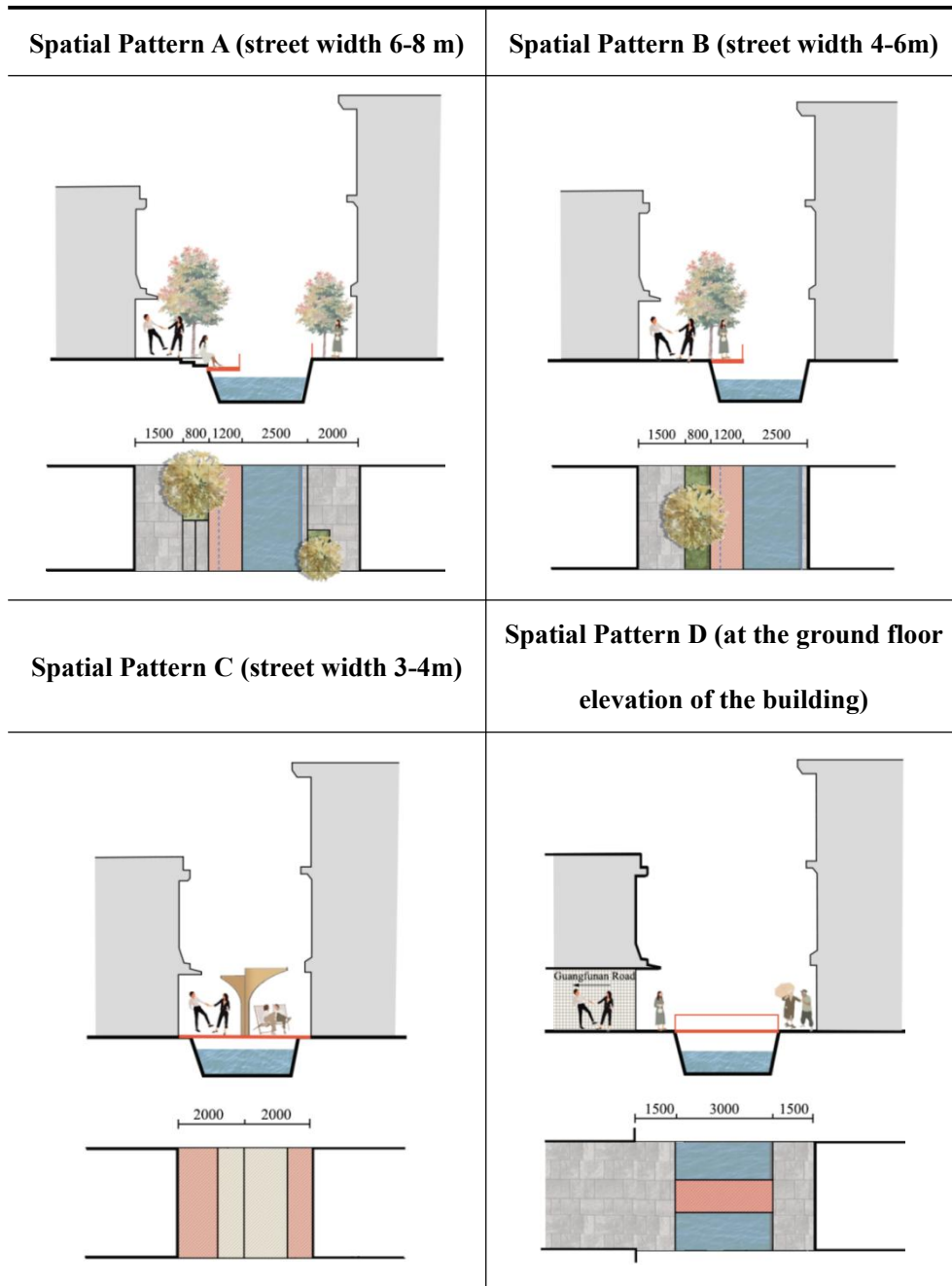
Figure 5-17Axonometric view of the entrance to Waterfront Street
(Source:Drawn by Author)

According to the *Guangzhou Guangfunan Historical and Cultural District Plan (2021-2035)*, this area will be used as a Park and Green Space. The author adopts the model of “waterfront street”, by restoring part of the water system of Xihao Channel, to create a waterfront street integrating leisure, entertainment and cultural display. According to the plan, some dangerous houses will be demolished, the entrance of the waterfront street in Xihao Channel will be enlarged to guide the flow of people into the street, and different cultural experience places and quality businesses will be built with the historical buildings along the street(Figure 5-17).

In the conception of the spatial pattern of the waterfront street profile, corresponding schemes are proposed to accommodate different use behaviors with different street widths, and the protection and restoration of the historical water system is emphasized(Table 5-3).. The ecological function of the district is restored through the rejuvenation of the water system, and the pedestrian experience, cultural atmosphere and spatial quality of the district are

enhanced.

Table 5-3 Waterfront Street Profile Spatial Pattern Concept
(Source: Drawn by Author)



5.5 Cultural Genetic Recombination -- Multicultural Coexistence

5.5.1 Business Functions Reorganization

In the recombination of cultural genes, the focus is on the integration of business functions (Figure 5-18). Taking into account the current pattern, design intention and market demand of the Guangfunan Historical and Cultural District, the functional zoning of the

district is divided into traditional residential, waterfront trade, cultural tourism and leisure, commercial service support and logistics distribution areas.

On the one hand, the traditional settlement pattern and trade functions are retained, and the logistics and distribution businesses in the traditional settlement area are gradually dismantled and centrally placed in the southwest of the district, and combined with the Thirteen Hongs Plaza and the Cultural Park to supplement the business services support. On the other hand, actively develop cultural tourism, cultural and creative industries, combined with Xihao Channel to form a distinctive waterfront business district, through the transformation and optimization of the existing garment wholesale market, in the middle of the region combined with the sharing of streets to create cultural tourism and leisure area.



Figure 5-18 Guangfunan Historical and Cultural District Functional Zoning

(Source: Drawn by Author)

Through the recombination of business functions, the purpose is to realize the living

standards of the residents in the district and the organic combination of traditional and modern industries in order to promote the economic development and cultural heritage of the district(Figure 5-19).

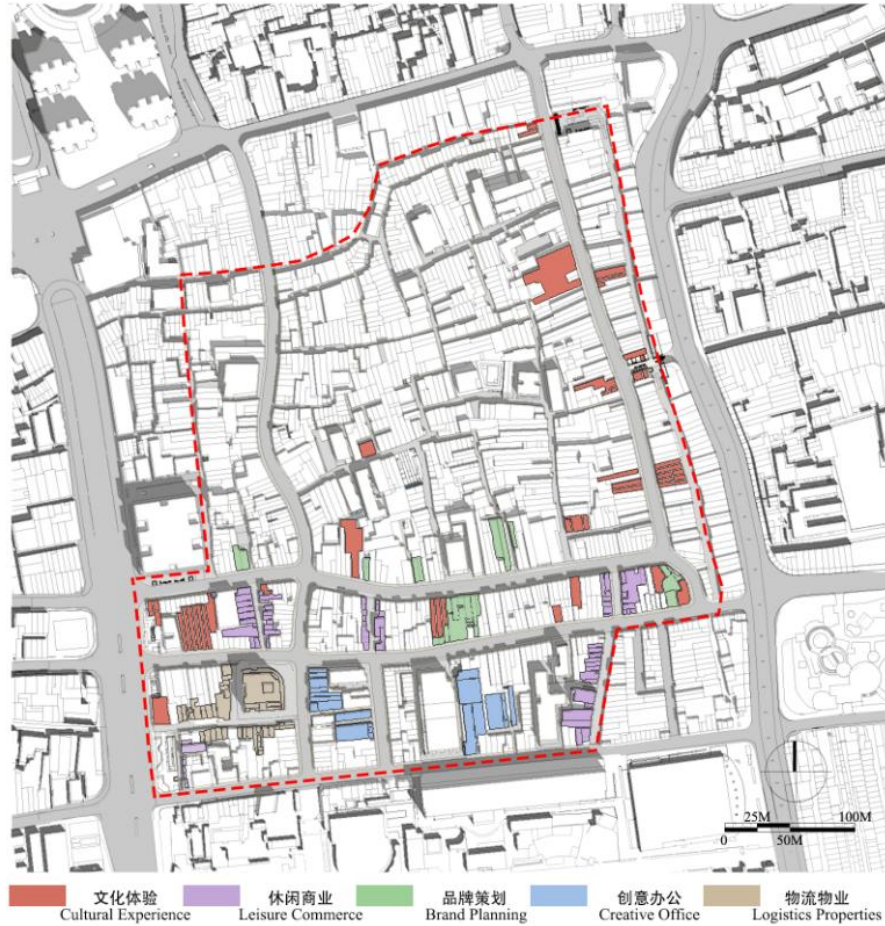


Figure 5-19Guangfunan Historical and Cultural District business implantation
(Source:Drawn by Author)

5.5.2 Shared Streets for Business and Travelers

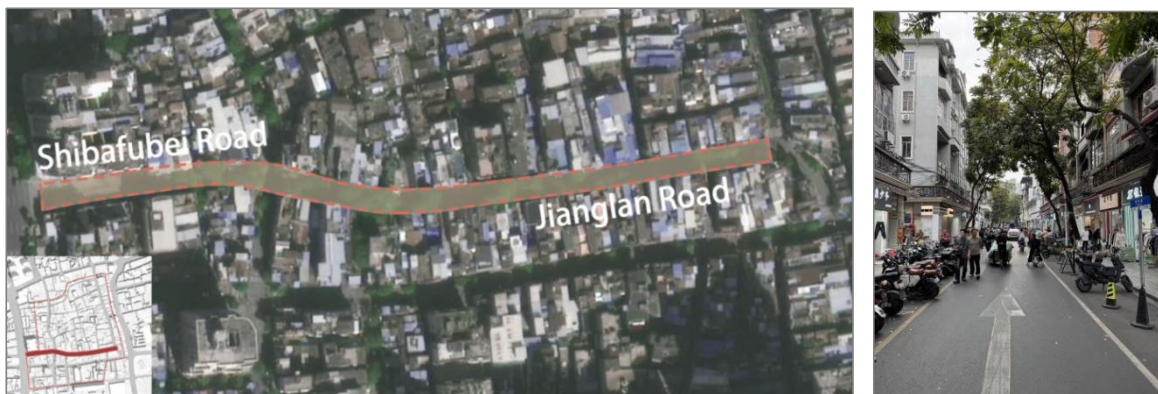


Figure 5-20Location and Status of Shared Streets (Jianglan Road and Shibafubei Road)
(Source:Drawn by Author)

In order to promote the coexistence of multiple cultural elements and optimize the

existing spatial structure, the street is designed for business and tourism sharing. There are two roads from west to east in the district, in daily use, the traffic flow of Jianglan Road is low, the current traffic volume is only 290pcu/h according to the calculation, and the local residents take walking and riding electric bicycle as the main mode of transportation, the demand for vehicular traffic in this direction can be borne by the Thirteen Hongs Road, and at the same time, due to the distribution of many historical buildings on both sides of Jianglan Road, it is suitable to create a shared street space for time-sharing use. The street space is suitable for shared use at different times of the day(Figure 5-20).

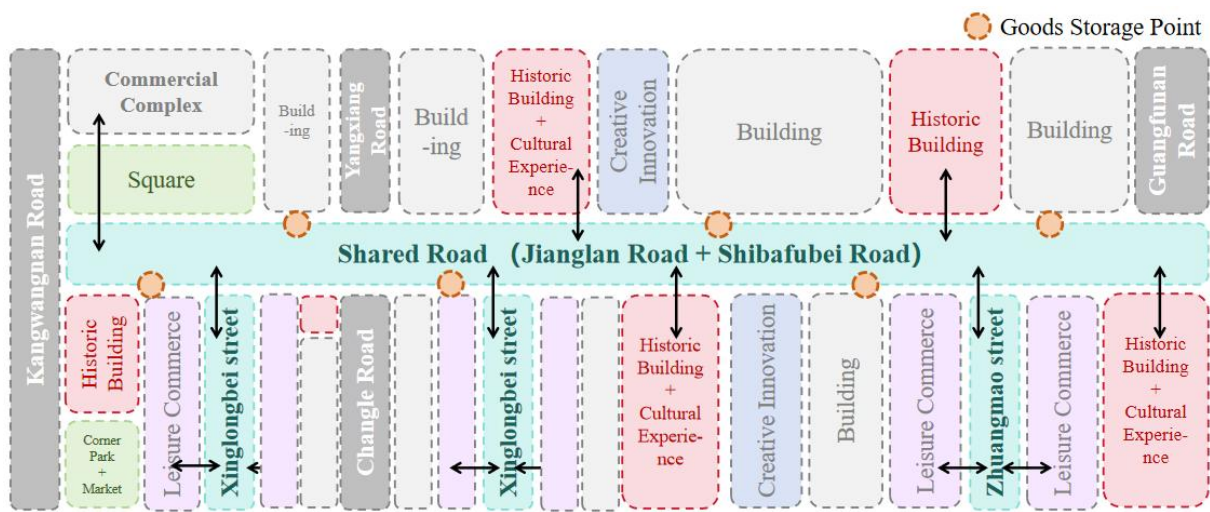


Figure 5-21 Shared Street Space Model

(Source: Drawn by Author)

In the design of the shared street, a pedestrian-friendly transportation system is set up with Jianglan Road and Shibafu Road as the main road and the extended pedestrian streets on both sides as branch roads(Figure 5-21). Cultural experience, leisure business, cultural creativity and other businesses are laid out on both sides of the street, and facilities such as commercial outlay areas, leisure seats and centralized goods stacking points are set up; at the same time, the shared street also serves as the main place for undertaking cultural activities in the district, and large-scale activities are held in different seasons to provide tourists and residents with a rich commercial experience, to promote the integration of business and tourism, and to enhance the vitality and attractiveness of the district.

The shared street usage model is divided into two main time periods(Figure 5-22), from

10 a.m. to 10 p.m. pedestrians have full right-of-way to create a complete walking experience; from 10 p.m. to 10 a.m. the following morning, vehicular traffic is restored, and the replenishment and logistical needs of merchants for the next morning are also met.

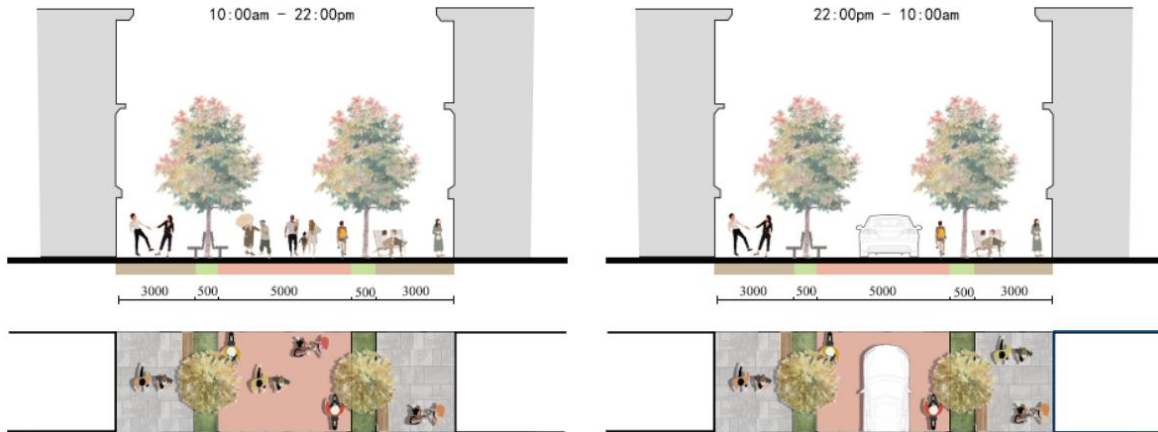


Figure 5-22 Shared Street Time-of-Day Pattern
(Source: Drawn by Author)

Renovation of the original pedestrian streets (Figure 5-23), such as Zhuangmao Street, and introduce quality commercials on both sides, combine the original commercial and cultural genes of the historic district with the characteristics of consumer behavior, divide the commercial swing area, walking area and seating facilities through the ground material to form stopping points, allow visitors and residents to slow down while provide more social space.



a) Status of Pedestrian Streets (Example of Zhuangmao Street)
b) Transformation Patterns

Figure 5-23 Pedestrian Street Transformation Patterns
(Source: Drawn by Author)

5.5.3 Corner Space Reinvention



Figure 5-24 Corner Park Location and Status

(Source: Drawn by Author)

As an important node of the district and an important carrier of cultural genes, the remodeling of the street corner space plays an important role in realizing the symbiosis of multiple cultural elements, however, the existing street corner space has not been well used (Figure 5-24).

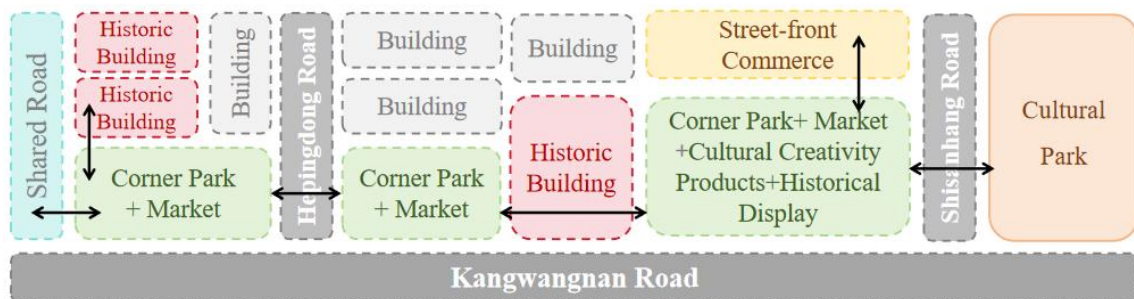


Figure 5-25 Spatial Pattern for Corner Park

(Source: Drawn by Author)

A series of unused spaces along Kangwangnan Road are remodeled into a corner park and cultural plaza (Figure 5-25), introducing functions such as a restaurant bazaar, cultural and creative product sales, and historical and cultural exhibitions. Enhancing the spatial quality of the district and guiding the crowd in the direction of the Culture Park subway station to gradually enter the site also provides a good display platform for the district.

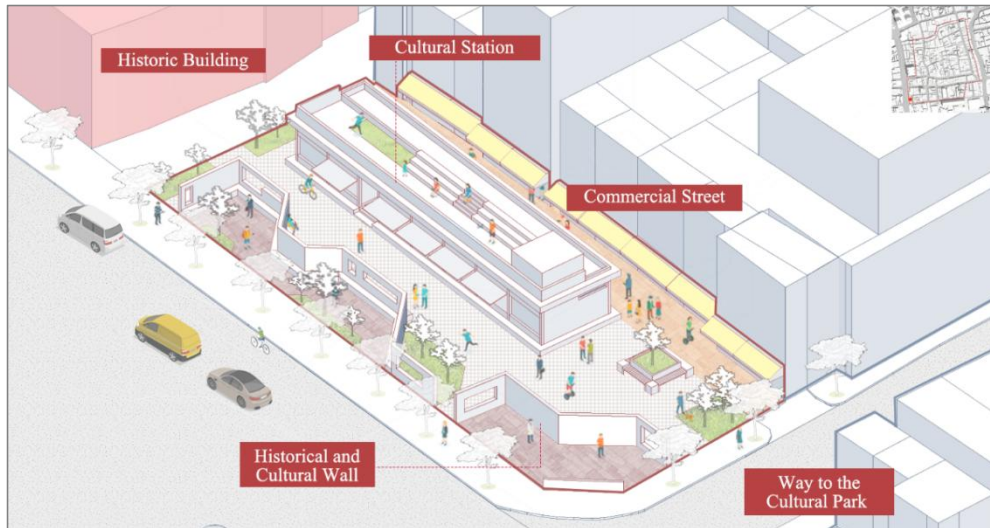


Figure 5-26 Axonometric View of Culture Square
(Source: Drawn by Author)



Figure 5-27 Perspective view of Culture Square

In the design of the node of the cultural square, as the first node of the crowd entering the site in the direction of the cultural park, the cultural display and commercial attributes are particularly important (Figure 5-26). Therefore, the outdoor historical and cultural display wall and the pedestrian commercial along the street are set up, and the cultural station as a new building assumes the functions of exhibition and commercial service, and the openable facade device on both sides establishes the visual connection between the commercial along the street and the other side of the square; at the same time, the height of the building is controlled, and the design of the second-floor platform also provides visitors with an area to stay to appreciate the historical building and the surrounding environment.

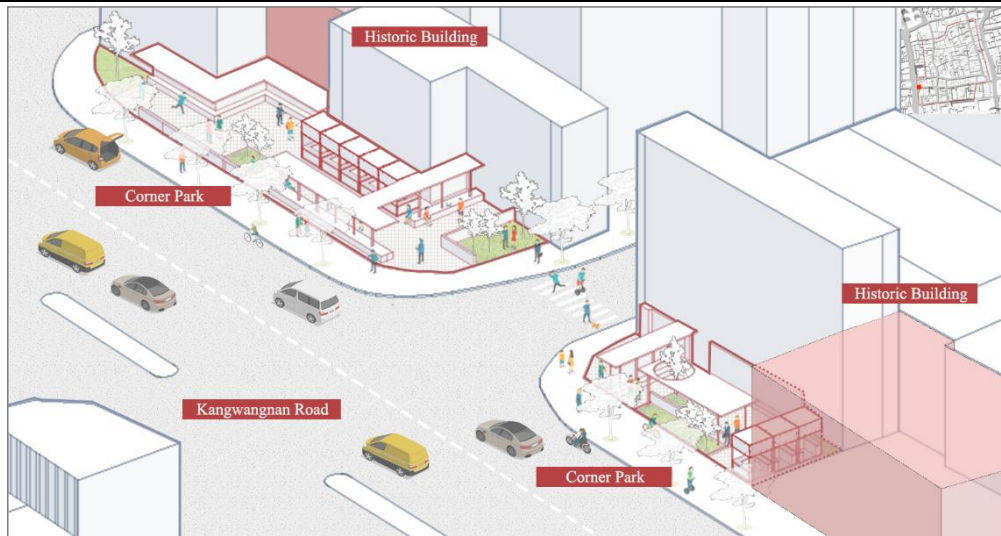


Figure 5-28 Axonometric View of Corner Park
(Source: Drawn by Author)

Optimize the existing corner park (A) and unused corner space (B), simple open space does not make the maximum use of space, in order to undertake the cultural park direction of the flow of people, need to set up a series of commercial and cultural, ecological combination of space (Figure 5-28), can be used as a stopping point, but also solved a part of the flexible employment. Through the reshaping of the corner space, it can not only enhance the overall image of the district, but also promote the symbiosis and integration of multi-cultural elements.

5.6 Summary of the Chapter

This chapter discusses the conservation and renewal design of the Guangfunan Historical and Cultural District from the perspective of cultural genes, and builds a general design framework and planning structure from the perspective of development orientation and conservation and renewal objectives. In the three levels of gene conservation, gene repair and gene recombination, specific design strategies and spatial interventions are proposed from various perspectives. Through these design practices, we provide suggestions and references for the effective inheritance and adaptive use of the cultural genes of the Guangfunan Historical and Cultural District, as well as for the conservation and renewal of the historic district.

Conclusion and Outlook

Conclusion

This study takes Guangfunan Historical and Cultural District in Guangzhou as an object and tries to explore its conservation and inheritance strategy from the perspective of cultural genes. Through combing the theory of cultural genes, analyzing the material and intangible cultural genes of Guangfunan Historical and Cultural District, constructing the cultural genealogy of the district, and carrying out the secondary classification of the cultural gene attribute dimensions of the Guangfunan Historical and Cultural District, the study proposes the three inheritance modes of cultural genes: conservation, repair, and recombination, and applies them to the design practice. The following conclusions are drawn from the study:

(1) The theory of cultural genes provides different perspectives for the conservation and renewal of historic and cultural districts. As the basic unit of cultural inheritance and evolution, the application of cultural genes in historic districts helps to understand the cultural connotation and spatial characteristics of the districts. Through the extraction and analysis of cultural genes, the core cultural elements of a district can be identified to provide a basis for conservation and renewal.

(2) Guangfunan Historical and Cultural District has rich material and intangible cultural genes. The material cultural genes cover urban space, street space, architectural style and other elements, reflecting the historical development and social changes of the district; the intangible cultural genes involve human history, regional culture, daily life and other aspects, reflecting the cultural vitality and local characteristics of the district. These cultural genes interact with each other to shape the cultural landscape of the Guangfunan Historical and Cultural District.

(3) Based on the attributes of cultural genes, the cultural gene conservation, repair and recombination model provides an effective path for the protection and renewal of historic and cultural districts. The cultural gene conservation mode protects the core cultural genes of the districts through the establishment of place cultivation, activity planning, trail guidance and

other means; the cultural gene repair mode restores the damaged cultural genes through the restoration of historical features and the improvement of living facilities, so as to continue the scene of daily life and improve the living standard of the residents; the cultural gene recombination mode activates the contemporary value of the cultural genes through the recombination of industrial functions, spatial sharing and remodeling and other means, and realizes multi-cultural symbiosis and innovation.

Innovative Points

This paper extracts and condenses the cultural elements of the Guangfunan Historical and Cultural District in Guangzhou by systematically combing the cultural genes of the district, and constructs an intuitive and clear cultural genealogy structure. While showing the cultural connotation of Guangfunan Historical and Cultural District, it provides a clear path for the cultural inheritance and development of the district.

In terms of conservation and inheritance, this paper proposes a multi-level and multi-angle inheritance model from macro to micro, from overall protection to micro renewal development. Specifically, through the three modes of cultural gene conservation, repair and recombination, the Guangfunan Historical and Cultural District is inherited, repaired and activated. These modes not only focus on the conservation of history and culture, but also take into account the needs of modern functions, realizing the organic combination of history and culture with modern life.

Limitations and Outlook

In terms of shortcomings, despite the author's use of various research methods, there are still limitations in the quantitative analysis of cultural genes. The assessment of certain cultural genes relies on subjective judgment, and more precise quantitative indicators and models can be introduced in the future to improve the scientific nature of the study. There are difficulties in obtaining some of the data in study, which affects the comprehensiveness of the study to a certain extent. In the future, breadth and depth of data collection should be strengthened, and historical archives, oral histories, field surveys and other means should be comprehensively

utilized to enrich the research materials. Although the conservation and renewal model and design strategy are proposed, it may face more complicated situations in practical application. In the future, these strategies need to be tested and improved in practice to enhance their operability and adaptability.

In terms of outlook, although this study has constructed a cultural genealogy of the Guangfunan Historical and Cultural District, the excavation of certain cultural genes can be further deepened. In the future, more advanced technological means, such as big data analysis and artificial intelligence, can be used to dig deeper into the potential information of cultural genes and expand the research dimension of cultural genes. As this study mainly focuses on the Guangfunan Historical and Cultural District, the scope of the study can be extended to other historic districts or cultural heritage sites in the future, so as to compare and analyze the differences and commonalities of the cultural genes in different regions, and to build a wider research network of cultural genes. At the same time, the implementation effect of the strategy needs long-term tracking and evaluation. In the future, a long-term monitoring mechanism should be set up to continuously monitor the effect of cultural gene inheritance in the Guangfunan Historical and Cultural District, so as to adjust and optimize the strategy in a timely manner, and to ensure the sustainable inheritance of cultural genes.

Reference

- [1] 赵世林.论民族文化遗产的本质[J].北京大学学报（哲学社会科学版），2002,(03):10-16.
- [2] 习近平.高举中国特色社会主义伟大旗帜为全面建设社会主义现代化国家而团结奋斗——在中国共产党第二十次全国代表大会上的报告[J].中国人大,2022,(21):6-21.
- [3] 赵传海.文化基因与社会变迁[M].河南：河南大学出版社.2010.4.
- [4] 耿识博.习近平“文化基因”论的内涵探析[J].中共中央党校学报，2016(03):5-12.
- [5] [美]波拉克.解读基因：来自 DNA 的信息[M].杨玉玲译.北京：中国青年出版社，2000
- [6] 刘长林.中国系统思维：文化基因透视[M].北京：中国社会科学出版社，1990：1-2.
- [7] 王东.中华文明的五次辉煌与文化基因中的五大核心理念[J].河北学刊，2003(9)：130-134.
- [8] Richard Dawkins.The Selfish Gene:40th Anniversary edition[M].Oxford OUP Oxford.2016
- [9] [美]爱德华·O·威尔逊（Wilson, E.O.）著.社会生物学——新的综合[M].毛盛贤译.北京：北京理工大学出版社，1999.
- [10] Daniel Clement Dennett.Consciousness Explained[M]. New York: Little, Back Bay Books,1992.422-424.
- [11] Daniel Clement Dennett.Darwins Dangerous Idea:Evolution and the Meanings of Life[M].New York:Simon &Schuster,1996.235-238.
- [12] Gabora,L.1997.Taking memes seriously [J].The Semiotic Review of Books, Volume8(2).
- [13] Hans Cees Speel. Memes are also Interactors[M]. Assoc Int CybernetiqueNamur, 1998.
- [14] 苏珊·布莱克摩尔.迷米机器[M].长春:吉林人民出版社,2001.
- [15] 何自然,何雪林.模因论与社会语用[J].现代外语,2003,(02):200-209.
- [16] 雷英.从模因论看语言的共时性与历时性[J].现代语文，2010(06):16-17.
- [17] The TED Conference [EB/OL]. (2010-11-12) <http://www.wired.com/techbiz/people/news/2008/02/ted-walkup>.
- [18] 潘小波.模因论的新发展——国外模因地图研究[J].广西社会科学，2010(8)：131-134
- [19] Gideon Mazambani, Maria A. Carlson,Stephen Reysen,Christian F. Hempelmann .Impact of Status and Meme Content on the Spread of Memes in Virtual Communities[J].Human Technology: An Interdisciplinary Journal on Humans in ICT Environments,2015,11(2).
- [20] Benjamin L. Mazer,Chadi Nabhan. Strengthening the Medical Error "Meme Pool"[J]. Journal of General Internal Medicine,2019,34(10).

- [21] 徐杰舜.文化基因：五论中华民族从多元走向一体[J].湖北民族学院学报,2008(3): 9-14
- [22] 吕嘉.中国的文化“基因”[J].中共宁波市委党校学报, 2015, 37(1): 56-59
- [23] Jokilehto. The context of the Venice Charter (1964)[J]. Conservation and Management of Archaeological Sites, 1998, 2(4): 229-233.
- [24] 《内罗毕建议》[S].内罗毕：联合国教科文组织, 1972.
- [25] The Charter of Machu Picchu[J]. Journal of Architectural Research, 1979, 7(2):5-9.
- [26] 王景慧.历史地段保护的概念和作法[J].城市规划, 1998(03):34-36+63.
- [27] 《关于原真性的奈良文件》[S].奈良：国际古迹遗址理事会, 1994
- [28] 西安宣言[S].西安：国际古迹遗址理事会, 2005.
- [29] 国际古迹遗址理事会.关于历史城市、城镇和城区的维护与管理的瓦莱塔原则（中文版）[EB/OL].[2014].
- [30] 中华人民共和国国务院.《文物保护管理暂行条例》.1961.
- [31] 国际古迹遗址理事会中国国家委员会.《中国文物古迹保护准则》,2000.
- [32] 全国人民代表大会常务委员会.中华人民共和国文物保护法, 1982.
- [33] 全国人民代表大会常务委员会.中华人民共和国文物保护法, 2002.
- [34] 中华人民共和国国务院.《历史文化名城名镇名村保护条例》,2008.
- [35] 中共中央办公厅.国务院办公厅印发《关于加强文物保护利用改革的若干意见》[J].中华人民共和国国务院公报, 2018(30):19-22.
- [36] 王蔚,史箴.与天对话——略析中国园林的传统文化基因[J].新建筑, 1997(2): 46-48
- [37] 王海宁.聚落形态的文化基因解析——以贵州省青岩镇为例[J].规划师, 2008, 24（5）: 61-65
- [38] 乌再荣.基于文化基因视角的苏州古代城市空间研究[D].南京：南京大学, 2009
- [39] 梁鹤年.文化基因[J].城市规划, 2011, 35(10): 78-84
- [40] 刘沛林.中国传统聚落景观基因图谱的构建与应用研究[D].北京：北京大学, 2011
- [41] 牛雄,田长丰,孙志涛,等.中国城市空间文化基因探索[J].城市规划,2020,44(10):81-92.
- [42] 赵鹤龄,王军,袁中金等.文化基因的谱系图构建与传承路径研究[J].现代城市研究, 2014（5）: 90-97
- [43] 田涛.古城复兴：西安城市文化基因梳理及其空间规划模式研究[D].西安建筑科技大学, 2015.
- [44] 李云燕,赵万民,杨光.基于文化基因理念的历史文化街区保护方法探索——重庆寸滩历史文化街区为例[J].城市发展研究, 2018,25(08):83-92+100.

- [45] 桑万琛,刘曼云,石拓.基于文化基因理论的大运河文化遗产保护与更新规划路径——以大运河嘉兴段文化长廊为例[J].规划师,2024,40(04):40-47.
- [46] 霍艳虹.基于“文化基因”视角的京杭大运河水文化遗产保护研究[D].天津大学,2017.
- [47] 俞可健.文化基因视角下的历史街区保护与更新——以米兰布雷拉历史街区为例[C]//中国城市规划学会,成都市人民政府.面向高质量发展的空间治理——2020中国城市规划年会论文集(09城市文化遗传保护).广州市城市规划勘测设计研究院,2021:12.
- [48] 向云驹.论“文化空间”[J].中央民族大学学报哲学社会科学版,2008,35(3):81-88.
- [49] Piano di Governo del Territorio(A7)[S].2016.
- [50] Piano delle Regole[S].2016.
- [51] UNESCO Institute for Statistics. The 2009: UNESCO Framework for Cultural Statistics.[EB/OL].
http://uis.unesco.org/sites/default/files/documents/unesco-framework-for-cultural-statistics-2009-en_0.pdf.
- [52] ESSnet-Culture, European Commission,Eurostat.ESSnet-Culture Final Report 2012[EB/OL].http://epp.eurostat.ec.europa.eu/portal/pls/!PORTAL.wwpob_page.show?docname=2920315.PDF.
- [53] 于佩丽.文化产业的价值提升与功能实现[J].价值工程,2019,38(36):258-260.
- [54] 辛慧琴.意大利古旧建筑保护及改造再利用浅析[D].天津大学,2005.
- [55] 顾雪萍.广州西关城市空间史研究[D].华南理工大学,2023.
- [56] 广州市工务局.民国经界图[CM]:广州工务局,1935.
- [57] 朱知麟.广州传统民居与城市形态发展的关联性研究[D].华南理工大学,2022.
- [58] Li Ye, Gauthier P. The evolution of residential buildings and urban tissues in Guangzhou, China_Morphological and typological perspectives[J]. Urban morphology, 2014, 18(2): 129-149.
- [59] 郑禁.南海县志[M].北京:石油工业出版社,1974.
- [60] 仇巨川.羊城古钞[M].南京:江苏人民出版社,1993.
- [61] 曾昭璇.广州历史地理[M].广州:广东人民出版社,1991.
- [62] 曾志辉.广府传统民居通风方法及其现代建筑应用[D].华南理工大学,2010.
- [63] 王中德,李兴霞,孔明亮.街巷空间自发式更新现象解析——以重庆弹子石大佛段街区为例[J].西部人居环境学刊,2017,32(05):71-75.DOI:10.13791/j.cnki.hsfwest.20170510.)
- [64] John Henry Gray. Walks in The City of Canton[M]. Victoria, Hongkong: DE SOUZA & CO. 1875:163.
- [65] 周冰鸿.广州近代城市街屋建筑研究[D].华南理工大学,2022.

- [66] 陆元鼎,魏彦钧.广东民居[M].北京:中国建筑工业出版社,1990.
- [67] 陆琦.广东民居[M].北京:中国建筑工业出版社,2008.
- [68] 禰文昊.海陆之间——华南竹筒屋起源考[J].新建筑,2024,(02):10-15.
- [69] 彭长歆、杨晓川,骑楼制度与城市骑楼建筑[J].华南理工大学学报(社会科学版),2004(04):29-33.
- [70] 魏峰群,席岳婷.基于文化基因传承视角下的城市空间蔓延初探——以西安市为例[J].城市发展研究,2012,19(07):47-52.
- [71] 陈雪晗.新旧共生理念下的意大利历史建筑保护与再利用案例研究[D].西安建筑科技大学,2021.DOI:10.27393/d.cnki.gxazu.2021.000614.
- [72] 桂奕,陈思颖.广州非遗街区永庆坊保护传承现状及提升策略[J].山西建筑,2021,47(20):21-23.
- [73] 陈亚民.符号经济时代文化产业品牌构建战略[J].经济社会体制比较,2009,(04):188-191.
- [74] 李祯.文化资本视角下历史街区再生理念、框架和策略——以日本高山城下町和南京小西湖历史街区为实证[J].西部人居环境学刊,2023,38(04):111-118.
- [75] 张敏,刘学等.南京城市文化战略及其空间效应[J].城市发展研究,2007(5):13-18

Appendix

Appendix 1 Research Questionnaire

尊敬的居民/游客：

您好！我是华南理工大学建筑学院的研究生，目前正在进行关于广州光复南历史街区的保护与更新研究。为了更好地了解街区的现状、居民的需求及公众的看法，我们特地设计了这份问卷。本问卷大约需要 5 分钟完成，所有信息将严格保密，仅用于学术研究，您的意见对我们至关重要，将为光复南历史街区的保护与更新提供宝贵的参考。

（请您在选择的选项上打“√”）

一、基本信息

1. 您的性别是：

A. 男 B. 女

2. 您的身份是：

A. 本地居民 B. 商户经营者/街区工作人员 C. 游客

3. 您在街区主要进行的活动是：

A. 居住生活 B. 上班或经营 C. 购物消费 D. 餐饮娱乐 E. 旅游观赏 F. 参加活动

二、游客使用体验调查（仅游客填写）

1. 您之前来过光复南历史街区吗？

A. 第一次来 B. 来过几次 C. 经常游览

2. 吸引您来光复南历史街区的主要原因是什么？（可多选）

A. 传统街巷和历史建筑 B. 购物消费 C. 文化活动
D. 游览十三行博物馆及文化公园 E. 其他（请注明）_____

3. 您认为光复南历史街区在体验方面存在哪些不足？（可多选）

A. 交通不便，货物堆积，秩序混乱 B. 指示标识不清晰 C. 商业业态单一
D. 缺乏文化解说 E. 公共设施不足 F. 其他（请注明）_____

三、光复南历史街区保护与更新需求调查（仅居民/商户及工作人员填写）

表中是针对街区保护更新的相关要素，请根据您的重要与否在对应分数下打“√”

要素		非常支持	比较支持	中立	比较反对	完全反对
空间提升	整治擅自占用道路、绿地等公共区域的违规行为					

	增加绿地公园、公共活动区域与场地					
	更新公共座椅、景观照明、导视标识及环卫设施等城市家具					
	依法拆除违法构筑物					
	实现历史建筑保护更新“一栋一策”，明确相关建筑平面、立面改造方案					
业态功能	明确禁止社区建筑的业态类别，适当增加餐饮服务、便民商超、民宿旅馆等经营性业态					
	策划相应文化活动，提升街区活力					
居民参与	参与公众监督，对活化利用进行评价					
	担任文化导览志愿者，向公众传播历史人文故事					
居民安置	实施房屋征收置换，保障居民异地安居置业					
	长租房屋获取租金，以租金支持异地安居					

四、光复南历史街区文化基因保护与传承相关调研

1. 您是否认为保护历史街区物质与非物质文化基因可以增强居民身份认同感？

A. 非常同意 B. 比较同意 C. 中立 D. 不太同意 E. 不同意

2. 您是否认为保护历史街区文化基因具有促进街区产业和经济发展的作用？

A. 非常同意 B. 比较同意 C. 中立 D. 不太同意 E. 不同意

3. 您认为在现代审美和现实需求下，可以多大程度上改变历史街区文化遗产的原貌？

A. 完全改变 B. 适度改变 C. 不可以改变

4. 您认为历史街区文化基因传承中最重要的是？（在横线处打分，最高分为5分）

A. 历史建筑与传统街巷风貌_____ B. 非物质文化遗产与风俗_____

C. 居民生活场景与基础设施_____ D. 商贸文化氛围与业态功能_____

再次感谢您抽出宝贵的时间填写这份问卷！