华南理工大学
South China University of Technology

专业学位硕士学位论文

考现学视野下广州历史城区公共空间界面非正式改造研究
——以玉带濠中段为例

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Abstract

In recent years, with the acceleration of urbanization, the renewal of Guangzhou's historic urban areas faces many challenges of development. The contradiction between traditional urban planning and the needs of modern development has become increasingly prominent, especially at the intersection of historical and cultural protection and urban renewal. How to maintain the characteristics of historic urban areas and the convenience of users' lives while improving the functionality and aesthetics of public spaces has become an urgent problem to be solved. Inspired by Kon Wajiro's Modernology, this research takes the informal renovation in the middle section of Yudai Mout as the research objects of public interfaces renovation, trying to grasp the clues of users' lives, and with the analysis method of "seeing the big from the small", discover the spatial practice and place identity behind the users' life, so as to explore the path and method of informal renovation of public space interfaces in Guangzhou's historic urban areas.

This research first summarizes the connotation and significance of Modernology as a research method by studying its development and evolution and comparing it with other research methods. Secondly, it summarizes the development of theoretical research on historic urban areas and informal phenomenon domestic and international, and summarizes its practical experience; and then combines Modernology to demonstrate its significance for the research of informal renovation of historic urban areas.

Based on the above, this research proposes a new research step of "overview analysis, objects record, scenes analysis, users interview, inductive conclusions". This research takes the middle section of Yudai Mout as the research scope, through overview analysis, object records and scene analysis, combined with interviews to discover the folk wisdom of users and social management issues. It believes that the optimization of users' informal renovation can not only improve the efficiency of public space use, but also enhance users' cultural identity of the place and bring positive impacts to the public space interfaces. Secondly, with the purpose of historic urban renovation, relevant domestic and international practice cases are analyzed, and the optimization strategies applicable to the public space interfaces are

summarized. Then, starting from the strategies, combined with the previous analysis, the optimization guidelines for the public space interfaces are proposed from four aspects: building optimization, road optimization, landscape optimization and urban management, and the corresponding optimization designs are proposed, emphasizing the importance of social and cultural factors and local characteristics in the renovation.

Finally, this research summarizes the research and design role of Modernology and design in the renovation of historic urban areas, hoping to provide the Modernology theoretical support and practical guidance for the renovation of public space interfaces in Guangzhou and other historic urban areas.

Keywords: Modernology, Historic urban area, Public space, Informal renovation, Yudai Mout

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Chapter I Introduction

1.1 Research Background

With the acceleration of urbanization in China, urban renewal has become an important means of upgrading urban quality, optimizing spatial structure, and inheriting historical lineage. In this process, the public space interfaces of historic urban areas, as an important carrier of urban cultural memory and public life, carries multiple values, and has become a key node for urban renewal and protection.

However, the public space interfaces of historic urban areas generally faces the contradiction between the formal management mechanism and the informal renovation of the private sector. On the one hand, city administrators manage the use of space by means of laws and regulations and up-bottom planning; on the other hand, people living in historic urban areas frequently carry out informal renovation behaviors, such as roof additions, window projections with anti-theft nets, and commercial operations on the street, for the sake of convenience, economic interests, or cultural habits. Although these behaviors reflect a certain degree of flexibility and adaptability, enriching the use of space, they are often regarded illegal and are uniformly removed, making it difficult to be effectively covered and regulated by the existing legal system. In addition, the current urban renewal work is mostly promoted in a up-bottom mode, which lacks an in-depth understanding of the actual needs of users and the logic behind informal behaviors, resulting in a one-size-fits-all approach to governance that ignores local experiences and spatial flexibility, and ultimately results in low participation and poor satisfaction of users, and even triggers governance conflicts. Therefore, finding a balance between legality and rationality has become an important issue in the governance of public space in historic urban areas.

Against this background, Modernology, as a kind of study of reality, provides new perspectives for understanding and intervening in this contradiction, emphasizing field and localized in-depth observation of social phenomenon occurring nowadays, and paying attention to the interaction between people's daily life and space. It especially emphasizes the spontaneous actions and spatial creativity of users in urban areas. Different from the traditional macro-planning path centered on system and text, Modernology reveals the spatial

logic, social structure and behavioral motivation behind the formal renovation by means of micro-intervention, which helps to reflect on the limitations of the current governance system from the practical level. Applying Modernology to the research of the interfaces of public space not only reveals the tension between institutional norms and informal practices, but also provides theoretical support and practical paths for the construction of a more inclusive, diversified and flexible renewal strategy.

Yudai Mout is located in the historic urban areas of Guangzhou, as a former city center, it carries the value of historical and cultural heritage, and is also in the middle of high-density urban residential areas, and its public space interfaces have the typical characteristics of informal renovation, which shows strong spontaneity and localization. At the same time, Yudai Mout is undergoing several rounds of urban renovation and renewal programs, which involves multi-departmental management and multi-body interest games, which is a real scene of the interaction between formal management and informal renovation. With the perspective of Modernology, the research analyzes the middle section of Yudai Mout's formal renovation objects and the scene in which they are located, discovers the folk wisdom of the users and the problems of social management, and optimizes the public space interfaces to provide a new paradigm for the future governance of public space in historic urban areas.

1.2 Research Purpose and Significance

1.2.1 Research Purpose

Using Modernology as a tool, the research focuses on the phenomenon of informal renovation at the interfaces of public space in Guangzhou's historic urban areas, taking the middle section of Yudai Mout as a typical sample, with the aim of revealing the behavioral logic of informal renovation in the historic urban areas, the characteristics of its material form, and its interaction with public space. Through field research, spatial mapping and behavioral analysis, the research explores the social demands, cultural memories and spatial rights and interests behind informal renovation, and clarifies its functional significance and contradictory tensions under the dual contexts of historical preservation and urban renewal. Ultimately, the research attempts to construct a framework for interpreting informality based on the Modernology perspective, which provides a practical reference for the sustainable renewal of

historic urban areas that takes into account both cultural continuity and social inclusion.

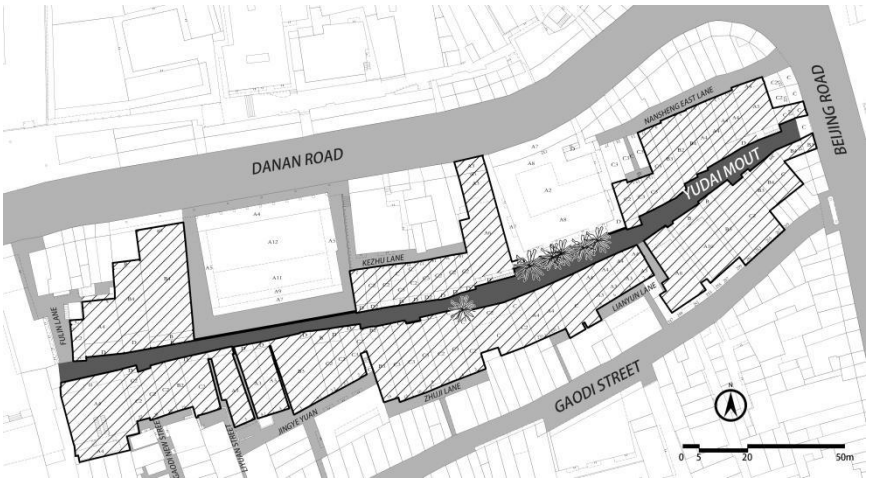
1.2.2 Research Significance

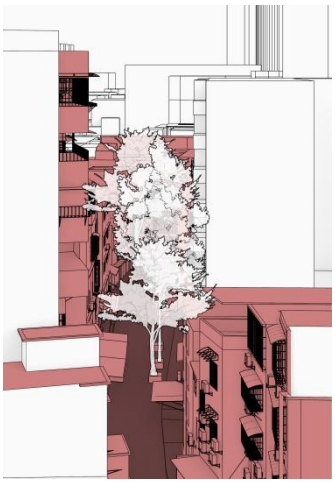
Theoretical dimension: the research introduces Modernology into the field of urban spatial research, breaks through the limitations of the traditional static perspective of historic preservation, and explores the role of informal renovation as a daily practice in the reproduction of spatial meaning by means of dynamic observation and microscopic narratives. Through dynamic observation and micro-narrative, the research explores the role of informal renovation as a daily practice in reproducing spatial meaning, and expands the theoretical dimension of urban heritage conservation.

Practical dimension: the research focuses on the middle section of Yudai Mout, a typical case of intertwining the historical space of the Lingnan water system with modern urban life, and its conclusions can provide inspiration for the renewal policy of Guangzhou and even the same type of historic urban areas: on the one hand, the research reveals the hidden support of informal spatial renovation on the user's sense of belonging, community vitality, and the accumulation of history, and calls for the planners to face the importance of bottom-up spatial wisdom. On the other hand, by analyzing the problems of material space alienation and management ambiguity, it provides a strategic basis for balancing cultural preservation, people's needs and urban governance.

1.3 Research Scope and Objects

The research area is in the middle section of Yudai Mout in Yuexiu District, Guangzhou City, Guangdong Province, starting from Beijing Road in the east and ending at Fulin Lane in the west, with a total length of 292 meters, including 52 buildings on both sides. The objects of the research are the informal renovations of the public space interfaces, which includes roofs, exterior walls and roadsides.





a) Research Scope b) Research Objects

Figure 1-1 Research Scope and Research Objects
(Source: drawn by the author)

1.4 Concepts Definition

1.4.1 Modernology

Modernology is a humanities discipline that emerged in Japan in the 1920s. It was first proposed in 1927 by the Japanese writer Kon Wajiro, and is derived from the opposite of Archaeology, which is dedicated to documenting the minute details of modern people's lives, such as behaviors, spaces, and clothes, in a super-restrained manner, and generating a large number of fragmentary records. It is a way of generating a large number of fragments and records that can provide information and basis for research in other disciplines. In the subsequent development, Kon Wajiro shifted the focus of observation from the countryside to the streets of the city, and the system of Modernology that he established between the fields of Architecture and Folklore was embedded in a phenomenological research paradigm - through the methods of collecting, categorizing, analyzing, documenting, comparing, etc., to explore the spontaneity in the interrelationships formed between human beings and objects.

1.4.2 Historic Urban Area

In 1933, the International Institute of Architects (IIA) issued the Athens Charter in Athens, which was the first international convention in the field of urban planning in history, and mentioned for the first time the concept of "Historic Urban Areas", which is defined as "areas consisting of historic buildings and historical and cultural sites".

In 2005, China issued the "Code for the Protection Planning of Famous Historical and

Cultural Cities", which clearly defines the definition of domestic historic urban areas, i.e. the areas in towns and cities that can embody the process of historical development or the style of a certain period of development, including the ancient urban areas and old urban areas, and specifically refers to the areas that need to be protected and controlled with a clear historical scope, and with a relatively complete preservation of patterns and styles.

The Guangzhou Historical and Cultural City Protection Plan (2021-2035) issued in 2024 specifies the scope of the historic urban area: the historic urban area is the built-up area formed before 1949 with relatively complete preservation of its landscape, which consists of the following areas: Donghaochong - Xiaobei Road - Huanshi Middle Road - Huanshi West Road - Renmin North Road - Liuhua Road - Guangsan Railway - Pearl River (Pearl River Bridge East Bridge - Haibunnei Street) - Haibunnei Street - Xinmin Street Renovation Road - Meiyuan West Road - Industrial Avenue North - Nantian Road - Jiangwan Road - Jiangwan Bridge and other specific boundaries of the formation of a closed ring-shaped area, an area of 20.39 square kilometers.

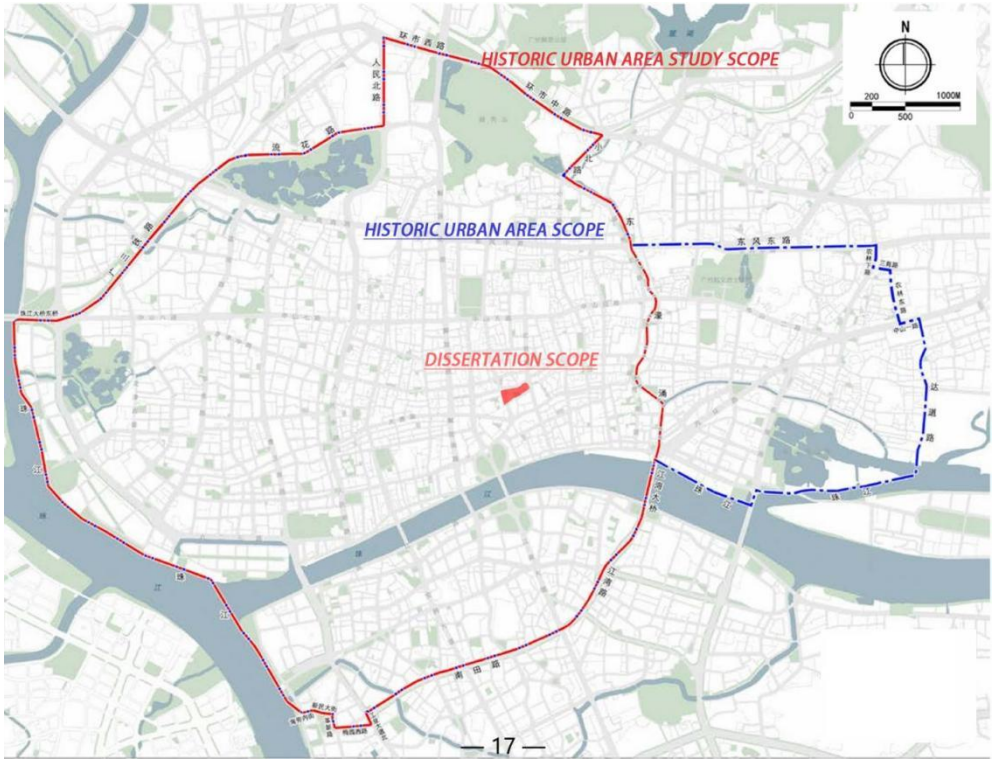


Figure 1-2 the Scope of Historic Urban Area

（Source: reference[1]）

1.4.3 Public Space Interface

1.Interface and Boundary

The phase interface was originally used in the fields of physics and chemistry to represent the thing between phases of a substance, and has since been used more in the field of computers to express the operating window through which a person interacts with a computer. Interface is the surface formed between related areas, entities, substances or phases, and is the thing at the junction between two substances, focusing on the expression of the intermediate part of the common formation of different things, and showing the bi-directionality of meaning for both.

Boundary, on the other hand, focuses on expressing the scope of things, limiting the beginning and end of things, and is more inwardly oriented.

2.Public Space

In the 1960s, Public Space began to be widely used in the fields of architecture and urban planning. Matthew Camona combined the term public space with material form, and he believed that urban public space includes the public facades of buildings, the spaces between street fronts, the activities occurring in or between these spaces, and the management of behaviors, etc.[2]。In modern cities, public space is usually regarded as the center of public activities in which various social life events take place. Public space takes residents as the main service object, and is mainly composed of buildings, roads, squares, green spaces and other environmental equipment elements, and is a relatively open space with unique attributes such as recognition, sense of belonging and activity.

3.Public Space Interfaces and Building Interfaces

Norrie Maps views buildings and public spaces in city maps as relationships of bottom and. The public space interface is the interface between buildings and public space. The public space interface has three types of characteristics, first, as a medium of interaction and communication between public space and private space of buildings; second, as an enclosure system, which divides the public space from the overall environment and private space; and third, as an important carrier for displaying the image of the urban public space, which is one of the most important mediums for people to recognize the urban environment[3]. The specific

scope of the public space interface is larger than that of the building interface, including building roofs, building facades and pavements, while the building interface often contains only the first two.

1.4.4 Informal Renovation

In the traditional sense of architecture, formal construction mainly refers to urban construction activities carried out under clear official planning, that is, up-bottom formal power management[4]. Under the established discourse system, in accordance with established rules and regulations, it is led by professional designers, construction workers and managers to build houses or structures in a planned manner, emphasizing officiality and legitimacy.

Informal renovation is derived from the antonym of formal construction. Informal renovation means informality and unprofessionalism. It mainly refers to the bottom-up, multiple and accidental behaviors without clear official power control. It is often manifested as the result of users' spontaneous participation in urban construction activities and the renovation of existing conditions. This informal behavior places more emphasis on the user's subjective awareness and actual needs.

1.5 Research Methods

1. Literature Review Method

The research uses keywords such as Modernology, historic urban area and informal to search for relevant literature for theoretical research, understand the current research status of related issues in china and abroad, and thus provide certain theoretical support or reference for the analysis of the research objects.

2. Modernology, interviews and field visits

Modernology was conducted in the middle section of Yudai Mout. By observing the informal renovation objects and scenes of the public space interfaces and collecting and recording them in an exhaustive manner in the form of photos and texts, combined with interviews with the user population, a summary was made to analyze the phenomenon of informal renovation and the causes behind it, providing theoretical support for the subsequent optimization.

1.6 Research Content and Framework

1.6.1 Research Content

Chapter I: This chapter explains the research background, purpose and significance, scope and object, and concept definition, and proposes research methods, content and framework.

Chapter II: Starting from the three core concepts of Modernology, historic urban area and informal phenomenon, this chapter sorts out the theoretical development and practical results of related research domestic and international, and clarifies the theoretical basis and research gaps of the informal renovation in the public space interfaces of Guangzhou's historic urban areas.

Chapter III: This chapter adopts the overview analysis, object record, scene analysis, users interview, inductive conclusion method derived from Modernology as the research steps. Based on the overview analysis and combined with research methods such as epoch-making, this research analyses the objects and scenes of the public space interfaces in the middle section of Yudai Mout. The research divides the informal renovation objects into six categories: occupation, living, pipeline, traffic, greening and commerce, and makes basic information records. The scenes where informal renovation occurs are divided into three categories: roof, exterior wall and roadside, and analyzes the characteristics, causes and implementation of relevant regulations. Finally, combined with interviews with residents, the hidden site problems, site contradictions and folk wisdom behind the informal renovation are summarized.

Chapter IV: Through the analysis of other representative cases such as the renovation of the North-south Streets in Nantou Ancient Town in Shenzhen, the facade renovation of Via San Lorenzo in Italy, and the Furukawa-cho Renovation in Japan, the research demonstrates the practices of public space interfaces renovation and management in different regions, and explores the diverse paths and implementation mechanisms of informal renovation of roofs, exterior walls and roadsides in different cultural backgrounds and urban contexts.

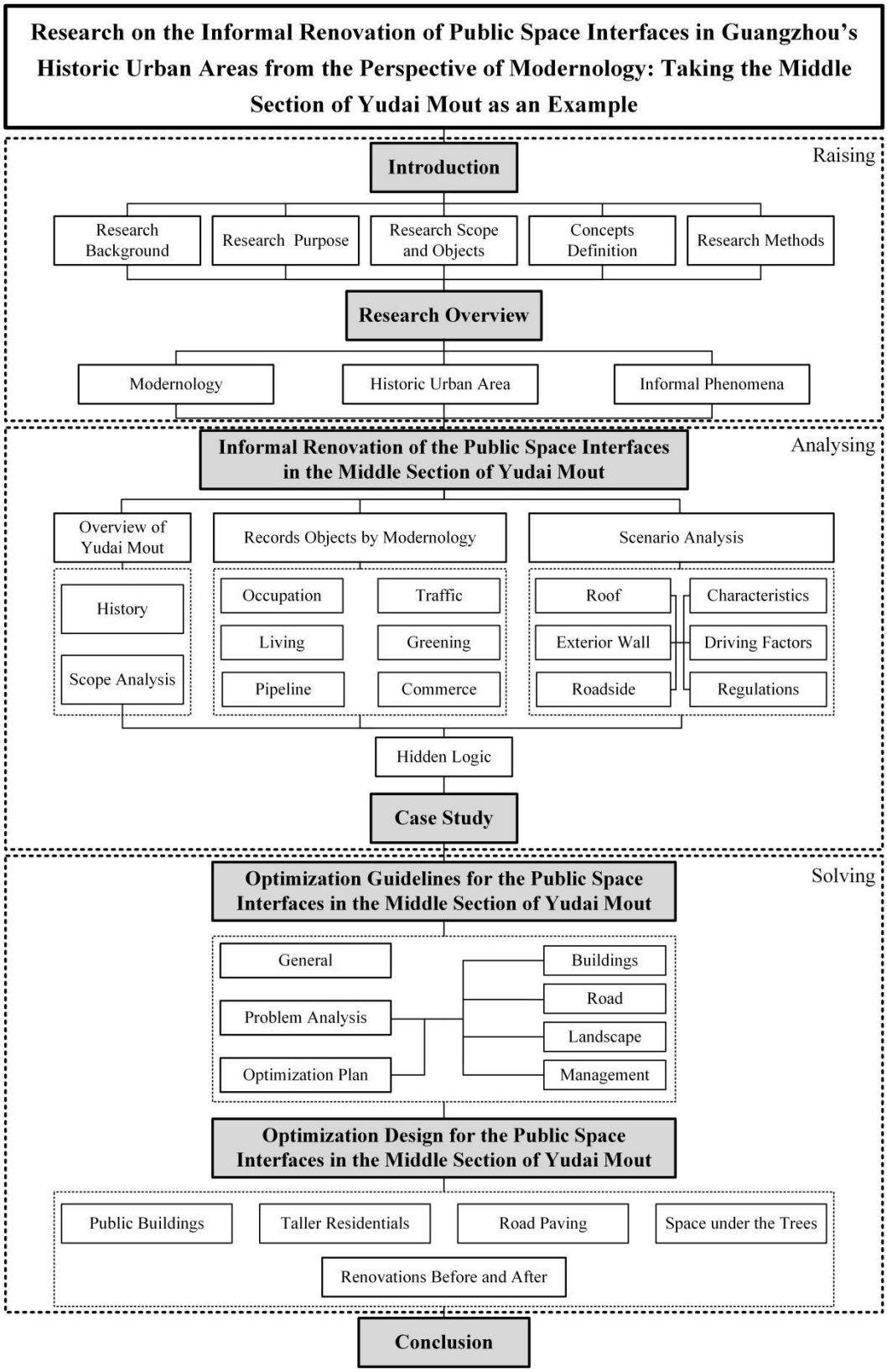
Chapter V: In this chapter the objectives, scope and principles of the optimization guidelines are clarified, and the various problems in the middle section of Yudai Mout in four

aspects: architecture, water system, public landscape and urban management are summarized. Finally, a series of operational interface optimization solutions are proposed based on the actual situation.

Chapter VI: This chapter proposes specific optimization intentions for the public space interfaces in the middle section of Yudai Mout from the perspectives of public buildings, taller residentials, road pavement, and space under trees. By comparing the public space interfaces on the north and south sides of the middle section of Yudai Mout before and after optimization, the positive impact of local intervention on the overall street atmosphere and life experience is vividly demonstrated.

Conclusion: Reviewing the entire research process, this research summarizes the reference value of modern research in informal renovation research from preliminary inspiration, research methodology to design, and puts forward prospects for the future application and development of modern research in various fields.

1.6.2 Research Framework



Chapter II Domestic and International Related Research Overview

2.1 Related Research of Modernology

2.1.1 International Research Development

In 1923, Tokyo was severely damaged by the Great Kanto Earthquake. People rebuilt new lives on the ruins. Folklore investigator Kon Wajiro studied under folklorist Kunio Yanagita and used sketches to record the living conditions of the people at that time. He also proposed the term "Modernology", aiming to emphasize the observation and recording of people's lives. Kon Wajiro investigated and analyzed certain things and behaviors during the post-disaster reconstruction process in order to understand the customs and habits that were different from those in modern society. However, after the post-disaster reconstruction came to an end, he stopped studying[5].The earliest document on Modernology that has been discovered is "The Beauty of Tokyo's Overcoming Disasters" published by Kenkichi Yoshida in Architectural New Wave in 1924, which records various billboards on the streets of Tokyo after the disaster[6].

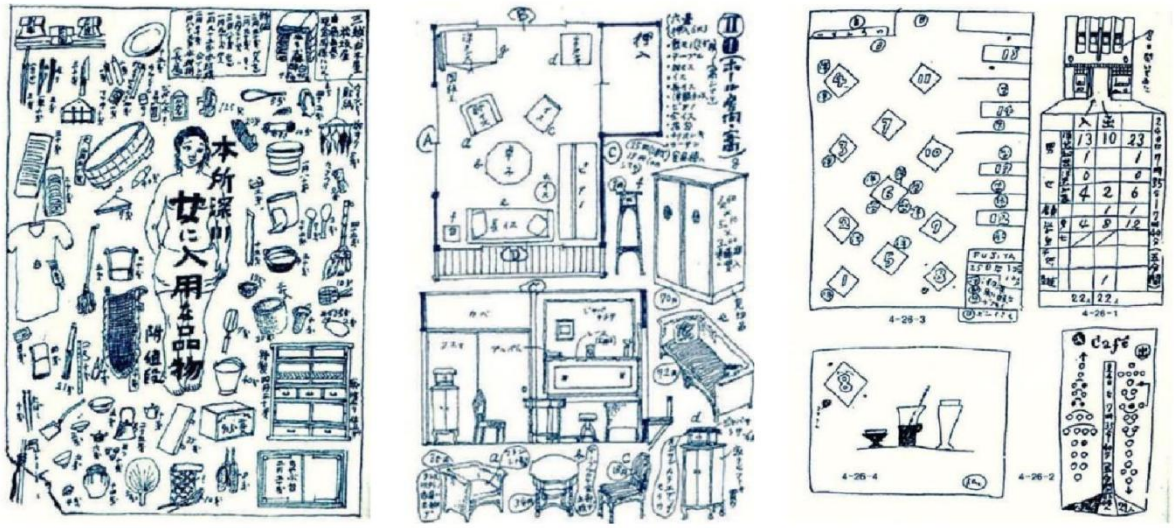


Figure 2-1 Kon Wajiro's Modernology
（Source: reference[5]）

Modernology, as a method of information collection, was subsequently used by Eastern scholars in more areas, but it rarely appears in Western research. This is not only because Modernology originated in the East and is more adapted to the cultural context of Eastern

society[7], but also because Eastern cities more often present a complex spatial structure where old and new, local and global coexist[8]。Modernology focuses on daily space, life scenes and material culture, and can better reveal the diverse and mixed characteristics of cities.

In Japan, Modernology has developed in two different directions: the first is the "object", represented by the Street Observation Society[9]. They insist on focusing on objects and observing things in the city that are ignored by the public, in order to explore and discover urban life. For example, Genpei Akasegawa's Thomasons (objects that have lost their original functions), Minami Shinbo's poster investigation, Terunobu Fujimori and Hori Yuyoshi's architectural detective team's search for Western-style building plans, and Joji Hayashi's collection of manhole covers, etc[10].The second is the "space ", represented by Hasegawa Yao's "Urban Corridors", Ai Maeda's "Literature in Urban Space", Hidenobu Jinnai's "Spatial Anthropology of Tokyo" and other works. They focus on the observation of urban space and order, and try to interpret the order behind the space from a big picture perspective in order to reshape a beautiful space.

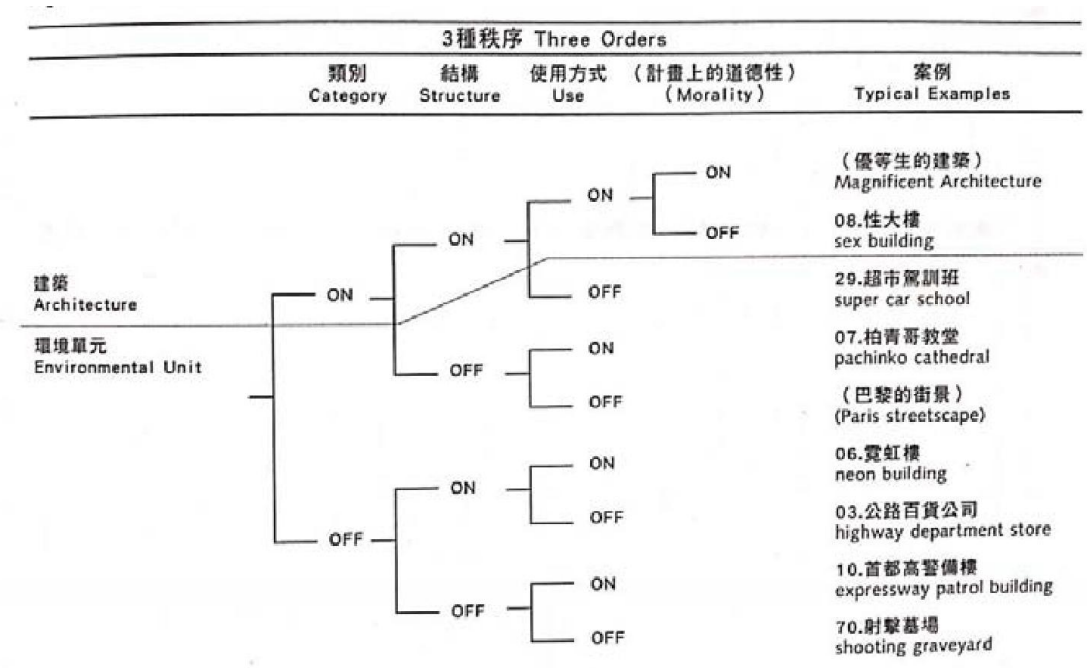


Figure 2-2 "Made in Tokyo" Method Diagram
（Source: reference[11])

The landmark breakthrough in bringing modernist observation back to the architectural arena was Atelier Bow-Wow by Momoyo Kaijima, Junzo Kuroda, and Yoshiharu Tsukamoto[12].The book's linkage between urban space research and spatial design based on

the method of observation-fixation enabled them to establish a connection between analysis and technique, thus achieving a shift from modernism to discovery. "Made in Tokyo" indirectly illustrates the chaos and great inclusiveness of Tokyo by collecting various nameless, demand-oriented and wonderful buildings in Tokyo. The book introduces environmental unit and switch theory to judge the research object excessive construction. The author considers buildings that are integrated and form order as on, and buildings that are not integrated and form order as off. Buildings in which all three orders are on are mostly clean buildings built by large projects or well-known construction companies, while buildings that cannot form an order are mostly abuse buildings. "Made in Tokyo" provided valuable inspiration and reference for subsequent researchers in the field of urbanization and related project development[11].

Table 2-1 International Research Development of Modernology

(Source: drawn by the author)

Field	Main Author	Year	Major Work	Direction
Folklore	Kon Wajiro	1930	"Modernology Introduction"[5]	Objects
Art	Hasegawa Yao	1979	"Urban Corridors"	Spaces
Art	Terunobu Fujimori	1986	"Introduction to Road Observation"[10]	Objects
Architecture	Yoshiharu Tsukamoto	2001	"Made in Tokyo"[11]	Architectures

2.1.2 Domestic Research Development

When Modernology was first introduced to China, it was mainly used in the study of objects. Li Changsheng[13]and Chen Jinguo[14]both based their research of folk customs on the theory of Modernology.

In the subsequent development, Modernology mainly focuses on two aspects: graphic expression and subject research. Drawing and Architectural Society represented by Li Han was also inspired by Atelier Bow-Wow and used axonometric drawings and comic strips to record the stories and sense of chaos behind popular buildings in Beijing, such as Sanlitun, 798, and Nanluoguxiang[15].Song Zhuangzhuang and others used new media and illustrated popular science combined with big data to show the public some information and problems in Beijing that are not easy to find[16]. Fanyi Studio captured the life stories of people in the context of Changsha's historical districts and showed the humanistic features of the historical

city[17]. The authors of this type of graphic expression books are all scholars with a background in architecture, who are good at looking at cities from a higher perspective. At the same time, based on the perspective of daily life, they share a common essence with Kon Wajiro's original Modernology in Japan, recording cities based on life and inspiring people's new thinking.

The collaborative research result of Professor Li Xiangning and Yoshiharu Tsukamoto of Tongji University, "Made in Shanghai", has in-depth research and discoveries in urban and architectural theories. It continues the research method of "Made in Tokyo" and is based on the outliers in Shanghai's urban space visited and collected by Chinese and foreign students. It aims to show the unknown urban material form of Shanghai, hoping to stimulate the public's interest in discovering and exploring the city they live in[18]. Lu Xiaoxuan of the University of Hong Kong and other mentors launched the "Interstitial Hong Kong" research project to explore small and marginal landscapes in high-density cities. The project collects and maps some extremely small landscapes scattered in Hong Kong, and uses critical spatial analysis to explore the culture, ecology and land use status[19].Xu Tianzhuo used the daily space of Shiping Ancient City in Yunnan to explore the spatial structure of the city. The findings examined by Modernology were classified and sorted out, and a future life development plan for the Shiping Ancient City was proposed, emphasizing the view that protecting the city requires protecting life[20]； Xie Zhendong, through the Modernology of the overflow places in the Huakang community, discovered the folk wisdom and community problems of the users behind them, and proposed a community renewal plan suitable for Huakang residents from the two aspects of community environment renewal and the construction of a sense of belonging to the place[21]. Qiu Feng used the method of Modernology to record the daily behaviors of different types of shared courtyards in the Hehuatang Historical and Cultural District in Nanjing, analyzed the collective memory formed by the places that carry the behaviors, and used this to study the intensive use and spatial order of shared courtyards, and conducted experiments on shared courtyard design[22]。

In summary, Modernology provides scholars with a more specific perspective in urban and architectural research by observing various phenomenon that are easily overlooked in daily life.

Table 2-2 Domestic Research Development of Modernology
(Source: drawn by the author)

Field	Main Author	Year	Major Work	Direction
Folklore	Chen Jinguo	2008	《"买地券"习俗的考现学研究——闽台地区的事例》[14]	Land Purchase Vouchers
Architecture graphic	Li Han	2018	《一点儿北京》	Life Stories
Urban study	Li Xiangning	2014	《上海制造》[18]	Architectures
Urban study	Xu Tianzhuo	2018	《考现学视野下的石屏古城日常空间研究》[20]	Spaces
Urban study	Xie Zhendong	2020	《基于日常考现的社区“溢出”场所营造——以广州市华康小区为例》[21]	Subjects and Spaces
Urban study	Qiu Feng	2021	《南京荷花塘历史文化街区中的"共有院落"空间改造设计研究》[22]	Spaces

2.1.3 Modernology versus Other Research Methods

In recent years, discussions on urban space research in various places have all taken returning to people as the starting point, and most researchers have drawn on the public space and public life research method proposed by Jan Gehl. In his extensive practical research on urban public spaces and activities, Jan Gehl summarized the use of quantitative research information as the basis for design, and proposed specific research methods such as map marking, on-site counting, field observation and interviews. The craze for Mapping Workshop is also spreading among domestic universities. He Zhisen leads students to use the working method of Tracking, Observing, Discovering-Mind mapping to understand the site, understand the real life of the community, and analyze the relationship between people and place.

The PSPL Research Method and the Mapping Workshop have many similarities with the Modernology in terms of research methods. First, they use daily life as the research perspective, and the research objects revolve around the relationship between people and space, and people and the community; second, they have a hands-on work attitude, rejecting crude, map-based research, and obtaining answers from micro-behaviors, footprints, residents or object research; third, they have a generally consistent research process, all of which are based on observation-recording-analysis. Furthermore, each research method has its own

advantages and purposes. The PSPL Research Method focuses more on data collection and analysis, recording field research data on maps to form multi-level analysis maps; while the Mapping Workshop records subtle clues obtained through tracking observations on maps, and expands thinking from them to connect with various factors of the place; Modernology pays more attention to grasping the clues of research, and the drawing recording method can understand and analyze the object more deeply than observation.

However, the research scope of most Modernology cases is relatively macro-urban theory or social culture, lacking specific urban practice experience. In this regard, Modernology can draw on other research methods. For example, the PSPL Research Method analyzes the basic elements of the site as a whole, which is conducive to a preliminary understanding of the site profile; Mapping Workshop from tracking to thinking expansion is conducive to analyzing the connection between clues and other elements. Incorporating the advantages of other research methods will help form a more systematic and complete Modernology research method.

Table 2-3 Modernology versus Other Research Methods
(Source: drawn by the author)

	Modernology	**PSPL Research Method**	**Mapping Workshop**
Proposer	Kon Wajiro	Jan Gehl	He Zhisen
Research objects	Traces of life.	Human activities in urban public spaces.	Individuals and groups perceiving and using space.
Research methods	Graphic Record- Classification Analysis- Conclusion.	Map marking method, On-site counting method, Field observation method, Interview method- Analysis and Conclusion.	Tracking, Observation, Discovery- Map Making (Analysis and Summary).
Research perspectives	Researcher's perspective, neutral observation.	Researcher's perspective, data driven.	Participant's perspective, experience driven.
Research similarities		Gathering quantitative information as evidence.	Seeing the big from the small.
Research advantages		Collecting multiple factors.	Expanding thinking through clues.

2.2 Related Research of Historic Urban Area

2.2.1 International Protection Document Development

The protection of historical buildings and cultural heritage abroad originated in Europe. When the concept of cultural heritage protection was extended to the field of architecture, various institutions and regulations for the protection of historical urban areas were gradually formed. As early as the Renaissance, the Pope began to establish directors of cultural relics and buildings. In 1630, Sweden established the Antiquities Office. Since the 19th century, countries such as Britain, France, Greece and Italy have promulgated a series of laws and decrees on the protection of historical monuments. These early concepts and initiatives focused only on the protection and restoration of buildings or individual structures of special historical significance, that is, protection of historical and cultural heritage. In the 1830s, the architectural heritage protection movement emerged, advocating that the best way to protect is to maintain material authenticity, using "restoration" instead of "protection", and not advocating the use of new techniques in the process of restoration and repair.

In modern times, after the Second World War and post-war reconstruction caused large-scale destruction to urban historical buildings, cultural heritage and style, the protection of historical buildings and cultural heritage abroad began to expand from the microscopic perspective of "points" to the meso-level of "locations" and "areas", and began to focus on protecting the overall traditional style of historical urban areas. In 1933, the International Union of Architecture promulgated the Athens Charter in Athens, which was the first international convention document in the field of urban planning in history. It mentioned the concept of historic urban area for the first time and defined the historic urban area as an area consisting of historical buildings and historical and cultural sites. In 1964, the Second International Conference of Architects and Technicians of Historic Monuments adopted the International Charter for the Conservation of Cultural Buildings and Sites (also known as the Venice Charter), which further emphasized the importance of conducting overall protection research on the surrounding environment and style of historical buildings in addition to the building itself, based on the Athens Charter. It is the first international charter proposed jointly by architects and cultural heritage protection experts with the theme of architectural heritage

protection. In addition, documents such as Japan's "Ancient Capital Preservation Law" in 1966 and UNESCO's "Nairobi Recommendations" in 1976 all emphasize the concept of historical areas and the importance of protecting the surrounding environment of architectural relics. The concept of adaptive reuse advocated by the Burra Charter in the 1970s, which aims to give cultural heritage new functions with minimal structural changes, guided Japan to begin architectural utilization and renovation.

The 1987 Charter for the Conservation of Historic Towns and Urban Areas ("Washington Charter"), based on the Venice Charter, further emphasized the need to ensure that historic urban areas are protected as a whole and harmonious organism, and put forward the concept of coordination between protection and development. Documents such as the 2005 UNESCO Vienna Memorandum on the Protection of the Historic Urban Landscape and the 2011 Valletta Principles have also successively emphasized the need to protect historic urban landscapes and pay attention to the protection of historic cities and towns.

Italy's historical building and neighborhood protection school originated relatively late and took a long time to form, but its evolution is similar to the above process. It can be roughly divided into three stages of development: the first is the historical restoration stage, which advocates reinforcement and protection. The second is a more comprehensive scientific restoration stage, which is to protect the historical context between the building and the environment. This is the basis of the "Athens Charter" and has been recognized internationally since the Italian school. The third type of restoration is the most influential, which advocates the continuation of the historical context[23].

In summary, the international protection of historical buildings and cultural heritage has gone through a process from the protection and repair of individual buildings in the early 20th century, to the focus on the protection of the surrounding environment of buildings and historical sites after World War II, and then to the protection of historical areas and natural heritage environment in the late 20th century. The concept has evolved from emphasizing the authenticity of heritage to paying more attention to the integrity of heritage and the environment, and emphasizing the continuation of historical context. To date, a relatively mature and complete concept, system and legal guarantee for the protection of historical urban areas have been formed.

Table 2-4 International Protection Document Development of Historic Urban Area
(Source: drawn by the author)

Year	Document	Content
Before the 20th century	/	Protect and repair buildings or single structures with special historical significance.
1933	"Athens Charter"	"An area consisting of historical buildings and historical and cultural sites."
1987	"Washington Charter"	"These include cities, towns and historic centres or settlements, both large and small, and their natural and man-made environments. In addition to their historical documentary value, these areas embody traditional urban cultural values."
2011	"The Valletta Principles"	"Historic towns and urban areas are made up of both material and immaterial elements. In addition to the urban structure, material elements include: architectural elements, landscapes in and around towns, archaeological remains, panoramas, skylines, sight lines and landmarks. Non-material elements include: activities, symbolic and historical functions, cultural practices, traditions, memories and cultural references that constitute the essence of their historical value."

2.2.2 Domestic Protection Document Development

Since modern times, China has gradually learned from international perspectives on the concept of historical and cultural protection, emphasizing the maintenance of authenticity during the restoration process, and beginning to practice protection and reuse. China's theoretical research on the protection and revitalization of historical urban areas began with "Antiquities Preservation Law" (《古物保存法》) in the 1930s. In 1931, Liang Sicheng proposed a theory of historical building protection and restoration with the core of "restoring the old as it was". Then in 1948, he proposed to include "the entire city of Beijing" as an item in the "Brief Catalogue of Important Cultural Relics and Buildings in the Country". However, at that time, the overall value of the historical city was still insufficiently understood.

After the reform and opening up, urban development and construction have developed rapidly. The historical features and historical buildings of many cities have rapidly disappeared in the process of modernization. The protection of historical cities has received widespread attention. In 1982, "Cultural Relics Protection Law of the People's Republic of China" (《中华人民共和国文物保护法》) was promulgated. While proposing cultural relics protection units, it formally defined the statutory concept of historical and cultural cities,

namely "cities with particularly rich preserved cultural relics, great historical and cultural value and revolutionary significance", and announced the first batch of 24 "Chinese Historical and Cultural Cities", marking the initial establishment of China's historical protection system centered on famous cities.

"Specifications for Planning and Protection of Historic and Cultural Cities" (《历史文化名城保护规划规范》) issued by China in 2005 defined for the first time the concept of "historical buildings" and clarified the definition of historic urban areas, namely areas in towns that can reflect the historical development process or the style of a certain development period, including ancient urban areas and old urban areas, specifically referring to areas with clear historical scope, relatively intact structure and style that need to be protected and controlled, providing clear standards and guidance for the protection of historic urban areas. At the same time, the document clarifies a three-level protection system, namely historical and cultural cities, historical and cultural blocks, and cultural relics protection units.

"Historical and Cultural City Protection Planning Standards" (《历史文化名城保护规划标准》) issued in 2018 clearly defined the system and levels of planning for the protection of historical and cultural cities, dividing it into the new three levels: historical and cultural cities, historical and cultural blocks, cultural relics protection units and historical buildings. On the basis of the three-level protection system of the 2005 "Specifications", the protection of historical buildings is listed on a par with cultural relics protection units and incorporated into the city's historical and cultural protection system.

In summary, in recent years, the protection of China's historical and cultural cities has been continuously expanded and deepened, forming a multi-level and complete protection system consisting of "national historical and cultural cities - historical urban areas - historical and cultural blocks/historical and cultural protection areas/historical and cultural style areas - cultural relics/historical buildings". The establishment and continuous improvement of the historical and cultural city system reflects the continuous changes in China's historical protection concepts and strategies.

Since the promulgation of "Cultural Relics Protection Law of the People’s Republic of China" in 1982 (《中华人民共和国文物保护法》) and Guangzhou’s inclusion in the first batch of national historical and cultural cities, Guangzhou has established rules and

regulations, which have been continuously evolving. It has compiled, updated and improved plans for the protection of historical and cultural cities, and has been at the forefront of the country in terms of legal construction and policy innovation in the protection of historical and cultural cities[24]. In 1999, local legislation for the protection of historical and cultural cities, "Guangzhou Historical and Cultural City Protection Regulations" (《广州市历史文化名城保护条例》) was introduced, making Guangzhou one of the earliest historical and cultural cities in China to establish a complete protection system, and establishing a strong top-level design for subsequent work. The subsequent revision in 2015 explicitly included the historic urban area in the protection scope, and the revision in 2023 expanded the research scope of the historic urban area.

Starting from 2020, Guangzhou has announced the list of historical and cultural blocks in Guangdong Province. Currently, there are 26 historical and cultural blocks in Guangzhou. The protection plan for historical and cultural blocks defines the protection scope, protection objects, land use and planning, facilities and environmental improvement planning, etc., providing strong guidance for the cultural display and revitalization of historical and cultural blocks.

Since 2014, the first batch of historical buildings in Guangzhou have been reviewed and approved by the Municipal Famous City Committee and approved by the Municipal Government. Guangzhou has now approved eight batches of historical buildings.

The latest version of Guangzhou's protection plan adopts a multi-topic research and multi-disciplinary integration approach, incorporating planning content at multiple levels in the famous city protection planning system into the famous city protection plan, and is highly comprehensive. The protection concept and paradigm of Guangzhou, a historical and cultural city, has moved from "point" to "surface", from focusing on architectural style to focusing on street texture, to urban micro-transformation focusing on organic renewal and continuous renewal, and paying attention to people's emotions and experiences.

In summary, the relevant theoretical research on domestic historical urban areas is gradually gaining attention with the goals of vitality, diversity, and culture, emphasizing the design and development control of more refined spatial forms and style textures. Under the goal of revitalization and applicability, more emphasis is placed on pragmatic actions and

feasibility, which are gradually emerging from multidisciplinary research directions such as economics, society, and culture.

Table 2-5 Domestic Protection Document Development of Historic Urban Area
(Source: drawn by the author)

Level	Year	Document	Content
China	1930s	《古物保存法》	Proposed ancient building restoration theory.
	1982	《中华人民共和国文物保护法》	Determined the concepts of "cultural relics protection unit" and "historical and cultural city".
	2005	《历史文化名城保护规划规范》	Defined the concepts of "historic buildings" and "historic urban areas" and clarify the three-level protection system.
	2018	《历史文化名城保护规划标准》	Improved the above three-level protection system.
Guangzhou	1982	《中华人民共和国文物保护法》	Guangzhou was listed as one of the first national historical and cultural cities.
	1999 and the after	《广州历史文化名城保护条例》[1]	Clarifed the planning, construction, utilization and management of the protection of historical and cultural cities; clarifed the scope of the historical city in 2015; continued to update and improve in 2023.
	2014 and the after	《广州历史建筑名单》[25]	Announced the list of Guangzhou's historic buildings.
	2020	《广东省历史文化街区名单》[26]	Announced the list of Guangzhou's historical and cultural districts.

2.2.3 Research Development

The research on Guangzhou's historic urban area is mainly divided into macro-level research and micro-level research.

Macro-level research refers to research on historic urban areas or even the entire city of Guangzhou. This part is represented by Zhou Xia's research on the urban morphology of Guangzhou in various historical periods. The research focuses on the development of urban spatial structure and morphology, and systematically describes the development of ancient urban space and modern cities, and focuses on revealing the motivations and laws at the planning level[27].In addition, Feng Jiang sorted out the modernization development process of Guangzhou's urban form and analyzed Guangzhou's city building experience after the late

Qing Dynasty[28].Huang Huiming used the morphological zoning system based on the urban morphological unit to interpret the morphological evolution of Guangzhou's old city since the founding of the People's Republic of China, and analyzes the formation process of the circle-like morphological pattern presented by Guangzhou's urban development and construction[29].

Micro-level research focuses on residential areas, streets, colors, water systems and other aspects.

In the residential areas research, Yao Han analyzed the application of urban texture to urban renewal strategies based on the renewal design standpoint from the perspective of urban texture, and explored the concepts and attitudes of building and renewing the relationship between the old and the new[30]. Based on the concept of complete community, Sun Yijing and others took the old residential areas in Guangzhou's historical urban area as the research object, analyzed the renovation situation from the aspects of physical space and community governance and services, and proposed renovation strategies and renovation models[31]. Chen Zeman and others analyzed the current situation of Xiguan mansions and the value orientation of various social classes, and proposed a design plan for the governance of Guangzhou's old city[32]. Lin Youran et al. took Guangzhou's typical traditional blocks as the research object, summarized the low-carbon renovation measures of building interfaces that meet the style requirements, and provided a reference for the low-carbon design of traditional blocks[33].

In the street-level research, Huang Zhiqiang et al. used a spatial econometric model to explore the overall quality of street space in Guangzhou's historical urban area and the impact of street space quality sub-dimensional indicators on street vitality, and put forward policy recommendations for street space planning, design and vitality creation[34]. Ma Tianhong et al. studied the style of historical urban areas by crawling street view data and analyzing semantic recognition using a fully convolutional neural network model, exploring the possibility of applying big data technology in style protection planning[35]. Lin Zezhao and others used computer vision and natural language processing technology to analyze social media semantics and sentiment data based on the quantification of street space elements, exploring the complex relationship between crowd perception and physical environment[36].

In the color research, Chen Lulu proposed a color research idea from the perspective of

place spirit, creating different color scenarios based on the authenticity of various places, and realizing the continuation and inheritance of the regional colors of the public space in the Xiguan historical district[37]. Zhang Huang conducted research from four aspects: the current status of color in historical urban areas, case studies of urban color planning, research methods and strategies for color planning, and how to form an operational color planning management system, and put forward suggestions for the compilation of color planning in historical urban areas[38]. Fang Yini et al. conducted an investigation and analysis of the architectural colors in Guangzhou's historic urban area through actual projects, and put forward suggestions for promoting the renovation of urban color research into urban color management[39].

Table 2-6 Related Research on Guangzhou's Historic Urban Area
(Source: drawn by the author)

Level	Main author	Year	Major Work	Direction	Content
Macro	Zhou Xia	2005	《广州城市形态演进》[27]	Urban Form	Description of Guangzhou City Development.
	Feng Jiang	2013	《广州变形记：从晚清省城到民国第一座现代城市》[28]	Urban Form	Urban form evolution.
Micro	Yao Han	2021	《基于城市肌理的历史街区建筑更新设计研究》[30]	Resident Area	Responding to urban renewal from the perspective of urban texture.
	Huang Zhiqiang	2023	《基于多源大数据的街道空间品质测度及其对街道活力的影响——以广州历史城区为例》[34]	Street	Street space planning, design and vitality creation.
	Zhang Huang	2019	《面向传统风貌保护与提升的城市色彩规划——广州历史城区色彩规划研究》[38]	Color	Suggestions on the preparation of color planning for historic urban areas.

In summary, the research on Guangzhou's historic urban area presents a multi-dimensional and multi-level academic exploration pattern. These researches not only continue the classic paradigm, but also demonstrate innovative breakthroughs driven by new technologies and new concepts, providing academic references with both theoretical depth and practical value for the protection and renewal of historic urban areas.

2.3 Related Research of Informal phenomenon

2.3.1 International Research Development

Table 2-7 International Research Development of Informal phenomenon
(Source: drawn by the author)

Year	Main Author	Major Work	Direction	Content
1973	Keith H	Informal Income Opportunities and Urban Employment in Ghana[40]	Informal Economy and Informal Space	To explore the impact of informal economic activities of the sub-proletariat on cities.
1974	Lefebrve H	The Production of Space	Informal Economy and Informal Space	To explore the relationship between urban space and socio-economic issues.
2016	Dovey K	The Everyday Informal[41]	Informal Construction and Lifestyle	The informality of cities is an important component of the creative and effective development of cities and has positive significance.
2022	F Hernandez	Rethinking the informalcity: critical perspectives from Latin America[42]	Informal Construction Order	Informal construction is conducive to the diversity of space.
2013	Hellen Elizabeth Gyger	Informal Project: Self-Help House Building in Peru, 1954-1986[43]	Informal Construction Design Method	To introduce the specific design methods of informal construction cases.
2013	Mongezi Ncube	Urban Informality as a Generator for Meaningful Built Form: Towards a Multi-purpose Trade Hub for Durban, South Africa[44]	Governance of Informal Construction Space	Informal spaces help meet people's diverse needs for space in real life.
2015	Louis Rice	The production of informal space: A case study of an urban community garden in England[45]	Formation Mechanism of Informal Construction	To analyze the causes and mechanisms of informal construction.
2018	Lau Leung Kwok Prudence	Quality of life in a “slum with no regulations”: a study of the “Kowloon Walled City”[46]	Informal Construction Policy Research	Calls for reforms in policies and design around informality.

Foreign research on informal phenomenon began in the 1970s, when the International Labor Organization began to pay attention to a series of informal economic phenomenon in

cities, including retail vendors, street vendors, etc. British economics professor Keith Hart used the concept of informal sector to summarize the space occupied by such economic activities[40]. In the book "The Production of Space", Lefebvre creatively proposed the relationship between urban space and social and economic issues, closely linking informal space with economic activities and pioneering the discussion of urban informal space. In 1998, the United Nations held the Asian Urban Poverty Conference, which introduced the concept of slums and described in detail the living characteristics, economic conditions, and spatial features of residents in slums. At this conference, A Rahman Paul Barter proposed that slums are a manifestation of informal urban space, and groundbreakingly included informal economy and informal sectors into the framework of informalily[47].

Entering the 21st century, the academic community's exploration of urban informal space has gradually diversified. People have begun to cross-integrate disciplines such as architecture, urban planning, and sociology, and study the evolution of urban space and analyze urban informal space against the background of social economy and daily life, reflecting on the relationship between design and people's daily life behaviors, thereby providing suggestions for the development of urban informal space.

In terms of informal construction and lifestyle, Kim Dovey pointed out that the informality of cities does not mean poverty or backwardness, but is an important part of the creative and effective development of cities and has positive significance[41]. In terms of the order of informal construction, F Hernandez et al. believe that informal construction has a spatial order different from formal construction, which is conducive to the formation of spatial diversity[42]. In terms of informal construction design methods, in 2013, Hellen Elizabeth Gyge systematically outlined the self-help housing program in Peru from 1954 to 1986 from the perspective of architecture, and introduced in detail the planning and design of the self-help housing program, including community planning, built environment analysis, and the conception and design of future informal construction planning[43]. In terms of the spatial governance of informal construction, Mongezi Ncube believed that informal space should not be completely eliminated, and its generation and existence are helpful to meet people's diverse needs for space in real life[44]. In terms of the formation mechanism of informal construction, in 2015, Louis Rice analyzed the formation reasons and existence

mechanism of informal construction from the perspective of actor-network theory[45]. In terms of policy research on informal construction, Lau Leung, Kwok Prudence and others focused on the informal construction community of Kowloon Walled City in Hong Kong and called for reforms to the relevant policies and designs of informal construction[46].

In summary, the research on informal phenomenon international academia shows a trend of deepening theory and integrating disciplines. The research perspective has gradually expanded from the early focus on informal economic phenomenon to a comprehensive discussion of the social, cultural, design and governance dimensions of informal construction. With the improvement of the understanding of urban complexity and diversity, informal construction is no longer regarded as a problem of urban development, but is re-understood as an organic part of the dynamic development process of cities, reflecting the academic community's more open and comprehensive cognitive renovation of urban informality.

2.3.2 Domestic Research Development

China has little research material on informal renovation, and more emphasis is placed on other similar perspectives, such as informal employment and informal economy, informal construction, informal cities and spontaneous construction.

In terms of the relationship between the informal economy and urban space, Wang Weiqiang and others pointed out that it is necessary to take positive measures to guide the healthy growth of informal economic activities[48]. Huang Gengzhi and others believed that the proper formalization of the vendor guidance policy will help urban management[49].

In terms of informal construction and informal urban space, Feng Gequn believed that informal construction is both the inspiration of urban mainstream culture to disadvantaged culture and the adaptation of disadvantaged culture to mainstream culture[50]. Wang Hui believed that urban planning and design should follow the inherent laws of spontaneous growth and seek a balance between formal and informal[51]. Chen Yulin proposed adaptive strategies for informal housing, including government regulation[52].

Informal construction is also often described as spontaneous construction in domestic research. Lu Jiansong discussed the relationship between self-organization theory and spontaneous construction in detail, gave a clear definition of spontaneous construction, and

analyzed from a regional perspective how spontaneous construction caused by subjective and random factors generated by users can promote the development of regional architecture[53]. Guo Landu analyzed the spontaneous construction of rooftop space in Baishizhou Urban Village, Shenzhen, and its impact on the city, urban village renewal and development, residents, and the reflections designers have gained from it, and develops thoughts on the optimization of rooftop space[54]. Zhang Zhenhua discussed the status and role of stakeholder participation mechanisms and informal governance in the field of historical district protection and revitalization. From the perspective of the cooperative relationship between indigenous peoples, community planners and the government, he studied and summarized different implementation models and sorted out the role of informal governance in the implementation mechanism of micro-renewl[55].

Table 2-8 Domestic Research Development of Informal phenomenon
(Source: drawn by the author)

Year	Main Author	Major Work	Direction	Content
2001	Wang Weiqiang	《非正规经济活动对城市中心区的影响》[48]	Informal Economy	To Stimulate the informal economy.
2008	Wang Hui	《城市的非正规性——我国旧城更新研究中的盲点》[51]	Informal Space	To seek a balance between formal and informal.
2009	Lu Jiansong	《自发性建造视野下建筑的地域性》[53]	Spontaneous Construction	To introduce the relationship between self-organization theory and spontaneous construction.
2023	Zhang Zhenhua	《居住性历史街区共同缔造和微改造的实践“外延”探索——基于广州西关非正式治理的案例比较分析》[55]	Informal Governance	To sort out the role of informal governance in the implementation mechanism of micro-transformation.

In summary, although the existing research does not directly focus on informal renovation, it provides an important theoretical basis for understanding the complex relationship between informal practices and urban development through the perspectives of economy, space, governance, etc., and also reflects the domestic academic community's continuous exploration of inclusive and adaptive urban governance models.

2.3.3 Domestic (Guangzhou) Management Document Development

At present, China has established a relatively comprehensive management system for informal renovation and issued corresponding management documents, such as "Guidelines for the Renovation of Air Conditioner Covers on Existing Building Facades in Guangzhou" (《广州市既有建筑外立面空调机罩整治指引》)[56], which provide technical guidance on the placement and covering of air conditioner covers on facades. The "Notice on Strengthening the Management of Anti-theft Nets and Canopies"(《关于加强防盗网和飘雨蓬管理问题的通知》)[57], and the "Guangzhou Burglar-Proof Net Installation Management Measures"(《广州市防盗网设置管理办法》)[58], which clearly stipulate the installation of building ancillary facilities. "Guangzhou Urban Road Temporary Occupancy Management Measures"(《广州市城市道路临时占用管理办法》)[59], and "Guangzhou Several Measures on Cultivating the Yangcheng Night Market Pilot Zone to Help the Construction of an International Consumption Center City" (《广州市关于培育羊城夜市先行区助力国际消费中心城市建设的若干措施》)[60], which regulate the occupation of roads for commerce. "Guangzhou Temporary Vendor Relief Zone Management Measures" (《广州市流动商贩临时疏导区管理办法》)[61], which provide a basis for the management of evacuation of vendors; and "Buildings Ordinance (Hong Kong)" and other laws clearly stipulate the standards for the construction, maintenance and demolition of illegal structures, and have strict regulations to deal with construction activities that violate the regulations.

In addition, "Guangdong Provincial Urban and Rural Planning Regulations" (《广东省城乡规划条例》)[62], Guangzhou Urban and Rural Planning Procedure Regulations (《广州市城乡规划程序规定》)[63]etc. all involve informal renovation management from the perspective of planning management, "Civil Code of the People's Republic of China" (《中华人民共和国民法典》) etc. from the perspective of property rights, "Guangzhou City Appearance and Environmental Sanitation Management Regulations" (《广州市市容环境卫生管理规定》)[64], "Guangzhou City Urban Building Facade Cleanliness Management Measures" (《广州市城市建筑物外立面保持整洁管理办法》)[65] etc. all involve informal renovation management from the perspective of urban appearance management. These documents together constitute a multi-level and multi-dimensional management system.

2.4 Chapter Summary

This chapter starts from the three core concepts of Modernology, historic urban area and informal phenomenon, and sorts out the theoretical development and practical results of related research.

First, as a research perspective that focuses on reality, life, and daily experience, the development of Modernology at domestic and international reflects a continued focus on folk culture, urban space, and people's behavior. But compared with other research methods, existing research on Modernology is mostly theoretical, with insufficient practical application and methodological enrichment and improvement.

Secondly, as an important part of urban development, historic urban areas has long been under the dual pressure of protection and renewal. Different countries have accumulated rich experience in policy guidance, spatial governance and community participation, which provides important reference for Guangzhou. But existing research on historic urban area of Guangzhou presents a multi-dimensional academic exploration pattern. Among them, the research on public space interfaces is mostly based on the perspectives of spatial comfort, interface color, street perception, etc., focusing on people's usage experience, but rarely mentioning the impact of people's use on the public space interfaces itself.

Thirdly, existing research has also explored informal phenomenon in multiple dimensions, but there is still a lack of in-depth exploration of informal renovation. Moreover, informal renovation is very universal and deserves attention in subsequent research.

Finally, the academic community still lacks systematic research on the informal renovation of public space interface in Guangzhou’s historic urban areas from the perspective of Modernology. This chapter clarifies the theoretical basis and research gaps by reviewing the research results in related fields, laying a solid academic foundation for the subsequent chapters.

Chapter III Informal Renovation of Public Space Interfaces

By combining the advantages of the Modernology with other research methods, this research adopts "overview analysis, objects record, scenes analysis, users interview, inductive conclusions" as the research steps.

"Overview Analysis" is to understand of the history and development, scale and location of the middle section of Yudai Mout; "Objects Record" is to discover representative objects on the interface of public space and make specific records as a quantitative basis; "Scenes Analysis" is to conduct specific analysis of objects in combination with the scenes in which they are located; "Users Interview" is to enrich clues and verify conjectures from users' views through further interviews based on relevant research; "Inductive Conclusions" is to give a compilation of the above research results.

3.1 Overview of Yudai Mout

3.1.1 History and Development

Yudai Mout, the moat on the south side of the ancient city of Guangzhou, was dug in the fourth year of Emperor Zhenzong of the Northern Song Dynasty, 1011. Since the Song Dynasty, Guangzhou has built a complete urban water system, which consists of four levels of water bodies: Jie Qu, Six Qu, Hao, and Hai/ Jiang[66]. Among them, Yudai Mout belongs to the third level, Hao. The Song and Yuan dynasties were the period when Yudai Mout and Haopan Street were formed. In 1011 AD, Yudai Mout was dug outside the city wall of the Three Cities of Song. It was 5,000 meters long, 63 meters wide and 9 meters deep, and served as a moat for defense, water storage for fire fighting, drainage and flood discharge, also a safe haven. At that time, "Three Cities of Song" were not completely connected. The connection among the three cities mainly relied on the canals in the city and the moats outside the city, and Yudai Mout played a hub role in the transportation water network of the three cities. The Yudai Mout of the Song Dynasty was a moat outside the city with a military defense function. Along the coast were mainly military facilities such as city walls and watchtowers. As the sandbar on the south bank of Yudai Mout continued to expand, a small number of houses and temples appeared along the coast, such as religious buildings such as Liurong Temple. The Haopan Street area also gradually developed into a large-scale commodity trading market and water

lanes connecting the streets and city gates. At that time, Haopan Street was densely covered with waterways, and people traveled mostly by boats and sampans. It was a water market similar to Venice. As the riverbank silted up, numerous commercial alleys gradually formed around Haopan Street, interweaving around Haopan Street like capillaries[67].

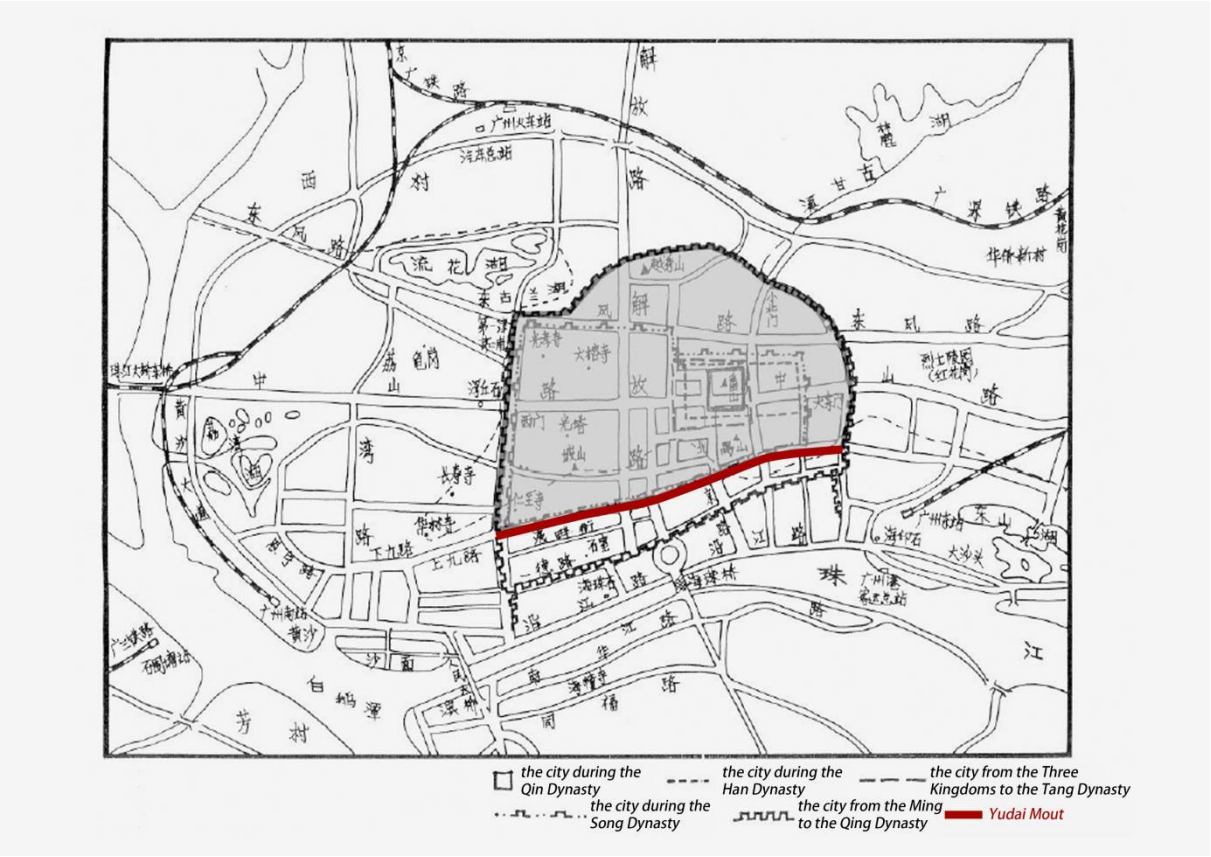


Figure 3-1 Historical Development of Guangzhou City
(Source: reference[68])

In the Ming Dynasty, the three cities were merged into one, and a new South City was built. Yudai Mout became a waterway inside the city. Because it was adjacent to the Pearl River wharf, it gradually developed into a commercial transportation channel. There were many shops, warehouses and guild halls along the coast, making it one of the earliest commercial centers in Guangzhou. Rich businessmen built mansions here, and the architectural style was mainly traditional Lingnan dwellings, with blue bricks, gray tiles and arcades appearing for the first time. During the hundreds of years of operation in the Song and Yuan dynasties, the commercial prosperity along Haopan Street caused land disputes and silt filling activities, causing it to become increasingly narrow. In 1738, the moat was dredged to a depth of 1.2 m and a width of 6.9 m, and minor repairs were made to the channels. At that

time, Yudai Mout was still able to accommodate small boats and sampans. Business along the Yudai Mout coast also reached its peak at this time. Haopan Street was known as the Golden Haopan, where silk, porcelain, medicinal materials and other shops gathered, and many industry guilds appeared. Due to the silting of the river, the commercial center gradually moved westward to the Thirteen Factories, but Yudai Mout was still an important urban living area, with public buildings such as tea houses and opera stages distributed along the river.

a) 1917 Yudai Mout b) 1930s Yudai Mout

Figure 3-2 Yudai Mout Old Pictures

(Source: reference[67])

During the Republic of China period, due to the filling activities of surrounding residents and siltation in the moat, Yudai Mout gradually became narrower and even became a drainage canal in some areas. At the beginning of the 20th century, Guangzhou promoted the construction of "arcade city". Some traditional buildings along the coast were demolished or converted into arcade streets, which integrated Chinese and Western architectural styles. The model of ground-floor shops and upper-floor residences continued the commercial tradition and became a microcosm of the urban life of old Guangzhou. However, there were still many handicraft workshops along the moat at that time, and the wastewater and sewage generated during the production process were directly discharged into the moat, causing the water quality of Yudai Mout to deteriorate seriously. The silt in the moat continued to ferment, causing Yudai Mout to emit an unpleasant odor. The stinking phenomenon not only affected the living environment of the surrounding residents, but also had a negative impact on the overall image of Guangzhou city. Due to the ineffectiveness of dredging in the early days of the People's Republic of China, Yudai Mout was converted into a culvert in 1952. The

buildings along the Yudai Mout coastline have gradually fallen into disrepair due to urban expansion. Some of the arcades have been demolished and rebuilt into modern high-rise buildings, fragmenting the historical features.

In modern development, the buildings along the Yudai Mout coast are still mainly self-built houses by residents, and continue the characteristics of townhouses, mainly narrow-width and long-depth bamboo tube houses, but they are different in architectural structure and form, fully reflecting the folk characteristics. As residents continue to occupy the road and build more, the narrowest part of the middle section of Yudai Mout is only 3.2 m wide, and the problem of cramped space is becoming increasingly prominent. The Yudai Mout culvert now has the dual functions of underground drainage and road access. However, there is a height difference of 0.5 m to 1 m between the road floor and the interior floor of the buildings along the coast. To cope with the height difference, residents often use steps or ramps to buffer, which also makes the entrance facing the Yudai Mout side a secondary entrance for auxiliary passage. Due to the low terrain, heavy moisture and high renovation costs, the overall economic value of coastal buildings is relatively low. However, the east side of the middle section still retains its commercial characteristics due to its geographical advantage close to Beijing Road. The first-floor commerce is mainly daily chemical, toy and beverage shops; the rest of the area is mainly warehousing and residential, with transport flatbed trucks and takeaway non-motorized vehicles frequently passing through, causing interference to pedestrian traffic.

3.1.2 Location and Scale

Figure 3-3 the Location of Yudai Mout
(Source: drawn by the author)

Yudai Mout is located in Yuexiu District, Guangzhou City, Guangdong Province, with a total length of about 2.8 kilometers. Yudai Mout connects Donghao Chong and Xihao Chong in terms of water system, but was covered and converted into a culvert during the Republic of China period, with only the eastern section, less than 100 m long, remaining an open channel. Now it also serves as a road for traffic in urban planning. It starts from Donghao Chong Elevated Road in the east and ends at Renmin Road Elevated Road in the west. It is divided into several sections by Yuexiu South Road, Dezheng Middle Road, Wende Road, Beijing Road, Fulin Lane, Guangzhou Uprising Road, Jiefang South Road, Haizhu South Road and Tiancheng Road (from east to west).

The research scope is the middle section of Yudai Mout, which is the section between Beijing Road and Fulin Lane, with a total length of 292 m and 52 buildings on both sides.

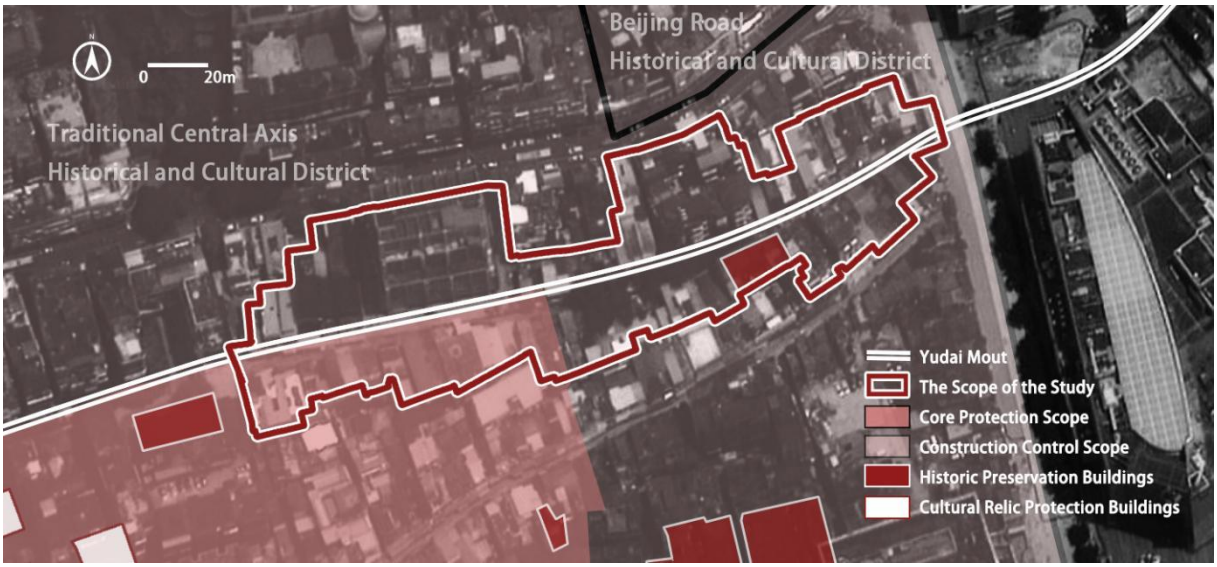


Figure 3-4 the Location of the Middle Section of Yudai Mout
(Source: drawn by the author)

Most of the buildings in the middle section of Yudai Mout were built in the 1980s, and only No. 2, 4, 6, 8, Lianyun Lane were built during the Republic of China period. The building as a whole retains the characteristics of a townhouse on the bank of the river, with a narrow width and a large depth. The opening on the Yudai Mout side of the building has a height difference with the road surface and is connected by steps and ramps. The buildings on both sides of the middle section of Yudai Mout are low-rise buildings, most of which have 2 to 4 floors. Only No. 255, 257, 259, and No. 247, 249, 251, 253, Gaodi Street have 10 and 8 floors respectively.

Figure 3-5 the Overview of the Middle Section of Yudai Mout Buildings
(Source: drawn by the author)

3.2 Records of Informal Renovation Objects of the Public Space Interfaces

The essence of Modernology proposed by Kon Wajiro is to observe life from objects. Therefore, this research realizes the Modernology of informal renovation through the observation of objects. Based on Modernology and combined with the preliminary understanding of the informal renovation of the public space interfaces in the middle section of Yudai Mout, a systematic viewing and research method was formed during the investigation process. The research uses informal renovation objects as clues, recording information such as their style, size, material and location, to lay a quantitative foundation for subsequent research.

According to the research summary, the informal renovation objects of the public space interfaces in the middle section of Yudai Mout are divided into six categories: occupation, living, pipeline, traffic, greening and commerce.

3.2.1 Occupation

3.2.1.1 Protections and Extensions

1.Anti-Theft Nets

The middle section of Yudai Mout has anti-theft facilities including anti-theft nets and thorns.

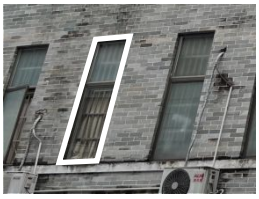
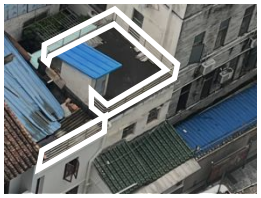
Invisible anti-theft nets are not popular in the middle section of Yudai Mout. The materials of normal anti-theft nets are mainly metal, mainly coated iron, galvanized steel pipes and stainless steel, which also reflects the different years of anti-theft nets installation.

In terms of space occupation, anti-theft nets are divided into flat ones and convex ones. Flat anti-theft nets only have the most basic function, and their width and height are consistent with the balcony and window. Flat anti-theft nets at the window are usually installed on the outside of the window sash, but someone install them on the inside for aesthetic considerations. Convex anti-theft nets have both anti-theft and indoor space extension functions, occupying part of the public space.

In terms of component composition, anti-theft nets are grids formed by welding horizontal and vertical metal rods. The grid has a fixed size range, roughly around 100 mm~130 mm*350 mm~500 mm. Some anti-theft nets also add arc-shaped rods to form

decorative patterns on this basis, aiming to provide protection while increasing aesthetics. Residents choose different patterns according to their preferences. There are roughly four types of decorative styles: straight grid, staggered grid, grass pattern, and arc pattern. Most anti-theft nets use fixed welded rods, and only a small number of residents reserve escape windows.

Table 3-1 Protections and Extensions Recorded by Modernology
(Source: photoed by the author)

			
a) Flat anti-theft nets inside the window Location: No. 10, Fulin Lane	b) Flat anti-theft nets inside the window with fine mesh Location: No. 8, Kezhu Lane	c) Straight grid convex connected anti-theft nets Location: No. 132, Danan Road	d) Staggered grid convex anti-theft nets Location: No. 10, Kezhu Lane
			
e) Arc pattern flat anti-theft nets Location: No. 247, 249, 251, 253, Gaodi Street	f) Grass pattern anti-theft nets Location: No. 269, Gaodi Street	g) Anti-theft nets for drying Location: No. 217, Beijing Road	h) Anti-theft nets for arranging greening Location: No. 16, Kezhu Lane
			
i) Anti-theft nets for storing sundries Location: No. 4, Kezhu Lane	j) Thorns Location: No. 10, Fulin Lane	k) Handrails Location: No. 22, Gaodi New Street	l) Anti-theft nets combined with handrails Location: No. 130, Danan Road

The depth of the convex anti-theft nets varies according to the needs of residents and the location, ranging from 200 mm to 500 mm, and is supported at the bottom by diagonal rods or vertical rods; the convex width of the nets is not limited to the size of a single balcony and window. Some residents connect windows and balconies or multiple windows through convex

anti-theft nets to achieve outdoor connectivity.

In addition, residents also add thorns on the top of the fence for protection. The thorns are made of coated iron and have a spiral structure, which has a good deterrent effect.

2.Handrails

Most roofs have handrails. Most handrails are made of bright metal, and the height after the increase is about 1 m. The handrails are mostly in the shape of arcs, which is more suitable for use. The handrails used by each household are different but similar, generally combining vertical and horizontal rods. The windows on the higher floors of some buildings also use handrails instead of anti-theft nets, so that the upper part of the window has a better view.

Figure 3-6 Protections and Extensions Map Marking

(Source: drawn by the author)

3.2.1.2 Heat Insulations and Rain Protections

1.Sunshade Canopies

Sunshade canopies can be divided into four categories according to their location: roof canopies, balcony and window canopies, entrance canopies, and roadside portable umbrellas.

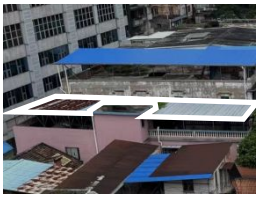
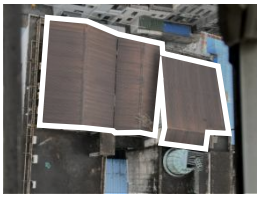
The sunshade canopies on the roof are mostly one-story high column balcony and window canopies, made by color steel plates or asbestos boards, which are cheap and lightweight panels with excellent weather resistance. The canopy space is used for drying or storage.

The sunshade canopies on balcony and window are mostly installed in combination with

anti-theft nets. The canopies of the convex anti-theft nets usually extends outward by about 100 mm based on the convex depth, and the canopies of the flat usually extends by about 300 mm~500 mm.

Table 3-2 Heat Insulations and Rain Protections Recorded by Modernology

(Source: photoed by the author)

			
a) Color steel plate canopy with columns on roof Location: No. 4, 5, Jingye Yuan	b) Asbestos board canopy with columns on roof Location: No. 100, Danan Road	c) Green polycarbonate canopy on exterior wall Location: No.249, Gaodi Street	d) White polycarbonate canopy on exterior wall Location: No. 14, Zhuji Lane
			
e) Iron canopy on exterior wall Location: No. 14, Zhuji Lane	f) Stainless steel canopy on exterior wall Location: No.249, Gaodi Street	g) Waterproof cloth canopy on exterior wall Location: No. 98, Danan Road	h) Foldable fabric canopy on exterior wall Location: No. 1, Nansheng East Lane
			
i) Portable umbrellas on roadside Location: Road East side	j) Overall roof repair Location: No. 10, Kezhu Lane	k) Partial roof repair Location: No. 14, Zhuji Lane	l) Raised roof Location: No. 16, Kezhu Lane

In terms of the selection of canopy panel materials, some residents choose color steel plates or iron sheets with metal brackets for simple covering in order to save costs. This type of canopy is rough in form, and the panels are mostly flat, slightly tilted downward to achieve the purpose of drainage, and functionality takes precedence over beauty. Another type of canopy adopts the form of an arc bracket, and the panels are mostly made of thin-skinned stainless steel and polycarbonate sheets, which are more beautiful in appearance, smoother in drainage, and less likely to accumulate debris.

The canopies at the entrance are similar to the ones at the balcony and window in terms of material selection, mostly using a metal triangular frame with various panels, but the cantilever distance is larger than the balcony and window canopy, ranging from 500 mm to 1800 mm. There are also foldable fabric canopies. Laying plastic tarpaulins is also a low-cost temporary rain shelter solution, providing support by stretching ropes.

Roadside portable umbrellas are mostly found at both ends of the middle section of Yudai Mout. They are made of factory standard modularization, portable and foldable. The umbrella surface is composed of a plastic frame and tarpaulin. The area covered when fully opened is about 2.5 m^2. The appearance is often printed with advertisements of other shops, and is usually equipped with a base made by the stall with paint buckets and water buckets filled with cement.

Figure 3-7 Heat Insulations and Rain Protections Map Marking
(Source: drawn by the author)

2.Roof Repairs

Whether it is flat or sloping, roof repair mostly uses color steel plates as materials, which are covered on the original roof by nailing or pressing bricks.

3.Raised Roofs

Residents build a metal frame about 0.5 m high on the roof and hang a black PVC sheet on it to block out the sunlight.

3.2.1.3 Space Additions

Table 3-3 Space Additions Recorded by Modernology

(Source: photoed by the author)

			
a) Roof addition Location: No. 4, Zhuji Lane	b) Roof addition Location: No. 132, Danan Road	c) Roadside addition Location: No. 4, Jingye Yuan	d) Roadside addition causes conflict Location: No. 7, Liyuan Street

The space additions of the middle section of Yudai Mout are mainly divided into roof addition and roadside addition.

Roof addition is usually one-story or two-story high, continuing the shape of the original building, but the materials used are more temporary than the original ones due to cost considerations, and the additional building has larger window openings than the original one for the purpose of improving the lighting of the building.

Figure 3-8 Space Additions Map Marking

(Source: drawn by the author)

Roadside addition is to expand the space in front of the existing building. The roadside addition space is usually only one-story high, and is mostly used as a kitchen to meet the needs of smoke exhaust and ventilation, and is also used as a warehouse and shop. This type of addition is more temporary, mostly in the form of a simple shed, with a simple structure

and economical materials.

3.2.2 Living

3.2.2.1 Dryings

Table 3-4 Dryings Recorded by Modernology

(Source: photoed by the author)

			
a) Fixed drying rack on roof Location: No. 12, Zhuji Lane	b) Hanging fixed drying rack on exterior wall Location: No. 4, Fulin Lane	c) Hanging drying on exterior wall Location: No. 6, Zhuji Lane	d) Hanging drying on exterior wall Location: No. 4, Kezhu Lane
			
e) Using canopy for drying in front of door Location: No. 2, Lianyun Lane	f) Drying clothesline in front of door Location: No. 2, Zhuji Lane	g) Drying with fitness equipment Location: No. 10, Fulin Lane	h) Drying clothesline on the trees Location: No. 132, Danan Road

Similar to others, the middle section of Yudai Mout has dedicated drying areas on the roofs and exterior walls. Some roofs are also equipped with fixed and movable clothes drying racks, or clothes lines are stretched and used with roof canopies, so that clothes and mops can be dried slowly in the shades on rainy days. Most of the drying on exterior walls occurs in the balcony area, and some residents also install fixed brackets under the windows for drying. They also use the anti-theft nets frame to hang out for drying, or use the metal frame of the entrance canopies, roadside fitness equipment and other public areas to expand the drying space.

Figure 3-9 Dryings Map Marking
(Source: drawn by the author)

3.2.2.2 Living Goods

People place tables and chairs in front of their houses for rest and chatting with neighbors. Most of the furniture is portable and foldable, and are made of wood or plastic. Some residents also use the space in front of their houses and public spaces to place brooms, mops, dustpans and other cleaning supplies.

Table 3-5 Living Goods Recorded by Modernology
(Source: photoed by the author)

			
a) Tables and chairs Location: No. 237, Gaodi Street	b) Tables and chairs Location: No. 17, Nansheng East Lane	c) Cleaning supplies Location: No. 132, Danan Road	d) Cleaning supplies Location: No. 261, Gaodi Street

Figure 3-10 Living Goods Map Marking
(Source: drawn by the author)

3.2.3 Pipeline

3.2.3.1 AC Outdoor Units

Most residents randomly place AC outdoor units on the exterior walls along the street, supported by galvanized triangular iron frames fixed with expansion screws, or directly placed on the roof and roadside. Some buildings have their outdoor units removed for various reasons, but the supporting iron frames are still left on walls.

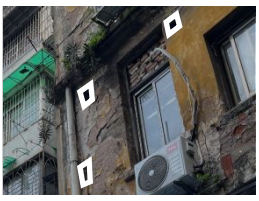
Table 3-6 AC Outdoor Units Recorded by Modernology
(Source: photoed by the author)

			
a) AC outdoor unit on roadside Location: No. 265, Gaodi Street	b) AC outdoor units on exterior wall Location: No. 13, Nansheng East Lane	c) AC outdoor units on exterior wall Location: No. 9, Nansheng East Lane	d) AC outdoor units on roof Location: No. 100, Danan Road

Figure 3-11 AC Outdoor Units Map Marking
(Source: drawn by the author)

3.2.3.2 Exhaust Ducts

Table 3-7 Exhaust Ducts Recorded by Modernology
(Source: photoed by the author)

			
a) Exhaust window Location: No. 16, Gaodi New Street	b) Exhaust duct in window Location: No. 6, Zhuji Lane	c) Exhaust holes in wall Location: No. 2, Lianyun Lane	d) Exhaust duct in window Location: No. 128, Danan Road

Residents make irregular holes in walls and window glass to install exhaust ducts, and fill the gaps with foam glue.

Figure 3-12 Exhaust Ducts Map Marking
(Source: drawn by the author)

3.2.3.3 Drain Holes

Table 3-8 Drain Holes Recorded by Modernology
(Source: photoed by the author)

			
a) Potholes Location: No. 217, Beijing Road	b) Potholes Location: No. 1, Nansheng East Lane	c) Drain hole Location: No. 2, Lianyun Lane	d) Drain hole Location: No. 8, Kezhu Lane

The middle section of Yudai Mout is an old road with many potholes. Residents spontaneously drill holes in places where water easily accumulates on the road. Some holes are equipped with diversion ditches, and the accumulated water is directly discharged into Yudai Mout through the holes. The diameter of the drainage hole is about 600 mm and the shape is relatively rough.

Figure 3-13 Drain Holes Map Marking
(Source: drawn by the author)

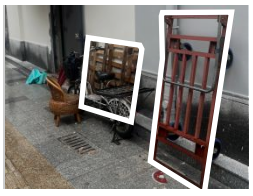
3.2.4 Traffic

3.2.4.1 Non-motor vehicles

There are a lot of non-motor vehicles parked on the road, mostly at both ends of the road, in public tree pits and in front of the hospital. Shared bikes and private electric bikes are parked in disorder and squeezed into every available space.

3.2.4.2 Freight Carts

Table 3-9 Traffic Recorded by Modernology
(Source: photoed by the author)

			
a) Shared bikes Location: No. 1, Nansheng East Lane	b) Private bikes Location: No. 132, Danan Road	c) Private electric bikes Location: No. 10, Fulin Lane	d) Freight carts Location: No. 100, Danan Road

Employees at warehouses and wholesale shops here use simple, lightweight cargo carts for transportation, which are folded up and stored at the warehouse and shop entrances when not in use.

Figure 3-14 Traffic Map Marking
(Source: drawn by the author)

3.2.5 Greening

Table 3-10 Greening Recorded by Modernology
(Source: photoed by the author)

			
a) Potted plants in front of door Location: No. 231, Gaodi Street	b) Potted plants on handrail Location: No. 8, Kezhu Lane	c) Wild plants on exterior wall Location: No. 4, Jingye Yuan	d) Wild plants on roof Location: No. 14, Kezhu Lane

3.2.5.1 Potted Plants

Residents placed potted plants on roofs, handrails, anti-theft nets and roadsides in front of their houses. The potted plants are mainly ornamental, which are small in size and easy to carry; the containers are also varied, including clay pots, discarded buckets and wash basins.

3.2.5.2 Wild Plants

Wild plants take root on the exterior walls and roofs. With the tacit consent of the residents, they grow wildly, showing vigorous vitality.

Figure 3-15 Greening Map Marking
(Source: drawn by the author)

3.2.6 Commerce

3.2.6.1 Commerce Occupying the Road

Table 3-11 Commerce Recorded by Modernology
(Source: photoed by the author)

			
a) Goods display Location: No. 1, Nansheng East Lane	b) Goods display Location: No. 261, Gaodi Street	c) Mobile vendors Location: No. 17, Nansheng East Lane	d) Recycled waste storage Location: No. 4, Fulin Lane
			
e) Shop decorations Location: No. 11, Nansheng East Lane	f) Shop decorations Location: No. 9, Nansheng East Lane	g) Shop decorations Location: No. 265, Gaodi Street	h) Shop decorations Location: No. 7, Nansheng East Lane

Most shops occupy the roadside , displaying goods and seats. This type of outdoor display is tidal, and the space occupied during the day is released at night and returns to its original state. There are also bars that occupy the public space in front of the store to arrange

dining areas for use during night business. These tables and chairs are not put away during the day. In addition, there is also a temporary display of recycled waste, most of which are piled on the roadside, waiting for processing.

3.2.6.2 Shop Decorations

Shops owners place wine cabinets, empty wine bottle decorative blackboards, table lamps or wooden fences and other decorations in front of their roadside.

Figure 3-16 Commerce Map Marking
(Source: drawn by the author)

3.3 Analysis of Informal Renovation Scenes of Public Space Interfaces

Based on the single collection records of informal renovation objects completed in the previous section, in order to further explore the impact, this section analyzes the informal renovation objects in combination with the specific scenes in which they are located.

The scene analysis is mainly carried out from three dimensions: the characteristics, the causes and the comparison of relevant specifications, which more comprehensively expresses the relationship between people and space, and the deficiencies in existing specifications.

3.3.1 Roof

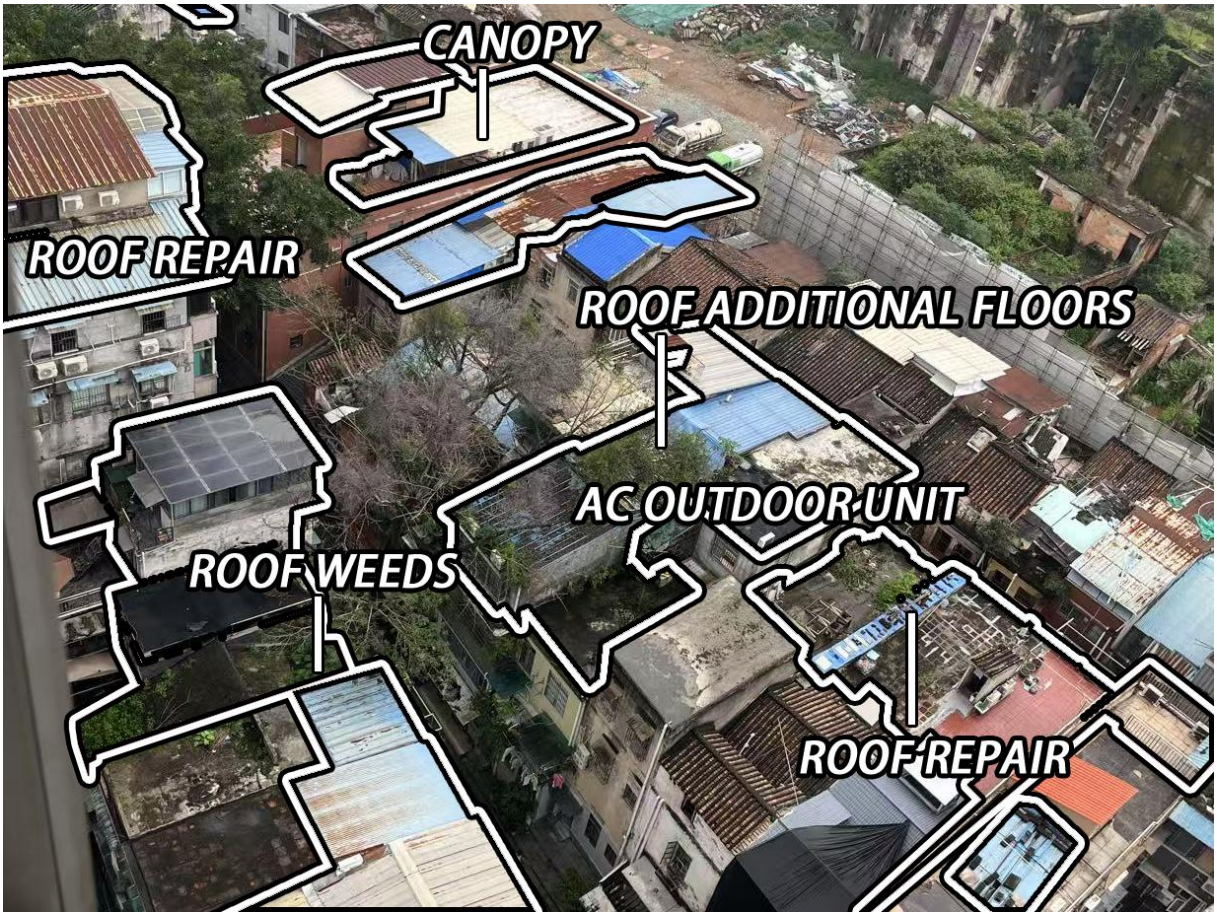


Figure 3-17 Records of Roof Informal Renovation by Modernology
(Source: drawn by the author)

In the middle section of Yudai Mout most buildings have blue, white and brown roofs. These temporary materials such as color steel plates and asbestos boards are of different sizes and play different roles on the roof, forming a new texture on the fifth facade, which subtly affects the city skyline. Informal renovation managements for roofs can help identify and resolve potential risks, ensure building safety, and improve the living environment of residents. According to the Modernology records in the previous section, the main objects of informal renovation on the roof are: handrails, roof canopies, roof additional floors, roof repairs, potted plants, drying facilities, AC outdoor units, etc..

3.3.1.1 Renovation Characteristics

1.Collage of Materials

Roof extensions are usually made of relatively temporary and inexpensive building materials for economic reasons. Under the method of increasing the usable space at the lowest cost, the appearance of the new floor and the original building is quite different, and the

aesthetics needs to be improved.

The construction time of roof repairs varies and the repairs are frequently reworked. The color steel plates are mostly spliced in multiple sections, and the aesthetics needs to be improved.

2.Grassroots Nature of Technologies

Some residents use non-compliant color steel plates. Under Guangzhou's long-term humid and rainy climate, they are prone to rust and breakage. Some residents choose to repair the roofs themselves with fixing the color steel plates by nailing or pressing bricks. However, this measure often fails to fully exert its original effectiveness, further affecting its functionality and aesthetics.

3.Complexity of Functions

Building canopies with columns on the roof converts the accessible roof into drying and storage space, improving the utilization efficiency of the roof space.

4.Irregularity of Placement

The placement of potted plants, AC outdoor units, sundries and other items on the roof is mostly lacking in detailed planning and random layout, resulting in the overall appearance being messy, lacking in unity and reasonable design arrangements.

3.3.1.2 Driving Factors Behind the Renovation

The phenomenon of roof additions mainly began in the early days of reform and opening up. At that time, Guangzhou's economy was developing rapidly, the urbanization process was accelerating, and a large number of migrant population poured into the city, resulting in tight land resources in the old city and a surge in housing demand. Due to the lack of supervision at the time, most homeowners added building space in the vertical direction for reasons such as increasing living and storage space, increasing rent and demolition compensation income, and they wished they were lucky enough to legalize the established facts by completing the procedures to avoid today's investigation and punishment. The roof additions are mostly one or two-story, continuing the structure and shape of the original building, but usually have larger window openings than the original one, mostly for the purpose of improving the lighting of the building. Even if there is no additional space on the roof, residents choose to use the roof, increase the use safety by adding handrails to prevent people and objects from

falling from heights; and better dry and store by adding a canopy with columns.

a) Adding a layer to the top floor

b) Repairing the roof with color steel plates and asbestos boards

Figure 3-18 Informal renovation of the roofs
(Source: Photoed by the author)

However, due to the general quality of early houses and inadequate subsequent maintenance, there are many cases of roof aging and roof seepage. For this reason, roof repair is also very common. Color steel plates are suitable for simple repairs of flat and sloping roofs because of their light weight, economy, easy installation and strong weather resistance. At the same time, the residents of No. 16, Kezhu Lane also adopted a special roof insulation method of using polyvinyl chloride black cloth to reduce the direct heating of the roof, and the ventilation layer formed can further reduce the indoor temperature. This practice reflects the folk wisdom.

In the early 1990s, the design and manufacturing technology of air-conditioning equipment was introduced to China and quickly became popular because it significantly improved the quality of life. Split air conditioners have become the first choice of residents because of their simple use and affordable prices. However, the AC outdoor unit needs to be hung externally for ventilation and heat dissipation. In the early architectural design, when no installation space was reserved, some residents living in higher stories chose to place the AC outdoor units on the roof to protect the exterior wall and prevent falling objects from high altitude.

3.3.1.3 Implementation of Relevant Formal Regulations

China's current regulations have clear provisions on roof additions.

Article 80 of "Guangdong Provincial Urban and Rural Planning Regulations" (《广东省

城乡规划条例》)[62]provides that if a construction unit or individual fails to obtain a construction project planning permit in accordance with the law or fails to carry out construction in accordance with the provisions of the construction project planning permit, the local city or county people's government urban and rural planning department shall order the construction to be stopped. If corrective measures can be taken to eliminate the impact on the implementation of the plan, the unit or individual shall be ordered to make corrections within a time limit and be fined not less than 5 % and not more than 10 % of the construction project cost. If corrective measures cannot be taken to eliminate the impact, the unit or individual shall be ordered to demolish the building within a time limit; if demolition is not possible, the physical objects or illegal income shall be confiscated and a fine of not more than 10 % of the construction project cost may be imposed. Any of the following acts shall be deemed to be a situation where corrective measures cannot be taken to eliminate the impact as provided in the preceding paragraph: (vi) Unauthorized construction or erection of buildings or structures within the scope of the construction project land for which planning conditions have been verified.

Table 3-12 Roof Comparison between Regulations and Renovations
(Source: drawn by the author)

Objects	Formal Regulation	Informal Renovation	Implementation
Roof Addition	Construction that is not legally obtained with a construction project planning permit or is not carried out in accordance with the provisions of the construction project planning permit is an illegal building and should be demolished promptly.	There are roof addition cases.	Formal regulations are not realistic and not fully implemented.
Roof Canopy		There are roof canopy cases.	Formal regulations are not realistic and not fully implemented.

Article 36, paragraph 2 of "Guangzhou Urban and Rural Planning Procedures" (《广州市城乡规划程序规定》)[63]provides that: "For buildings (structures) falling within the following scope, construction units or individuals may be exempted from applying for a construction project planning permit, but they must be constructed in accordance with the city appearance and sanitation standards and the requirements of the relevant competent authorities: (i) Construction projects that do not increase the building area, total building height, number of

floors, or involve modifications to the facade, building structure, or change of use, except for demolition and reconstruction." The building area of a canopy with columns added to the roof should be calculated as 1/2 of the horizontal projection area of its structural slab, and it does not fall under the statutory circumstances that exempt it from applying for a construction project planning permit. In summary, any roof addition that has not been approved is considered an illegal building and should be demolished in a timely manner.

In summary, the formal management regulations for the roofs of the middle section of Yudai Mout are not in line with reality and are not fully implemented. The formulation of regulations needs to be improved, and the phenomenon of informal renovation still exists and is contrary to regulations.

3.3.2 Exterior Wall

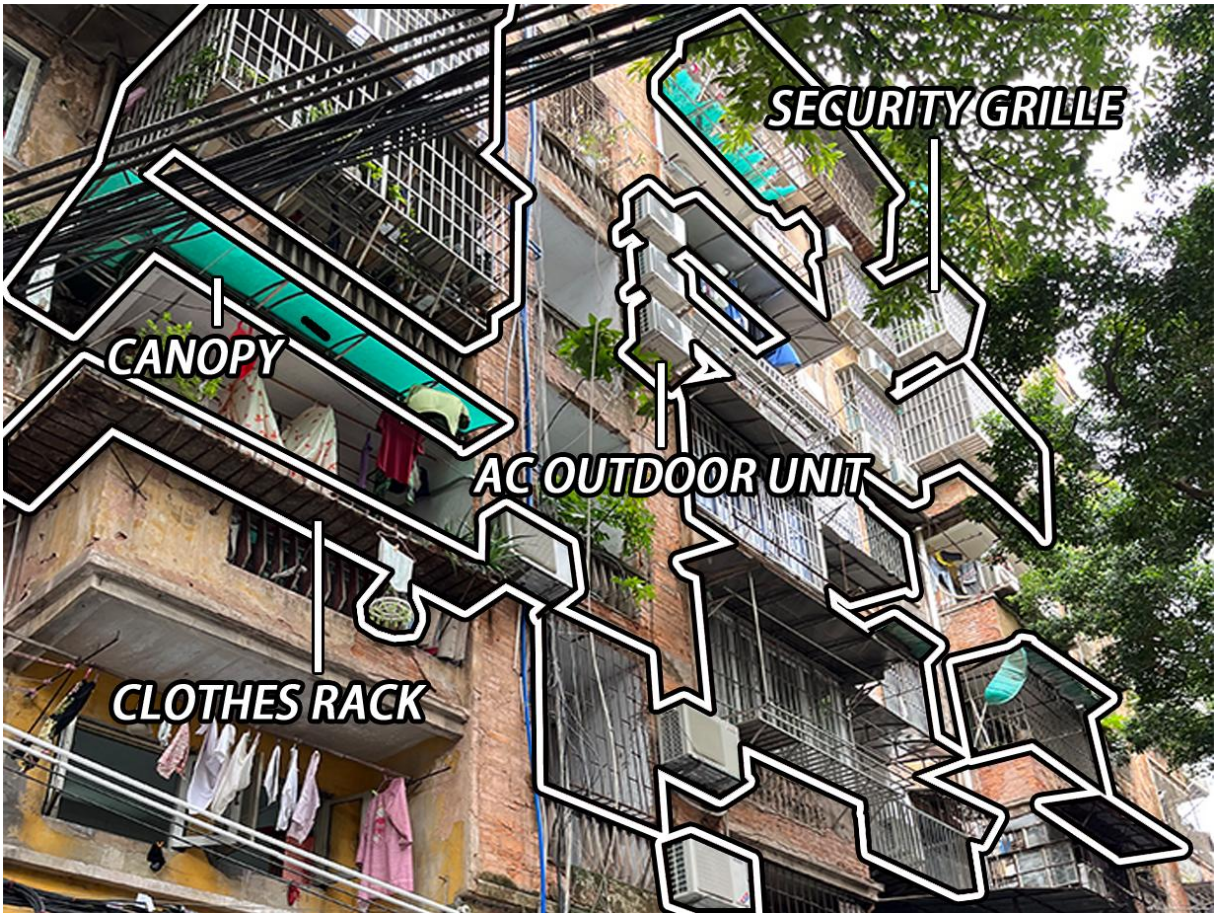


Figure 3-19 Records of Exterior Wall Informal Renovation by Modernology
(Source: drawn by the author)

The informal renovation of the middle section of Yudai Mout is most obviously concentrated on the exterior walls. These renovations, either attached or penetrating, directly

affect the overall image and characteristics of the middle section of Yudai Mout, and also reflect the local architectural style, characteristics of the times and cultural heritage. Through the management of the informal renovation of the exterior walls, it is possible to protect the urban landscape, improve the quality of the street environment, meet the actual needs of people, avoid safety hazards, and make the city beautiful and livable. According to the Modernology records in the previous section, the informal renovation objects of the exterior walls mainly include: flat anti-theft nets, convex anti-theft nets, thorns, canopies, potted plants, drying facilities, AC outdoor units, exhaust ducts, etc..

3.3.2.1 Renovation Characteristics

1.Collage of Materials

Residents choose various canopy styles and anti-theft net styles based on their own preferences. Even in the same building, each household has different choices, which creates a rich visual effect.

2.Grassroots Nature of Technologies

In order to make better use of the space added by the protruding anti-theft nets, some residents choose to enclose the anti-theft nets with curtain cloth, waterproof cloth, color steel plate, etc., which to some extent damages the appearance of the city.

Waterproof cloth is also common in canopy on the first floor of street-facing buildings. As a low-cost temporary rain shelter solution, users stretch ropes across both sides of the road to provide support. However, due to its own supporting structure, waterproof cloth is prone to water accumulation and leakage in rainy weather, which has a certain impact on the passage of citizens.

Bamboo poles were widely used on balconies as a common item at home in the early years. They were placed on the poles of anti-theft net frames to expand the drying space. Some residents living on the first floor lack drying space and choose to hang clothes under the canopy in front of the door to dry. However, excessive occupation of public space also damages the appearance of the city.

The existence of the balcony and window canopy covers the protruding space well. However, some residents choose poor materials. Rainwater falling on the canopy makes noise, "as loud as firecrackers", and some canopies are too wide, affecting the lighting of

surrounding buildings and causing neighborhood disputes.

Most of the kitchen exhaust ducts are installed later so the positions of the exhaust holes are random. Some are opened on the window glass and solid walls. The duct shapes are also different. The gaps between the hole and the duct are simply filled with foam glue. This caulking method is prone to attract mosquitoes, and the aging foam glue is generally not look well.

3.Complexity of Functions

Some residents have converted their balcony spaces into kitchens, with a wide variety of kitchen utensils and condiments placed on the balconies, which meets fire protection requirements and provides better smoke exhaust and ventilation effects.

4.Irregularity of Placement

Since the location of the AC outdoor unit was not fully considered at the beginning of installation and the pipe holes were randomly opened, the indoor and outdoor connecting pipes were randomly arranged, and the exterior wall of the building was messy. In addition, the units of some buildings were removed for various reasons in the later stage, and the supporting iron frames were still left on the exterior walls, which could easily bring safety hazards if the subsequent maintenance was not in place.

The space on the anti-theft nets on the exterior wall is not only used for drying, but also for storing cartons and other sundries and potted plants. Sundries and potted plants have certain safety hazards in windy and rainy weather, and should be properly placed and reinforced.

3.3.2.2 Driving Factors Behind the Renovation

Guangzhou is hot and rainy in summer, so residents often install canopies at balconies and windows to prevent large areas of direct sunlight and rain from entering the house. The middle section of Yudai Mout has a high building density and small distance between buildings. The early security conditions were poor, so residents often became targets of burglary. For this reason, residents generally install anti-theft nets at balconies and windows to prevent external intrusion and prevent people from falling from the inside. The cost of installing anti-theft nets on the inside of the window is much higher than that on the outside, so although the aesthetics can be greatly improved, it has not been popularized. Some

residents also install fine mesh with smaller holes on the anti-theft nets on the first-floor windows to further enhance safety. People with front yards add thorns on the top of the wall to deter and protect.

The problem of insufficient space has always troubled residents. In order to expand the usable area of the building, residents turned their attention to the balconies and windows and installed convex anti-theft nets to achieve horizontal expansion of the indoor space. The protruding can not only be used to place sundries, but also to place potted plants and dry clothes. Some people even use waterproof cloth or color steel plates to enclose the space, making the space added completely private. Some residents are not satisfied with the drying space added by the protruding anti-theft nets, and choose to further cantilever outward to dry clothes in public areas.

Canopies often appear with anti-theft nets together, and also exist alone on the exterior wall. They can better play a protective role and effectively prevent the danger of high-altitude throwing. In 2010, Guangzhou hosted the 16th Asian Games. During this period, in order to enhance the city's image, the municipal government organized a large number of buildings in historic urban areas to uniformly install green curved polycarbonate canopy at the balconies and windows. After experiencing typhoons and long-term sun exposure, only a small part of this standardized canopy is now preserved, becoming a historical mark of urban renewal. Some canopies have not been further maintained, and are damaged, leaving the empty bracket retained on the exterior wall.

The first floors of the buildings along the street at both ends of the middle section of Yudai Mout are mostly used for shops and warehouses. The canopies at the entrance need to extend a long distance to the road to cover the goods. In order to reduce the occupation of public space, merchants often adopt the solution with installing foldable canopy. When the shop is closed, the canopies are folded and the occupied spaces are returned to the public.

In the middle section of Yudai Mout most of the buildings were built in the mid-to-late 20th century, before the popularization of modern living facilities. In the early 1990s, the design and manufacturing technology of air-conditioning equipment was introduced to China and quickly became popular because it significantly improved the quality of life. Split air conditioners have become the first choice of residents due to their advantages such as simple

use and affordable price. However, the AC outdoor unit, needs to be hung externally for ventilation and heat dissipation. No installation space was reserved during the architectural design. In addition, the buildings are densely packed and the distance between buildings is insufficient. When the gaps on the side of the building cannot meet the requirements of heat dissipation and safe installation of the units, most residents randomly place the units on the exterior wall along the street, supported by a triangular metal bracket fixed by expansion screws, or directly placed on the roof and roadside. The positions of the units are not designed and the opening of the pipe is random, resulting in the random arrangement of indoor and outdoor connecting pipes and the messy shape of the building's exterior wall. In addition, the units of some buildings was removed for various reasons in the later stage, and the supporting iron frame was still left on the exterior wall.

a) A large number of air conditioner outdoor units were installed

b) Anti-theft nets and covers were installed, and weeds on the exterior walls were removed

Figure 3-20 Informal renovation of the exterior walls
(Source: Photoed by the author)

Besides, some houses have unreasonable space design, and the kitchen and bathroom are located inside the house, which has poor odor dissipation effect and is inconvenient to use. In recent years, with the promotion of community work, residents have adjusted the indoor layout, irregularly opened holes on the exterior wall or window glass to transform the smoke exhaust duct to enhance the ventilation effect.

With the development of Beijing Road, the commerce on the east side of the middle section of Yudai Mout have gradually prospered. In order to better conduct business activities, some merchants installed large-distance canopies on the outer wall of the first floor of the building to facilitate the display of goods. At the same time, some merchants have extended

their signs outward to the sky above the street to attract more consumers.

3.3.2.3 Implementation of Relevant Formal Regulations

China has corresponding regulations that clearly regulate and restrict the installation of anti-theft nets and canopies."Notice on Strengthening the Management of Anti-theft Nets and Canopies" (《关于加强防盗网和飘雨蓬管理问题的通知》)mentioned: "Anti-theft nets should be installed on the inside of windows. Some anti-theft nets that meet the requirements can be installed on the outside of windows, but they must not protrude from the exterior walls. New building materials such as stainless steel should be used, and the style of anti-theft nets in the same building should be unified; anti-theft nets installed on the outside of windows are temporary structures and must be unconditionally dismantled when necessary for urban construction, management or rectification; no new awnings shall be installed on the facades of buildings that do not have canopies installed. Those that have already been installed should be removed together with the anti-theft nets." It has been more than 20 years since the notice was issued, but the renovation of anti-theft nets and canopies remains severe, and residents' cooperation is not high. "Guangzhou Anti-theft Nets Installation Management Measures" (《广州市防盗网设置管理办法》)[58]updated the safety requirements and material selection of anti-theft nets: (ii) Anti-theft nets should be installed on the inside of window sashes and should be movable fences or have at least one movable opening for safe evacuation of personnel; (iii) Anti-theft nets shall not be installed on balconies, corridors and their railings. If safety protection is really necessary, invisible anti-theft nets with a wire diameter of no more than 2 mm that do not affect the appearance may be installed, or anti-theft doors or fences may be installed at the door frames. Although the management measures have expired and there are no updated provisions for the installation of anti-theft nets, this regulation is basically used in current work. There is no explicit regulation on the protruding distance of protruding anti-theft nets, but the public generally believes that the protruding distance should not exceed 300 mm under the premise of ensuring fire safety.

In summary, flat anti-theft nets should be installed on the inside of the window sash, the protruding distance of the protruding anti-theft nets should not exceed 300 mm, and the load-bearing capacity of the exterior wall should be evaluated in advance. It is recommended to use invisible anti-theft nets to achieve an effect coordinated with the building facade. At the

same time, anti-theft nets should be set to be movable or reserved for escape windows to meet fire escape needs.

Article 271 of "Civil Code of the People's Republic of China" (《中华人民共和国民法典》) stipulates that owners have ownership of exclusive parts such as residential and business premises in a building, and have the right to share and jointly manage common parts other than exclusive parts. In summary, as an auxiliary facility of a building, the installation and management of the exterior wall canopy should be subject to the consent of the neighbors. The canopy should not be overhanging too far beyond the exterior wall, and the material and structure of the sunshade canopy should be considered to avoid noise pollution, odor pollution, light blocking and other hazards to the neighbors.

There are no clear regulations on entrance canopies, but according to the existing convention, for ordinary entrance and exit canopies: the net height of the canopy shall not be less than 2.4 m, and the canopy shall extend by no less than 1 m for buildings below 6.5 m in height; the canopy shall extend by no less than 1.5 m for buildings with a facade height of 6.5 m or above. For public building canopies: the net height of the canopy shall not be less than 3.5 m, and the canopy shall extend by no less than 1.5 m for buildings with a facade height of 12 m or below; the canopy shall extend by no less than 2.5 m for buildings with a facade height of 12 m or above.

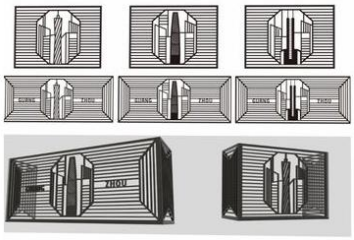
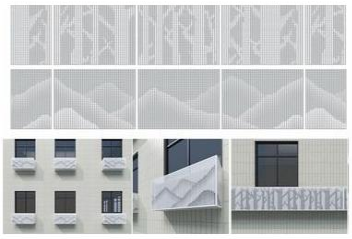
Article 21 of "Guangzhou City Appearance and Environmental Sanitation Management Regulations" (《广州市市容环境卫生管理规定（2020）》)[64] states that items that affect the appearance shall not be hung, dried or stacked outside the balconies or windows of buildings and structures facing the streets on major roads and key areas. In summary, this type of drying behavior in public spaces urgently needs to be rectified, but we also need to find other ways to dry clothes for residents who have been troubled by humid weather for a long time.

Regarding the regulations for the AC outdoor units on the exterior walls, the "Installation Specifications for Household and Similar Air Conditioners" (《家用和类似用途空调器安装规范》) mentions that outdoor units should not occupy public sidewalks. The bottom of the mounting frame installed on buildings on both sides of the road (the mounting frame can be installed horizontally if it does not affect the public passage) should be more than 2.5 m away from the ground and as far away from the doors, windows and green plants of the adjacent

party as possible, and the distance from the doors and windows of the other party should not be less than 3 m. The connection length between the indoor unit and the outdoor unit should be shortened as much as possible during installation, and the installation should be carried out in a place that is easy to maintain, convenient for repair and ventilated.

Table 3-13 AC Outdoor Unit Cover Prefabricated Template

(Source: reference[56])

		
a) Manchurian Flower Window	b) Clouds and Mountains with Pearls	c) Rain on Banana Leaves

In order to create a good building facade landscape in the city, improve the city's image, and eliminate safety hazards, "Guidelines for the Renovation of Air Conditioner Covers on Existing Building Facades in Guangzhou" (《广州市既有建筑外立面空调机罩整治指引》[56] set the following requirements for air conditioner covers on exterior walls: uniform shielding, uniform placement, uniform facade treatment, uniform reinforcement, and uniform collection of pipelines on the side of the air conditioner cover during design and the addition of condenser tubes. The Renovation Guidelines also made special provisions for historical and antique building blocks, striving to unify the facade style. The document also provided prefabricated templates for air conditioner covers, such as "Manchurian Flower Window", "Clouds and Mountains with Pearls" and "Rain on Banana Leaves". Prefabricated air conditioner covers are indeed beneficial to cost control during renovation, but the compatibility of these templates with the appearance of existing buildings needs to be improved. The position of the AC outdoor unit on the exterior wall can be optimized, and corresponding measures can be taken to beautify the air-conditioning outdoor unit on the exterior wall of the building.

In summary, the formal management regulations for the exterior walls of the middle section of Yudai Mout are not in line with reality and are not fully implemented. The formulation of regulations needs to be improved, and the phenomenon of informal renovation still exists and is contrary to regulations.

Table 3-14 Exterior Wall Comparison between Regulations and Renovations
(Source: drawn by the author)

Objects	Formal Regulation	Informal Renovation	Implementation
Flat Anti-Theft Net	Installed on the inside of the window sash and equipped with an evacuation opening.	There are cases installed on the outside, and with no movable window.	Formal regulations are not fully implemented.
Convex Anti-Theft Net	Overhangs are not allowed, and invisible anti-theft nets should be used in balconies and corridors; the folk convention stipulates that the overhang distance shall not exceed 300 mm.	There are cases where the overhang distance exceeds 300 mm. There are cases where there are no movable windows. Invisible anti-theft nets are used here.	Formal regulations are not realistic and not fully implemented.
Canopy	Managed by the neighbors, and no new canopy is allowed. The net height of the ground floor canopy shall not be less than 2.5 m, and the overhang shall not exceed 2 m.	There are cases where some canopies were damaged, leaving empty brackets, and some were not fully coordinated before installation, leading to neighborhood disputes. There are cases where the canopies on the first floor overhang too much, affecting public space.	Formal regulations are not realistic and not fully implemented.
Drying	Do not dry in public areas.	There are cases where some residents hang their clothes out on their balcony and window to dry.	Formal regulations are not realistic and not fully implemented.
AC Outdoor Unit	Unified shielding treatment, placement and reinforcement. The pipelines need to be stored on the side of the cover.	There are cases where AC outdoor units are arranged at will.	Formal regulations are not fully implemented.

3.3.3 Roadside

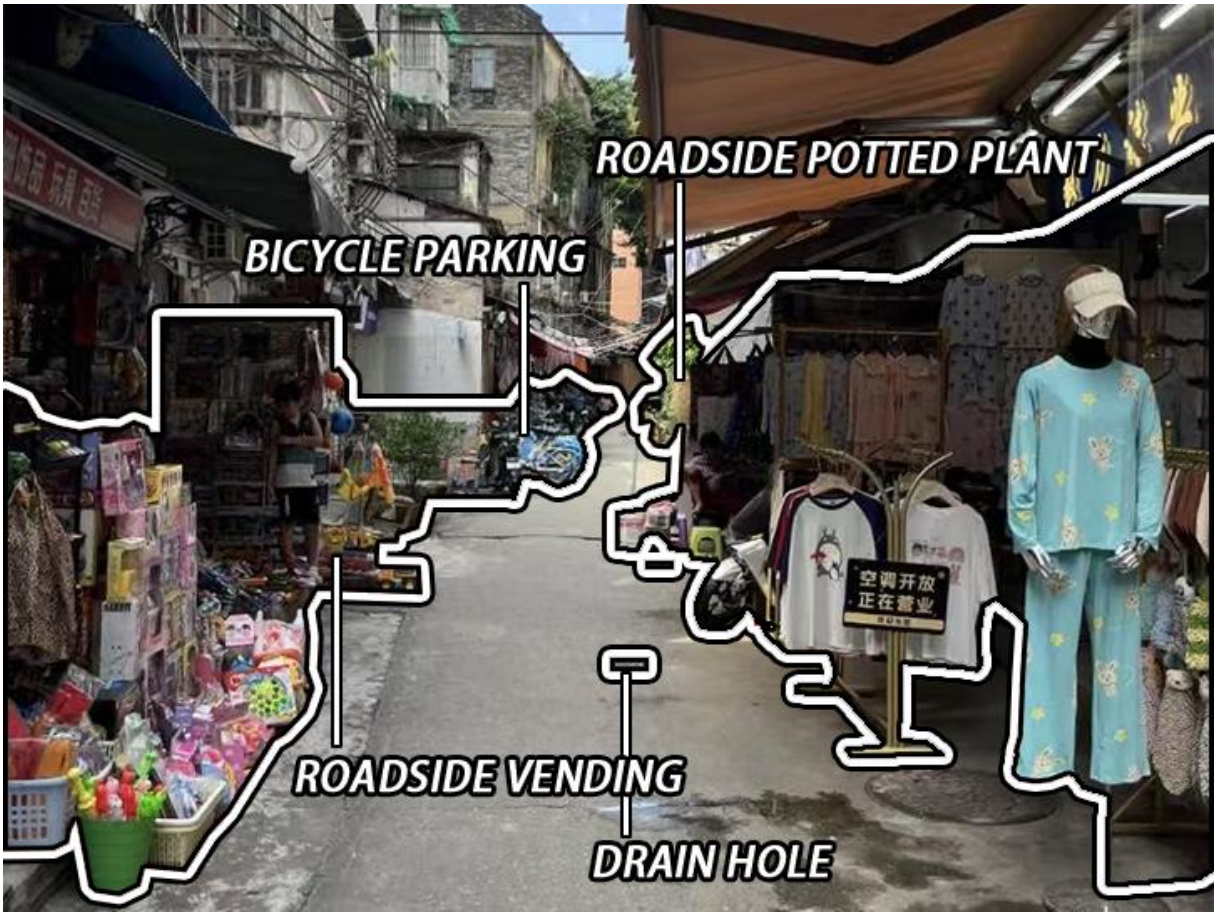


Figure 3-21 Records of Roadside Informal Renovation by Modernology
(Source: drawn by the author)

Roadside is not only an important part of the urban transportation system, but also a key carrier of public space and urban functions. It carries multiple functions such as driving, walking, and commercial activities, and directly affects the traffic efficiency, residents' quality of life, and the city's image. Informal renovation management of roadsides can optimize the use efficiency of roadside space, alleviate traffic congestion, improve pedestrian safety, improve environmental quality, and provide a scientific basis for urban planning and policy formulation. According to the Modernology records in the previous section, the informal renovation objects mainly include: portable umbrellas, potted plants, derivative dryings, commercial outdoors, shop decorations, drain holes, AC Outdoor units, parking, roadside construction, etc..

3.3.3.1 Renovation Characteristics

1.Collage of Materials

Most of the street vendors bring their portable umbrellas for business operations. The

umbrella body and base are designed to be detachable. The base is made from a discarded paint bucket, filled with cement to increase the weight and reserved for the handle. During non-business hours, the vendors place the base on the roadside. The body is usually printed with advertisements of large businesses or educational institutions in the vicinity. Although it has a good publicity effect, its aesthetics needs to be improved.

2.Grassroots Nature of Technologies

In order to make full use of sunlight for drying , residents have come up with many ways, such as stretching clotheslines across the road and hanging clothes on fitness equipment. However, excessive occupation of public space also damages the appearance of the street.

Compared with the other communities, residents here prefer ornamental green plants. In order to save costs, many potted containers are discarded plastic basins. The presence of green plants decorates public spaces well.

The drain holes drilled by residents on the road are technically quite rough. The surface of the holes is uneven and there is no filtration system. Garbages not cleaned up in time are easy to clog the holes, affecting the drainage efficiency. In addition, the drainage system is not standardized, which affects the separation of rainwater and sewage.

3.Complexity of Functions

Residents transform public space into a neighborhood communication space by placing tables and chairs in front of their doors, which increases the vitality of life.

Merchants transform public space into commercial space by placing tables, chairs, and goods in front of their doors, but excessive occupation of public space affects public transportation to a certain extent.

Residents transform public green space into a large drying area by stretching clotheslines on tree branches. However, excessive occupation of public space also damages the appearance of the city.

4.Irregularity of Placement

Parking randomly without proper planning has a herd effect: when a bike appears, more bikes will be parked around it. In addition, shared bikes are parked in a disorderly manner without management, and some bikes fall to the ground without anyone helping them up.

3.3.3.2 Driving Factors Behind the Renovation

In order to increase the living space, residents also turned their attention to the roadside. In order to avoid affecting the lighting, roadside additions are usually only one-story high and are mostly used as kitchens, warehouses and shops. The street-facing location can just meet the needs of smoke exhaust and ventilation. This type of construction is more temporary, with simple structure and economical materials. Also, in the middle section of Yudai Mout there is a special situation of addition led by government departments. The sanitation department occupied the open space in front of the private house to build a shed, which affected the environmental improvement of the private house and indoor lighting, and caused tension between private house owners and the government.

The use of roadside is not limited to the construction of physical space. Residents put tables, chairs and furniture at the door of their houses and arranged the space into a resting place, which not only get rid of the limitations of small indoor space, but also make full use of outdoor space. At the same time, for hygiene reasons, residents put used cleaning products in front of the door, which is convenient to take and does not occupy indoor space. Drying clothes on roadside is also a very common phenomenon. Yudai Mout is oriented east-west, with buildings on both sides, and it is difficult for residents on the south side to get sunlight. Residents use methods such as setting up bamboo poles and clotheslines between tree branches to make full use of the scarce sunlight resources. AC outdoor units are not only found on the roofs and exterior walls. Some people also place AC outdoor units on the ground in front of their doors to protect the building structure.

The roadside here is also used more for commercial purposes. Commercial activities make more flexible use of roadside space. In order to attract more customers and facilitate the wholesale and transportation of goods, some merchants choose to put goods outside, occupying part of the space in front of the door. At the same time, there are also mobile vendors setting up stalls on the roadside. This kind of outdoor stalls has tidal characteristics, and the space occupied during the day is released at night and returns to its original state. There are also leisure and entertainment shops that occupy the space in front of the door for a long time to arrange dining areas for use at night in order to expand the commercial area. Also, recycled waste are temporarily placed here, waiting to be centralized processing.

Yudai Mout was originally a moat in the south of the ancient city of Guangzhou. It was covered and converted into a culvert in the early days of the founding of the People's Republic of China, with both road traffic and underground drainage functions. The original drain holes were drilled by residents themselves, and some holes were even equipped with water diversion ditches. Guangzhou has a subtropical monsoon climate, with a long rainy season and heavy rainfall. The middle section of Yudai Mout is relatively low in elevation compared to the surrounding environment, and the road surface is severely potholed and aged. Water accumulation often occurs, and every Friday residents goes out to wash the floor. The presence of holes and diversion ditches facilitates the smooth drainage of rainwater and accumulated water during floor washing.

With the prosperous development of Beijing Road and Danan Road in the surrounding areas, new formats such as coffee shops and bars have also been introduced here. In order to attract more customers and better fit the young consumer group, these shops have spent a lot of thought on decoration, and various objects are placed in front of the door to highlight the store's tone.

a) Neighbors clean the road b) Electric bikes pass by and shops set up outside

Figure 3-22 Informal renovation of the roadsides

(Source: Photoed by the author)

Since Beijing Road and Danan Road are non parking zones, users of shared bikes and local residents also choose to park their vehicles in the middle section of Yudai Mout. However, there is currently no planned parking area. Most users park their bikes at the east entrance and the back door of the Yuexiu District Children's Hospital. The chaotic parking situation makes the originally narrow road even more cramped, affecting people's travel and

public transportation.

3.3.3.3 Implementation of Relevant Formal Regulations

China has clear regulations to restrict the chaos of roadside occupation and construction. "Guangzhou Illegal Construction Investigation and Punishment Regulations" (《广州市违法建设查处条例》) regards illegal construction as construction without obtaining a construction project planning license or not in accordance with the provisions of the construction project planning license, temporary construction without approval or not in accordance with the approved content, and temporary buildings and structures that are not demolished within the approved period. The comprehensive law enforcement agency of urban management shall order the parties to demolish them within a time limit. If they fail to demolish them within the time limit, they shall be demolished by force in accordance with the law. In summary, the non-compliant road occupation and construction in the middle section of Yudai Mout should be demolished.

Guangzhou also has clear and strict management on outdoor drying. Article 26 of "Guangzhou City Appearance and Environmental Sanitation Management Regulations " (《广州市市容环境卫生管理规定》)[64]prohibits hanging or drying items on guardrails, electric poles, hedges and other facilities and trees in public places. In summary, residents' drying behavior should not spread to public spaces and affect the city's appearance. Modern science and technology can be used to obtain alternative methods of sun drying.

However, "Several Measures of Guangzhou on Cultivating the Yangcheng Night Market Pilot Zone to Assist the Construction of an International Consumption Center City" （《广州市关于培育羊城夜市先行区助力国际消费中心城市建设的若干措施》）[60] issued in 2023, relaxed the requirements for nighttime operations. The document clearly defined the outdoor seating areas and time periods, and established a normalized outdoor seating management mechanism at night. Merchants can carry out temporary outdoor seating in the form of food trucks, pop-up stores, containers, markets, etc. in accordance with the specified time periods and area requirements, and do not need to submit repeated applications in the same year. The operating management entity of the pilot zone is responsible for the comprehensive management of the outdoor seating area and accepts daily supervision and management by the town and street. It supports extended nighttime operations and cancels the business hours

restrictions for bars, restaurants, cafes, cultural tourism and leisure places that do not interfere with the normal life order of residents after 2 a.m. In summary, the tables and chairs of bar are allowed to be placed outside at night, but attention should be paid to the temporary nature of the business facilities, and the facilities need to be put away during the day so as not to affect public transportation.

Table 3-15 Roadside Comparison between Regulations and Renovations
(Source: drawn by the author)

Objects	**Formal Regulation**	**Informal Renovation**	**Implementation**
Roadside Addition	Construction that is illegally obtained with a construction project planning permit or is not carried out in accordance with the provisions of the construction project planning permit is an illegal building and should be demolished promptly.	There are cases that residents and the government partially occupied the road to build additional living and storage space.	Formal regulations are not realistic and not fully implemented.
Drying in Public Space	Do not dry in public areas.	There are cases that residents hang clothes and other items to dry in public areas such as in front of their doors or under trees.	Formal regulations are not realistic and not fully implemented.
Commerce Occupying the Roadside	In principle, no unit or individual may occupy the road as a business place. Support bars to operate outside at night. Transfer mobile vendors to the diversion area.	There are cases that merchants put their wares and goods outside, taking up part of the space in front of their doors. Mobile vendors set up stalls on the roadside.	Formal regulations are not realistic and not fully implemented.

The commercial activities of street vendors have moved from Beijing Road Pedestrian Street to the middle section of Yudai Mout. Although the neighborhood relationship is harmonious, the presence of street vendors has more or less affected other residents on the street and road traffic. At present, the "Guangzhou City Temporary Diversion Zone Management Measures (2018)" (《广州市流动商贩临时疏导区管理办法》)[61]has made clear provisions for street vendors, the behavioral norms of street vendors, government supervision and support, etc. Article 6 states that temporary diversion zones can be established in areas where diversion management is implemented, and street vendors can sell in accordance with

regulations in temporary diversion zones. However, the implementation effect of the "Management Measures" is mediocre. Some diversion zones are improperly located, have poor conditions, and are not well publicized, resulting in street vendors being unwilling to enter the diversion zones and the phenomenon of subletting is serious. In summary, there is still room for improvement in the establishment of commercial footholds for street vendors.

In summary, the formal management regulations for the roadsides of the middle section of Yudai Mout are not in line with reality and are not fully implemented. The formulation of regulations needs to be improved, and the phenomenon of informal renovation still exists and is contrary to regulations.

3.4 The Hidden Logic

3.4.1 Site Issues

The informal renovation of the middle section of Yudai Mout not only reflects the current development status of the public space interfaces, but also reflects the common site problems in historic urban areas. Based on the collation of site information and combined with interviews with merchants, indigenous residents, and new residents, the site issues are in three aspects: public environment, public management and services, and residents' public awareness are summarized. The interview record excerpt is as follows:

1.Merchants:

"No water accumulation on rainy days." "It's troublesome to transport goods because they can't be exposed to rain. The boss doesn't want to install canopy, so let us use waterproof cloth to block it." "I am too busy, no time to go out and rest."

"I rented a house near the venue. I used to set up a stall on Beijing Road. I came to set up the stall here after the urban management stopped me. No one manages here. I have a good relationship with the merchants around. I chat with them in my spare time."

"I've heard of Yudai Mout." "I haven't heard of Yudai Mout and I'm not interested."

2.Indigenous Residents

"After the drain holes were drilled, there is not much water accumulation on rainy days." "The place is very run-down and ugly."

"I heard that they are going to start renovations. I hope they can repair my house soon,

and it would be better if they can repair the inside as well." "The trailers transporting goods from the warehouse are too noisy. They make me unable to sleep well in the morning. It is useless to communicate with them at their doorstep. But you can't stop them from doing business."

"I know here is Yudai Mout. I heard that it used to be a stinky ditch."

3.New Residents

"The alleys are still be flooded on rainy days." "When I have free time, I lie on the bed and play with my phone. I don't like to go out." "I have to take care of the children, so I don't go out on rainy days. When the weather is good, I will go to the Pavilion over there (the place near Yudai Mout) to sit. There is no place to sit here."

"The trailers transporting goods in the warehouse are too noisy. They start to make noise at 5 am." "The battery-powered vehicles (for delivery) charge at the charging piles or charging cabinets on the main road, which is a bit far."

"I know this is Yudai Mout, but I don't understand it." "I don't know this is Yudai Mout."

Based on the interim conclusions of Modernology analysis and the content of the interviews, this research summarizes the following site issues in the middle section of Yudai Mout:

1.The environment needs to be improved

The flow of people, vehicles and goods on the community streets is chaotic, the road surface is bumpy, and the street environment is poor; spatial resources are limited, parking space is insufficient, and most of the public space is occupied; public space are not properly maintained and repaired; public facilities are weak in function, residents are reluctant to use them, and lack characteristics and flexibility.

2.Public management service needs to be improved

The community management system is imperfect, there are no clear community renovation standards, and the boundaries of residents' renovation are vague, resulting in frequent illegal construction; the property management lacks the ability to mobilize community residents, cannot unite residents or resolve conflicts between residents; the ability to maintain the public environment is poor, there are blind spots in monitoring, the community is dirty and messy, no one cares about the facilities, and no one follows up on the

problems.

3.Public awareness needs to be improved

There are differences among merchants, indigenous people and new residents, and the groups are isolated from each other and lack communication; residents have weak community public awareness and simply occupy public spaces without taking responsibility for maintenance; the cultural history of the community is gradually forgotten by residents, and new residents cannot feel the culture of the community.

3.4.2 Site Conflicts and Folk Wisdom

Through the process of Modernology and analysis, the research found that informal renovation reflects the needs, daily behaviors and life experiences of users. The social relations and public space development experience reflected behind it are also the design basis and reference experience in the optimization of our public space interfaces.

In addition, the folk wisdom of informal renovation is usually developed under various long-term contradictory relationships. These contradictory relationships can be divided into three aspects: lack of public safety and spontaneous protection, lack of sufficient use of space and spontaneous occupation, lack of good living environment and spontaneous renovation.

1.Lack of Public Safety and Spontaneous Protection

In the early years when public security conditions were poor, the safety of living space became the primary need of residents. The residents' autonomous defensive response to public security risks deeply reflects the locality and flexibility of folk wisdom.

Due to security risks such as insufficient monitoring equipment and inadequate public security management, residents have achieved physical protection through low-cost means such as installing anti-theft nets and thorns, effectively reducing the incidence of burglary cases in low-rise residents. Similarly, the installation of canopies can prevent falling objects from high altitudes and take into account the functions of sunshade and rain protection. Although this type of informal renovation has problems such as inconsistent standards and lack of professional evaluation, its rapid response to security threats and creative use of space resources just reflect the survival wisdom of residents in the absence of institutional guarantees.

2.Lack of Sufficient Use of Space and Spontaneous Occupation

With the development of the city and the change of population, the demand for living space by residents is increasing. A considerable number of buildings have phenomenon such as occupying roads, adding roofs and expanding balconies. Similarly, due to the functional renovation of indoor space and the infiltration of commercial space, merchants have transformed the boundaries of private space, placed goods outside to expand the business area, and occupied the outdoor space on the first floor.

The demand for public space by residents is also increasing. The middle section of Yudai Mout, like other old communities in Guangzhou's historic urban areas, has the problem of lack of public space. Residents use furniture to chat with neighbors in the space in front of the door, and stretch clotheslines on tree branches for drying, etc., which reflects the living demand. However, rigid demand such as parking is equally important. Residents park as many vehicles as possible in limited public space. For example, users park their bikes as compactly as possible under a certain tacit understanding, and electric bike owners park their cars between tree pits to minimize the impact on road width.

Spontaneous occupation reflects the growth of daily life in the cracks of space, and residents create more and richer public places in a single and limited space function. This type of informal renovation often changes with factors such as neighborhood relations and community management. Because there are many changing factors, the renovations are temporary and flexible. Residents and merchants gradually form an appropriate degree of occupation by running in various relationships with neighbors, property, and outsiders.

3.Lack of Good Living Environment and Spontaneous Renovation.

The informal renovation of the living space environment requires concentrated and large costs. In most old communities, the costs will only focus on functions, without considering public beauty, such as using color steel plates to make simple repairs on the roof, stretching heat-insulating black cloth on the roof, installing air conditioners to achieve indoor cooling, and pasting color propaganda newspapers to guide shops. Renovation capital has become a major obstacle to optimizing the living environment.

Although functional requirements are the main reason for residents to carry out informal renovations, while meeting the needs, residents also hope to make the renovation looking

better within their limited capabilities. For example, residents weld anti-theft nets into different styles and put their favorite plants on them. Residents try to modify informal renovations with lower costs and actions, but the beautification is all around their own interests and needs, without considering the overall public environment.

The users carry out the bottom-up informal renovations on the public space interfaces out of demand, and urban governance needs to strengthen the up-bottom guidance and constraints on their behavior, resolve contradictions, and optimize the folk wisdom.

3.5 Chapter Summary

This chapter sorts out the history and development of Yudai Mout and introduces the current situation of the site. According to Modernology records, the informal renovation objects of the public space interfaces are classified in six categories according to their basic information. According to the three scenes where the objects are located, their renovation characteristics, driving factors and implementation of relevant regulations are analyzed respectively, and the site problems, site contradictions and folk wisdom hidden behind them are summarized.

Informal renovation is the simplest and most direct renovation method that satisfies users' yearning for a better life. Mandatory formal management is difficult to make people obey and satisfied. Urban governance should strengthen the up-bottom guidance and constraints on informal renovation, and seek the optimal solution between informal renovation and formal management.

Chapter IV Case Study of Renovation

4.1 North-south Streets Renovation in Nantou Ancient Town, Shenzhen

Figure 4-1 Bird's Eye View of the North-south Streets of Nantou Ancient Town
(Source: gooood)

Nantou Ancient Town is located in the north of Shennan Avenue and the south of Zhongshan Park in Nanshan District, Shenzhen. It is also known as Xin'an Ancient Town. It was first built in the Eastern Jin Dynasty and has a history of nearly 1,700 years. It has been the administrative center, coastal defense fortress, maritime transportation and foreign trade distribution center of the Lingnan coastal area in successive dynasties. It is also the historical and cultural source of the Guangdong-Hong Kong-Macao Greater Bay Area. In its historical evolution, the ancient town has experienced several major changes in style, including preparing for the sea, governing the county, planning of county government in the Republic of China, and rushing to build urban villages[69]， Restricted by the clear boundaries and dense texture of the original town, from county governance to urban villages, from shops to residential apartment buildings, multiple rounds of succession are still limited to the ancestral base[70] There are about 1,100 existing buildings, which can be roughly divided into historical and cultural relics buildings, late Qing Dynasty, Republic of China style buildings, 1950s

style buildings, 1980s water-brushed stone materials buildings and modern buildings according to the protection level and construction time. Modern buildings account for the largest proportion, showing a state of interweaving and symbiosis of buildings from various historical periods.

As a symbiosis of a historic ancient town and a contemporary urban village, Nantou Ancient Town has complex population and spatial structures, outdated infrastructure, difficulties in cultural relics protection, and lack of public space, which have brought great challenges to the renewal and renovation of the area. In 2017, Nantou Ancient Town hosted the Shenzhen-Hong Kong Biennale, where architecture and art were organically combined. In March 2019, the Nanshan District Government launched the "Butterfly Renovation Rebirth Plan" for Nantou Ancient Town and began to implement large-scale renewal. The renovation is divided into two phases, of which the renovation of North-south Streets is the first phase, with a total length of 330 m.

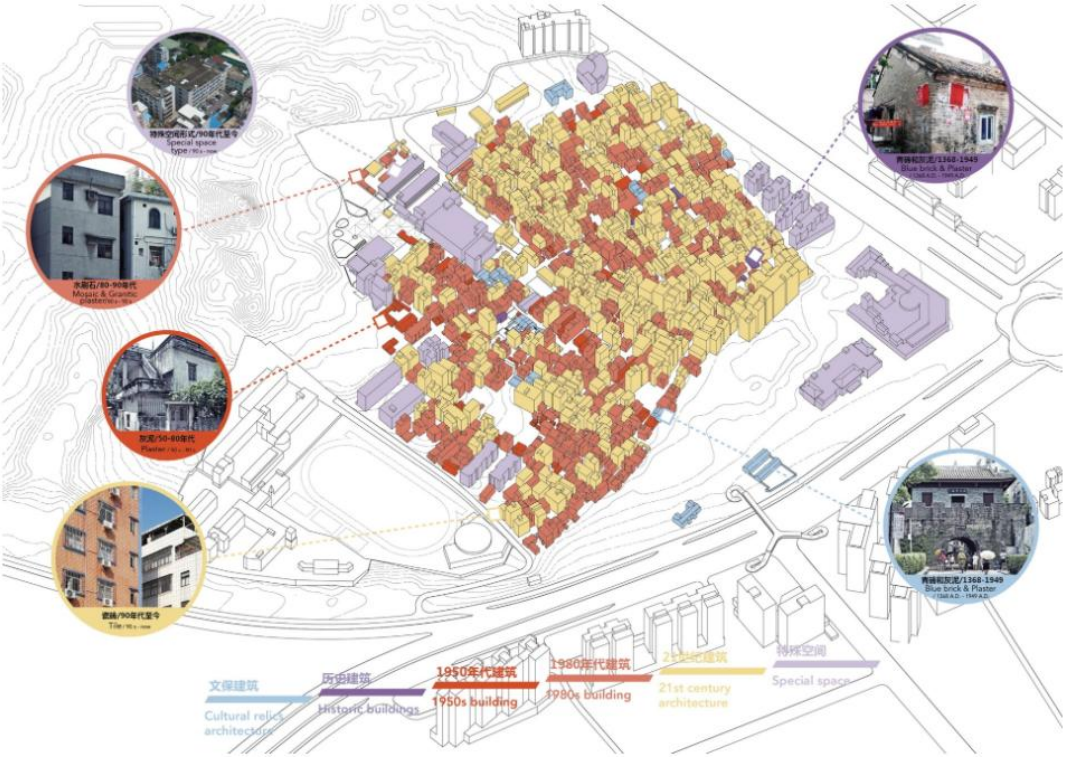


Figure 4-2 Classification of Buildings of Nantou Ancient Town
(Source: gooood)

Figure 4-3 Renovation Scope of the North-south Streets of Nantou Ancient Town
(Source: gooood)

1.Renovation Strategy

Combining the expectations of the government and citizens for the ancient town and the results of previous urban research, a strategy for the renovation of the appearance of the ancient town's historical and cultural blocks is proposed: starting from respecting historical authenticity, the architectural style is re-examined, and the cultural layers and historical memories of each era are organically preserved. The design organically connects different areas through cultural displays, historical axes, and revitalized buildings, and is designed from the perspective of "root-seeking and regeneration of the town" to weave a diverse and inclusive community space. The design focuses on the active interaction between indigenous people and foreign populations, makers, tourists and other groups, and introduces the activation model of cultural space, scientific and technological innovation space and cultural and creative space. As a model of urban renewal, this enriches the original space and population structure in the ancient town, strengthens the local cultural appeal of the area, and thus achieves a diverse and inclusive community revitalization[71].

2.Renovation Measures

(1)Buildings Renovation

1)Embedding Traditional Elements

NT129 adopts a light renovation strategy, adding Lingnan elements of glazed lattice bricks to the building walls, and replacing traditional anti-theft nets with wooden grilles, which not only looks better but also takes safety into consideration, restoring the original style of the building.

NT98 uses light-colored red bricks to echo the traditional buildings. Modern bay window lines and hollow brick wall patterns increase the facade level. Large glass windows optimize indoor light.

Figure 4-4 Nt129 Before and After
(Source: gooood)

Figure 4-5 Nt98 Before and After
(Source: gooood)

2)Preserving and Utilizing Green Plants.

Nt74 Building was built in the 1980s. The first floor is a street-facing shop, and the second floor and above are the owner's own residence. The building has a brick-concrete structure and a water-brushed stone facade that are very common in urban village buildings. It is one of the most typical residential buildings in the ancient town.

The renovation retains the buildings above the second floor, continuing the original living space and lifestyle of the owners, showing a symbiotic picture of urban life hidden in the town and the garden. At the same time, the owner's green plants are retained and utilized, strengthening the characteristics of the building's roof garden, and contributing to aerial greening for high-density urban villages. The first-floor shops use curved glass with a diameter of 350 mm as the facade to reconstruct the mutual extension of indoor and outdoor spaces and the interactive relationship with the streets and alleys. The horizontal water-brushed stone eaves emphasize the passage and building boundaries of the first-floor

entrance, and meet the needs of sunshade and rain protection[72].

3)Weakening the volume of taller buildings

Figure 4-6 Nt74 after Renovation
(Source: gooood)

Figure 4-7 Nt98 Before and After
(Source: gooood)

Nt132 is a nine-story building. Its building height creates a strong sense of oppression on the street in the narrow block. In order to weaken the existence of the upper building, the building adopts light gray main wall to hide the building volume, and the color also contrasts with the blue brick facade of the bottom floor. Dry hanging wall panels are used to regularize the building outline while hiding the AC outdoor unit and its pipelines. Aluminum alloy window frames, flower beds, railings and other architectural details are used on the balcony. The side wall regularizes the position of the AC outdoor unit, and dark gray grille enclosure is added, and the square window frame is used to strengthen the window hole lines of the building.

(2)Road Renovation

Figure 4-8 Road Paving after Renovation
(Source: gooood)

The renovation of the ancient town streets adopts the idea of dividing public and private

areas and solving problems in a classified manner. The boundary of the high ground in front of the store is used as the interface to divide the public and private areas. The main street is paved uniformly, and the part above the high ground is decorated and designed by the owner. Different design strategies are proposed for the situations of open space, no open space, only steps, and shared space in front of the stores. The design uses steps to combine seats, which not only solves the height difference between the main street and the building entrance, but also provides a rest space for residents and hides the pipelines in it.

The design of the public area of the main street is based on the level of the streets and alleys, and uses a unified style of paving to achieve space division. For the distinctive protected buildings, plant soft furnishings are combined with architectural characteristics and flexible activity space is reserved. The planting design is divided into potted plants, planting pools, etc. according to the thickness of the soil cover that can be provided by the height difference on site.

In the overall renovation, the Lingnan Cantonese architectural style is taken as the keynote, and the paving materials and combination methods of the traditional streets are adopted. By controlling the selection and application ratio of new and old materials and elements, a cultural scene that blends ancient and modern times is created. The drainage of the main streets and alleys is solved by horizontal linear intercepting ditches and metal drains with ancient town elements.

Nantou Ancient Town has common problems of urban villages: the streets are occupied, clothes are hung to dry, and there are piles of sundries, and there is no space for children to play. The Xiaomeijia design adapts to the site through system devices, reduces the interference with existing living habits, and creates a positive space for people to stay and communicate.

Xiaomeijia consists of a series of functional modules, including basic units such as trash cans, clothes drying, bike parking, item placement, flower racks, and social units for rest, communication, and play. These units stand against the wall, not occupying too much of the already cramped public space, and are freely combined according to the actual conditions of different sites to meet different needs.

(3)Landscape Renovation

The public open space in Nantou Ancient Town is limited and cannot meet the needs of local residents. Therefore, the design adopts sustainable and low-intervention comprehensive methods to restore the life of the ancient town. The design transforms key venues such as the South Gate Square, the East Gate, the Guanye Temple, and the Baode Temple, and adds infrastructure to make them comfortable and cozy green spaces.

The renovation of public spaces recreates traditional life scenes in the ancient town, such as listening to operas and drinking tea, watching dragon and lion dances, and shoping in residents' markets, and also provides diversified platforms such as exhibitions, performances, and creative markets. People in the ancient town can maintain their original normal life and carry out activities in spacious public spaces.

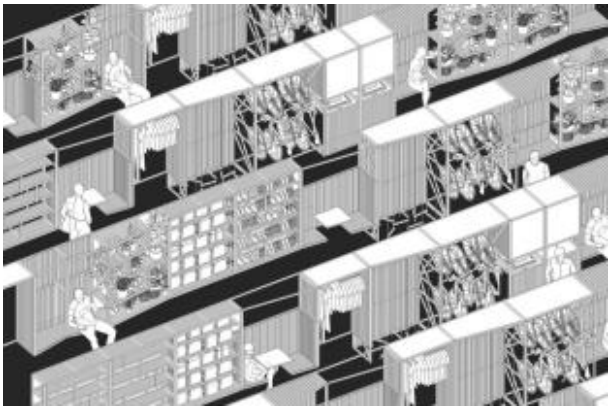


Figure 4-9 the Xiaomeijia Units
(Source: gooood)

Figure 4-10 South Gate Square
(Source: gooood)

(4)Urban Symbiosis

The renovation of Nantou Old Town focuses on the preservation of historical sites and the renovation of urban villages, and introduces various activities such as traditional handicrafts, food, folk customs, creative markets, museum groups and theme exhibitions. Nantou Old Town has transformed from a urban village into an urban symbiotic ecosystem that gathers cultural creativity, residence and commerce.

4.2 Via San Lorenzo Facade Renovation, Italy

From the end of World War II to the mid-1960s, Italy experienced large-scale post-war reconstruction and the first economic miracle. By the early 1980s, Italy's urbanization and industrialization were basically completed, and the developed northern region centered on the three major cities of Milan, Turin and Genoa took the lead in entering the post-industrial era.

At that time, due to the transfer of port-based industries such as petrochemicals, the port and ocean shipping industries on which Genoa relied for its survival were severely impacted, resulting in the decline of social and economic vitality in the old city in the northern port area. The old city gradually became a gathering area for middle and lower-class citizens and poor North African immigrants. At the same time, the quality of a large number of material spaces declined, especially those built spaces with relatively poor quality formed during the rapid urbanization stage. The decay problem is particularly serious[73].In order to enhance the vitality of the old city, from the late 1980s to the early 2000s, the metropolitan area of Genoa carried out large-scale old city protection and renewal practices, revitalizing the city's cultural and historical environment through indirect government intervention to improve the city's overall competitiveness and image. The "Rediscovering the Facade" project was a landmark renewal project carried out by the Genoa government in the historical residential area during the preparations for the G8 summit and the "European Capital of Culture" event from 2000 to 2004. It was the first facade painting restoration project at the city level[74].

The Via San Lorenzo facade renovation project was jointly initiated by the Genoa City Government and the Liguria Region CONSEDIL Company, and the project preparation began in July 2000. Via San Lorenzo is located in the center of the historical residential area of Molo, with a total length of 273 m and a research area of 30,000 m^2. Cattedrale di San Lorenzo is located in the middle of Via San Lorenzo and has been the religious center of the city since the 12th century. The Via San Lorenzo facade renovation project was one of the first pilot projects of the urban road facade renovation project launched by Genoa to welcome the 2001 G8 Summit. The project was implemented from September 2000 to May 2001.

The age of the buildings within the research scope spans a wide range, from the 15th to the 20th century. After the widening of Via San Lorenzo in 1843, the buildings along both sides of the street were mainly from the 18th to the 19th century. The existing main buildings are 5 to 9 stories high, and the material damage of the buildings is mainly divided into two types: structural decay and facade decay. Except for Cattedrale di San Lorenzo and Palazzo Ducale, which are public property, all other buildings are privately owned. The vacancy rate of private houses is about 4.5 %. The residences near the street have good geographical location and commercial potential, and the sales ratio of commercial buildings on the ground

floor of residential buildings is relatively high[75].

Figure 4-11 Via San Lorenzo Facade Renovation
(Source: baidu)

1.Renovation Strategy

(1)The Holistic Protection Concept

Figure 4-12 Street Building Protection Classification
(Source: reference[75])

The holistic protection concept is based on the concept of architectural heritage in a broad sense. The protection object is expanded from a single monumental building to a broad architectural heritage, including the urban landscape composed of ordinary residential buildings, and the surrounding architectural environment and natural environment. This concept clearly states that the main function of historical residential areas is still the renewal

of residences, combined with the development of commerce, tourism, etc., and the ultimate goal is to integrate various functions of historical central residential areas. This concept also emphasizes the importance of residents in historical central residential areas and protects the unique living conditions of residents.

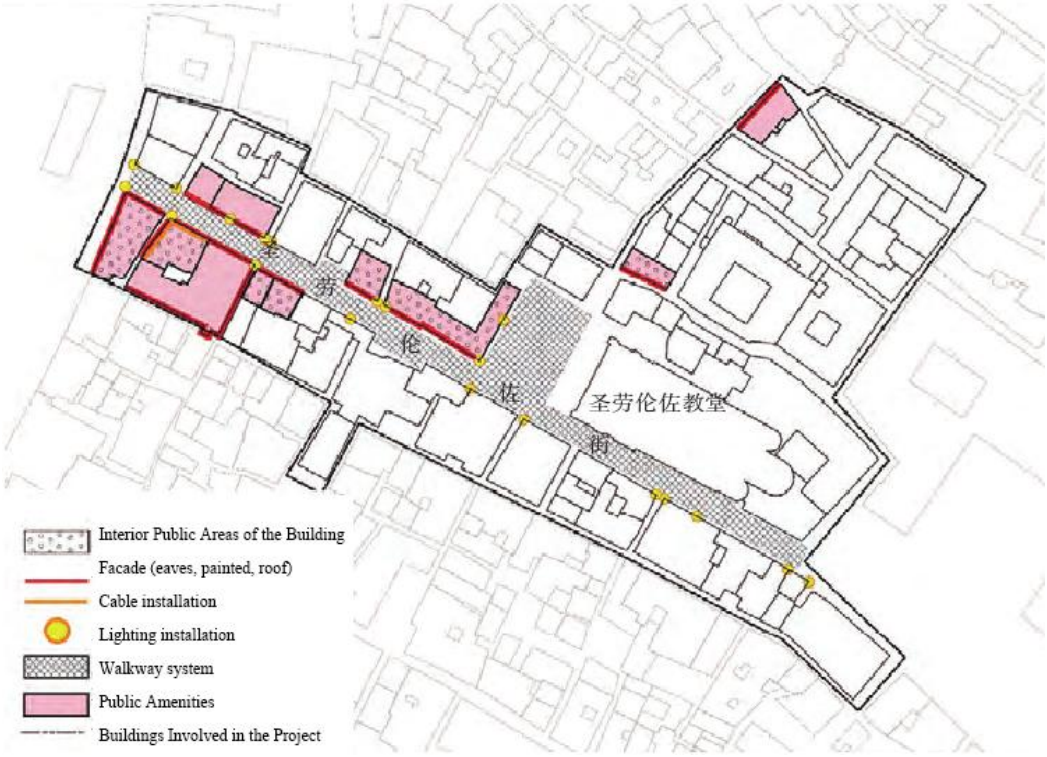


Figure 4-13 Specific Renovation Content
(Source: reference[75])

(2)Integration of Multiple Public Policies

The traditional protection and renovationl methods can no longer cover the various problems that arise in the development of historical residential areas, nor can they provide multiple solutions to the development needs of historical residential areas. Genoa has chosen to introduce multiple public policies in a market-oriented context to cope with the dynamics and variability faced by the protection and renewal of historical residential areas. Through the intervention of a combination of multiple public policies, social intermediary organizations and interest expression mechanisms have been established, power has been decentralized and the system has been innovated, the administrative structure has been reorganized, and planning methods have been adjusted to complete the political task of balancing the market economy and public interests and completing the protection and renewal path of historical residential areas.

(3)Multi-subject Participation and Public-private Cooperation Operation Mechanism

Genoa's various public policy construction mechanisms advocate multi-subject participation and public-private cooperation operation mechanisms including government agencies, state-owned enterprises, private institutions and residents, involving policy selection and planning, fund raising and coordination between government companies and public and private interest entities, etc., to achieve comprehensiveness of the updated content.

2.Renovation Measures

(1)Economic Assessment

At the beginning of the project, a special team composed of the government, experts, and companies conducted an economic assessment of the buildings and street public spaces to be intervened, and negotiated with the owners on the repair plan and the amount of financial subsidies. Except for two cultural relics buildings, for which the heritage supervisor paid 35 % of the cultural relics building repair fee, the repair costs of the remaining buildings were paid by private owners.

(2)Project implementation

Table 4-1 Via San Lorenzo Facade Renovation
(Source: reference[75])

Intervention targets	**Description of repair principles**
Overall image of the building	The overall image is as bright as possible.
Part of the facade of the building on Via San Lorenzo	1. Coordinate with the adjacent facades as much as possible; 2. The facade of the building on the east side of Via San Lorenzo needs to be considered in conjunction with the facades of the buildings on Piazza Giacomo Matteotti, especially with the light-colored facades of Palazzo Ducale and the bright rose-colored facades of Chiesa dei Santi Ambrogio e Andrea.
The facade of the building facing Cattedrale di San Lorenzo	1. The overall style tends to be neoclassical. 2. Combined with the overall style formed by the black and white marble facade of Cattedrale di San Lorenzo, highlight the main position of the church.
The low-lying part of the building on the west side of Via San Lorenzo	Coordinate with the pink-orange color of Raibetta Square.
Overall intention of Via San Lorenzo	Strengthen the coordination and unity of the facades on the east-west axis of the street.

The project implementation is mainly divided into three steps: first, to set up a special

team and determine the implementation content; second, to formulate the renovation principles; and third, to implement the "one building, one expert" system. The Genoa City Government and the CONSEDIL Architectural Alliance are responsible for managing the implementation process. The special team is composed of the Genoa City Government, City Council, Chamber of Commerce, Urban Aesthetics Office, the Historic Center Special Administration Agency, and experts from the School of Architecture of the University of Genoa and the Architectural Alliance. It determines the intervention content and reports it based on the relevant building information.

(3)Intervention Content

The intervention on the building renovation includes the repair of the facade painting, eaves and roof, the addition of cable equipment, and the updating of public spaces inside the building such as corridors and entrance halls. The intervention on the street public space includes the paving of the sidewalk, the improvement of the lighting system, and the overall renovation of Piazza San Lorenzo.

4.3 Furukawa-cho Renovation, Japan

Gifu Prefecture is located in central Japan, with an area of about 10,000 square kilometers. It is the seventh largest city in Japan, with a total population of 2,080,773, accounting for 1.6 % of Japan's population and ranking 17th in the country. Furukawa-cho was built in 1589. It is a mountain town located in Gifu Prefecture, Kansai, Japan. The center is divided into three towns, surrounded by lush mountains and forests, with a river in the middle. The characteristic wooden houses in the city are neatly arranged, the environment is beautiful, and there are many attractions. The industry is now mainly forestry, small material industry and tourism.

From the 1950s to the 1970s, Japan's urbanization developed rapidly, a large number of working people moved out of the villages, the population was seriously aging, the traditional Furukawa Festival in Furukawa-cho had no successors, and the local culture continued to be destroyed. The rapid economic growth has also caused serious environmental pollution. The style and appearance of the historical environment of the Furukawa-cho block have been gradually destroyed, and the Seto River passing through the city has been seriously polluted.

In 1970, the "discover Japan" campaign was launched, which led to a wave of space creation in the historical district of Furukawa-cho. A large number of residents who had gone out to work returned to Furukawa-cho to build the community environment, continue sacrificial activities, inherit community culture, and maintain community style. Through the joint efforts of all residents, the neighborhood environment has been greatly improved. In 1993, Furukawa-cho won the "Hometown Creation Award" established by the Municipal Affairs Bureau, and since then Furukawa-cho has been hailed as a model of community creation[76].

1.Renovation Strategy

(1)Inheriting and Promoting Local Characteristics

Furukawa-cho makes full use of local characteristics through rich construction content such as the inheritance of craftsmanship, the protection and restoration of traditional buildings, and the promotion of folk cultural activities.

(2)Restricting and Guiding Traditional Space

The government guides local residents to have a correct understanding, jointly formulate relevant regulations and standards for landscape management and architectural construction, and carry out relevant competition activities to protect the traditional space style.

(3)Enhancing Cohesion and Sense of Identity

In addition to the up-bottom support, the government also strengthens residents' spontaneous awareness and cultivates residents' self-consciousness and cohesion

(4)Social media promotion

The renovated Furukawa-cho has become a famous tourist attraction in Japan, receiving millions of tourists every year, which has boosted the development of Furukawa-cho’s tourism industry, promoted the return of young people who have left the town to find jobs, and revitalized the community atmosphere. The animated film "Your Name" released in 2018 was filmed here, and media promotion has expanded the influence of Furukawa-cho’s culture.

2.Renovation Measures

(1)Buildings Renovation

Figure 4-14 Buidings Renovation in Furukawa-cho
(Source: baidu)

Furukawa-cho has a nicknamed as the hometown of carpenters. There are more than 160 carpenters in the town who are already famous throughout Japan. All the buildings in Furukawa-cho are built in the old way. All structures are connected by mortise and tenon without nails, which preserves the precision and rigor of traditional Japanese wood construction. From the shape of wooden houses to eaves, windows, grilles, and brackets, a rich sense of unity is formed. In terms of architectural details, each craftsman has his own creative characteristics in decorative patterns. The cloud-style carvings of houses created by different craftsmen are different, forming distinctive and holistic architectural and cultural characteristics.

At the same time, in order to protect the street style, the residents of Furukawa-cho have reached an unwritten consensus, such as the height of the building must not exceed the height of the three ancient temples in Furukawa-cho, and the materials, colors, and styles of the building cannot be unconventional.

With the development of tourism, in order to avoid the damage of commercialization to Furukawa-cho in the future, the Furukawa-cho government has formulated the "Furukawa-cho Landscape Management Regulations" to restrict new buildings, and adopt a subsidy mechanism to encourage investors to build houses in accordance with traditional architectural forms and methods, and award the "Furukawa-cho Landscape Design Award" to those who are superior. This respect for traditional life inspires local residents to recognize the value of traditional style.

(2)Road and Landscape Renovation

a) the Seto River Before Renovation

b) the Sewer Cover Renovation

c) the Seto River After Renovation

Figure 4-15 Road and Landscape Renovation in Furukawa-cho
(Source: baidu)

Seto River is an ancient canal in Furukawa-cho, only 1.5 m wide. Before the renovation, it was the place where industrial sewage and domestic sewage were discharged. Not only was the landscape damaged, but its stench also seriously affected the daily life of the surrounding residents.

In the 1960s, in order to prevent the deterioration of the living environment, Furukawa-cho proposed the "Make Society Brighter, Make Streets More Beautiful" campaign, and local residents spontaneously cleaned up the Seto River. Later, the "North Flying Times" launched the "Raising Carp" plan. Koi is considered to be the national fish of Japan. Carp release always reminds residents of their strong sense of responsibility to regularly maintain water quality and guides residents' living habits. Carp is not only used to test water quality, but also to form a special landscape, activate space, cultivate sentiment and increase beauty.

The streets through which Seto River passes are also planned and carefully designed. The street width is about 8 meters, forming a 1:1 aspect ratio with the height of the buildings on both sides. The canal occupies one-third of the street width, and people living next to the water need to cross a small bridge to enter.

Waterways were added using imitation wood, railings were built on small bridges, rest seats were set up, and greenery and leisure trails were built. Today, the Seto River has become a beautiful linear waterfront space, a public place for residents to gather and chat, and the koi

pattern has become a symbolic totem of Furukawa-cho and is used as a decoration for sewers. The renovation has made the Seto River Street a famous street.

(3)Urban Symbiosis

Figure 4-16 Cultural Center
(Source: baidu)

Figure 4-17 Traditional Festivals and Activities
(Source: baidu)

Furukawa-cho has concentrated on displaying the essence of local artisan culture, mobilizing most of the local carpenters to work together to build the "Hiya no Takumi Cultural Hall". The exhibition content is discussed and built by the craftsmen themselves. This move has elevated the town's wood industry and traditional carpentry skills to a refined cultural level. The building itself has become a model for craftsmen, and many Japanese architects and carpenters have also come here to start their learning journey. The "Hiya no Takumi Cultural Hall" has become a milestone in community building. Subsequently, the Hiya Sanqiao Hall, the Hiya Furukawa Festival Hall, the "Koma" Glass Art Museum and other exhibition halls were opened one after another, and various local traditional crafts were displayed and protected, including cloth workshops, folk art furniture, carvings and Furukawa local sake.

Furukawa-cho also attaches great importance to traditional festivals and customs. All festivals such as the Three Temples Worship, Snow Candles, and the Furukawa Festival are jointly planned and completed by all residents of Furukawa-cho. Residents who work away from home will return to participate in the sacrificial ceremonies and discuss division of labor and cooperation. This is an important process in the formation of cohesive consciousness and cultural heritage awareness. Many foreign tourists join in the festival celebrations and learn about the customs and culture of Furukawa-cho while traveling. Traditional festivals inherit local culture and also shape the centripetal force of local residents, generations, and neighbors.

Media dissemination has enabled out-of-town and foreign tourists to join in, driving local economic development and expanding the influence of Furukawa-cho culture[77].

4.4 Other Cases

4.4.1 Singapore: Urban Roof Gardens Construction under Policy Incentives

Singapore has a land area of only 728 square kilometers, a population density of 8,358 people/square kilometer (2023), and extremely scarce land resources. Traditional plane greening is difficult to meet ecological and livable needs, forcing cities to expand greening to vertical space. Since the founding of the country in 1965, the Singapore government has introduced the concept of "garden city". Its core goal is to build a city that integrates living, working, leisure and fun in the garden. The Singapore Green Plan (SGP) promulgated in 1992 is Singapore's first environmental development blueprint, aimed at helping Singapore establish an environmentally friendly economic development model. After more than 10 years of exploration, the Ministry of Environment and Water Resources (MEWR) promulgated the "2009 Singapore Sustainable Development Blueprint" in 2009, taking vertical greening as the main measure to solve sustainable development problems, and established a goal of 50hm^2 of national aerial greening area by 2030. Then, in the "2015 Singapore Sustainable Development Blueprint" promulgated in 2015, the 2030 target was raised to 200hm^2[78].

The government has also set up a "Garden City Action Committee" to formulate policies and decide on the construction guidelines of the garden city. At the same time, the government has also set up the National Parks Board to be responsible for the specific implementation. With the support of a series of national policies, roof gardens have become a carrier for balancing the high-density development of cities and ensuring green open spaces. In Singapore, roof gardens are part of the architectural design and are integrated with the city, architecture and nature.

In recent years, Singapore has adopted incentive and assistance measures such as plot ratio compensation and green roof subsidies to encourage developers to use roof gardens, sky corridors and other methods to build multi-dimensional vertical greening in various projects[79].For example, if rooftop lawns or rooftop gardens are built on old stock buildings, the government will subsidize 50 % of the construction costs (up to S$200,000 per project);

green building certification projects can enjoy property tax exemptions; the government will award the "Garden City Award" to developers who build rooftop gardens on high-rise buildings and provide floor area ratio subsidy incentives.

4.4.2 Shenzhen: Nanyuan Green Cloud Rooftop Co-construction Garden

The project is a component of the "2021 Nanshan Co-construction Garden" activity, led by the Nanshan District Urban Management and Comprehensive Law Enforcement Bureau and co-sponsored by the Shenzhen Green Foundation, Shekou Community Foundation and The Nature Conservancy (TNC). The project is located on the roof of a six-story apartment building in the urban village. The project combines the two concepts of "rooftop greening (low carbon)" and "co-construction garden (community creation)" to create a new community space.

Figure 4-18 Nanyuan Green Cloud Rooftop Co-construction Garden
(Source: gooood)

The design plan is a 450 m^2 rooftop garden, including a partially shaded activity square and surrounding flower beds and farms. In order to facilitate promotion, the design adopts the strategy of creating space with basic unit modules, and responds to different conditions by flexibly arranging unit modules. The flower beds and farms use finished plastic logistics transfer boxes as planting box units to form a landscape.

In order to attract local residents to spontaneously come to the rooftop for activities, a rental farm was designed and created. The responsibility fields consisting of planting boxes were rented out to community residents in quantity, and the apartment was responsible for

basic management and maintenance. The rooftop activity space was also rented out to other units in different time periods to hold various gatherings and activities[80].

4.4.3 Hong Kong: Strict Management of Illegal Structures

Illegal structures are buildings that are built or renovated without government approval.

Hong Kong has a strict policy on the management of illegal structures, mainly based on the "Buildings Ordinance" (《建筑物条例》) (Chapter 123) and related regulations. In terms of law enforcement, the Buildings Department is the main responsible department. After discovering illegal structures through inspections, citizen reports, drone aerial photography, etc., it will issue a "Demolition Order" to the owner, requiring them to demolish them within a time limit. If the owner does not comply, the government can demolish the buildings on his behalf and recover the costs from the owner, or even initiate criminal prosecution. According to current regulations, the maximum penalty is 2 years' imprisonment and a fine of HK$500,000. Persistent offenders may be fined HK$50,000 per day[81].

The government is particularly concerned about high-risk illegal structures, such as those that affect fire escape routes and structural safety, as well as illegal expansion of village houses in the New Territories. For minor illegal structures in urban areas, such as clothes drying racks and air-conditioning racks, the government is studying the implementation of a reporting system and suspending enforcement to concentrate resources on handling serious illegal structures[82]. If citizens find suspicious illegal structures, they can report them through the Buildings Department hotline or online form. The government has launched a "Voluntary Reporting Scheme for Unauthorized Structures" in the past to encourage owners to rectify the problems themselves, and some cases can be treated with leniency.

4.5 Chapter Summary

This chapter demonstrates the practice of micro-renewal of public space interfaces in different regions through the analysis of the renovation of the North-south Streets in Nantou Ancient Town in Shenzhen, the facade renovation of Via San Lorenzo in Italy, the Furukawa-cho renovation in Japan, and several other representative cases, and explores the diverse paths and implementation mechanisms of informal renovation of roofs, exterior walls, and roadsides in different cultural backgrounds and urban contexts.

This chapter focuses on renovation strategies and measures, and sorts out key features such as daily embedding of interface space, sustainability of informal intervention and multiple modes of community participation. Compared with the serious urban renewal path dominated by formal planning, these cases emphasize micro-intervention, low-cost renovation and reconstruction of cultural scenes, as well as more flexible and life-oriented management, laying a solid foundation for the construction of guidelines in the next chapter.

Chapter V Optimization Guidelines for Public Space Interfaces

5.1 General

5.1.1 Optimization Aim

The renovation of the public space interfaces in the middle section of Yudai Mout aims to create a public space with both historical and cultural heritage and modern vitality by optimizing the spatial layout, improving the landscape quality, and improving the public facilities and architectural style. The renovation focuses on the human experience, creating a safe, comfortable and convenient walking environment, while strengthening the historical and cultural characteristics of Yudai Mout and showing its unique historical style. By optimizing the public space interfaces, the vitality of the area is stimulated, and the harmonious coexistence of people and the environment is promoted, making it a historic area with cultural heritage, ecological livability and social vitality.

5.1.2 Optimization Scope

The optimization scope is the middle section of Yudai Mout, which belongs to the eastern part of Beijing Road and Guangzhou Qiyi Road, starting from Beijing Road in the east and ending at Fulin Lane in the west, with a total length of 292 meters, including 52 buildings on both sides. The optimization objects are the public space interfaces, including the roof, exterior wall and roadside.

5.1.3 Optimization Principle

1.Principle of layered protection

To respect the time-layered characteristics of the space in the historical urban area and retain the traces of spatial renovation in different periods. To avoid homogeneous cleaning, and form a recognizable symbiotic relationship between informal renovation and the original historical texture through material comparison and structural differentiation in interfaces optimization.

2.Principle of flexible intervention

To continue the adaptive wisdom of spontaneous folk renovation of space and adopt light intervention. For illegal but reasonable renovation, to provide standardized safety renovation

guidance instead of simply banning it; for destructive renovation, implement rigid control.

3.Principle of local translation

To transform the folk wisdom in informal renovation into design language, translate it through modern materials and technology, and form an interface update strategy that conforms to the norm but retains local memory.

4.Principle of process control

To establish a dynamic evaluation mechanism, monitor the evolution of the interfaces through regular Modernology records, and transform the optimization guidelines from a fixed blueprint to an iteratively adjustable operation manual.

5.2 Current Situation Analysis

5.2.1 Architectural Features

The buildings on both sides of the middle section of Yudai Mout were built earlier and were not planned in a unified manner. They have different architectural forms and different exterior finishing materials, resulting in poor coordination of styles. In addition, due to improper subsequent maintenance, some buildings now have damaged roofs and messy exterior walls, which affects the living experience.

5.2.2 Yudai Mout Historic Water System

The middle section of Yudai Mout is now a narrow living street. The potholes and damage on the road surface cause traffic noise to disturb the residents. The low terrain leads to serious water accumulation. There are serious phenomenon of roadside construction and business occupying the road. The disorderly parking of non-motor vehicles affects public travel.

5.2.3 Public Landscape Space

Residents pile up sundries and dry them in the green space, and the fitness equipment is old and rarely used. Except for the archway on the east side and the drainage holes dug by residents on the roadside, Yudai Mout is difficult to identify in the existing streets and alleys.

5.2.4 Urban Management

In the middle section of Yudai Mout, management is solely undertaken by the Gaodi

Street Community, resulting in inadequate property management resources. The quality of the public environment remains suboptimal, and there is a noticeable lack of residents' sense of belonging and community cohesion.

5.3 Optimization Plan

5.3.1 Building Optimazation

5.3.1.1 Roof Addition

Residents are encouraged to remove roof additions that have not obtained a construction project planning permit.

Table 5-1 Roof Style Recommendation

(Source: baidu)

Slope Roof		
		
a) Traditional terracotta	b) Magnesium aluminum manganese metal plate	c) Matte metal tiles
Flat Roof		
		
a) Large step brick	b) Mashi	c) Glued laminated timber
		
d) Soft light brick	e) Washed stone	f) Self-leveling coating

5.3.1.2 Roof Repair

Repair damaged and leaking roofs. For slope roof repair, it is recommended to use ceramic tiles, matte metal tiles, aluminum-magnesium-manganese metal plates, matte resin tiles and other materials. When using traditional methods, the eaves and ridges should be made in accordance with the traditional residential building methods in Guangzhou; when using modern methods, it is recommended to choose the form of hard mountain top, the ridge

should be covered, and the eaves should be equipped with gutters, eaves railings and other components. For flat roof repair, it is recommended to use large step bricks, granite, templates, soft light bricks, crushed stone and broken bricks and other materials, and do a good job of roof drainage.

5.3.1.3 Handrail

Table 5-2 Handrail Style Recommendation

(Source: baidu, photoed by the author)

		
a) Painted pottery	b) Concrete (No. 132, Danan Road)	c) Cast iron

Repair damaged handrails. Install handrails on roofs with insufficient parapet height. It is recommended to use the same finish as the wall, as well as painted pottery, hollow brick walls, cast iron, etc., with traditional patterns preferred. The handrails on the balcony should be coordinated with the roof.

5.3.1.4 Wall Finish

Repair damaged and leaking walls, and regularly paint and clean exterior wall finishes.

For wall finish selection, it is recommended to use materials such as plain bricks, water-brushed stone, washed stone, terrazzo, split bricks, etc. The colors are mainly low-saturation solid colors, and bright colors can be used locally.

5.3.1.5 Doors and Window

Tanglong doors and matte metal doors are recommended for residential entrance doors. Wood, matte metal and other materials are recommended for rolling shutter doors.

The window styles of the same building should be coordinated. It is recommended to use conventional style windows, with window frames made of wood, matte metal and other materials, and colorless glass for window glass. It is recommended to install special windows such as stained glass windows that conform to regional characteristics.

Table 5-3 Wall Finish Style Recommendation
(Source: baidu)

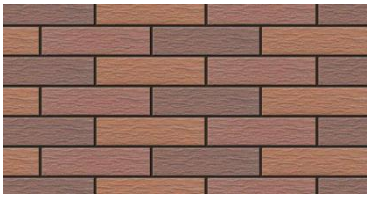
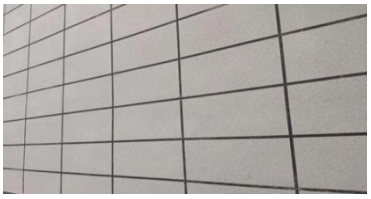
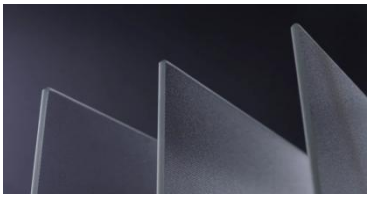
		
a) Clear water brick	b) Red brick	c) Washed stone
		
d) Terrazzo	e) Splitting brick	f) Full body tiles
		
g) Fired Stone	h) Normal stone	i) Paint

Table 5-4 Door Style Recommendation
(Source: baidu, photoed by the author)

		
a) Tanglong door	b) Matte metal door (No. 8, Kezhu Lane)	c) Wooden rolling door

Table 5-5 Window Style Recommendation
(Source: baidu)

		
a) Matt metal window frame	b) Colorless glass	c) Traditional windows

5.3.1.6 Anti-theft Net

Table 5-6 Anti-theft Net Style Recommendation

(Source: baidu, photoed by the author)

		
a) Invisible anti-theft nets	b) Plant decoration (No. 18, Kezhu Lane)	c) Anti-theft nets inside windows (No. 10, Fulin Lane)

For balcony: It is recommended to remove the convex anti-theft nets. It is recommended to remove the flat anti-theft nets or use invisible anti-theft nets, equipped with infrared alarms and cameras for safety protection. It is recommended to decorate the anti-theft nets with potted plants or use paint of the same color as the exterior wall finish. Correct the balcony space enclosure behavior.

For window: It is recommended to remove the convex anti-theft nets. It is recommended to remove the flat anti-theft nets or modify them to the inside of the window sash.

5.3.1.7 Canopy

Table 5-7 Canopy Style Recommendation

(Source: baidu, photoed by the author)

		
a) Plain PVC board	b) Stainless steel board (No. 9, Nansheng East Lane)	c) Foldable canopy

The balcony and window canopy style of the same building should be the same. It is recommended to use plain PVC board or stainless steel board with metal bracket, adopt gutter drainage or curved surface drainage and do a good job of noise reduction. The remaining canopy brackets shall be removed.

The net height of the entrance canopy from the ground shall not be less than 3.5 m. It is recommended to use plain PVC board or stainless steel board with metal bracket, adopt gutter drainage or curved surface drainage and do a good job of noise reduction. For canopies with large overhang depth, it is recommended to use foldable style. The canopy should not block the store sign too much, and the overhang depth shall not exceed 2.5 m.

5.3.1.8 AC Outdoor Unit

Relocate and organize the disorderly placed AC outdoor units. It is recommended to place them in the recess of the balcony or facade, or use a machine cover to cover them. Remove the remaining outdoor unit brackets.

5.3.1.9 Rainwater and Sewage Pipe

Rainwater and sewage in the house should be discharged in an organized manner using pipes. It is recommended to use materials such as ceramic pots, matte metal pipes, or paint spray pipes with the same paint as the wall.

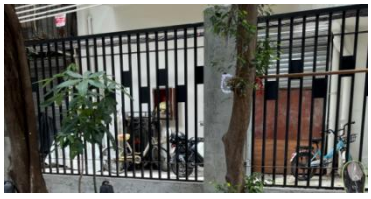
Table 5-8 Rainwater and Sewage Pipe Style Recommendation
(Source: baidu, photoed by the author)

		
a) Ceramic pipe (No. 98, Danan Road)	b) Matte metal tube	c) Paint spray tube (No. 20, Gaodi New Street)

5.3.1.10 Courtyard Wall

Remove the thorns on the courtyard wall. It is recommended to use hollow railings or install hollow side windows.

Table 5-9 Courtyard Wall Style Recommendation
(Source: baidu, photoed by the author)

		
a) Hollow railing (No. 132, Danan Road)	b) Hollow railing (No. 102, Danan Road)	c) Hollow window

5.3.1.11 Exhaust Duct

Professionally renovate the exhaust duct on the exterior wall, drill holes in a standardized and regular position, and it is recommend using flower windows, installing matte metal hoods, or using paint consistent with the wall to spray paint and decorate white PVC hoods to coordinate with the exterior wall finish.

Table 5-10 Exhaust Duct Style Recommendation
(Source: baidu, photoed by the author)

		
a) Ventilation hood	b) Ventilation hood	c) Ventilation window (No. 8, Kezhu Lane)

5.3.2 Road Optimazation

5.3.2.1 Roadside Addition

Demolish the roadside additions which has not obtained a construction project planning permit.

5.3.2.2 Roadside Business

Strengthen the management of the roadside business, and support the outdoor display of night-time shops such as bars, but do not allow facilities to occupy the road during non-business hours.

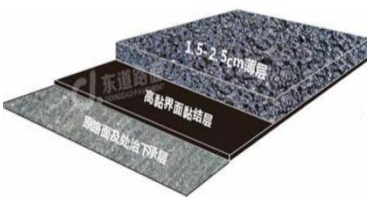
Strengthen the management of the roadside business of mobile vendors, and to set up special business areas.

5.3.2.3 Drying in Public Areas

Strengthen the management of drying clothes in public areas and placing cleaning supplies outside, and set up a community shared laundry room to provide residents with laundry and drying services.

5.3.2.4 Road paving

Table 5-11 Road Paving Style Recommendation
(Source: baidu)

		
a) Elastic asphalt pavement	b) Rubber pavement	c) Thin layer noise reduction pavement

Use elastic asphalt, rubber, thin layer noise reduction and other low-noise materials to repair and pave the road.

5.3.2.5 Road Drainage

Table 5-12 Road Drainage Style Recommendation
(Source: baidu)

		
a) Roadside drains	b) Drainage curbstones	c) Drainage ditch cover

Establish special linear drainage ditches and drainage curbstones, and design drainage ditch covers with Yudai Mout characteristics.

5.3.2.6 Parking

Standardize non-motor vehicle parking areas and install battery vehicle charging stations. Standardize freight cart parking.

Table 5-13 Parking Planning Recommendation
(Source: baidu, photoed by the author)

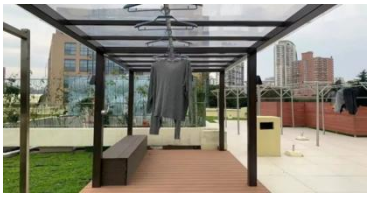
		
a) Non-motor vehicle parking	b) Electric bikes charging stations	c) Cart parking (No. 100, Danan Road)

5.3.3 Landscape Optimazation

5.3.3.1 Rooftop garden

It is recommended to use greening to arrange rooftop gardens.

Table 5-14 Rooftop Garden Planning Recommendation
(Source: baidu)

		
a) Rooftop Garden	b) Rooftop Garden	c) Rooftop garden combined with sun drying

5.3.3.2 Roadside Garden

It is recommended to use greening to arrange roadside gardens. But potted plants should not extend beyond the curbstone boundary.

Table 5-15 Roadside Garden Planning Recommendation
(Source: baidu, photoed by the author)

		
a) Front garden (No. 231, Gaodi Street)	b) Front garden (No. 6, Zhuji Lane)	c) Front garden

5.3.3.3 Shared Garden

It is recommended to use potted plants to arrange shared gardens under the trees in front of the wall of No. 132, Danan Road.

Table 5-16 Shared Garden Planning Recommendation
(Source: baidu)

		
a) Shared Garden	b) Shared Garden	c) Shared Garden

5.3.3.4 Shared Fitness Area

Renovate existing fitness equipment and to add more varieties as appropriate.

5.3.4 Urban Management Optimazation

People are encouraged to set up autonomous committees or discussion groups, hold regular meetings, formulate community management conventions, and jointly discuss community public affairs to enhance residents' sense of participation and belonging. In the process of optimizing the public space interfaces, community residents, designers, property management, government and other parties are invited to participate to ensure that the optimization design of the public space interfaces respects history and meets public needs.

5.4 Chapter Summary

This chapter takes the middle section of Yudai Mout as the research scope, and systematically carries out current situation analysis and formulation of optimization plans. Based on the current analysis, this chapter summarizes the various problems in the middle section of Yudai Mout in four aspects: architecture, water system, public landscape space and urban management, and proposes a series of operational interface optimization plans based on

actual conditions.

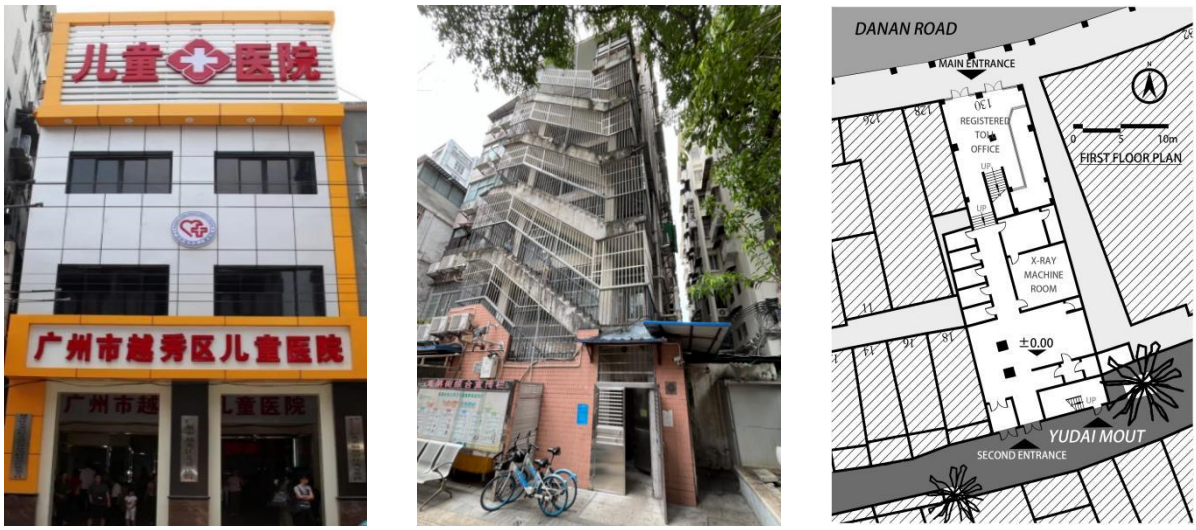
The General Principles section defines the objectives, scope and principles of the guidelines; the Current Situation Analysis reveals the problematic characteristics of the current interface use through multiple dimensions; and the Optimization Plan explores flexible embedding and low-intervention renovation methods on the basis of maintaining the spirit and historical texture of the place, so as to promote the continuity, accessibility and livability of the public space interface.

The formulation of the guidelines in this chapter not only responds to the actual needs of users, but also reflects the emphasis of contemporary studies on the value of daily space governance and informal renovation, and provides a reference paradigm that can be learned and promoted for the renovation practice of similar areas in Guangzhou's historic urban areas.

Chapter VI Optimization Design of Public Space Interfaces

6.1 Optimization Design of Public Buildings

6.1.1 Yuexiu District Children's Hospital



a) Frontage in Danan Road b) Frontage in Yudai Mout c) Current Situation Plan

Figure 6-1 Current Information of Yuexiu District Children's Hospital
(Source: baidu, photoed and drawn by the author)

Yuexiu District Children's Hospital was established in 1958 and is one of the only two children's hospitals in Guangzhou. The hospital has three campuses. The main hospital is located at No. 130, Danan Road, in the middle section of Yudai Mout.

The hospital currently has 7 floors, of which the 6th floor and above are operating rooms that are not open to the public. The 7th floor is a later top floor addition. The roof layer is damaged and leaking, and it is simply repaired with color steel plates. The internal space of the hospital is seriously insufficient. The office area is located on the top floor of Yizhi Hotel, No. 82, Danan Road, and the medical and nursing rest area is located at No. 221, 223, 225, 227, Gaodi Street. There is only one public stairwell inside the hospital. In order to meet the fire protection needs, an evacuation staircase is installed on the side along Yudai Mout, but the stairs are all sealed with anti-theft nets, and the air-conditioning outdoor unit and smoke exhaust duct are installed in a disorderly manner, and the aesthetics needs to be improved. There are Danan Road entrance and Yudai Mout entrance on the first floor of the hospital, but the Yudai Mout entrance is poorly marked.

Based on the above spatial characteristics, it is planned to optimize the Yuexiu District

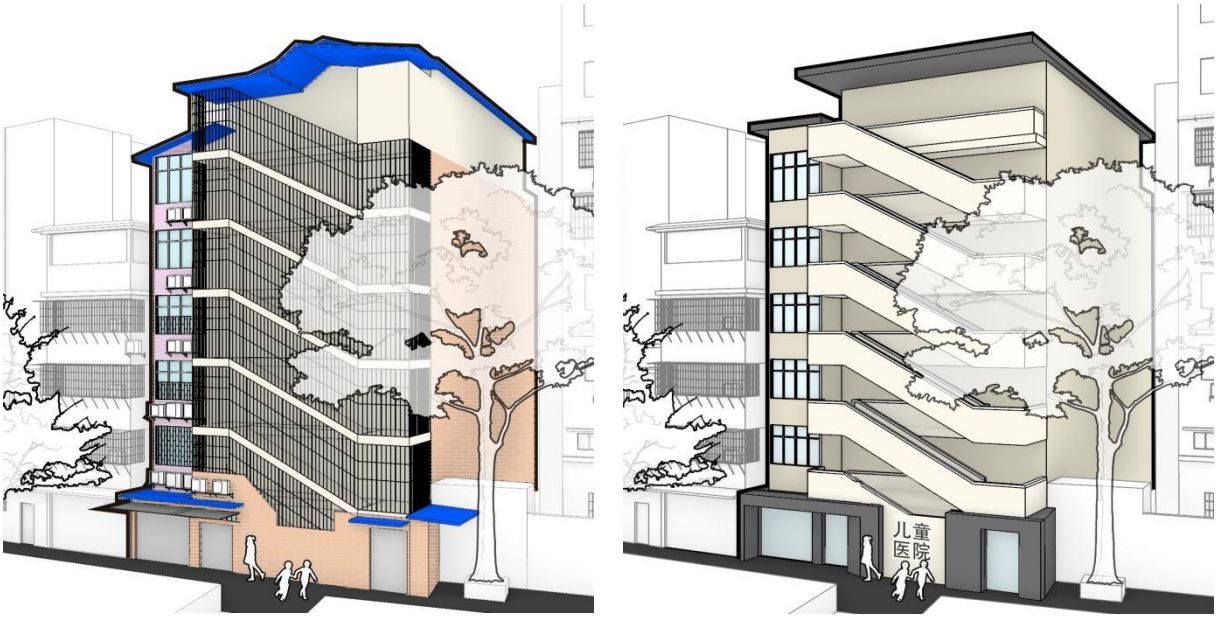
Children's Hospital and take the following measures:

1.According to the actual situation, retain the roof addition layer and make structural reinforcement and roof repair measures.

2.In order not to encroach on the public road of Yudai Mout, the entrance of Yudai Mout on the first floor is concave to form a canopy space, and the entrance sign is strengthened.

3.Remove the anti-theft nets of the evacuation stairs on one side of Yudai Mout, strengthen the facade characteristics of the single-flight staircase, install handrails suitable for children's use on the inside of the solid wall guardrail, and take corresponding measures to prevent the stair surface from slipping.

4.Modify the pink and orange tile finish, and move the pipeline facilities to the side wall of the building.



a) Before the renovation b) After the renovation

Figure 6-2 Illustration of Outlook of Yuexiu District Children's Hospital

(Source: drawn by the author)

a) Handrail Illustration

b) Staircase Treads Illustration

Figure 6-3 Illustration of Stairs before and after Renovation

(Source: baidu)

6.1.2 Convenient Rest Station

a) Current Status of Residential Buildings at No. 221, 223, 225, 227, Gaodi Street

b) Outdoor Observation Area of Yuexiu District Children's Hospital

Figure 6-4 Current Status of the Hospital and the Residential Buildings

(Source: photoed by the author)

The Yuexiu District Children's Hospital rents the houses at No. 221, 223, 225, 227, Gaodi Street as a rest station for medical staff, where they eat lunch and take a short break during breaks. The houses are traditional red brick buildings, aging buildings, with damaged and leaking roofs, which are simply repaired with asbestos boards. The buildings are overgrown with weeds, and air conditioners and simple canopies are arranged along the street.

The indoor lighting is poor, the indoor rental space is insufficient, the stairs are steep, and climbing is difficult. At the same time, the internal space of the Yuexiu District Children's Hospital is seriously insufficient, and parents bring their children here for vaccination. The hospital occupies the middle section of Yudai Mout public street to arrange a vaccine observation area. The observation area is an open-air outdoor space. Although there are canopies and fans, it is hot in summer and the comfort level is poor.

Based on the above spatial characteristics, it is planned to optimize the residential buildings and take the following measures:

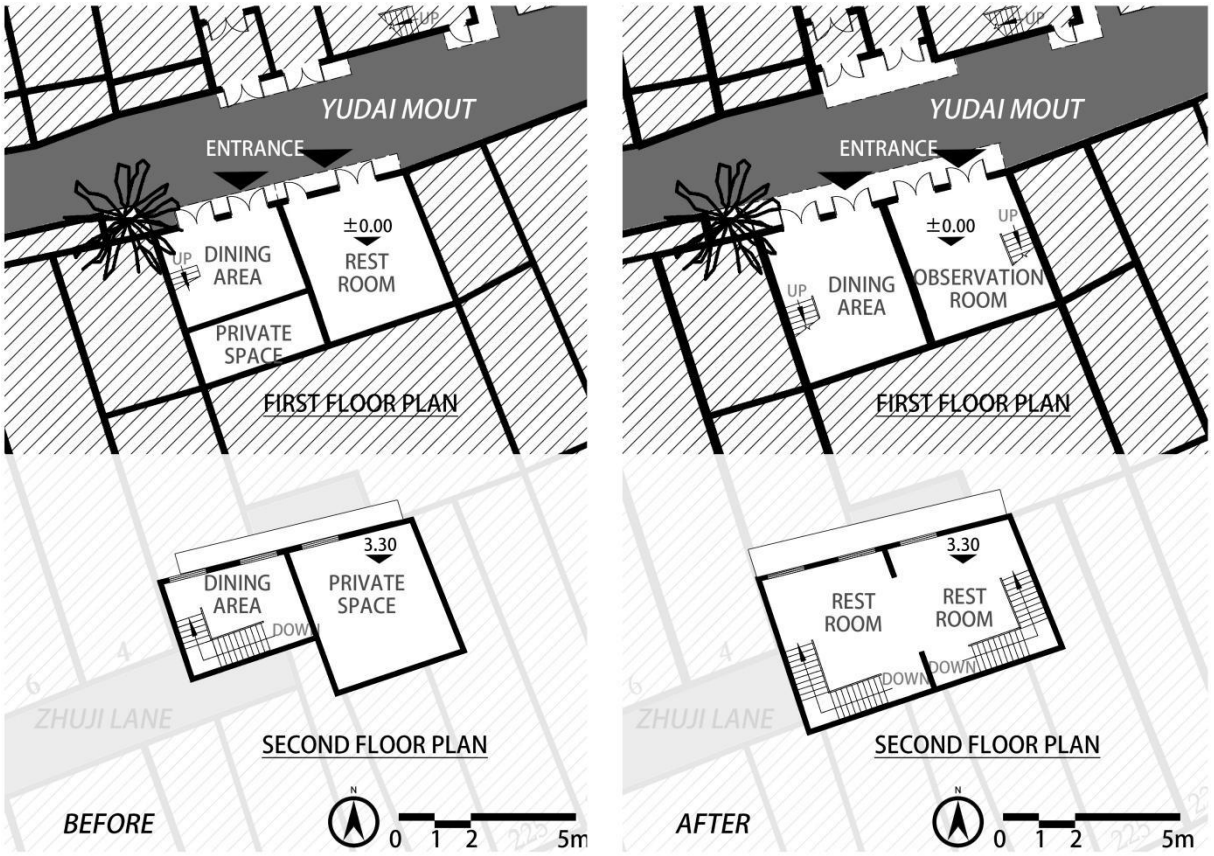
1.Renovate and repair the existing buildings and renovate the canopy in front of the door.

2.Increase the hospital's rental area, enrich the functional layout, arrange indoor vaccine observation rooms, dining areas for medical staff, rest areas for medical staff, and repair the stairwells.

a) Before the renovation b) After the renovation

Figure 6-5 Illustration of Outlook of Convenient Rest Station

(Source: drawn by the author)



a) Plan before Renovation b) Plan after Renovation

Figure 6-6 Plan of the Convenience Rest Station before and after Renovation
(Source: drawn by the author)

6.1.3 Shared Laundry

Guangzhou experiences a prolonged rainy season and frequent occurrences of returning damp, leading to persistent issues with damp clothing that have long troubled residents. Field research reveals that the central section of Yudai Mout is oriented north-south, with densely packed buildings on both sides, resulting in limited direct sunlight exposure. Due to the narrow living spaces, some households lack washing machines and rely on hand-washing their clothes. Additionally, constrained by space and cost, many have not installed dryers. Consequently, residents often dry clothes and cleaning items in public spaces, which negatively impacts the street's visual appearance. In response to these conditions, it is proposed to repurpose nearby land for the construction of a community shared laundry facility to meet residents' drying and washing needs.

a) Site status

b) Illustration after Renovation

Figure 6-7 Current Status and Renovation of Shared Laundry
(Source: photoed and drawn by the author)

No. 2, Kezhu Lane is now an abandoned vacant lot, the original building has been demolished and overgrown with weeds. Here it is planned to build a community shared laundry room on the original site, and the following design strategies are proposed:

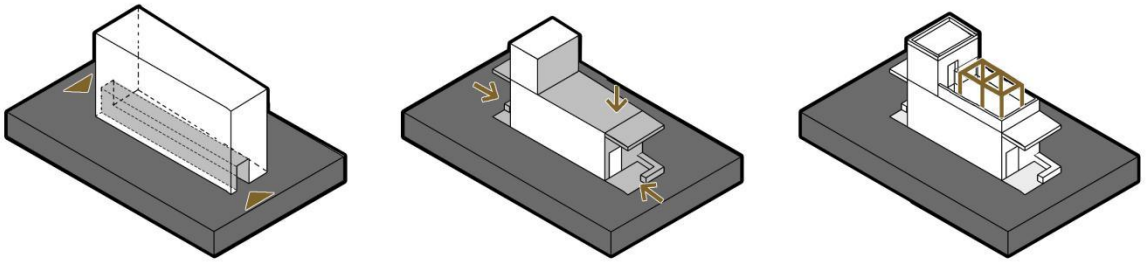
a) Interior Layout of Shared Laundry

b) Shared Laundry Terrace Layout

Figure 6-8 Illustration of the Shared Laundry after Renovation
(Source: baidu)

1.It is planned to build a two-story building: the first floor is the washing and drying area, and the second floor is the drying platform. The shared laundry has entrances on both the Kezhu Lane side and the Yudai Mout side, which is convenient for residents on both sides to use together. There is outdoor waiting areas in front of the doors for residents to rest and stay here. There is a large drying flat on the second-floor terrace, and residents in the surrounding area are welcome to come and dry clothes.

2.The laundry room adopts a self-service mode. To facilitate the use of all people, it has two services: coin-operated and code-scanning. It is automatically disinfected, and technicians are regularly on-site for maintenance and cleaning.



a) Open up the channel at the bottom layer

b) Indent the block to create a space in front of the door. Sunk the block to create a platform

c) Arrange open-air clothes drying racks on the platform

Figure 6-9 Shared Laundry Generation
(Source: drawn by the author)

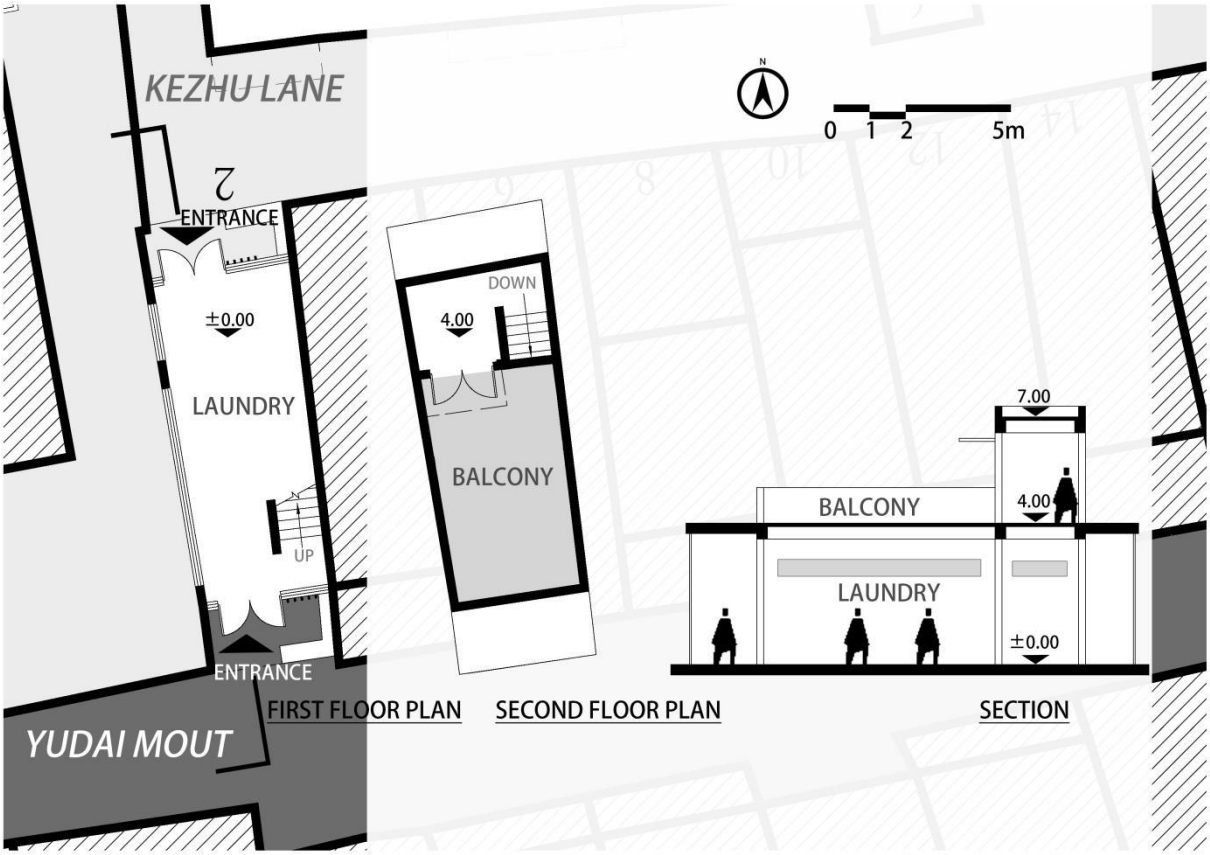


Figure 6-10 Shared Laundry Drawing
(Source: drawn by the author)

6.2 Optimization Design of Taller Residentials

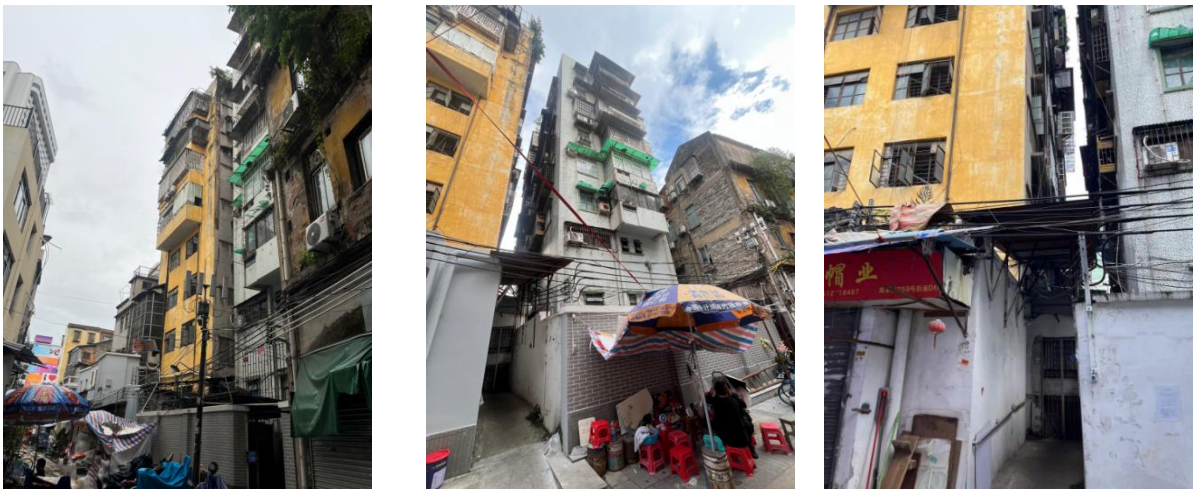


Figure 6-11 Current Status of the Taller Residentials
(Source: photoed by the author)

No. 255, 257, 259 and No. 247, 249, 251, 253, Gaodi Street are two taller buildings in the site, with 10 and 8 floors respectively, and the main entrance of the building is at the Yudai Mout side. However, the wall skin of the building is aging and peeling, the balconies and windows are damaged, and residents mostly use color steel plates and other materials for enclosure. The canopies are aging and damaged, and some are left with empty brackets on the wall. In addition, the AC outdoor units are also arranged disorderly along the street. There are roof additions on No. 225, 257, 259, Gaodi Street, and the commercial ground floor of the building now uses color steel plate canopy. All of the above phenomenon affect the beauty of the public space interfaces.

Based on the above spatial characteristics, it is planned to optimize the appearance of the two buildings and take the following measures:

1.Due to the short of indoor space, keep the roof addition, renovate and repair the existing building exterior, use light-colored finishes to weaken the building volume, and use spray paint or paint on the rainwater and sewage pipes in the same color as the finishes.

2.Keep the anti-theft nets on the balconies and windows, but it is recommended not to block the balconies and windows too much. It is recommended to install lighting, plants, etc. to beautify the anti-theft nets. Centrally manage the canopies of the building exterior walls, and try to use the same style. Arrange the AC outdoor unit positions on the side of the building.

3.Open windows on the courtyard walls of No. 247, 249, 251, 253, Gaodi Street to increase visual communication.

a) Before the renovation b) After the renovation

Figure 6-12 Illustration of Outlook of Taller Residentials

(Source: drawn by the author)

6.3 Optimization Design of Road Paving

The road has an old and bumpy surface and heavy traffic that the drainage problems and traffic noise have troubled residents for a long time. In addition, the road has insufficient signage, and residents can only identify Yudai Mout from the outer wall of the east entrance. At the same time, the middle section of Yudai Mout has disorderly parking and commercial goods placed outside, encroaching on public space.

Based on the above spatial characteristics, it is proposed to optimize the middle section of Yudai Mout road by taking the following measures:

1.Optimize road paving. Rubberized asphalt and other elastic materials are laid on the main road surface to reduce traffic noise. Add side ditches on one side of the road for organized drainage.

2.Optimize roadside layout. Use paving materials different from the main road surface to mark non-motor vehicle parking spaces in key areas and limit the scope of roadside commerce.

3.Enhance the historical identification of Yudai Mout. Preserve the historical memory of

the water system through ground paving patterns, night road lighting, side ditch cover design, etc.

a) Pavement with Historical Information Decoration

b) Pavement Symbolizing Water System

c) Night Lights Symbolizing the Water System

Figure 6-13 Road Paving Suggestions
(Source: pinterest)

6.4 Optimization Design of Space under the Trees

No. 132, Danan Road, is surrounded by a solid wall on the side close to the middle section of Yudai Mout. The wall was white and decorated with paintings, but the subsequent maintenance is not in place, and the wall is aging and damaged. There are five large trees planted in front of the wall. The trees are about 15 meters tall and have branches and leaves, providing a lot of shade for residents. Residents use the space under the trees to park bikes, stack sundries, dry clothes, and grow their favorite potted plants. The disorderly management has a certain negative impact on the street appearance.

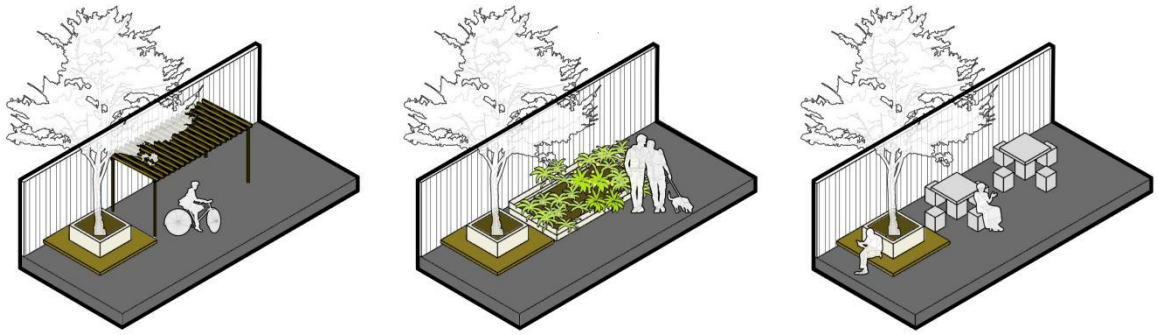
Figure 6-14 Current Usage of Space under the Trees
(Source: photoed by the author, baidu)

Based on the above spatial characteristics, it is planned to optimize the space under the trees and take the following measures:

1.Replace the solid wall with a hollow fence to enhance the visual penetration between the streets and alleys.

2.Renovate the tree pools, increase the height and size, and add seat backs to transform the tree pool surface into a seat for rest.

3.Provide choices about the use of the space under the trees: add non-motor vehicle charging piles and parking sheds to solve the problem of disorderly parking in the middle section of Yudai Mout; add a garden under the trees to add space for residents who like gardening; add tables and chairs to provide residents with infrastructure such as rest, chat and chess games, etc.. Residents discuss and vote at the neighborhood committee meeting to jointly decide on a plan that is suitable for the middle section of Yudai Mout and in line with social conditions and public opinion. Admittedly, the installation of infrastructure will increase the management cost of the property accordingly, but the property should increase manpower to contribute to the improvement of the public environment.



a) Parking Shed under the Trees b) Gardens under the Trees c) Furniture under the Trees

Figure 6-15 Suggestions for Space Using under the Trees

(Source: drawn by the author)

6.5 Comparison Before and After Optimization

Figure 6-16 Optimization Illustration Comparison of the North Side's Eastern Section
(Source: drawn by the author)

Figure 6-17 Optimization Illustration Comparison of the North Side's Western Section
(Source: drawn by the author)

Figure 6-18 Optimization Illustration Comparison of the South Side's Western Section
(Source: drawn by the author)

Figure 6-19 Optimization Illustration Comparison of the South Side's Middle Section
(Source: drawn by the author)

Figure 6-20 Optimization Illustration Comparison of the South Side's Eastern Section
(Source: drawn by the author)

6.6 Chapter Summary

Based on the previous research and guidelines, this chapter further proposes specific optimization illustrations for the public space interfaces in the middle section of Yudai Mout. Through the detailed design of four key elements: public buildings, taller residentials , road paving, and space under trees, the research strives to present a spatial renewal vision that takes into account both historical continuity and adaptability to life. By comparing the public space interfaces on the north and south sides of the middle section of Yudai Mout before and after optimization, the positive impact of local intervention on the overall street atmosphere and life experience is comprehensively demonstrated.

The optimization intention proposed in this chapter is not to demolish and rebuild the original space, but to respond to the actual needs of users and the subtle renovation of local life logic. Through subtle interventions and attempts to integrate informal elements, it provides a concrete example and design inspiration for revitalizing and enhancing the publicity of similar interfaces in Guangzhou's historic urban area.

Conclusion

1.Research Conclusions

Based on the perspective of Modernology, this research takes the middle section of Yudai Mout in Guangzhou as the research scope, conducts field investigation and analysis around the informal renovation phenomenon of the public space interfaces in the historic urban area, and strives to build a bridge of understanding and communication between macro governance and micro practice. The research mainly draws the following conclusions:

As the intersection of the formal management system and the daily practice of the people, the public space interfaces in the historic urban area has long existed the tension between institutional regulation and life needs. As the spontaneous response of users to urban space, informal renovation not only reflects the local spatial adaptation strategies, but also reflects the insufficiency of the formal governance system in terms of flexibility and responsiveness.

The Modernology method shows strong explanatory power and practical significance in this research. Through field observation and inductive analysis of informal renovation behaviors, this research reveals the motivation behind these behaviors, provides a dimension of understanding that is closer to the needs of the people for the renovation of the historic urban area, and emphasizes that governance should start from the living scene.

As a research case, the middle section of Yudai Mout presents the characteristics of historical and cultural heritage, high residential density, and multiple governance subjects. The informal renovation phenomenon is rich and typical and representative. Practical cases in this area show that a single, rigid governance approach is difficult to adapt to the complex reality of the public space interface. Exploring multi-governance and negotiated renewal paths has become an important direction for spatial governance in historic urban areas.

2.Research Innovations

This research combines the perspective of Modernology and redefines informal renovation of public spaces in historic urban areas, emphasizing the unique status and value of informal renovation in the revitalization of historic urban areas, and promoting new developments in space renovation theory and practice. The main innovations are as follows:

(1)Application of the perspective of Modernology

This research is the first to introduce Modernology into the research of informal renovation of public space interfaces in Guangzhou's historic urban areas, breaking through the limitations of traditional spatial renovation theory, emphasizing the in-depth understanding and investigation of the current use of urban space, and providing a bottom-up perspective for subsequent research. Through the investigation of the middle section of Yudai Mout, a more realistic renovation guideline is provided for informal renovation and formal governance.

(2)Re-evaluation of the value of informal renovation

In traditional historic urban area renovation, informal renovation is often regarded as an irregular and uncontrollable factor. Through the Modernology analysis of the middle section of Yudai Mout, this research proposes that informal renovation, as a supplementary and spontaneous evolution process of public space in historical urban areas, not only fills the gap in formal construction, but also reflects the inheritance of local cultural identity and historical memory, providing new ideas and methods for other informal renovation studies in the future.

(3)Excavation and practice of local culture

This research innovatively combines local cultural elements with the functional requirements of modern public space. It proposes how to protect and explore local cultural characteristics in informal renovation. This innovation emphasizes that the renovation of historic urban areas is not only the reshaping of external forms, but also the continuation and re-creation of urban memory and cultural traditions.

3.Research Limitations and Prospects

Although this research attempts to approach the issue of historic urban renovation from a new perspective, there are still some shortcomings.

(1)Limitation of the research object

The research scope is limited to the middle section of Yudai Mout. Although it is representative, it cannot fully cover the diverse situations of the historic urban areas of Guangzhou and other cities. Future research should consider expanding the research scope, finding the universality of the informal renovation phenomenon and the universality of the optimization countermeasures, and making better suggestions for policy formulation and

modification.

(2)Limitation of time span

Informal renovation behavior is dynamic and diverse. Limited by the research cycle, the observations and interviews in this research are still stage records and fail to fully present its long-term evolution process. Future research should consider long-term follow-up research to observe the long-term impact and sustainability of informal renovation measures.

(3)Limitation of research depth

Although Modernology emphasizes observation starting from life, it still needs to be combined with more disciplinary methods at the level of institutional analysis and governance mechanism to expand the research depth. Future research can consider adopting an interdisciplinary approach, combining theories and methods from multiple fields such as sociology and environmental psychology to form a more comprehensive renovation strategy.

(4)Limitation of consideration of policy impact

The research on the impact of government policies on the informal renovation of public spaces in historic urban areas has not been fully considered. Future research should include more analysis of the policy environment to assess the possible impact of policy changes on informal renovation of urban spaces and adjust strategies.

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Appendix

Appendix1: Records of Informal Renovation in Site

Photos and Locations	**Descriptions**
 Location: No. 217, Beijing Road	Roof: / Exterior Wall: The AC outdoor units are installed, and the abandoned brackets are retained. The convex anti-theft nets are installed, with the flower pots and the AC outdoor units placed inside. Roadside: The bikes are parked.
 Location: No. 209, Beijing Road	Roof: / Exterior Wall: Metal canopies are installed at the entrance. Roadside: The cartons and shelves are placed. People drill drainage holes on the road.
 Location: No. 271, Gaodi Street	Roof: / Exterior Wall: The waterproof canopies are installed at the entrance. Roadside: Children's toy shelves are displayed outside.
 Location: No. 269, Gaodi Street	Roof: / Exterior Wall: Mops are hung in front of the door and flat anti-theft nets with grass pattern are installed. Roadside: The AC outdoor unit is placed on the roadside. The furniture are placed outside.

Photos and Locations	Descriptions
 Location: No. 263, 265, 267, Gaodi Street	Roof: / Exterior Wall: The AC outdoor units are placed. The foldable canopy is placed at the entrance. Roadside: The business is outdoors, with wooden fences enclosing the space . The hollowed-out wood used as potted plant containers and are placed on the curb.
 Location: No. 261, Gaodi Street	Roof: Fixed clothes drying racks are installed, and the railing handrail is installed. Exterior Wall: The waterproof canopies are installed at the entrance. The clothes drying rack is installed. Roadside: Cardboard boxes are stacked in a tidal manner. People drill drainage holes on the road.
 Location: No. 255, 257, 259, Gaodi Street	Roof: An extra floor is added on the roof. Exterior Wall: The AC outdoor units are installed. Waterproof canopies and metal canopies are installed, while some of them are damaged. Flat and convex anti-theft nets are installed, and each floor has a different style, with waterproof cloth enclosed. Roadside: Cardboard boxes are stacked in a tidal manner. People drill drainage holes on the road.
 Location: No. 247, 249, 251, 253, Gaodi Street	Roof: / Exterior Wall: The AC outdoor units are installed. Green polycarbonate canopies and metal canopies are installed, while some of them are damaged. Flat and convex anti-theft nets are installed, and each floor has a different style, with waterproof cloth enclosed. Roadside: Mobile vendors occupy the road to do business. And bicycles are parked.

Photos and Locations	Descriptions
 Location: No. 2, 4, 6, 8, Lianyun Lane	Roof: Roof is repaired by color steel plates. Exterior Wall: The walls are seriously damaged with irregular holes with wild plants growing. The AC outdoor units are installed. The window are filled with bricks. Clothes are hung in front of the door. Flat and convex anti-theft nets are installed. The waterproof canopies are installed at the entrance. Roadside: Bikes are parked.
 Location: No. 235, Gaodi Street	Roof: Roof is repaired by color steel plates. Exterior Wall: Flat anti-theft nets are installed. Color steel plate canopies and metal canopies are installed. Roadside: Bikes are parked. Furnitures and cleaning supplies are placed.
 Location: No. 231, Gaodi Street	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat anti-theft nets are installed. Roadside: Potted plants are placed in front of the door.
 Location: No. 229, Gaodi Street	Roof: / Exterior Wall: / Roadside: The seat is placed. People drill drainage holes on the road.

Photos and Locations	Descriptions
 Location: No. 221, 223, 225, 227, Gaodi Street	Roof: A tensioned waterproof tarp covers the terrace. Wild plants grow on the roof. Exterior Wall: The AC outdoor units are installed. Color steel plate canopies are installed. Metal canopies are installed at the entrance. Roadside: Potted plants are placed in front of the door.
 Location: No. 2, Zhuji Lane	Roof: Roof is repaired by color steel plates. Exterior Wall: The AC outdoor units are installed. Flat anti-theft nets are installed. Color steel plate canopy is installed. Clothes are drying in front of the door. The surveillance is abandoned and looking at blind spots. Roadside: Bikes are parked.
 Location: No. 4, Zhuji Lane	Roof: An extra floor is added on the roof. Roof repaired. The AC outdoor units are placed. Exterior Wall: Flat anti-theft nets are installed. White polycarbonate canopy is installed. Roadside: Bikes are parked.
 Location: No. 6, Zhuji Lane	Roof: / Exterior Wall: Green polycarbonate canopies are installed. Flat anti-theft nets are installed with greening decorated. Clothes are hung out to dry. Exhaust ducts are installed at the window glass. Roadside: Potted plants are placed in front of the door.

Photos and Locations	Descriptions
 Location: No. 8, Zhuji Lane	Roof: / Exterior Wall: The windows are filled with bricks. Flat and convex anti-theft nets are installed. White polycarbonate canopies and metal canopies are installed. Roadside: Cleaning supplies are placed outside.
 Location: No. 10, Zhuji Lane	Roof: Roof is repaired by color steel plates. Exterior Wall: Clothes are hung in front of the door. Metal canopies are installed. The clothes drying rack is installed. Exhaust ducts are installed at the window glass. Roadside: Potted plants are placed in front of the door. People drill drainage holes on the road.
 Location: No. 12, Zhuji Lane	Roof: Potted plants are placed. The AC outdoor units are placed. Roof is repaired by color steel plates,with bricks fixed. Exterior Wall: Convex anti-theft nets are installed. Metal canopy is installed at the entrance. White polycarbonate canopies and metal canopies are installed. Railing handrail is installed. Roadside: /
Unknown status Location: No. 14, Zhuji Lane	Duringr renovation process, and the status is unknown.
 Location: No. 2, Jingye Yuan	Roof: / Exterior Wall: Railing handrail is installed. Roadside:/

Photos and Locations	Descriptions
 Location: No. 3, Jingye Yuan	Roof: An extra floor is added on the roof. Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Metal canopies are installed. Convex anti-theft nets are installed, and each floor has a different style, with waterproof cloth enclosed. Roadside: Bikes and carts are parked. Goods are placed outside.
 Location: No. 4, Jingye Yuan	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The wall is aged and seriously damaged, with wild plants growing. The AC outdoor units are installed. Roadside: An additional floor was built on the road to be used as a storage room, which is demolished as it is shown in the picture.
 Location: No. 5, Jingye Yuan	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat anti-theft nets are installed, with waterproof cloth enclosed. Roadside: An additional floor was built on the road to be used as a storage room, which is demolished as it is shown in the picture.
 Location: No. 7, Liyuan Street	Roof: / Exterior Wall: The AC outdoor units are installed. Convex anti-theft nets are installed which are demolished as it is shown in the picture. Roadside: The sanitation department occupied the road and built a hut to store cleaning supplies which is demolished as it is shown in the picture.

Photos and Locations	Descriptions
 Location: No. 16, Gaodi New Street	Roof: Color steel plate canopy with columns is installed. Exterior Wall: / Roadside: Bikes are parked.
 Location: No. 18, Gaodi New Street	Roof: Roof repaired. Exterior Wall: Metal canopies are installed. Roadside: /
 Location: No. 20, Gaodi New Street	Roof: Railing handrail is installed. Exterior Wall: The AC outdoor units are installed. The railing handrail is installed. Roadside: /
 Location: No. 22, Gaodi New Street	Roof: Railing handrail is installed. Exterior Wall: Metal canopies are installed. Red lanterns are decorated under the roof. Roadside: /

Photos and Locations	Descriptions
 Location: No. 10, Fulin Lane	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat anti-theft nets are installed at inside. Roadside: Waste recycling business occupying the road. Bicycles are parked.
 Location: No. 219, Beijing Road	Roof: Roof is repaired by color steel plates. Exterior Wall: The AC outdoor units are installed. And the abandoned brackets are retained. Roadside: /
 Location: No. 1, Nansheng East Lane	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat and convex anti-theft nets are installed. Color steel plate canopies are installed. The fire stair is installed, by which people dry their clothes. Roadside: Additional construction is on the road. Goods displayed outside; kitchen waste bins are enclosed with waterproof cloth.
 Location: No. 3, Nansheng East Lane	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat and convex anti-theft nets are installed, with waterproof cloth and curtains enclosed. Roadside: Potted plants are placed in front of the door. People drill drainage holes on the road.

Photos and Locations	Descriptions
  Location: No. 5, Nansheng East Lane	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat and convex anti-theft nets are installed. Roadside: Bikes are parked. Furnitures are placed outside.
  Location: No. 7, Nansheng East Lane	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat and convex anti-theft nets are installed. A transparent canopy is installed at the entrance. Roadside: Beer refrigerator is placed outside.
  Location: No. 9, Nansheng East Lane	Roof: Color steel plate canopy with columns is installed. Exterior Wall: The AC outdoor units are installed. Flat and convex anti-theft nets are installed. A transparent canopy is installed at the entrance. Roadside: Empty wine bottles and potted plants are placed outside for decoration.
  Location: No. 11, Nansheng East Lane	Roof: / Exterior Wall: The AC outdoor units are installed. The foldable canopy is installed at the entrance. Roadside: Potted plants are placed in front of the door for decoration.

Photos and Locations	Descriptions
 Location: No. 13, 15, Nansheng East Lane	Roof: The railing handrail is installed. Exterior Wall: Multiple AC outdoor units are installed. Roadside: Mobile vendors occupy the road to do business. People drill drainage holes on the road.
 Location: No. 17, Nansheng East Lane	Roof: Roof repaired. Exterior Wall: The AC outdoor units are installed. Roadside: The color steel plate canopy with columns is installed in front of the door. Mobile vendors occupy the road for business. Goods are displayed outside. People drill drainage holes on the road.
 Location: No. 132, Danan Road	The wall is seriously damaged and aged. There are five big trees in front of the wall, with bikes parked, sundries and potted plants placed between the trees, and clotheslines stretched out to dry clothes. People drill drainage holes on the road.
 Location: No. 128, 130, Danan Road	Roof: Roof repaired. An extra floor is added on the roof Exterior Wall: Exhaust ducts are installed at the window glass. Flat anti-theft nets are installed. The AC outdoor units are installed. Color steel plate canopy is installed at the entrance. Roadside: The children's vaccination observation area is arranged in front of the door. Bikes are parked. People drill drainage holes on the road.

Photos and Locations	Descriptions
 Location: No. 18, Kezhu Lane	Roof: Roof is repaired by color steel plates. An extra floor is added on the roof. Exterior Wall: Green polycarbonate canopies and metal canopies are installed. Convex anti-theft nets are installed, with the AC outdoor units placed inside, and plastic fine nets are stacked and arranged to prevent kitchen utensils from falling. Roadside: Bikes are parked.
 Location: No. 16, Kezhu Lane	Roof: Two extra floors are added on the roof. The roof is elevated to provide sunshade. Exterior Wall: Convex anti-theft nets are installed, with waterproof cloth enclosed and greening decorated. A metal canopy is installed at the entrance, and clothes are hung in front of the door. Roadside: /
 Location: No. 14, Kezhu Lane	Roof: Wild plants grow on the roof. Roof is repaired by asbestos boards, with bricks pressed on. Exterior Wall: Flat anti-theft nets are installed and window paper is pasted on sashes. The AC outdoor units are installed. Color steel canopy is installed at the entrance. Roadside: /
 Location: No. 12, Kezhu Lane	Roof: Roof repaired. Exterior Wall: The railing handrail is installed, with potted plants decorated. Convex anti-theft nets are installed. The AC outdoor units are installed. The metal canopy is installed at the entrance. Roadside: Bikes are parked.

Photos and Locations	Descriptions
 Location: No. 10, Kezhu Lane	Roof: Roof is repaired by color steel plates. Exterior Wall: The AC outdoor units are installed. Convex anti-theft nets are installed. Green polycarbonate canopies and metal canopies are installed. The color steel plate canopy and foldable canopy are installed at the entrance. Roadside: Goods are placed outside.
 Location: No. 8, Kezhu Lane	Roof: Roof is repaired by color steel plates. Exterior Wall: The railing handrail is installed. Roadside: People drill drainage holes on the road.
 Location: No. 6, Kezhu Lane	The site is abandoned, with only the original roof structure and the wall on one side of Yudai Mout remaining, and the interior is overgrown with weeds.
 Location: No. 4, Kezhu Lane	Roof: Two extra floors are added on the roof. Exterior Wall: The flat anti-theft net is installed with a color steel plate canopy. The balcony is used as a kitchen and utility room, and the wire mesh is installed with bamboo poles to help clothes hang out for drying. The AC outdoor units are installed. Roadside: A convex anti-theft net is installed on the first floor, and window paper is pasted on the sashes.

Photos and Locations	Descriptions
 Location: No. 2, Kezhu Lane	The site is abandoned, with only the wall on one side of Yudai Mout remaining, and the interior is overgrown with weeds.
 Location: No. 102, 104, 106, 108, 110, 112, 114, Danan Road	The mops are hung on the hollow fence to dry. The outer wall of the fence is seriously aged. People drill drainage holes on the road.
 Location: No. 98, 100, Danan Road	Roof: Asbestos board canopies with columns are installed.An extra floor is added on the roof. The AC outdoor units are placed on the roof. Exterior Wall: The AC outdoor units are installed. The convex anti-theft nets are installed in pieces. Roadside: Additional huts are built on the road as warehouses, with the AC outdoor unit placed and wild plants growing on the roof.
 Location: No. 6, 8, Fulin Lane	Roof: An extra floor is added on the roof. Exterior Wall: Flat and convex anti-theft nets are installed, and waterproof cloth is used for enclosure. The AC outdoor units are installed, and the abandoned brackets are retained. The clothes drying racks are installed. Roadside: Freight carts are parked.

Photos and Locations	Descriptions
	Roof: Roof repaired. Exterior Wall: Clothes drying racks are installed. The AC outdoor units are installed. Roadside: Recycling waste are piled. Freight carts are parked.
Location: No. 4, Fulin Lane	

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