

REKINDLING LOCAL NEIGHBORHOOD CULTURE
A NEW RESIDENTIAL DEVELOPMENT IN GUANGZHOU, CHINA

BY
JIAN YI YU

A Thesis/Practicum submitted to the Faculty of Graduate Studies

of

The University of Manitoba

in partial fulfilment of the requirements of the degree of

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture

University of Manitoba

Winnipeg

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ABSTRACT

China is experiencing rapid development in various fields. The real-estate marketing is an indicator of booming development and housing development is the most important component in this market. Rapid development of varying housing developments raises concerns about how to create a distinct character for a neighborhood: what will or should be the identity of this neighborhood? The primary purpose of this research is to study and emphasize the importance of local neighborhood culture in current residential developments in China. By studying housing layouts and the distribution of public open space within them, significant local characteristics of selected neighborhood developments in Guangzhou will be summarized. Furthermore, a proposed pattern that reflects the study results will be illustrated. Neighborhood development planning principles cannot create a culture or design residents' activities, but they can provide a user-friendly environment for various outdoor activities and facilitate the establishment of a healthy and sustainable "Neighborhood culture".

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Studies and research for this practicum are mainly based on document research, site observation and analysis. It also benefits from informal interview and conversation with local developers, designers and residents. Their generous input and kind help are greatly appreciated. These parties and individuals are listed here.

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- Dongguan Design Institute, Dongguan, Guangdong, China.
- Guangzhou Cheng Zong Design Institute, Guangzhou, China.
- Guangzhou Design Institute, Guangzhou, China.
- Jiang Nan Xi Community Committee, Guangzhou, China.
- Liren Real Estate Co.Ltd, Guangzhou, China.
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- Nan Hua Xi Community Committee, Guangzhou, China.
- Shenzhen Lujing Real Estate Development Co. Ltd, Shenzhen, China.
- Shineland International Design Co. Ltd Guangzhou, China.
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TABLE OF CONTENTS

ABSTRACT.....	i
ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER 1. INTRODUCTION.....	1
1.1 Issues and Concerns.....	1
1.2 Purpose of the study.....	3
1.3 Project Organization.....	4
CHAPTER 2. REVIEWING RESIDENTIAL DEVELOPMENT IN CHINA WITH SPECIFIC REFERENCE TO GUANGZHOU.....	6
2.1 About the City: Guangzhou.....	6
2.1.1 Area and Population	
2.1.2 Topography and Climate.....	8
2.1.3 History.....	10
2.1.4 Overseas Chinese.....	11
2.2 Residential Developments Overview in China and in Guangzhou.....	11
2.2.1 Significant Periods.....	12
2.2.2 Residential Development in Guangzhou.....	15
2.2.3 Trends of Current Practices.....	17
CHAPTER 3. EXPERIENCING LOCAL NEIGHBORHOOD CULTURE.....	21
3.1 Topic Areas Being Addressed.....	22
3.2 Residential Development Built Before 1840.....	25
3.3 Case Studies of Significant Periods – Residential Development Built Between	

1840 and 1949.....	27
3.4 Case Studies of Significant Periods – Residential Development Built Between 1949 and 1979.....	48
3.5 Case Studies of Significant Periods – Residential Development Built Between 1979 and early 1990s.....	64
3.6 Summary of Case Studies.....	80
CHAPTER 4. STUDYING CURRENT HOUSING DEVELOPMENT IN CHINA	82
4.1 General Characteristics of Current Practices.....	83
4.2 Case Studies of Three Typical Planning Styles Used in China’s Current Residential Developments.....	95
4.3 Case studies of Two Successful Residential Developments.....	107
4.4 Summary.....	114
CHAPTER 5. REKINDLING LOCAL NEIGHBORHOOD CULTURE.....	116
5.1 Local Neighborhood Culture Reflected through People’s Activities in Open Spaces.....	117
5.2 Rekindling Local Neighborhood Culture through Planning - the Proposed Pattern	129
5.3 Application of the Proposed Pattern.....	136
5.3.1 The site.....	137
5.3.2 The concept sketch.....	142
5.4 Conclusion.....	146
BIBLIOGRAPHY	

LIST OF TABLES

Table .1.1. Key definitions and key measurement.....	84
Table 4.2. Suggested FAR in Shenzhen's Housing Developments.....	86

LIST OF FIGURES

Figure. 2.1 Map of China.....	7
Figure. 2.2 Map of Guangdong.....	8
Figure. 2.3 Topography of Guangzhou.....	9
Figure. 2.4. Advertisement of new housing developments.....	20
Figure 3.1 Map of Chang An in Tang Dynasty.....	26
Figure 3.2 Part of <i>Qing Ming Shang He Tu</i> (ALONG THE RIVER DURING QING MING FESTIVAL).....	27
Figure. 3.3 Location of study site.....	29
Figure.3.4 Guangzhou Port and Residential area at “Shi San Hang”.....	31
Figure.3.5 Renovated traditional housing and shops located on the first floor.....	31
Figure.3.6 Comb Shape Layout In study area.....	32
Figure.3.7 Comprehensive Analysis Diagram of the study site.....	34
Figure.3.8 Building form.....	37
Figure.3.9 Analysis Diagram of Nan Hua Xi Traditional Neighborhood.....	43
Figure.3.10 Analysis Diagram of Hierarchy of Open Space in Study Area.....	44
Figure.3.11. Analysis Sketch of Hierarchy of Open Space in Study Area.....	45
Figure.3.12. Hierarchy of Open Space – public space.....	45
Figure.3.13. Hierarchy of Open Space – public space.....	46
Figure.3.14. Hierarchy of Open Space – Semi-public space.....	46
Figure.3.15. Hierarchy of Open Space – Semi-private space.....	47

Figure.3.16 C.A. Perry’s Neighborhood Unit theory.....	50
Figure.3.17 Beijing Bai Wan Zhuang residential area applied former Soviet Union planning theory.....	54
Figure.3.18 Built in 1965 in Beijing, China.....	55
Figure.3.19 Built in 1970s in Guangzhou, China.....	56
Figure.3.20 Built in 1960s in Tianjin, China.....	58
Figure.3.21 Comprehensive Analysis Diagram of the study site.....	59
Figure.3.22 Analysis Diagram for Residential Area that built between 1949 and 1979...	62
Figure.3.23 Analysis Diagram for Hierarchy of Open Space.....	63
Figure.3.24 Topography of Study Area – Jiang Nan Xi Community, Guangzhou.....	66
Figure.3.25 Land Use Analysis Sketch of the study site.....	68-69
Figure.3.26 Comprehensive Analysis Diagram of the study site -Landscape structure/Landscape Zone/Circulation.....	70
Figure.3.27 Analysis Diagram for Jiang Nan Xi community.....	74
Figure.3.28 Analysis Diagram for Hierarchy of Open Space.....	75
Figure.3.29 Analysis Diagram of Public Space.....	76
Figure.3.30 Analysis Diagram of Semi-Public Space.....	77
Figure.3.31 Analysis Diagram of Green Space.....	78
Figure.3.32 Analysis Diagram of Private Space.....	79
Figure.4.1. A peek at the current practices.....	82
Figure.4.2. Various building forms in residential projects.....	88

Figure.4.3. Underground parking facilities (left) and concrete grass block for ground parking (right).....	89
Figure. 4.4 Circulation hierarchy of Agela Residential Development, Guangzhou.....	91
Figure. 4.5 Landscape elements in public open spaces.....	93-94
Figure. 4.6 Typical “look at” landscape that lacks pedestrian access and user-welcome attractions.....	94
Figure. 4.7 Dong Yi Garden Master Plan.....	96
Figure. 4.8 Analysis diagram of Dong Yi Garden.....	97
Figure. 4.9 Analysis diagram of Enclosed Layout.....	98
Figure. 4.10 Plan of Cannes Garden.....	100
Figure. 4.11 Analysis Diagram of Cannes Garden.....	100
Figure. 4.12 Analysis Diagram of Centripetal Layout.....	101
Figure. 4.13 Plan of Gallopade Park.....	103
Figure. 4.14 Analysis Diagram of Gallopade Park.....	103
Figure. 4.15 Analysis Diagram of Axis Layout One.....	104
Figure. 4.16 Analysis Diagram of Axis Layout Two.....	106
Figure. 4.17 Plan of Vanke Wonderland.....	109
Figure. 4.18 Analysis Diagram of Vanker Wonderland.....	109
Figure. 4.19 Plan of Ling Nan Garden.....	112
Figure. 4.20 Analysis Diagram of Ling Nan Garden.....	113
Figure. 5.1 Types of Open Space.....	116

Figure. 5.2 Types of Open Space by Oscar Newman.....	119
Figure. 5.3.....	121
Figure. 5.4.....	123
Figure. 5.5.....	126
Figure. 5.6.....	127
Figure. 5.7 General Planning Pattern Sketch for a neighborhood.....	130
Figure. 5.8 Open Space Analysis.....	133
Figure. 5.9 General Planning Pattern Sketch for a community.....	135
Figure. 5.10 Aerial Photo of the Study Site.....	138
Figure. 5.11 A Built Model of the Site.....	139
Figure. 5.12 Site Plan.....	139
Figure. 5.13An aerial photo of the studied neighborhood.....	140
Figure. 5.14 Built Area Master Plan.....	140
Figure. 5.15 Analysis diagram of the site.....	142
Figure. 5.16 Analysis diagram of existing road.....	143
Figure. 5.17 Proposed network circulation system.....	144
Figure. 5.18 Proposed locations of public facilities.....	145
Figure. 5.19 Proposed general layout of the site.....	146
Figure. 5.20 Sketches of open space.....	147

Notes:

1. All aerial photos are from www.maps.google.com
2. All photographs were taken by author except noted ones.
3. Sketches and drawings are done by author except noted ones.

CHAPTER 1. INTRODUCTION

1.1 Issues and Concerns

China is experiencing rapid development in various fields. The real-estate marketing is an indicator of booming development and housing development is the most important component in this market. Large housing projects are being developed rapidly all over the country, especially in large cities such as Beijing, Shanghai and Guangzhou which are fast-growing and employment-generating (Yeung, 2000). In 2003, 11 million square metres of apartment space (about 100,000 suites) was sold in Beijing (*2003 Real-Estate Year Report*). In Guangzhou, six million square meters of apartments space were sold and 30 million square metres of new apartments were started in 2004 (*2004 Guangzhou Real-Estate Statistics*). Housing development in these cities demonstrates rapid growth in quantity as well as improvement in the quality of housing. Modern technology solves many technical problems such as housing structures and making “intelligent” residential buildings. However, high-quality living is not only about the technology but also about creation of more satisfactory living environments. Housing developments are facing new challenges in terms of planning issues such as increasing use of automobiles, a lack of connection with other neighborhoods and inconvenient access to public facilities. Meanwhile, rapid development of varying housing developments raises concerns about how to create a distinct character for a neighborhood: what will or should be the identity

of this neighborhood?

The great places of the world have survived because they fulfill the commercial, social, and psychological needs of their citizens. The character and identity for which they are well known have developed as a direct response to their citizens' needs for order and sense of place... (Community design) is the merging of what we know about ourselves with what we know about our neighbors when we chose to live in proximity to one another. It is about independence and dependency. It is about architecture and landscape. It is about understanding and building on what we know - the good as well as the bad. It is about creating a better place to live.

- Kenneth B. Hall & Gerald A. Porterfield

Community by Design, New York: McGraw-Hill, 2001

Since the late 1980s, European and North American design and planning professionals have participated in the development process for residential projects in China. They continue to apply unfamiliar design ideas and development principles to Chinese neighborhood developments. These ideas bring a fresh look to Chinese residential areas and they also solve some of the planning problems that are found in traditional neighborhoods such as the efficiency of the vehicular and pedestrian circulation systems. However, a lack of local character is found in some housing developments that have simply copied European and North American styles without

addressing traditional cultural values and local site characteristics such as climate and other geographic conditions (Economy Daily, 2003). In order to seek cultural relevance and to achieve high quality design principles for contemporary neighborhoods, it is valuable to analyze through direct observation local neighborhood cultures that are reflected in residents' activities. Neighborhood development planning principles cannot create a culture or design residents' activities, but they can provide a user-friendly environment for various outdoor activities and facilitate the establishment of a healthy and sustainable "neighborhood culture".

What are local neighborhood cultures? Why are they important to local residents? How have housing layouts and the distribution of public open space within them in Guangzhou evolved over the last one hundred years? What lessons can be learned from this evolution and how might they be applied to the design of new housing layouts? All these concerns will be addressed in this study.

1.2 Purpose of the study

The purpose of this study is:

- To summarize significant local characteristics of selected neighborhood developments in Guangzhou by studying housing layouts and the distribution of public open space within them as they have evolved over the last 100 years.
- To study current neighborhood developments and consider what may be

overlooked in these developments.

- To develop concept sketches for a new neighborhood development project in Guangzhou by applying the findings from the study outlined above. The concept should also address the following issues:
 - a. To respond to the concern about increasing population in urban areas and decreasing land resources.
 - b. To meet the new challenges of current urban development such as the increasing use of private automobiles.
 - c. To create a distinct character and identity for a neighborhood by emphasizing its local neighborhood culture and geographic conditions such as local climate, local cultural values, traditional architectural and landscape patterns and their uses, and other relevant characteristics.

1.3 Project Organization

The primary purpose of this research is to study and emphasize the importance of local neighborhood culture in current residential developments in China.

For better understanding of the study site, this research will start by reviewing residential development in China with specific reference to the study city - Guangzhou. History and other important background information of Guangzhou will be introduced first. Historical housing development reviews by scholars and professionals will also be explained in Chapter Two.

Chapter Three will summarize significant local characteristics by studying selected neighborhood developments in Guangzhou which were built in different historical periods. The characteristics of planning, especially the hierarchy of open space, and residents' activities in these spaces will be the main study focus.

Chapter Four will address current practices. In this chapter, some current housing developments will be analyzed and what may be overlooked in these developments will be examined by comparing them to the historical examples.

In Chapter Five, significant local neighborhood characteristics emerging from the previous study will be described. A suggested planning pattern that reflects these characteristics will be addressed later on. How to bring back and rekindle the local neighborhood culture is the main concern of this pattern. An initial concept sketch of a study site in Guangzhou will be addressed by applying the suggested pattern.

Studies and research for this practicum are mainly based on document research, site observation and analysis, informal interviews and conversation with local developers, designers and residents. Information about these parties and individuals are listed at the beginning of this practicum.

CHAPTER 2. REVIEWING RESIDENTIAL DEVELOPMENT IN CHINA WITH SPECIFIC REFERENCE TO GUANGZHOU

2.1 About the city - Guangzhou

2.1.1 Area and Population

Guangzhou is the capital city of Guangdong Province and its political centre. It is also the principal centre of the economy, science, technology, education and culture in the Province. Guangzhou is located in the southeast of Guangdong (Fig. 2.1 & Fig. 2.2). It used to be called “Canton”. The total area of Guangzhou is around 7430 square kilometers. There are ten districts and two county-level cities under its jurisdiction. The ten districts are Yuexiu, Dongshan, Haizhu, Liwan, Tianhe, Baiyun, Huangpu, Fangcun, Huadu and Panyu, and the two cities are Conghua and Zengcheng. Among them, eight of the districts are called “traditional districts” and two districts, Panyu and Huadu, became administrative districts from county-level cities in 2000. The ten districts cover 3719 square kilometers (50.02%); and two county-level cities' area is 3716 square kilometres, (49.98%). The population of Guangzhou is about 11 million. Registered citizens make up 7.3 million and the temporary (“floating”) population is 3 million¹.

¹ Available online at <http://www.gz-gov.org/gz-jj/survey.htm#1>

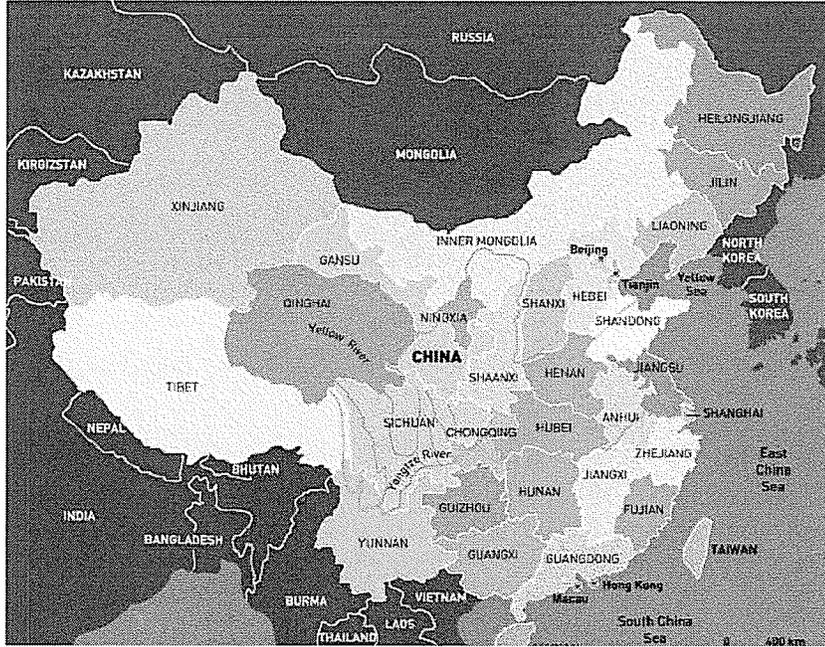
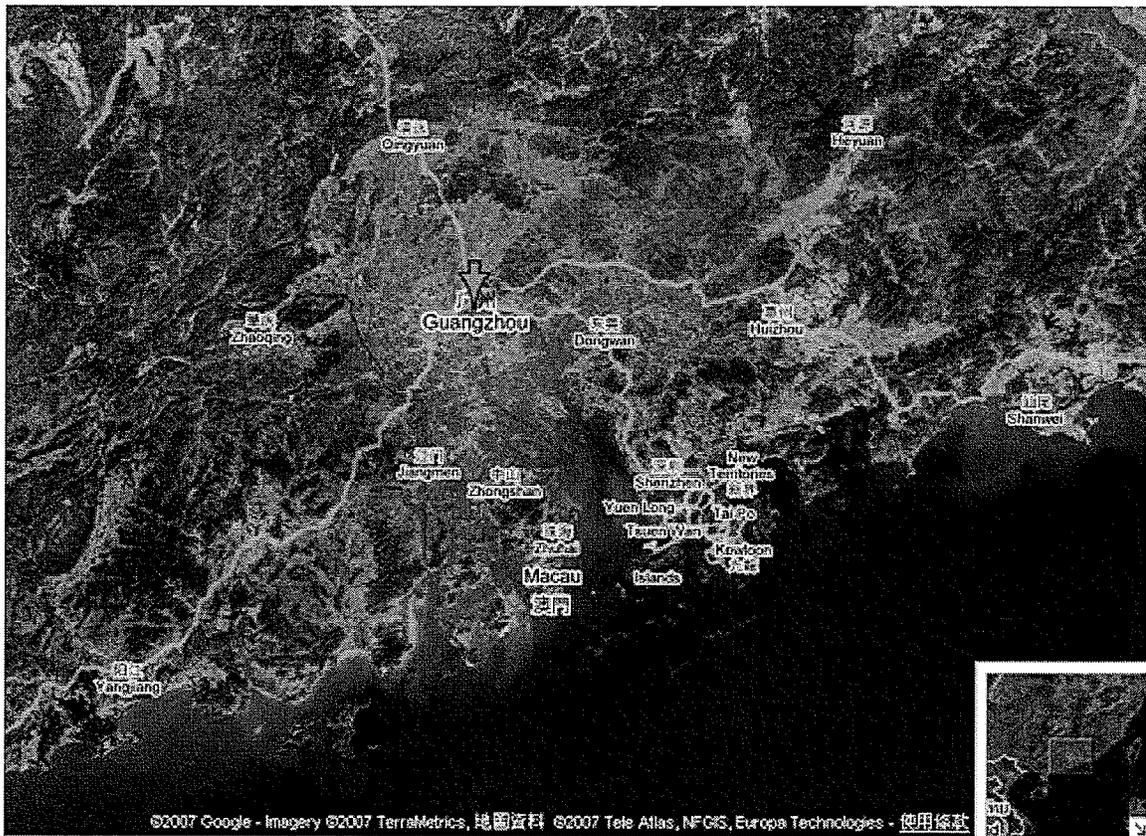


Figure. 2.1 Map of China
 (Image resource: <http://www.map-of-china.co.uk/>)



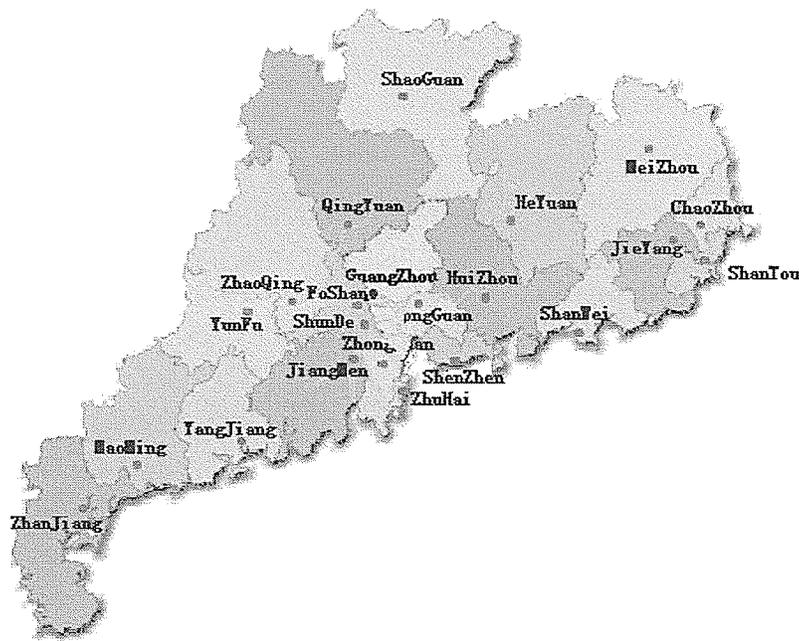


Figure. 2.2 Map of Guangdong
 (Image resource: <http://www.gdln.gov.cn/shiyitu/guangdong1.jsp>)

2.1.2 Topography and Climate

The topography of Guangzhou is higher in the northeast and lower in the southwest. The north and northeast are mountainous areas, the middle part is hills and the bench terrace, and the south is an alluvial plain - the Pearl River Delta (Fig. 2.3). The Pearl River is the third longest river in China at 2129 kilometres. It was the major route for the Ancient Maritime Silk Road. It flows through six provinces and runs into South China Sea between Hong Kong and Macau. Guangzhou was chosen as an important port for hundreds of years because of its strategic location towards the mouth of the Pearl River.

Much of Guangdong lies south of the Tropic of Cancer and the province experiences tropical and subtropical climates. Guangzhou is in a subtropical area and has an annual

average temperature of 20-22 centigrade. High winter temperatures, which range from 13 to 16 degrees Centigrade, distinguish Guangdong from other areas of China. The lowest temperature is about 0°C and the highest temperature is 38°C. As it faces the sea but lies with its back to mountains, Guangzhou has characteristically warm weather and plenty of rainfall, reasonable sunlight and heat. The annual average rainfall is 1982.7 mm and the average relative humidity is 77%. Typhoons coincide with the rainy season which runs from April to September².

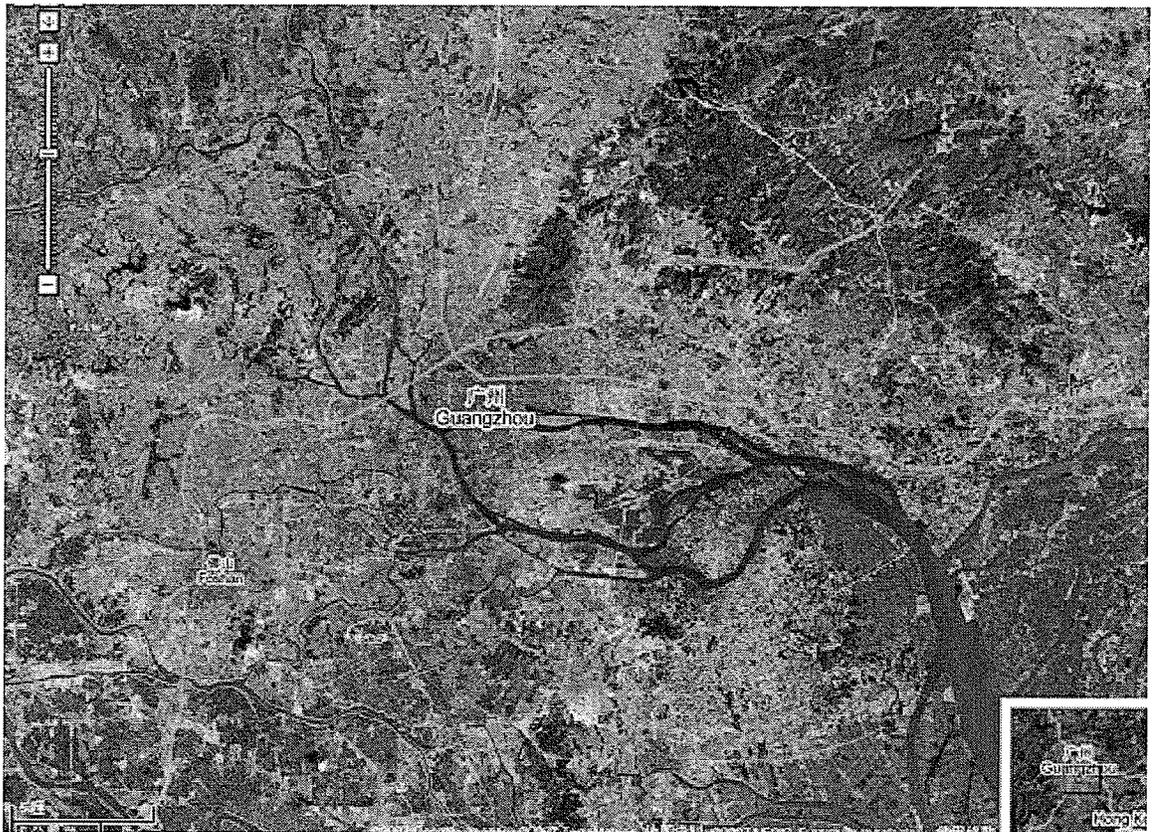


Figure. 2.3 Aerial photo of Guangzhou

² Available on line at <http://www.gz-gov.org/gz-jj/survey.htm#1>

2.1.3 History

Guangzhou has a long cultural history of more than 2200 years. It is called “the gateway to South China” and played a significant role as the single port in China for external trade to the outside world for 100 years before the Opium War in 1840. Guangzhou is traditionally regarded as an “open city” exposing China to the West and as a pioneering place for the introduction of western technology to China. Guangzhou was the biggest city in China for commerce and trading for hundreds of years³. As Yeung mentioned, “For centuries, Guangzhou had been at the apex of an urban hierarchy, representing cities of diverse sizes and functions in the Pearl River delta.” (Yeung, 2000, 145)

Between 1949 and 1978, the development of heavy industry was strongly promoted by the central government, but commerce and trading declined all over the country during this period. As a commercially oriented city, “Guangzhou did not find dynamism for growth”. (Yeung, 2000) Such decline is also reflected by housing development. (Lu & Rowe & Zhang, 2001)

From the late 1970s, under the rule of Deng Xiao Ping, market-oriented economic reform was started in China. Guangdong was the first province to be treated as an experimental zone for this reform. (Li, 2000) The reform included the collectivization and privatization of economic ventures, real estate development and foreign investment. It transformed the urban form, urban functions and urban lives at every level. (Gaubatz,

³ Available on line at <http://www.gzwh.gov.cn/whw/channel/whmc/ljq/gzls/>

1999) Guangzhou has expanded and intensified its economic functions since then.

2.1.4 Overseas Chinese

Guangzhou was the original home of large numbers of overseas Chinese and their descendants. “According to statistics, there are 1.06 million compatriots and relatives abroad, which are spread over countries and regions throughout the world. There are 880,000 Hong Kong and Macao compatriots and over 1.59 million relatives of the returned overseas Chinese, Hong Kong and Macao compatriots.”⁴ These overseas Chinese were the first investors who came back to China for business at the early stage of economic reform in early 1980s; they were also the major buyers of the first commodity-house developments in Guangzhou.

2.2 Residential Developments in China and in Guangzhou

China is a country that has a very long history and splendid culture including many aspects such as architecture and planning. China has enjoyed a rich residential culture and tradition since ancient times. (Wu, 2000) Residential developments in China are not only influenced by architectural styles, but also mainly influenced by political, economic, social, technological, and cultural forces. The changes of political regime, the rise and fall of the economy and other changes in society all directly or indirectly affect the residential developments. (Lu, 2001) Residential developments in China cannot be simply described

⁴ Available on line at <http://www.gz-gov.org/gz-jj/survey.htm#1>

in several short sentences. For a comprehensive understanding of these developments, not only physical aspects such as site planning and architectural design, but also the social, political and economic circumstances behind the developments need to be further explored.

However, the intention of this study is not to display a complete history and academic research on residential developments in China. It focuses more on direct observation of local neighborhood cultures that are reflected in residents' daily activities and emphasizes the importance of these cultures in residential developments. Therefore, a comprehensive historical account is not the main concern of this study. For background information purposes, a general overview of residential development in China summarizing authoritative studies will be given in the following sections. More detailed case studies of the residential developments in China will be addressed in Chapter Three. Those case studies that examine typical local neighborhood characteristics that are reflected in residents' daily lives will give a more direct and clear image of residential development in China to the readers.

2.2.1 Significant Periods

The Opium War of 1840 marked a significant year in Chinese history. It was the start of China's Modern History. Periods before 1840 are referred to as Ancient History in China. China was forced to open its doors for trade with foreign countries after the Opium War. Capitalist industry and commerce emerged in China; commercial and trading

cities such as Guangzhou developed rapidly since that time. Meanwhile, modern urban housing, which brought changes in living patterns, construction systems and housing styles, started to be developed after this period. (Lu & Rowe & Zhang, 2001) However, some traditional elements such as street layout, the importance of Feng Shui, and the hierarchy of houses were maintained and continued to be used in urban housing after 1840. Ancient residential developments are scarcely found today; but those traditional elements could still be seen in modern urban housing which developed in the late nineteenth century.

The next major important turning point for China and for its housing development was 1949, the year that the People's Republic of China was established under the rule of Mao Ze Dung. Between 1949 and 1979, housing developments were strongly influenced by political and social events such as the Great Leap Forward (1958) and the Cultural Revolution (1967). Housing was treated as a part of social welfare. A new layout for residential areas, named work-unit compound, was developed in this period. This layout is very different from the traditional one⁵, and obviously changed the living style of a neighborhood. (Lu & Rowe & Zhang, 2001)

From 1979 China started on a path of economic reform. Housing was treated as a commodity rather than a welfare item. Housing developments were strongly promoted by central government. Nationwide housing reform did not actually start until 1988; but

⁵ Case studies and comparison of traditional housing development layout and work0unit compound will be addressed in Chapter Three.

some cities such as Guangzhou were chosen as experimental regions for the reforms that began in 1979. (Huang, 2004) The pace and procedures of reform varied from region to region according to the local economy and local policies.

According to the book *Modern Urban Housing in China* (Lu, Rowe & Zhang, 2001), which is the first systematic work on modern urban housing in the country, housing developments can be divided into three main periods. These and their many subperiods are given below.

Early Development of Urban Housing in the Semifeudal and Semicolonial Period from 1840-1949

- The Emergence of Modern Urban Housing (1840-1910)
- An Important Period for the Early Development of Housing in Modern Cities (1911-1937)
- A languishing Period in Early Modern Urban Housing (1937-1949)

Housing Development in the Socialist Planned Economy form 1949-1978

- Economic Recovery following the Soviet Model and Reflections during the First Five-Year Plan (1949-1957)
- The “Great Leap Forward” and Readjustment: Seeking a road for Self-Development (1958-1965)
- The Cultural Revolution and its Period of Influence (1966-1978)

Housing Development from 1978 to 2000 after China Adopted Reform and

Opening-up Policies⁶

- Housing Development at the Beginning of Reform (1979-1984)
- Housing Construction in the Planned Commodity Economy (1985-1991)
- Urban Housing in the Early Period of the Socialist Market Economy (1992-2000)

“This division not only depicts accurately the historical development of the modern period in housing development but also provides a clear outline for the whole work (by) considering both the stages of social history and the changes of urban housing types in China”

– Lu, Rowe and Zhang (ed).

Modern Urban Housing in China 1840-2000. Munich: Prestel Verlag, 2001

2.2.2 Residential Development in Guangzhou

The oldest residential developments that can be found in Guangzhou were developed in the mid nineteenth century. They are located in the inner city close to the traditional commercial centre.

⁶ “Modern Urban Housing in China 1840-2000” was published in 2001. As observed and noted by the author of this practicum, China’s housing policy has not had major changes after 2000 and there are no authorized or recognized publications indicating that housing development in China has moved on to another stage from “the early period of the Socialist Market Economy”. Therefore, “Urban Housing in the Early Period of the Socialist Market Economy” period will be assumed to be “from 1992 to today” in this thesis.

Between 1949 and 1979, there were not many new housing developments built in Guangzhou largely for political and economic reasons. The principal new accommodation was work unit compounds built near factories.

Guangzhou was one of the first cities to start housing reform from the welfare housing system to the commodity-housing market. This occurred in the early 1980s. Guangzhou's booming economy benefited from the open economic policy and from its favorable geographic location close to Hong Kong, Macau and neighboring Southeast Asian countries. In the mid 1980s, Guangzhou built the first commodity-housing project. This was aimed at Hong Kong and overseas Chinese buyers in China. This meant that all apartments in that residential area could be privately-owned and could be traded. In that project, developers from Hong Kong applied new planning principles and programming processes. From that time, Guangzhou became a pioneer location for housing development in China. Today, Guangzhou declares that it has the most mature real estate market in China. This claim is not only based on the trading of housing as a commodity but also on the various innovative planning principles that have been applied in its housing developments. Compared with other Chinese cities, including large cities like Beijing and Shanghai, innovative approaches to housing developments have been adopted over a longer period in Guangzhou. Guangzhou's change from developing traditional residential areas to developing commodity-housing projects has been integrated and unique. In addition, its social, environmental and economic characteristics provide a strong and vibrant local atmosphere for residential projects. Housing

developments in Guangzhou, especially in the government-promoted “South China Block”, located in Panyu district as a new Central Living District (CLD), are innovative examples which are studied and copied by other regions of China.

2.2.3 Trends of Current Practice

From 1979, China started a period of sustained and rapid development after adopting reform and opening-up policies. Social and economic structures change greatly since that time. Housing developments reflect these changes and growth. Meanwhile, changes and contradictions caused by the redistribution of social interests during reform and the period of opening-up also influence housing developments. (Lu, Rowe & Zhang, 2001)

In the space of thirty years, China’s housing policy has changed from a welfare system to a commodity-housing system. In 1998, China ended its housing welfare allocation policy and housing is now treated as a commodity that can be traded in the real estate marketplace. (*China Real Estate Information*, 1998) Along with people’s improving lifestyles, residential areas that only meet basic need are far from satisfactory. People start seeking high-quality and more comfortable housing which can reflect the housing values and their lifestyles. When making a home purchase, people are not only interested in the construction quality, but also the spiritual benefits such as a cultural community atmosphere that reflects the social strata of a neighborhood and harmony between people as well as harmony between people and nature. (Lu, Rowe & Zhang, 2001) Today, for most housing purchasers, neighborhood factors are more important than

dwelling factors in housing choice. (Huang, 2004) These are also some key trends that strongly influence today's designs.

Under the market-oriented system, consumers' demands strongly influence housing development. In order to attract more potential consumers, developers try to enhance the functional, environmental and service quality of residential developments by applying better design with architecture and landscape as well as higher-quality construction, comprehensive development, supportive facilities and more scientific management. (Lu, Rowe & Zhang, 2001)

Although developers and designers attempt to meet the growing requirements of consumers by improving residential design, it is difficult to give a clear and exact definition to "high-quality residential area". Design guidelines and standards that are set up by government only list the basic requirement for residential developments. There could be more consideration and thoughts put in to what lies behind these standards.

While local designers are exploring ways to improve residential designs, foreign designers also seek to exert positive influences to China's housing developments. Traditional planning principles and other neoclassical town-planning layouts are often applied in housing developments. Moreover, developers also establish their own research teams to study the theory and practice of residential design. One of the successful developers in China, Vanke, published two books about their design concepts and principles in 2004 and 2006. These principles are regarded as successful design concepts for residential design and are copied and further studied for other developments.

Developers and design professionals try to apply different design principles in order to achieve more reasonable and feasible methods of building high quality living environments. Their efforts and design intentions can be directly recognized from colorful advertisements which use terms like “garden city”, “new urbanism” and similar slogans. (Fig. 2.4) Although these approaches may not be applied nationwide due to many issues such as local characteristics and culture, the process of experiments and study can still help developers and designers to realize the crucial factors that have primary influence on housing development. China’s housing developments are still in an experimental stage. As Rowe mentioned, “modern urban housing in China is still in its infancy... What the future will hold for Chinese housing remains uncertain. In many ways China still stands at the beginning of a truly modern era of development”. (Lu, Rowe & Zhang, 2001) Currently, no perfect standard can be used to define or ensure what a successful residential development should be, but we might summarize some key factors from various cases through studying their advantages and disadvantages. Observing people’s activities in residential developments is one of the most direct methods to start the study. As Jan Gehl stated in his book *Life between Buildings*, “the extent and character of outdoor activities are greatly influenced by physical planning...it is equally possible through planning decisions to influence patterns of activities, to create better or worse conditions for outdoor events, and to create lively or lifeless cities.” (Gehl, 1987) How do people use these residential spaces? How do their daily activities reflect the rationality of the design? Do they enjoy living in these residential developments and

why? All these concerns will be examined in the following chapter.



Ads of New Housing Developments

Figure. 2.4. Advertisements of new housing developments.

CHAPTER 3. EXPERIENCING LOCAL NEIGHBORHOOD CULTURE

This chapter will focus on direct observations from several study areas to summarize what is considered to be “local neighborhood culture” and the way that it is reflected in peoples’ daily life.

As noted in the previous chapter, this thesis recognizes three significant periods identified in the book *Modern Urban Housing in China* (Lu, Rowe & Zhang, 2001) to describe the general history housing development in China. These three periods are:

- Early Development of Urban Housing in the Semifeudal and Semicolonial Period from 1840-1949
- Housing Development in the Socialist Planned Economy from 1949-1978
- Housing Development from 1978 after China Adopted Reform and Opening-up Policies

Accordingly, three cases which were developed to examine these three significant periods. The characteristics of their planning, especially the hierarchy of open space, and how people use these spaces, will be the main focus. Additionally, case studies of current practices will also be analyzed. These studies will examine four common styles of planning that are widely applied in housing development in China. These styles will be compared with traditional neighborhoods. They will emphasize what might be missing in planning and design of these developments. The chapter will conclude with a summary of findings from the case studies.

3.1 Topic areas being addressed

Neighborhood: a section lived in by neighbors and usually having distinguishing characteristics

Merriam-Webster Collegiate Dictionary, 1993

In China, a neighborhood which can support one elementary school has approximately 10, 000-15,000 residents. One elementary school normally has 1,000 pupils. 30,000 residents support one secondary school which includes grade 7 to grade 12. This standard appears not to have been changed since 1949. (*Code of Urban Residential Areas Planning and Design, 2002*) In this practicum, a neighborhood which supports one elementary school is the area for analysis and comparison.

In order to systematic research, the following issues will be examined in each case: general background, density, circulation, public buildings, public open space and neighborhood management. More detailed subcategories are listed below.

- General Background
 - Historical/Political Background
 - Standards
 - Planning Principles
- Density / Intensity of Development
 - Population

- Density Data
- Building Form
- Circulation
 - Car/Bike Ownership
 - Street Layout
 - Vehicular Circulation and Parking
 - Pedestrian Circulation
 - Public Transportation
- Public Buildings
 - Educational Facilities
 - Social and Cultural Facilities
 - Neighborhood Shopping
- Public Open Space (Recreational Facilities)
 - Green Space including Central Green Space, Clustered Green Space and Scattered Pieces
 - “Non-green” space which means spaces without major landscape used as a public gathering place
 - Detailed Landscape Elements such as paving material, plants, pattern, sculpture and other landscape features.
- Neighborhood Management
 - Management System

- Security

Reasons for choosing these planning issues to study in each case include:

- These categories are inspired by two planning standard publications. One is *Code of Urban Residential Areas Planning and Design*, which is a technical guideline for residential developments in China and application of most of the items is mandatory. The above planning considerations are principal components of this code and particularly relevant to planning/landscape architecture for residential developments. A second reference is the book *Time-Saver Standards for Urban Design*. Planning considerations listed in this book are summarized and used as a guideline.
- Among these planning issues, “Circulation” and “Public Open Space” are the area of study. Circulation systems are frameworks that support and give the community a physical form. They provide access, service and security for residents. They are also the components that create distinctive character and the image of a community. (Hall & Porterfield, 2000)
- Unlike Beijing, which is palace-oriented city that strongly emphasizes order, precise status and hierarchy even in residences such as courtyard housing, Guangzhou, which is a commercially oriented city, has a relatively loose structure in its planning. Traditionally in Guangzhou, public facilities such as shopping markets, schools and public parks are very close to residences. The first floor of

housing developments is usually used for shops. However, in current practice, such convenient access and commercially oriented elements, which do much to create local character, are overlooked. On the other hand, the location of public facilities is important for developing a walkable neighborhood. It is necessary to compare changes in different periods in order to study and rekindle local neighborhood culture in current practice. Meanwhile, green space is considered as a main place for recreation in a neighborhood. Its format, size and detailed design are other significant elements in creating the physical identity of a community. In current housing developments, quality of green space is one the most important considerations for residents in choosing a new residential area. (Zhu, 2003)

3.2 Residential Development Built Before 1840

China is a country with a long history and large population. In ancient China, highly centralized cities that acted as capitals or commercial and manufacturing centres had large population. Overcrowding and the potential for the danger of fire or accidents and for crime were typical issues that had to be addressed in urban housing developments. The basic planning unit of a city was called a “Li” or “Fang”, which can be translated into “Alley” or “Cluster”. For example, Chang An (today’s Xi An), the capital city of Tang Dynasty (A.D. 618-907) had a population of over one million. The city was divided into over 100 clusters in a grid format. The size of each cluster ranged from 27 are (2,700

square metres) to 80 are (8,000 square metres), and commercial districts were located in appointed areas which decided by the government. Each cluster had walls and a gate that would be closed at night. (Fig. 3.1)

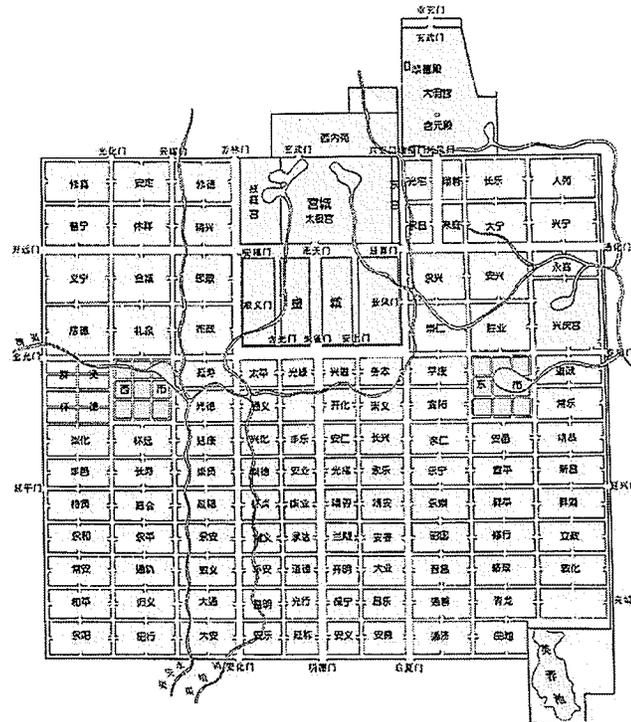


Figure 3.1 Map of Chang An in Tang Dynasty. The city was divided into many clusters. The red cluster that located in the central north was the palace; green clusters represented two commercial squares within the city. (image resource: http://www.china.com.cn/zhuanti2005/txt/2004-05/08/content_5475962.htm)

From the Song Dynasty (A.D.960-1279), open streets and alleys replaced the wall of each cluster and helped to create a more open public space in the city. (Fig.3.2) Shops, manufacturing and housing were built side by side on open streets. (Zhu, 2004) At this time, traditional Chinese courtyard housing was a popular form that maintained privacy for families while also blending into the crowded urban environment. (Lu & Rowe & Zhang, 2001)



Figure 3.2 Part of *Qing Ming Shang He Tu* (ALONG THE RIVER DURING QING MING FESTIVAL) Drawn by Zhang Ze Duan in the Northern Song Dynasty (A.D. 960-1127). The entire piece which is five metres long was painted in hand scroll. It is one of the most famous paintings in China that captures a vibrant city life in Bian Jing (today's Kai Feng), the capital city of Song Dynasty. (image resource: http://www.smia.org.cn/focus/focus_display.php?id=55)

3.3 Case Study of Significant Period: Residential Development Built Between 1840 and 1949

Early Development of Urban Housing in the Semifeudal and Semicolonial Period from 1840-1949 : Case study of Nan Hua Xi Community

3.3.1 Overall

The Opium War from 1840 to 1842 was a turning point when China began to change into a semicolonial and semifeudal society. (Lu & Rowe & Zhang, 2001) The capitalist economy and western patterns of industry started to develop in China after the Opium War. Rapid growth of economic activity first took place in trading port cities such as Guangzhou. People from suburbs and from inland cities crowded into the coastal cities

because of the economic opportunities that they offered. Housing shortages became a serious problem in these booming cities. Instead of each household building its own home as in the early period before the Opium War, real estate developers and urban governments started to develop large areas of housing for rent or sale to meet the demands of the increasing population. Factories and other business enterprises also built houses for their employees. At this time, western forms of housing, planning and technology were also introduced to China and applied to traditional Chinese housing in order to create new housing and styles of living within a Chinese context. Traditional layouts such as those using alleys were still being used in housing developments while apartment building, detached houses and similar architectural forms from other countries were also being incorporated into new developments.

Regrettably, low cost construction at high densities and without professional planning resulted in many problems. These included narrow alleys which lacked sunlight, ventilation, sanitation or green space and provided poor living conditions in overcrowded residential areas.

3.3.2 Case Study – Nan Hua Xi Community

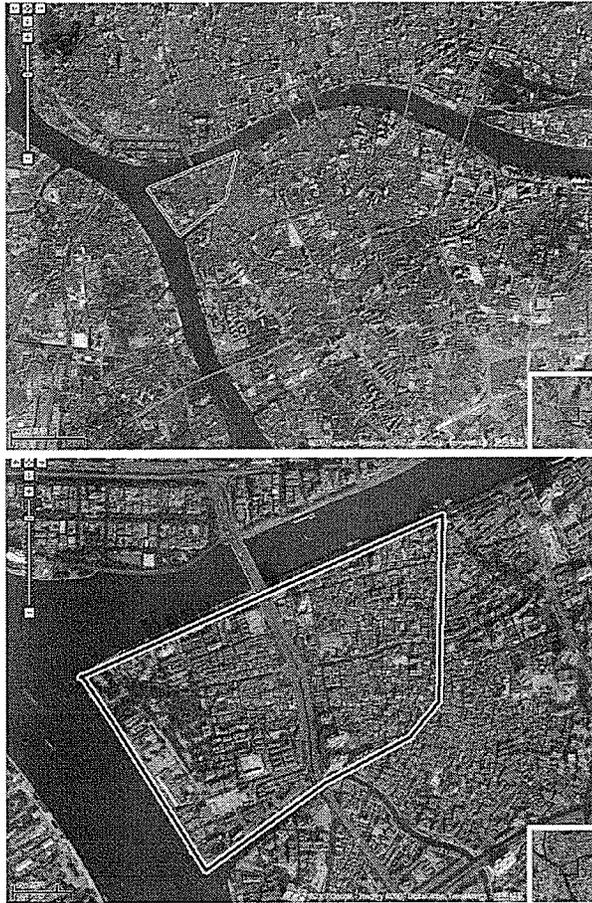


Figure. 3.3 Location of study site

3.3.2.1. General Background

a. Historical/political background

Development of the study site was started some 200 years ago in about 1800. The current layout was reconstructed and replanned in late nineteenth century. It is located in the Hai Zhu district, which is on the south side of Guangzhou. There are no known documents or other available records of how this area was developed. Generally, since Guangzhou is traditionally a commercially oriented city, residential areas were developed as a matter of convenience around flourishing commercial districts. In the early Qing

Dynasty (A.D. 1636-1912), Guangzhou was the only port in China that allowed engagement in external trade and this was the most important economic activity in the city. Trading markets were built near the port and their surroundings became commercial districts for retailing. Very soon, people started to inhabit these areas since they were close to work and convenient for daily life.

The history of another residential area, located in Li Wan District, illustrates the development of traditional housing in Guangzhou. “Shi San Hang”, referred to as “the street of thirteen agencies”, was a famous trading area close to the port. (Fig.3.4) In the seventeenth century, after Guangzhou had become the only port in China from which exports were allowed. Thirteen trading agencies established their business near the port. As a consequence, more and more trading businesses were set up in this area because the other businesses were flourishing and a large commercial district for retail activities developed near Shi San Hang. The retailers started to build their luxury houses around this area because of its convenient location for work, transportation and other aspects of daily life. Later, workers seeking employment opportunities moved into the surrounding areas. In the nineteenth century, Shi San Hang and the surrounding area, Xi Guan, became the most vibrant mixed-use district in Guangzhou. This included a commercial centre, business districts and residential areas. Today, traditional trading agencies do not exist, but the commercial centre and residential areas remain and this district is still the most favoured shopping area in Guangzhou. (Fig.3.5) The traditional houses of Xi Guan are valuable in the housing market and the price of new housing in this area is higher than

average because of its convenient location and prosperous condition.

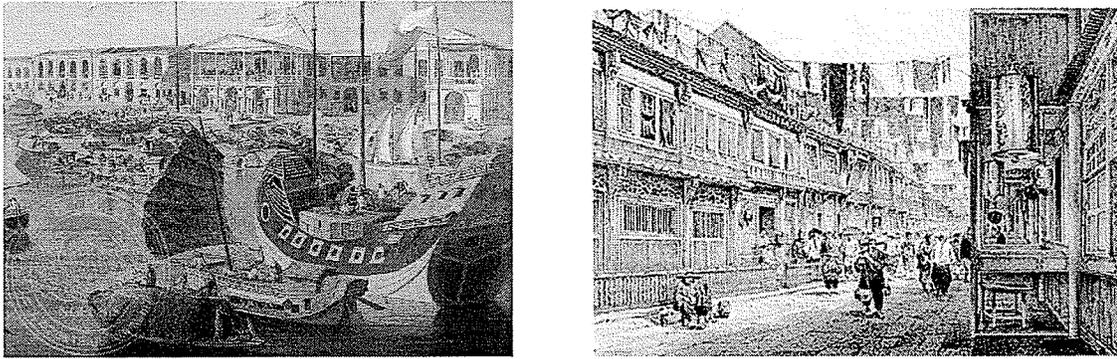


Figure.3.4 Guangzhou port and residential area at “Shi San Hang”
(image resource: <http://www.gzuda.gov.cn/>)

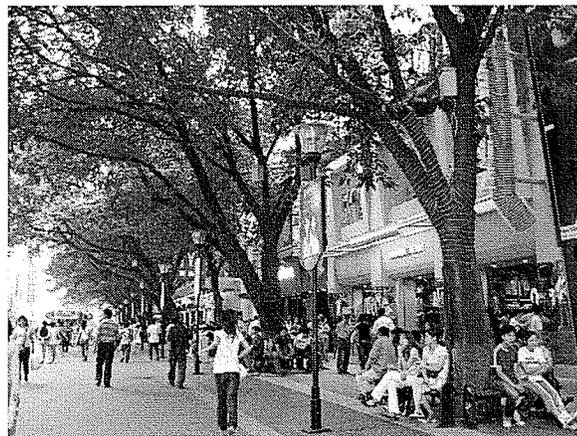


Figure.3.5 Renovated traditional housing and shops located on the first floor

b. Planning principles

The alley (Xiang) is the basic component that formed the framework in traditional residential planning and “Comb Shape” layouts were widely used in South China villages. (Fig.3.6) This form of layout comprised primary alleys laid vertically (from north to south), which were like the frame of a comb, and shorter side- alleys were laid from west to east and connected to the primary alleys for transit.

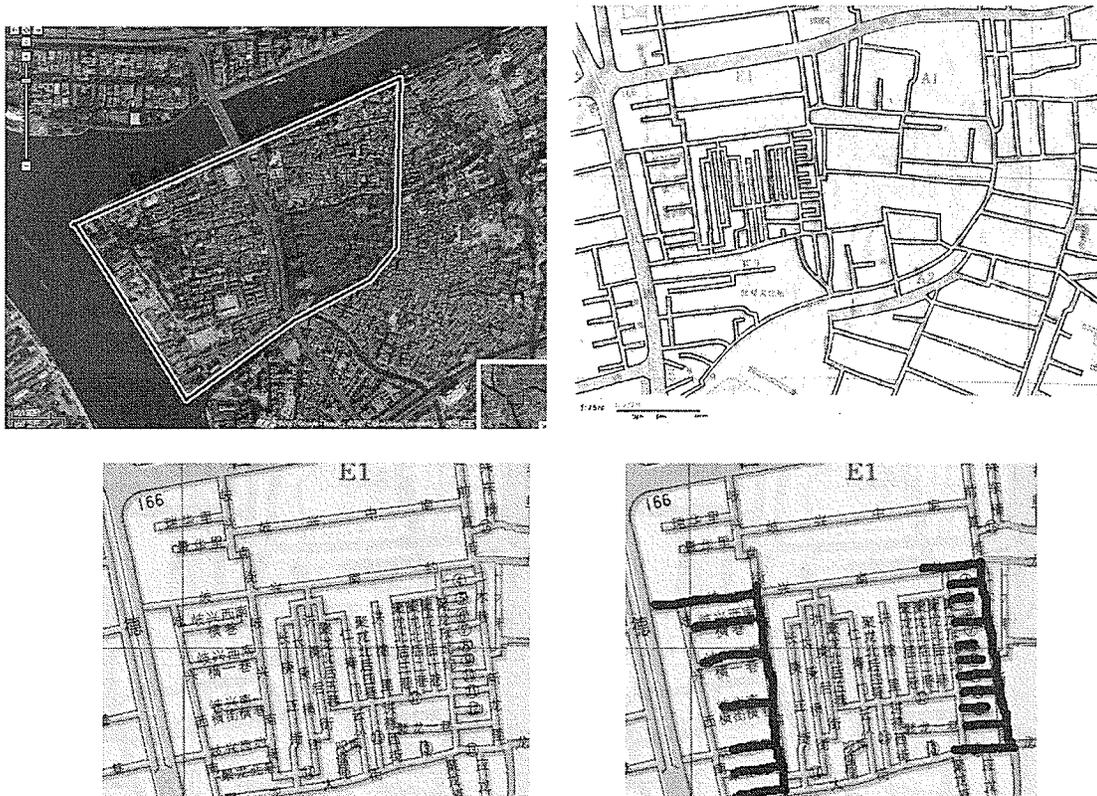


Figure.3.6 Comb Shape Layout In study area

Climate is the main influence behind such layouts. In Guangzhou, the monsoon (summer seasonal) wind blows from south to north. North-south alleys are aligned with the wind. This orientation also provides shadow in the primary alleys except at noon. When the wind flows through the alley, temperatures are reduced, and cooler ventilation is provided to the houses which are set beside the alley. Therefore, since the temperature

in the alley is lower than in surrounding areas, it is called “cool alley”. This climate-influenced layout provides a comfortable and breezy environment in high density neighborhoods and people enjoy sitting outside in these alleys in the hot summer. (Y.Lu, 1990)

This area is also a compact neighborhood. Although it does not have any gate at the neighborhood entrance, its narrow streets and the layout of the street pattern creates a centripetal force that attracts people to a semi-closed neighborhood.

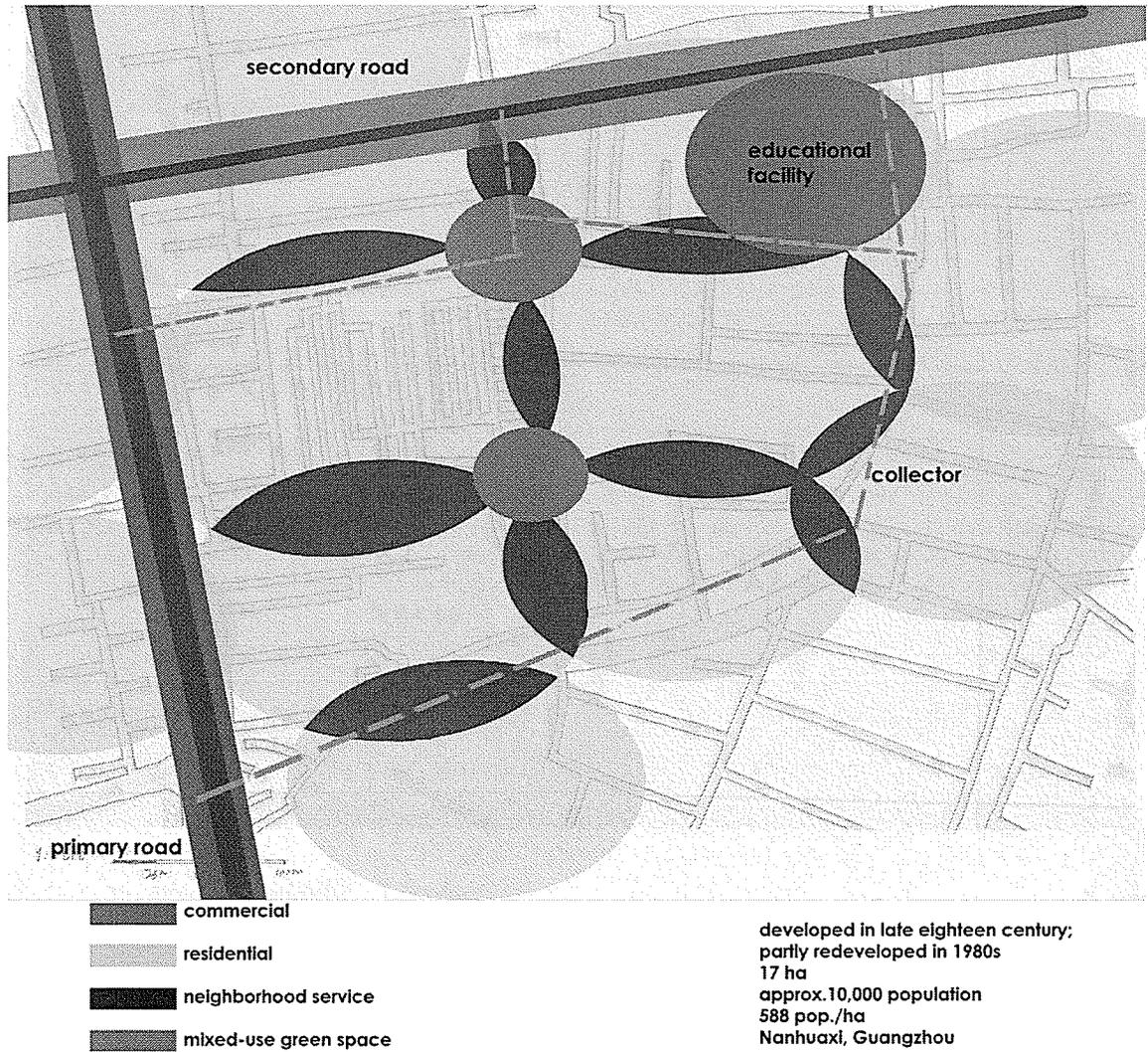


Figure.3.7 Comprehensive Analysis Diagram of the study site

3.3.2.2 Density/Intensity of Development

a. Population and Density

In Nan Hua Xi community, the west and most northerly parts are dominated by industry and commercial complexes, such as the port, trading markets, coach stations and commercial buildings/offices. Residential areas are located in the middle, east and south part of the study area. The neighborhood of detailed study is located in south-east of Nan

Hua Xi community and is a predominantly residential area.

Currently, the population of this whole community is 58,390 and the total area is 110 hectares. The study area is 17 hectares with an approximate population of over 10,000. (Population Statistics of Hai Zhu District, 2000⁷) This is about 588 people/hectare (238/arce). As has been noted, traditional residential areas were very crowded, although actual numbers are not available. From on-site observations and examination of available plans, it appears that attached row houses inhabited by one family but sometimes with three or four generations living together are set on both sides of two to three metre wide alleys. If this whole neighborhood were occupied by such housing, it can be assumed that the approximate density should be even higher in some crowded areas. Currently, renovated and reconstructed apartment buildings, which have anything from seven or eight storeys up to twenty storeys, are being built in this neighborhood. They are set beside the traditional two to three storey houses and contribute to the continued high density of this area.

b. Building form (Fig 3.8)

Apart from the recent apartment buildings, the remaining built form inside the neighborhood is the traditional attached-row house. Usually, this type of house has two to four storeys of twenty square metres per storey and is owned by one family comprised of three or four generations. Because of the density of the housing layout, the attached-row

⁷ In China, Population Censuses is held nationwide every ten years.

houses lack light, ventilation and basic sanitary services.

There is another type of house, which is called Qi Lou (arcade), built along the outer area of the neighborhood. Although a similar style of building can be found in other Chinese cities, for instance Shanghai, Qi Lou buildings have been widely built in Guangdong province since the nineteenth century, and now it is a widely-known Guangdong symbol distinguished by its verandas or arcades. Qi Lou (arcade) buildings have two to four storey with the first floor usually used for shops. Verandas or arcades are transitional spaces between the houses and open spaces, such as courtyards and streets. They stretch above from the second storey over the sidewalk. The deep overhangs of the veranda prevent scorching sunlight and blowing rain from entering the house. Verandas permit semi-outdoor activities in the hot, rainy summers of southern China. These arcades are linked together and form shaded walkways along the street as a places for people to sit halfway between indoors and outdoors in all weathers. Climate has a significant influence on building types in Guangdong and Qi Lou buildings are suitable for the unpredictable climate in southern China. Furthermore, since traditional neighborhoods generally lack open space, Qi Lou buildings provide places for outdoor activities and for active street life. (Knapp, 2003)

“The history of commercial arcade building can be dated back to ancient Greece some 2000 years ago; it then became popular in Europe and was introduced to the world only in recent times. Guangzhou is among the first coastal cities to embrace foreign culture and begin modernization. During the Ming and Qing Dynasties, it was the only

commercial port. The commercial buildings of "the Shi San Hang" are considered the earliest model of the later Qi Lou buildings. At the beginning of the twentieth century, when the city government began to widen the roads, this 18th century western architectural style was blended with the traditional Cantonese construction features, thus giving birth to the unique Qilou buildings.”⁸



Figure.3.8 Building form in Guangzhou. Arcade building with patio inside the house.

⁸ Available at <http://www.newsgd.com/culture/special/200411030033.htm>

3.3.2.3 Circulation (Fig.3.7)

a. Car/Bike Ownership

Traditionally, only pedestrian movement and the movement of goods by handcart were considered in the design of residential areas. Today, bicycles and motorbikes are also allowed inside the neighborhood, but cars are still forbidden because of the narrow street layout.

b. Vehicular Circulation and Parking

As a major port city with rapidly growing industrial and commercial economies, municipal authorities in Guangzhou devoted significant resources to the construction of urban infrastructure from the nineteenth century.

Currently, in the study area, new primary roads are being built to wider dimensions as part of the infrastructure development of the city. Secondary and local roads are built or maintained at traditional dimensions with a width of twelve metres, the same as the main transportation roads that connected other regions of the city one hundred years ago. Now, because of increased traffic, the secondary roads are designed as one-way roads for public transportation. Local roads, which are six metres wide, are used by cars or vans and fire engines for neighborhood services. These local roads connect the inner neighborhood to public transit such as bus and MTR systems. But in the Nan Hua Xi study area, lack of parking space is still the major problem today because of the narrow street layout and crowded residential planning. Recently, a public parkade was built in an adjacent vacant industry area was built to solve the parking problem.

c. Pedestrian Circulation

Pedestrian circulation is the main means of movement within the neighborhood. Since the neighborhood lacks a large open space, the two to three metre wide alleys serve as become continuous open spaces and provide a quiet and safe place for pedestrians, especially for children and seniors. Another advantage of narrow streets is that their scale offers a human-friendly distance for easy communication.

d. Public Transportation

The study area, Nan Hua Xi community, had a good transportation infrastructure resulting from investment one hundred years ago. Today, there is a convenient and comprehensive transit system including an inner city highway, bridges, and wide municipal roads that connect this neighborhood to other areas of the city.

3.3.2.4 Public Buildings(Fig.3.7)

Apart from the shops located in the first floor of Qi Lou (arcade) buildings, there is no visible or available record of what public buildings existed in the area one hundred years ago. Visible evidence suggests that most of the public buildings in this area were developed after 1949 and that their locations reflect the importance of their accessibility to a predominantly pedestrian neighborhood. Public buildings which were noted in the area are described here.

a. Educational Facilities

The whole community has three primary schools, two middle schools, one municipal

kindergarten; several neighborhood kindergarten/daycare centres (two to three street committees share one kindergarten). Primary schools and middle schools are located on secondary roads; kindergartens which are accessible with safety and convenience are usually located inside the neighborhood.

b. Social and Cultural Facilities

Within the study neighborhood, there are no social or cultural facilities located in this area. But there are several facilities located in adjacent neighborhoods or along primary or secondary roads and shared by the whole community.

There are Street Committees in the neighborhood. They oversee the condition of sanitary facilities, security and planted areas in several streets. They also organize social and cultural events. Street Committee offices are located on secondary roads or close to gathering spaces. The whole community has a Community Committee which is responsible for local affairs and directs the work of Street Committees.

c. Neighborhood Shopping

Neighborhood shopping is located on primary and secondary roads. Qi Lou (arcade) buildings provide an ideal shopping environment in any weather. Small free markets, which provide temporary shopping spots, are usually found inside the neighborhood on wider streets. These free markets are formed spontaneously instead of being planned or organized. They also become gathering spaces for daily communication and social contact. Other gathering spaces, such as pocket parks and vacant spaces are found adjacent to corner stores and small family restaurants. Since the mid 1980s, some old

houses, particularly those which are structurally unsafe, have been demolished for new developments. These developments are usually new apartment buildings located above shops and supermarkets intended to meet the daily shopping demands of residents.

d. Public Utilities – Sanitation

One particular public facility the public washroom, is a feature of traditional neighborhoods. Although new multi-storey apartments which have individual washrooms within each flat were built recently in the traditional neighborhood, public washrooms are still a mandatory facility due to the poor sanitary condition of some of the remaining older residences. There are ten public washrooms within this study neighborhood. They are managed by the Street Committee.

3.3.2.5 Public Open Space and Recreational Facilities (Fig.3.7)

a. Green Space

Normally, traditional neighborhoods like the study area are crowded with houses and lack central green space. Pocket parks are often the main green units in such neighborhoods. Trees that were planted over one hundred years ago such as *Ficus* sp., can be found at the corner or conjunction of narrow alleys. Areas around these ancient trees have become gathering spaces for chatting, wandering and other outdoor activities. In earlier years, individual manufacturers and small businesses gathered here and formed a temporary shopping market. Today, these pocket parks are maintained spontaneously and small businesses such as corner stores and family restaurant are located next to them.

Latterly, kindergarten and neighborhood services have also been located around pocket parks. Such areas become favoured locations for community interaction.

b. "Non-green" space

In addition to pocket parks, streets and narrow alleys also act as open space for vibrant outdoor activities due to their shaded condition and convenient access. Pocket parks are ideal places for large group gatherings or for interaction between residents of larger blocks, whereas alleys are spaces for communication between individuals and between families. Alleys are always treated as a safe playground for children and as an outdoor Mah-jong room for seniors.

c. Neighborhood Management

Today, the neighborhood continues the management system that started with 1950s-Street Committees. Most of the members of the committee are local residents. They are familiar with this neighborhood and participate in each event. Residents spend relatively large amounts of time outdoors communicating with their neighbors and are familiar with each other. This helps to decrease crime and to detect unfriendly strangers. Successful neighborhood management has produced a situation in which traditional residential areas are well known as secure, low crime areas.

3.3.2.6 Conclusion

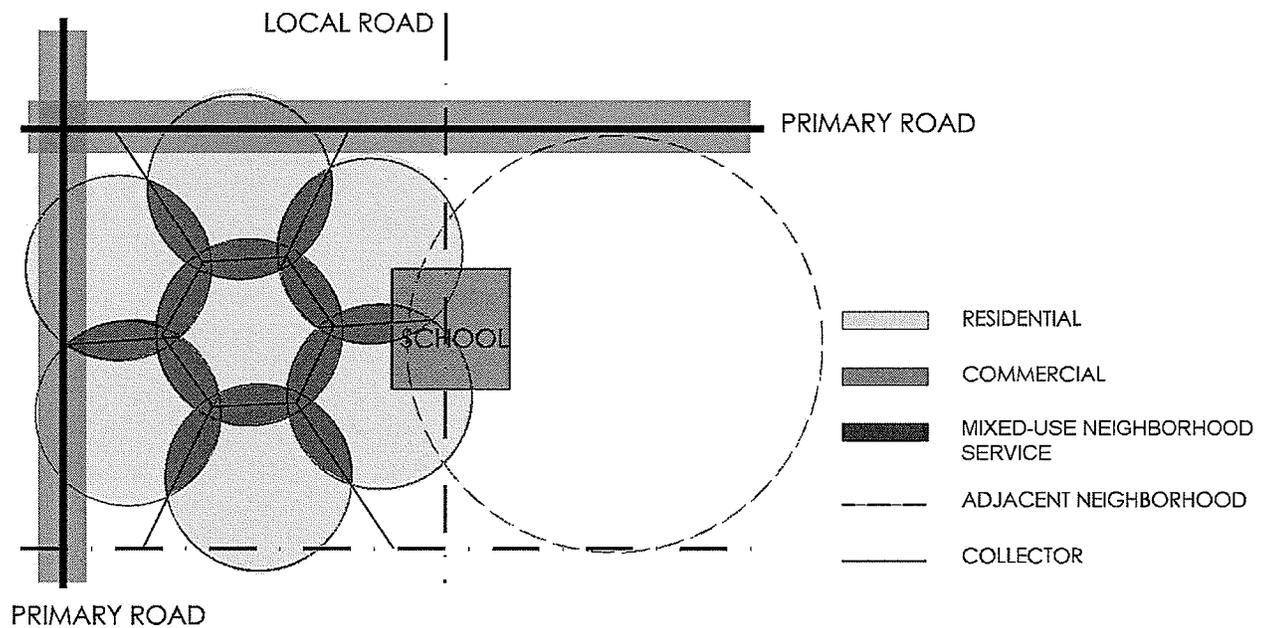


Figure.3.9 Analysis Diagram of the study area – Nan Hua Xi Traditional Neighborhood

Principal lessons that can be learned from this neighborhood are:

a. Consideration of climate

- Applying “comb style” street layout that responds to local climate
- Traditional architectural form provides ideal semi-outdoor space for shopping and wandering in any weather
- Local materials are widely used for paving and for planting. They improve the microclimate and provide a comfortable environment for daily life.

b. Overall planning: traditional residential areas are valued for their convenient life style and friendly neighborhood culture.

- Commercial and public transportation which provides convenient daily movement to suit the lives of residents is located in the outer area (along the primary road) of the neighborhood. Furthermore, the Qi Lou’s shopping street is

also a common space that connects several neighborhoods. Such shopping streets not only service the local neighborhood residents, but also attract people from other neighborhoods by means of convenient city transit.

- Neighborhood services, such as high schools, banks and clinics, which can be shared by two or more neighborhoods, are located on local roads between two adjacent neighborhoods. Compared with shopping streets which welcome any user from the city, services located on local roads provide a relatively private and quiet space for local residents.
- Although the neighborhood lacks large open or green space, pocket parks and intersections of narrow alleys close to public services, such as kindergartens, corner stores and the small market, are favorable places for communication and gathering. People actually use these areas rather than just passing by.
- Pedestrian-oriented neighborhoods provide safe and quiet living space. Streets act as a recreational space for local residents.

c. Hierarchy of open space (Fig 3.10 & Fig 3.15)

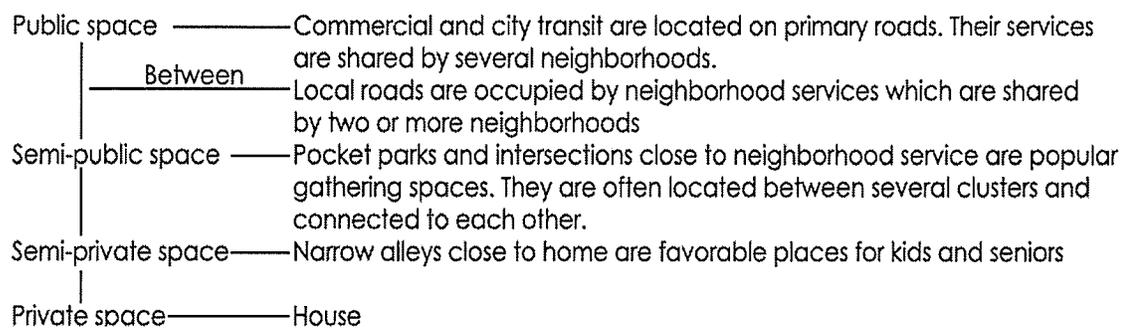


Figure.3.10 Analysis Diagram of Hierarchy of Open Space in Study Area

traditional neighborhood - hierarchy of open space

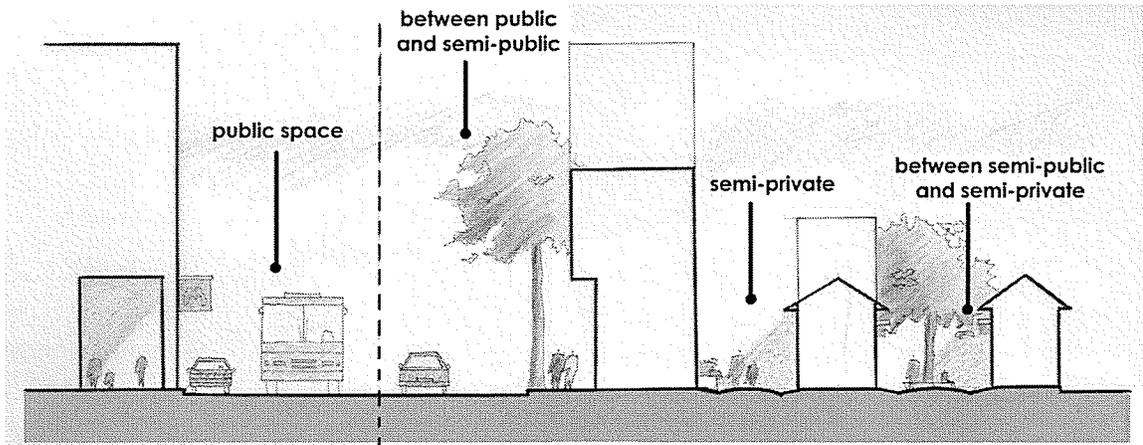


Figure.3.11. Analysis Sketch of Hierarchy of Open Space in Study Area

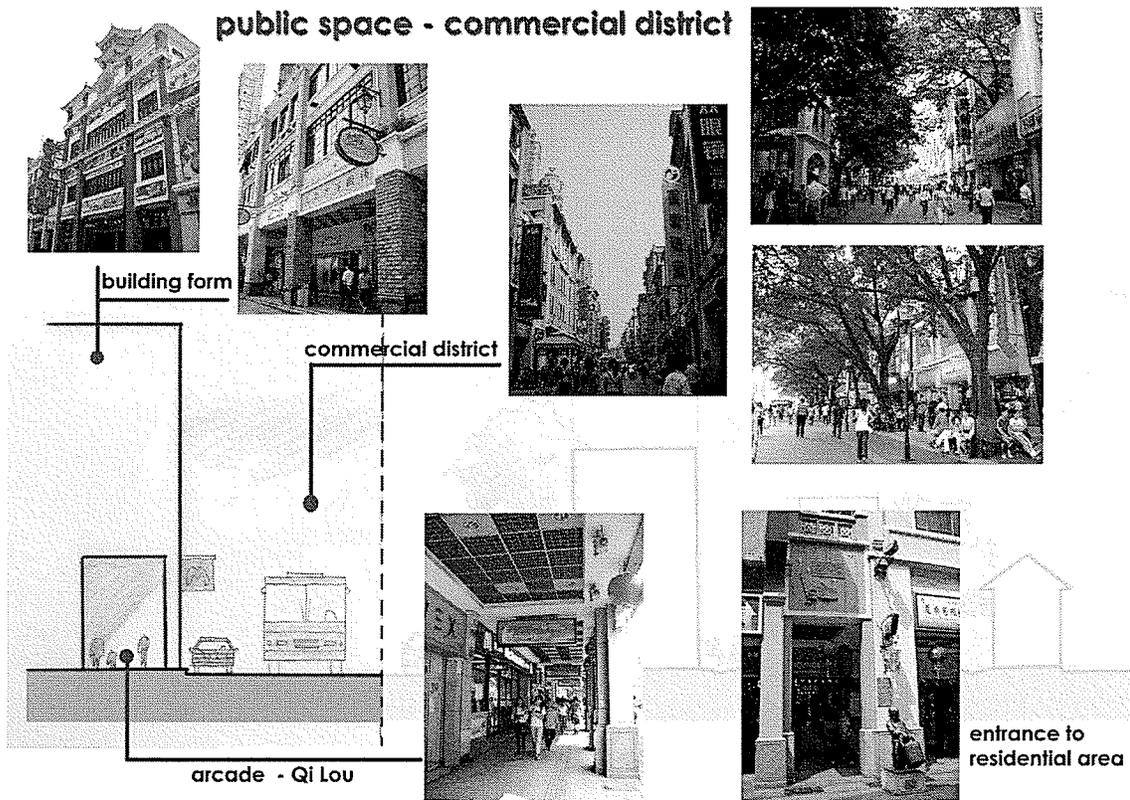


Figure.3.12. Hierarchy of Open Space – public space

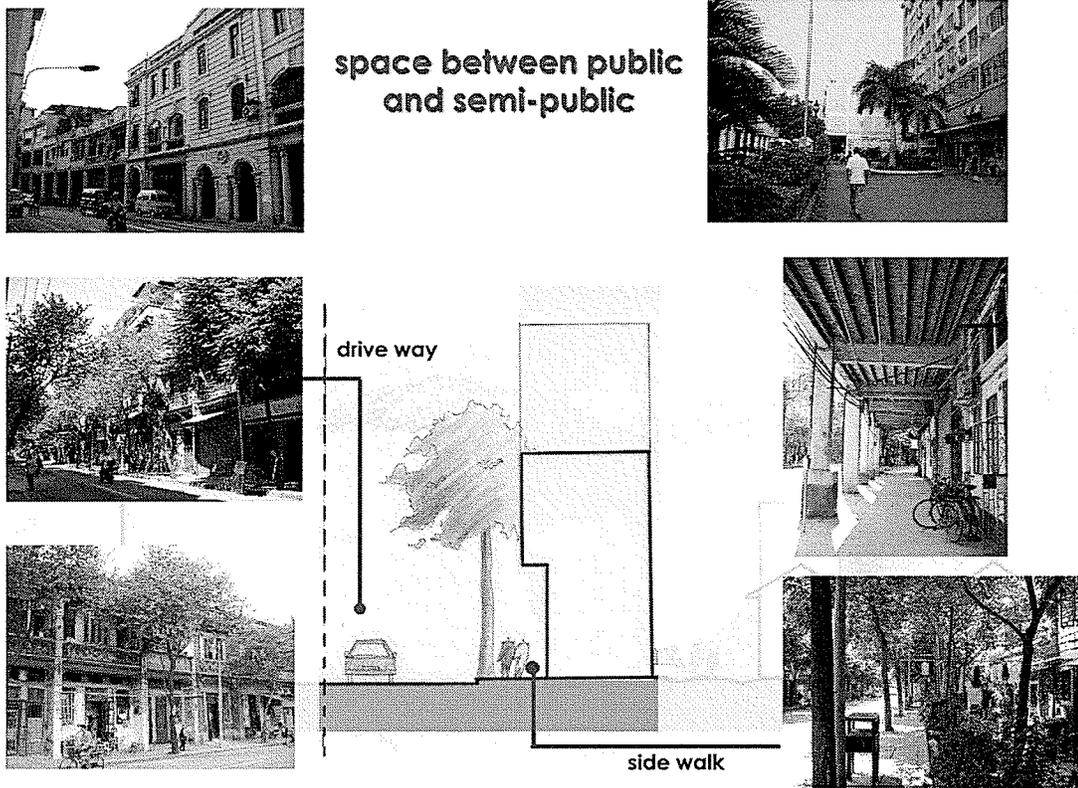


Figure.3.13. Hierarchy of Open Space – public space

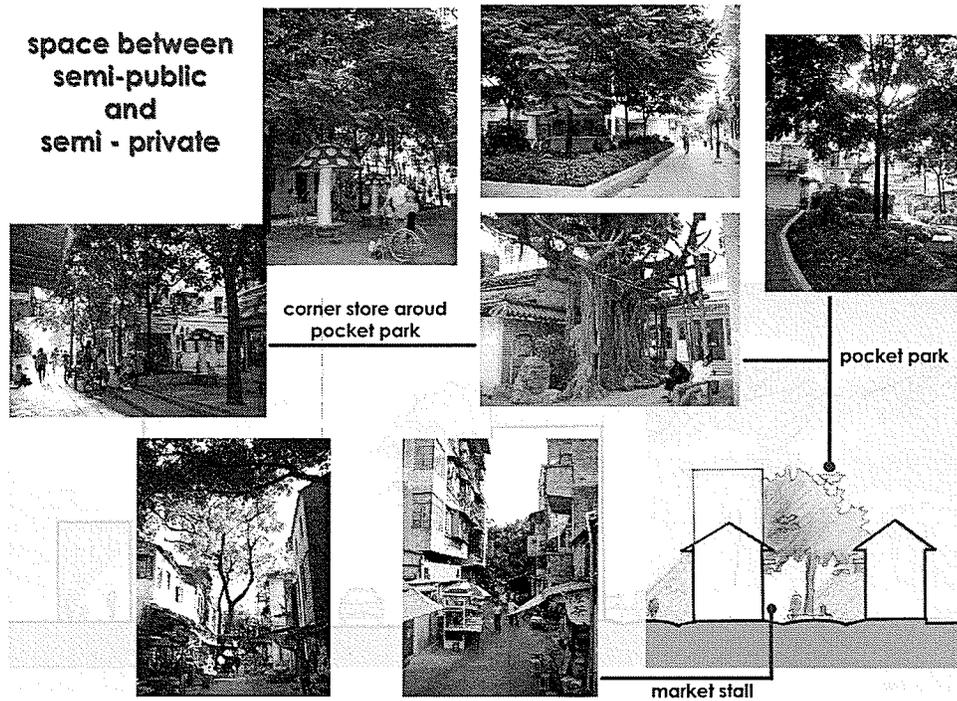


Figure.3.14. Hierarchy of Open Space – Semi-public space

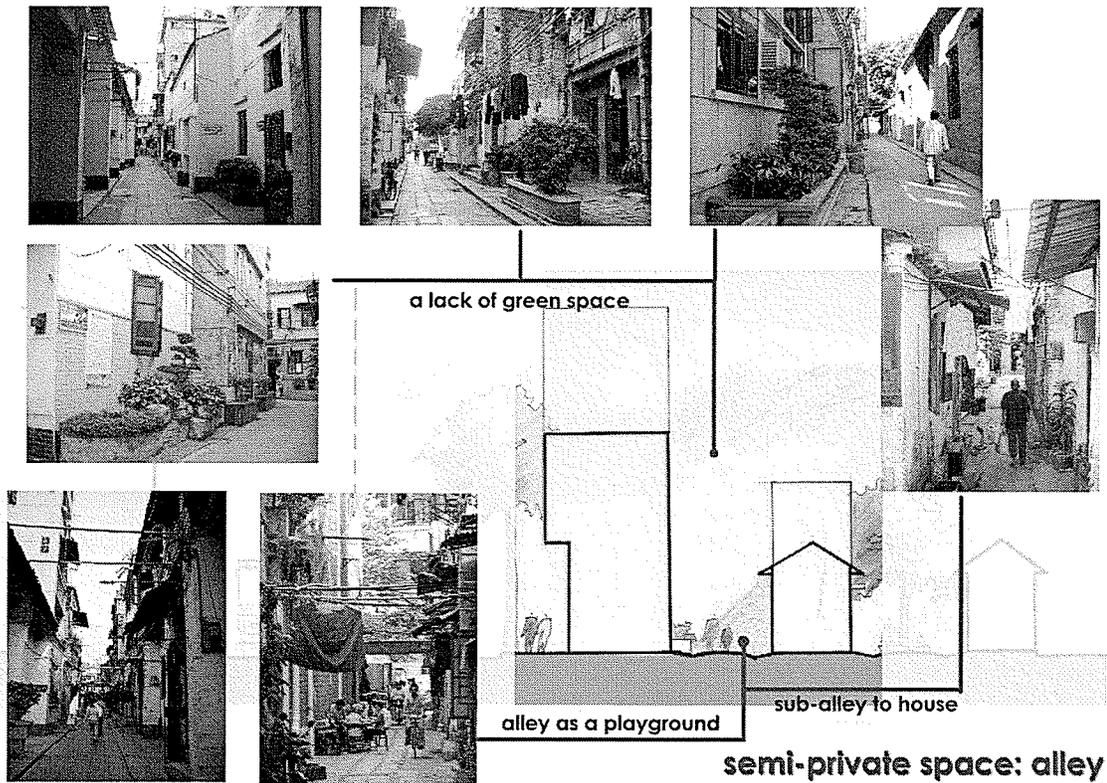


Figure.3.15. Hierarchy of Open Space – Semi-private space

d. Although traditional neighborhoods are unfenced, they are deemed to be safer areas with fewer crimes. They benefit from a semi-closed planning and self-management program. Firstly, public buildings which are located in the outer areas separate the public and semi-public space; they decrease interruption from outside strangers. Outer areas such as commercial streets can be used by anyone whereas the inner neighborhood is mainly used by local residents. Secondly, narrow streets and continuous semi-public spaces which are frequently used provide friendly and comfortable places for various outdoor activities; unsafe “dead corners” or “blind spots” are rarely found in a lively neighborhood. Thirdly, local residents are involved in self-management programs which increase the feeling of attachment to the place; they care and feel responsible for what

happens to their neighborhood.

e. Disadvantages of this traditional neighborhood include poor and crowded housing conditions, poor fire control due to the narrow streets and alleys, lack of public parking, lack of recreational open space and poor sanitary condition.

3.4 Case studies of Significant Periods – Residential Development Built Between 1949 and 1979

Housing Development in the Socialist Planned Economy form 1949-1978 – Case Study of Work Unit Compound

3.4.1 Overall

Before 1949, the shortage of urban housing was serious in many cities. Housing developments were promoted in the 1950s after the establishment of New China. The Neighborhood Unit and the former Soviet Model were applied in new residential development.⁹ But during the 1960s and 1970s China's urban housing development was strongly affected by political policies promoting the development of heavy industry. Commerce and other forms of consumption were discouraged. Few new housing projects were developed in Guangzhou, which means that there are not many visible examples from that era. Furthermore, political dictates permitted that the same format of housing

⁹ The Neighborhood Unit and the Formal Soviet Union Model for housing development will be further explained in the following sections

development was used all over the country. During this thirty-year period housing development, especially in existing cities, did not make much progress. (Lu & Rowe & Zhang, 2001).

In line with the stated purpose of this practicum to try and understand and apply traditional lessons of neighborhood culture to new housing development in Guangzhou, several issues about the housing development built between 1949 and 1979 will still be examined here.

3.4.2 Welfare Housing system

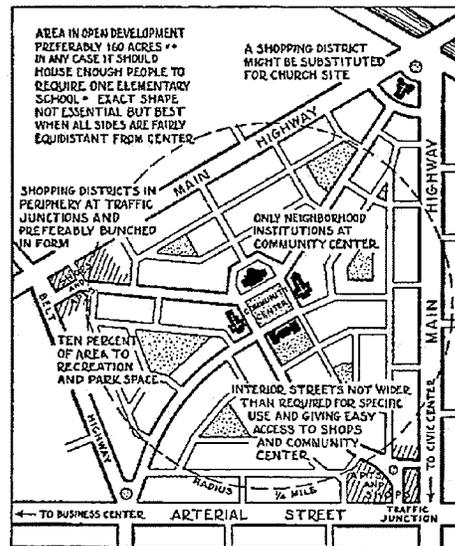
In the early period after the establishment of New China around 1950, in order to guarantee the supply of the most basic consumer goods, the government promoted the policy that consumer goods were divided into various categories and provided to all government officials and city residents. Housing was one of these consumer items. In the 1950s, the Welfare Housing System was established and housing was treated as a welfare service controlled by the government and under which renters paid a relatively low rent to live in these apartments

Under this system, the state retained ownership of the land and local governments provided it to work units without charge. The work unit was in charge of the land development and the production of housings while the state or local government provided certain amounts of money for work units to be put towards construction costs. When the construction was completed, employees of the work unit could live in these apartments

for a very low rent. (Zhu, 2004)

3.4.3 Principle of Neighborhood Unit ¹⁰

“The Neighborhood Unit” planning principle had been introduced to China before 1949. It has been applied in China’s residential planning since the 1950s, although some of the measurements, such as population and detailed walking distance, may be different from the original theory because of China’s particular circumstances. Today, neighborhood unit theory still influences China’s residential planning in a direct or indirect way. It is therefore worth reviewing some of the key principles here.



The Neighborhood Unit for the Regional Plan of New York 1929
by Clarence Perry

Figure.3.16 C.A. Perry’s Neighborhood Unit theory
(image resource: *Time-Saver Standards for Urban Design*)

In 1929, C.A. Perry stated his neighborhood theory in a report published by the Committee on the Regional Plan of New York and Its Environs. (Fig 3.16) The major

¹⁰ In this section, principles of the neighborhood unit are quoted and summarized from *Time-Saver Standards for Urban Design*, (2003).

principles were:

- Major arterials and through traffic routes should not pass through residential neighborhoods. Instead, these streets should provide the boundaries of the neighborhood.
- Interior street patterns should be designed and constructed through use of cus-de-sac, curved layout and light-duty surfacing so as to encourage quiet, safe, low-volume traffic movement and preservation of the residential atmosphere.
- The population of the neighborhood should be that which is necessary to support its elementary school. Perry suggested that the estimated population which can support one elementary school was about 5,000 persons.
- The neighborhood focal point should be the elementary school centrally located on a common or green, along with other institutions that have service areas coincident with the neighborhood boundaries.
- The neighborhood would occupy approximately 160 acres (65 hectares) with a density of 10 families per acre. The shape would be such that no child would walk more than half a mile to school.
- The unit would be served by shopping facilities, churches, a library, and a community centre located near the elementary school.

Clarence Stein also described his theory about the neighborhood unit. In his theory, the elementary school is the centre of the unit and a small shopping centre for daily needs is located near the school. Most residential streets are suggested as cus-de-sac to

eliminate through traffic. The grouping of three neighborhood units is served by a high school and one or two major commercial centres, the radius for walking to these facilities being 1 mile.

The neighborhood unit indicated by N. L. Englehardt, Jr includes an elementary school, a small shopping district, and a playground. These facilities are grouped near the centre of the unit. An elementary school with a standard enrollment of between 600 and 800 pupils will represent a population of about 1700 families in the neighborhood unit. Four neighborhood units form a "community" with a population of about 24,000 people. The component parts of this community pattern are integrated, and such communities may be arranged in whatever combinations the sources of employment and communication to and from them may require.

Jose Sert stated a neighborhood unit includes an elementary school which occupies a central position, preschool playlots, playground, church, shopping centre, library, and emergency clinic. A group of these units constitutes a "township" with a population of between 56,000 and 80,000 people. The township centre includes the junior and senior high schools, community auditorium and meeting rooms, concert hall, theatres, main shopping centre, recreation and administrative centre. Traffic ways bypass the neighborhood units and connect them with the civic centre, which includes the regional facilities for administration, education, hotels, trade and recreation, and transportation stations on one side, and on the other side are the locations for light industrial plants. All these elements are separated from each other by greenbelts, and the open countryside is

accessible to all the people.

3.4.4 The Former Soviet Union Model for housing development

During the early 1950s, China had a very close cooperative relationship with the former Soviet Union and was strongly influenced by her in many aspects including political, economic, military and cultural matters. (Lu & Rowe & Zhang, 2001) The former Soviet Union helped newly founded China to reconstruct cities and houses. Consequently, the former Soviet Union' residential design planning methods were also applied in China's housing developments. (Zhu, 2004)

The former Soviet Union's planning theory was strongly represented by the appearance of perimeter block neighborhoods. (Fig.3.17) This type of residential area had a distinct axis with buildings arranged along the streets. Houses stood either north-south or east-west with public buildings located in the centre of the residential area, exhibiting a strong sense of order and formalism. (Lu & Rowe & Zhang, 2001) However, east-west housings have relatively poor sunlight and ventilation.

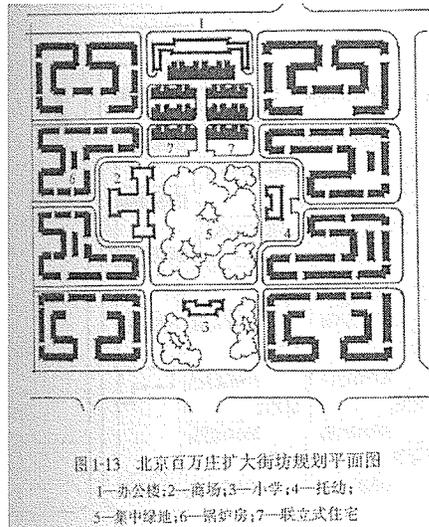


Figure.3.17 Beijing Bai Wan Zhuang residential area applied former Soviet Union planning theory
 (image resource: *Planning of Residential Area*)

Meanwhile, the former Soviet Union's industrialized housing ideas were also applied in China's residential developments. Industrialized housing had a shorter construction period, and also had lower costs and could be built massively in a short time to solve the housing shortage problem. But these houses only met the basic needs of peoples' lives without considering public facilities and construction qualities. Moreover, from a design perspective, they were more like concrete slabs than comfortable homes.

3.4.5 Case study: Work-Unit Compound

Most of the Work-Unit Compounds that occupied large tracts of land in Guangzhou have already been demolished for redevelopment. It is difficult to find a complete Work-Unit Compound for case studies. In this section, studies will therefore be based on typical drawings and images. (Fig 3.18 & Fig 3.19)

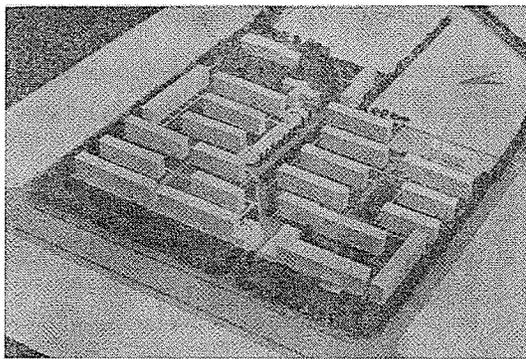
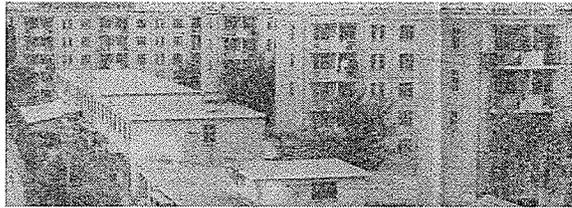
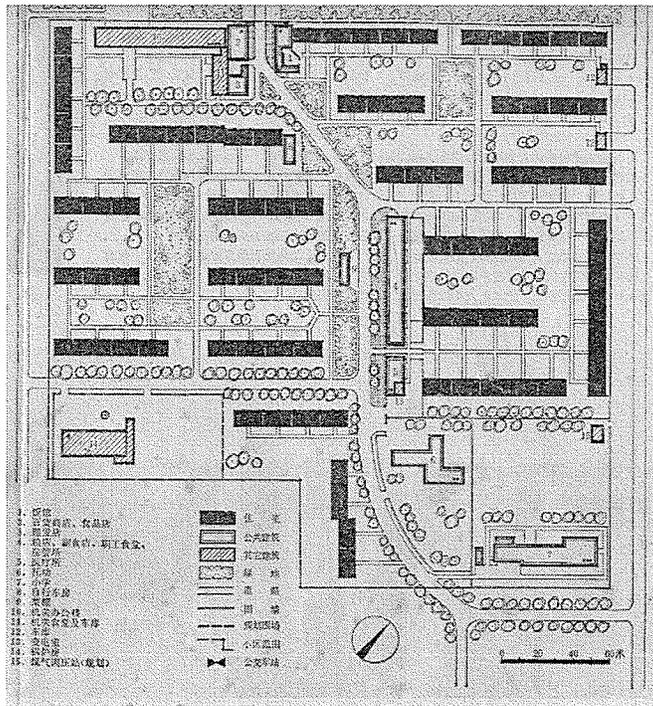


Figure.3.18 Built in 1965 in Beijing, China. 9 hectare work-unit compound with population of 5,600.
 (image resource: provided by architect: Mr. Zhao Song Yu)

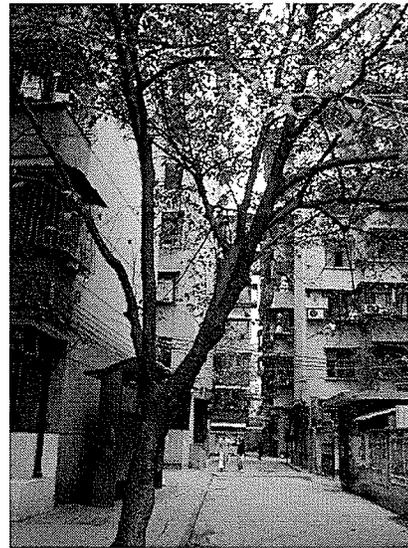
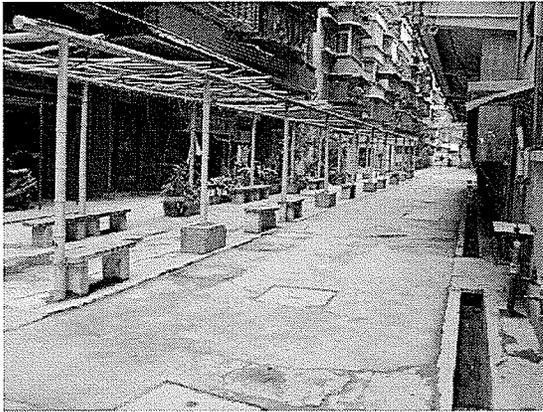


Figure.3.19 Built in 1970s in Guangzhou, China. Part of this Work-Unit Compound has been demolished. Fencing wall and gates can still be partially seen. The Work-Unit office building has been moved to another area. Children's play equipment was installed in 2004. The rectilinear layout still can be seen in this project.

3.4.5.1 General Background

Work-Unit Compounds were the main development type during this time and was applied throughout the country. Because of the strong promotion of heavy industry, many factories were set up in the suburbs of older cities. To meet the workers' demand for housing, new residential areas were built near the factories to save the transport time and to maximize use of transport infrastructure. Fences or walls were usually set up around

the factory and its residential area and, together, they formed the Work-Unit Compound. People worked, lived and played within a small community centred on the workplace and rarely had any need to travel beyond the walls of their work and living unit. (Gaubatz, 1999)

3.4.5.2 Planning principles

The Work-Unit Compound applied Neighborhood Unit design principles and planning standards from the former Soviet Union in housing development. The Compound was a self-sufficient closed residential area. It contained the hierarchy of a “community” ranging from a housing cluster to a neighborhood to a whole community. Green space was located in the centre of a cluster; several clusters formed a neighborhood served by some public facilities such as shops and a primary schools. The maximum dimension to schools within a neighborhood was suggested by Soviet Union standards for reasonable accessibility. A community with an integrated public service centre was formed by several neighborhoods. Clusters were divided by local or pedestrian roads while neighborhoods were separated by secondary roads. Primary roads were set around the outside of the community. (Fig 3.20 & Fig 3.21)

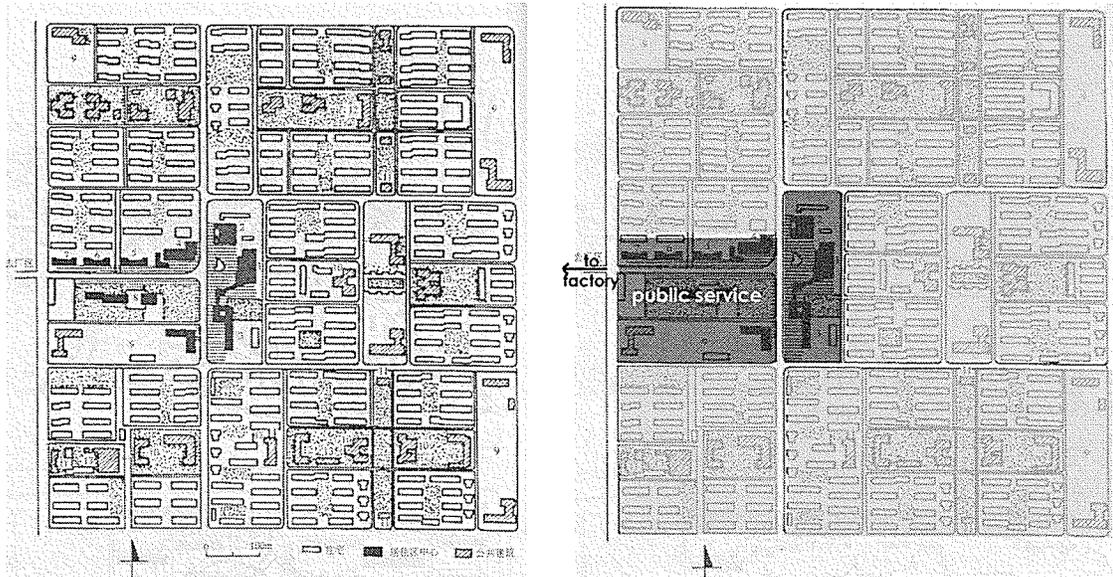
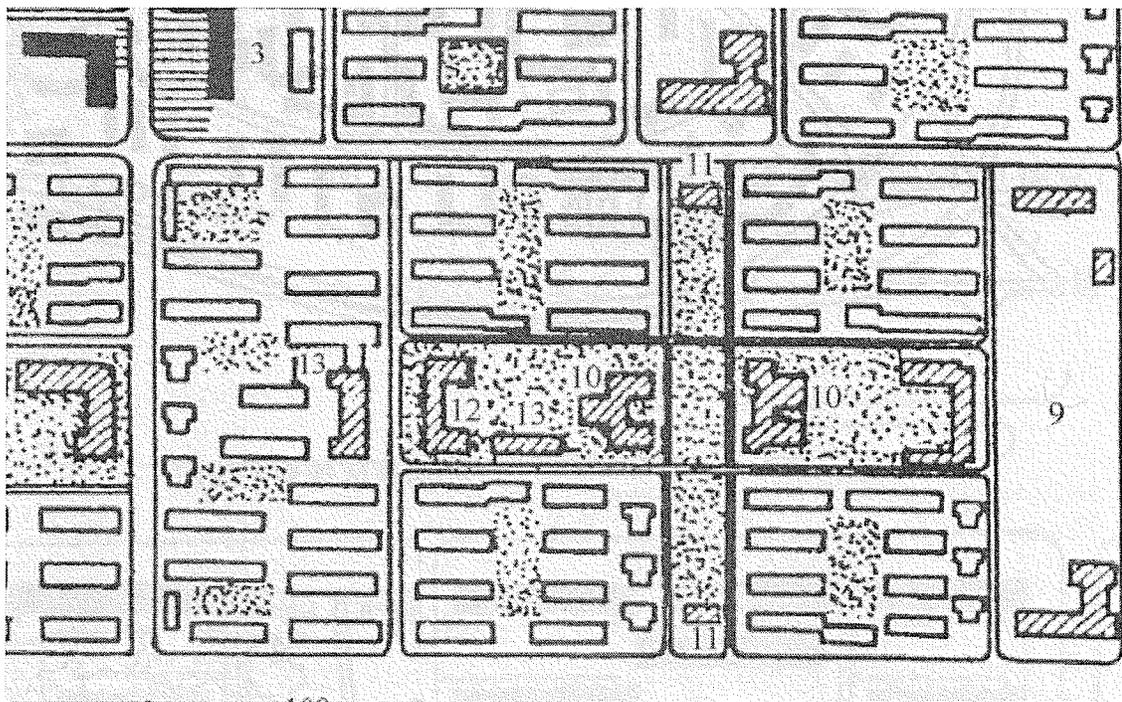


Figure.3.20 Work-compound unit built in 1960s in Tianjin, China. Total area 103.5 hectares with population of 55,000.



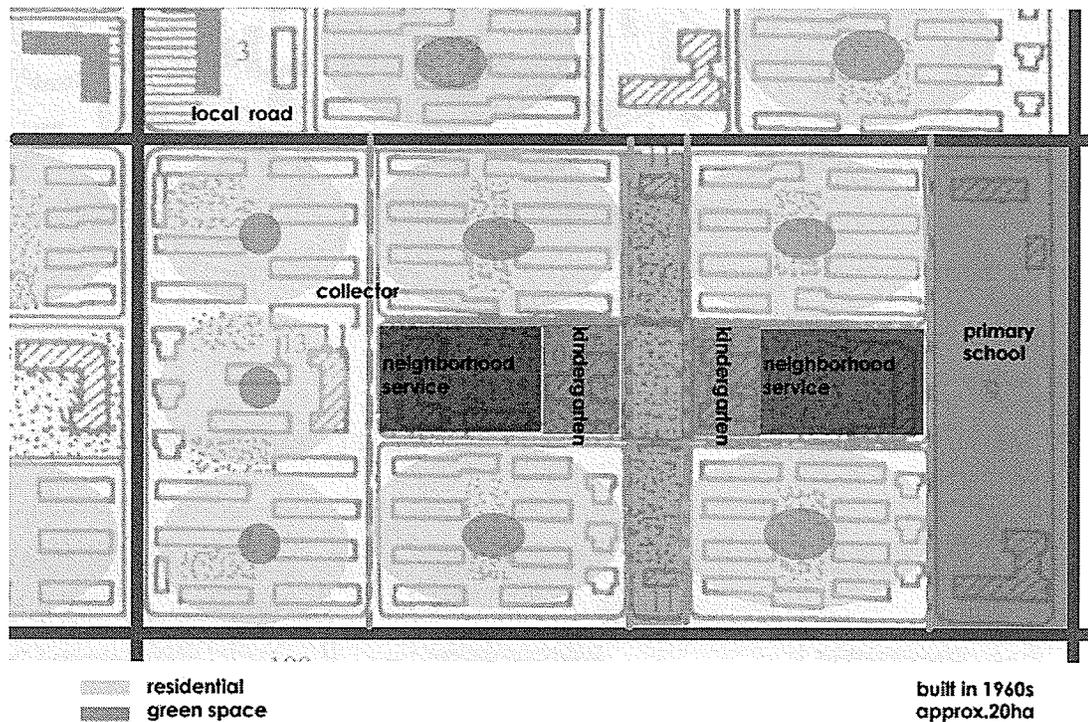


Figure.3.21 Comprehensive Analysis Diagram of the study site. A neighborhood size residential area which includes necessary public facilities and public green space at the centre of the neighborhood.

(image resource: *Planning of Residential Area*. Diagram drawn by author)

3.4.5.3 Density/Intensity of Development

It is not possible to calculate the exact population density from the available information. We can assume the approximate density from the above examples. For example, the residential developments shown in Figure 3.18, had a density of approximately is 622 people per hectare; in residential developments shown in Figure 3.20, the density is about 531 people per hectare. Generally speaking, however, it is understood that the Work-Unit Compound was not a crowded residential area. Residents of a compound worked for the same factory; and the compound was built according to planning principles that stipulated the maximum distances between public services and

houses. Compared to the traditional residential area, which was not laid out according to maximum and minimum distances between facilities, the density of a Work-Unit compound should not be higher than in the traditional area. Some compounds built near the oil refineries or steel factories even formed new cities because of their size and the speed of their development.

3.4.5.4 Circulation (Fig 3.21)

The circulation hierarchy was clearly set out in Work-Unit Compounds. Because the housing development was occupied by residents who worked inside the compound, public transportation within the community was not the major concern. Bicycles were widely used and the private car was not even considered. Pedestrian routes were designed to serve clusters. Several secondary roads ran through the communities and separated the neighborhood into relatively isolated areas in a grid form.

3.4.5.5 Public Buildings & Public Open Space (Fig 3.21)

Work-Units were required to construct a complete set of facilities including shops, schools, clinics and hospitals. Residents could get daily necessities without leaving the compound. In large Work-Unit Compounds, entertainment facilities such as cinemas were also required by the planning standard.

Each neighborhood had its own public service such as stores and schools. Green spaces were also designed in each cluster. They met the basic needs of the residents

within this neighborhood and had to be a maximum distance from the houses in accordance with the adopted Soviet standards. Within the overall community, a more complete set of public facilities was provided - including a bank, cultural facilities, and a shopping market located in the central area of the community.

3.4.5.6 Neighborhood Management and Security

Work-Unit Compounds usually had a self-management system. Members of the Community Committee and Neighborhood Committee were usually the relatives of the employees of the Work-Unit who lived inside this community. They had a close relationship with the Work-Unit administration department and helped the department to deal with neighborhood matters such as security, sanitation and neighborhood management. The neighborhood management system in Work-Unit Compounds was regarded as a successful system since residents and committee members had a strong sense of belonging to the community. They were also happy to help the committee to solve those issues that related to their daily lives.

3.4.5.7 Conclusion

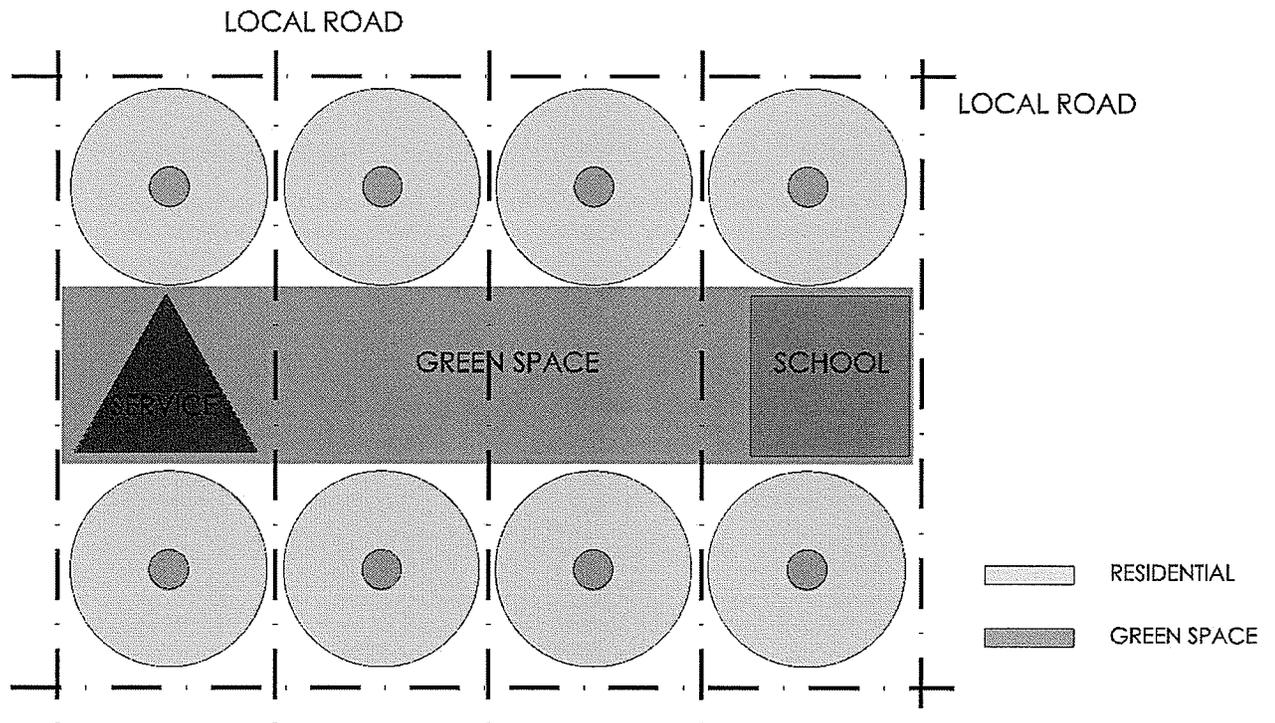


Figure.3.22 Analysis Diagram for Residential Area that built between 1949 and 1979

Principal characteristics of lessons that can be learned from this neighborhood are:

a. Application of Neighborhood Unit and formal Soviet Union Planning Principles

- Compounds were planned with minimum and maximum standards that provided necessary public services for each neighborhood. By applying Neighborhood Unit Principles, major arterials and through traffic routes did not pass through the neighborhood; maximum walking distance between school and houses within a neighborhood was set; neighborhood services and green space along with the primary school were located in the central area. Furthermore, Soviet Union principles which listed the density, size and contents of all public facilities

were applied to projects in China.

- A large Work-Unit Compound might include ten or more neighborhoods which had a total population of 10,000. This kind of compound had the residential building close to the work place; sometimes it fence-in the work place and the residential development together and formed a closed community. To meet living requirements in such a compound, a large public service centre, which included a high school, supermarket, hospital and recreational facilities, was built inside the compound. A Work-Unit Compound which was lived in and worked in by colleagues and their families was regarded as a safe and convenient community.
- Planted green spaces which were missing in traditional crowded neighborhoods were widely distributed in a neighborhood.

b. Hierarchy of open space(Fig 3.23)

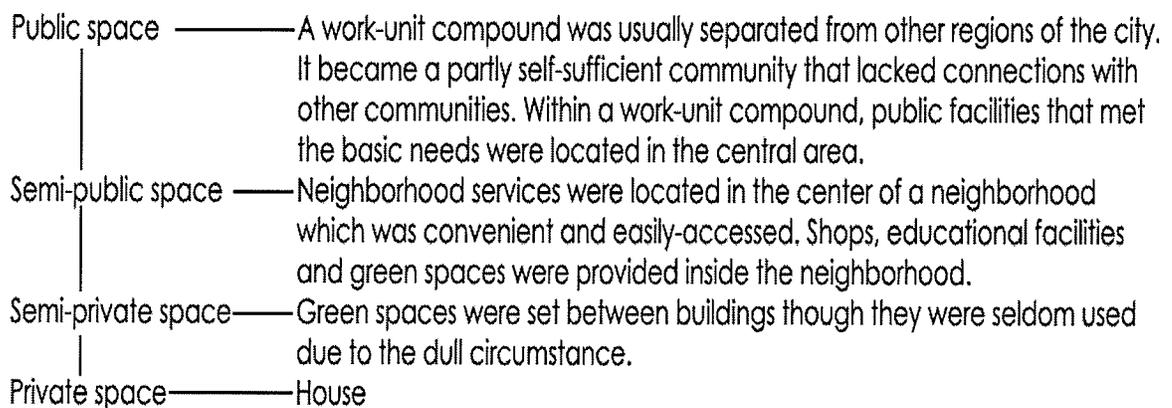


Figure.3.23 Analysis Diagram for Hierarchy of Open Space

c. Disadvantages:

- Except the central areas which were built with neighborhood services and public facilities, spaces between clusters or between neighborhoods lacked overlap and connections. Planted green spaces between multi-storey buildings without the support of other outdoor activities became through pathways but not lively places.
- Since a fenced Work-Unit Compound which had factories and residences met the basic needs for working and living, it became an isolated community that lost connection with other areas of the city.
- Parallel slab buildings with similar architectural styles were built all over the country without considering local character. They were not only inflexible to different local circumstance but also created a boring and formulaic landscape.

3.5 Case studies of Significant Periods – Residential Development Built Between 1979 and the early 1990s

3.5.1 Overall

Since 1979 the traditional welfare system started to break up after economic reform started. This meant that houses were treated as a commodity that could be traded in the real estate market. Only few cities were chosen for the reform experiment in 1979 but in 1998, the Welfare Housing System was completely stopped throughout China.

Since the beginning of the era of economic reform, housing developments have been constructed all over the country and the planning of residential areas has been experiencing an exploratory state with different principles being applied to different projects.

3.5.2 Housing Reform

At the early stage of the era of economic reform, development companies acquired land from the local government or Work-Unit through negotiation and tender; then they built the housing units and sold them at market value. Work-Units were the major customers for such housings. Employees could use subsidized prices, which is about 10% of the market price, to buy the house provided by the Work-Unit. Although the houses were treated as a commodity and traded on the market at that time, the welfare housing system was still maintained for employees except that now they could own their house rather than renting it. In this period, Work-Units were required not to engage directly in housing construction.

A land lease system which is modeled after that in Hong Kong was introduced to mainland China in 1988. This system allowed the rights of land use to be transferred while the state still retains the ownership of urban land. Private real estate companies are now allowed to buy or rent land, but still not have freehold, from the government for residential development. The land lease system boosted the pace of the urban restructuring process but also raised a major concern about the rapid loss of valuable

farmland. (Li & Siu, 2001)

3.5.3 Case Study - Jiang Nan Xi Community

In this section, a residential area, called Jiang Nan Xi Community in Guangzhou that started developing from the early 1980s will be studied. (Fig 3.24) This project is currently considered as one of the successful residential complex developments in Guangzhou. (*Nan Fang Daily*, 2005) Its planning not only applies the Neighborhood Unit principles as well as former Soviet Union Planning principles, but also reflects the local character which was found in traditional housing developments.



Figure.3.24 Topography of Study Area – Jiang Nan Xi Community, Guangzhou.

Left image shows area with population of approximately 40,000 while right image shows area with population of approximately 10,000

3.5.3.1 General Background

a. Historical/political background

The study site is located in Hai Zhu district in south era Guangzhou. It used to be farmland before being developed. This development which covers fifty hectares was developed by a local real estate company. Although the architectural style is neither new

nor particularly outstanding, the continuous nature of all the buildings in this area creates an image of unity. Some small size neighborhoods are still being developed in this community today.

b. Planning principles

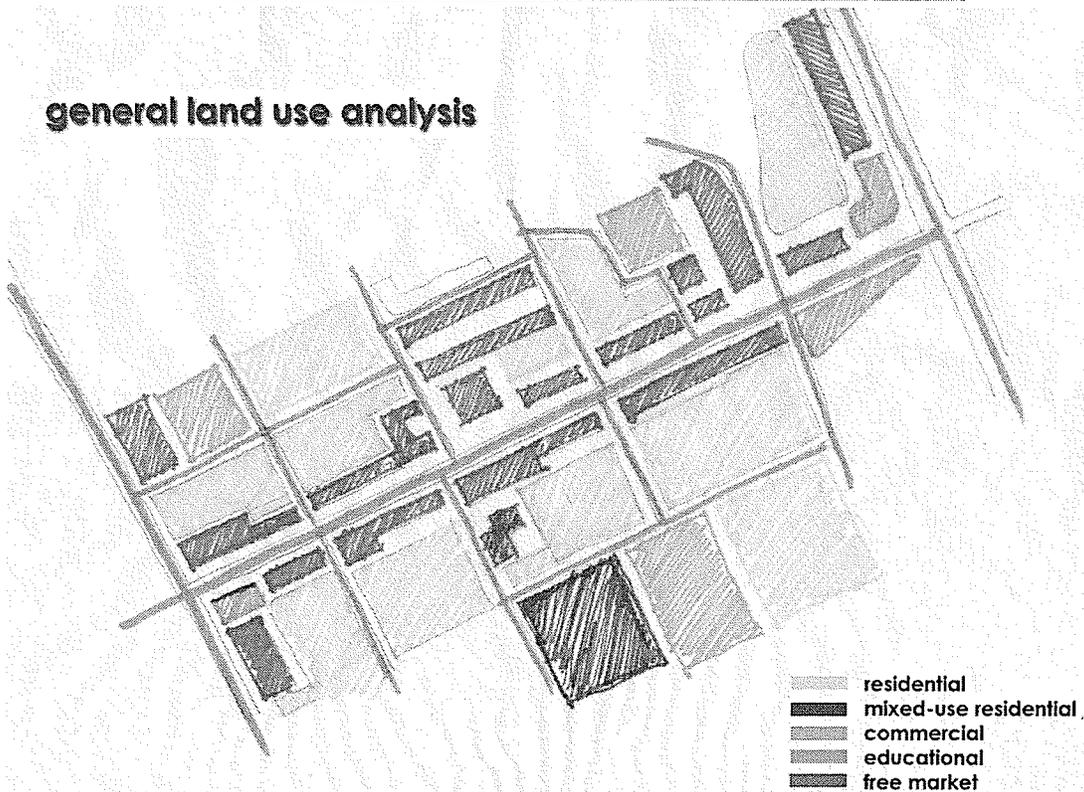
There is no detailed information readily available to indicate the exact planning principles of Jiang Nan Xi community when construction started constructing in the early 1980s. Through the following study, we can find out that this residential development is actually planned on the basis of comprehensive considerations including academic planning theory and the reflection of local characteristics. (Fig. 3.25 & Fig. 3.26)

According to an interview made by *South China Daily* in 2005 to the former CEO of the developing company, the first consideration in planning this project was to provide a convenient daily life for residents. To achieve this goal, a series of public facilities and a complete circulation system which maximized the use of public transportation were constructed within this community. Influenced by Neighborhood Unit theory, educational facilities are located within a walkable distance. South-north orientation of the building layout reflects the consideration of local climate which was overlooked during the industrialized and formalized period between 1949 and 1979. Instead of locating the public facilities at the centre of the community, they were built along the major roads and in order to be accessible from adjacent neighborhoods within a reasonable distance. Ground floors of the buildings located along the major roads are stores. These major roads have become vibrant shopping streets in Guangzhou today. Other planning

advantages can also be found through the study of open space which will be addressed in the later section.



general land use analysis





neighborhood land use analysis



Figure.3.25 Land Use Analysis Sketch of the study site in community scale and in neighborhood scale

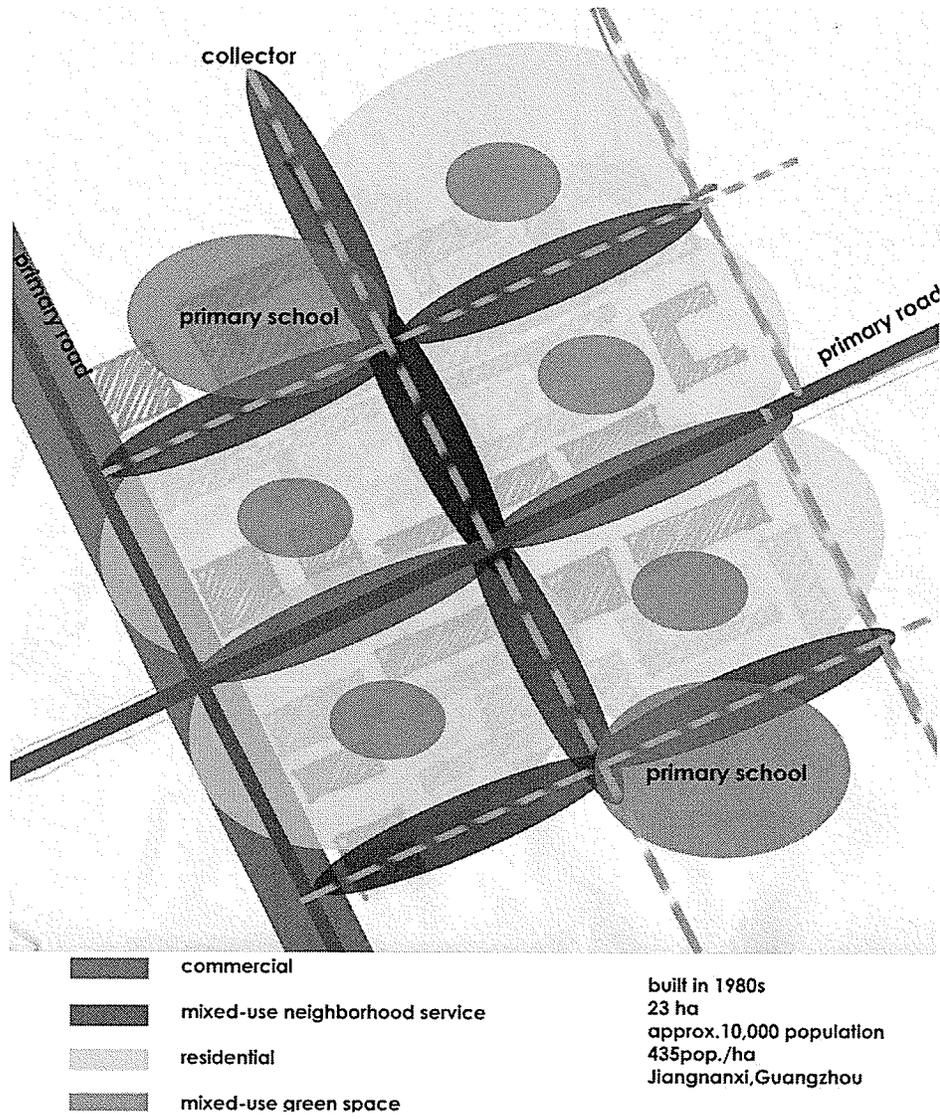


Figure.3.26 Comprehensive Analysis Diagram of the study site -Landscape structure/Landscape Zone/Circulation

3.5.3.2 Density/Intensity of Development

a. Population and Density

The approximate density of this area is 534 people per hectare. It is a mixed-use neighborhood with commercial and residential uses but also with few office buildings.

b. Building form

Seven to eight storey apartment buildings are dominant in this area with some fifteen

to twenty storey buildings near the primary road adjacent to the site. The first floor of the buildings located along primary and secondary roads are used as shops. Although they do not have the traditional Qi Lou (arcade) building design, they do have an overhang that stretches from the second floor and forms a partial corridor over the sidewalk.

3.5.3.3 Circulation (Fig. 3.26)

a. Car/Bike Ownership

This project was developed in the mid 1980s. The planning still lacked consideration of the increasing use of automobiles. Shelters for bikes and motorbikes are located at the rear of the buildings.

b. Street Layout.

Generally, streets are set in a grid form unless the development encounters a river or sloping field.

c. Vehicular Circulation and Parking

Most of the cars are parked on secondary roads or in the public parkade which was recently developed to meet growing demand. New developments in the study area provide underground parking for private cars. The development is planned on a road hierarchy with primary roads that are forty metres wide located outside of the site and subways running under the primary roads; a secondary road connects the two primary roads and is also a prosperous shopping street and the mix of pedestrians and traffic always results in traffic jams, especially during rush hours. Local roads connect the

secondary road and the neighborhood. They are short and narrow so as to discourage a fast driving.

d. Pedestrian Circulation

The pedestrian circulation system can be found in the clusters and along side of the three types of road - primary, secondary and local. The pedestrian paths connect houses to schools, pocket parks, shops, clinics and other public services. And they are also under the shadow of trees or buildings which provide comfortable walking conditions for pedestrians.

e. Public Transportation

Public transportation is very convenient and comprehensive in this community. At the early stage of development, buses were already in service.

3.5.3.4 Public Buildings(Fig 3.29 & Fig 3.30)

Public buildings were all designed under the guideline of the national standard, *Code of Urban Residential Areas Planning & Design*. Most of the public buildings are located in the intersections of two neighborhoods; such planning will not only increase the accessibility of these facilities but should also form semi-public spaces between the neighborhoods. Schools are located among the houses and are also near the local roads.

The layout of the neighborhood shopping is similar to a traditional neighborhood. The commercial centre is located on the secondary road system and the public transport system brings people from the city to shop in this area. It becomes one of the most

vibrant public spaces in the city. Most of the corner stores are located on local roads. Other corner stores can be found near schools, pocket parks and playgrounds which are located in semi-public space within a neighborhood. Such planning for commercial facilities can maximize the use of these shops and also provide an ideal and convenient gathering spaces for residents.

3.5.3.5 Public Open Space (Fig. 3.26 & Fig. 3.31)

Large areas of green space are not found in this neighborhood. Usually, several communities share one city park. Pocket parks and streets with plenty of local trees form a continuous green corridor in the neighborhood.

3.5.3.6 Neighborhood Management

- Management System: The neighborhood continues the management system that started with the Street Committee Management System in the 1950s. Most of the members of the committee are local residents.
- Security: As a totally open community, security is a serious problem in this area.

3.5.3.7 Conclusion

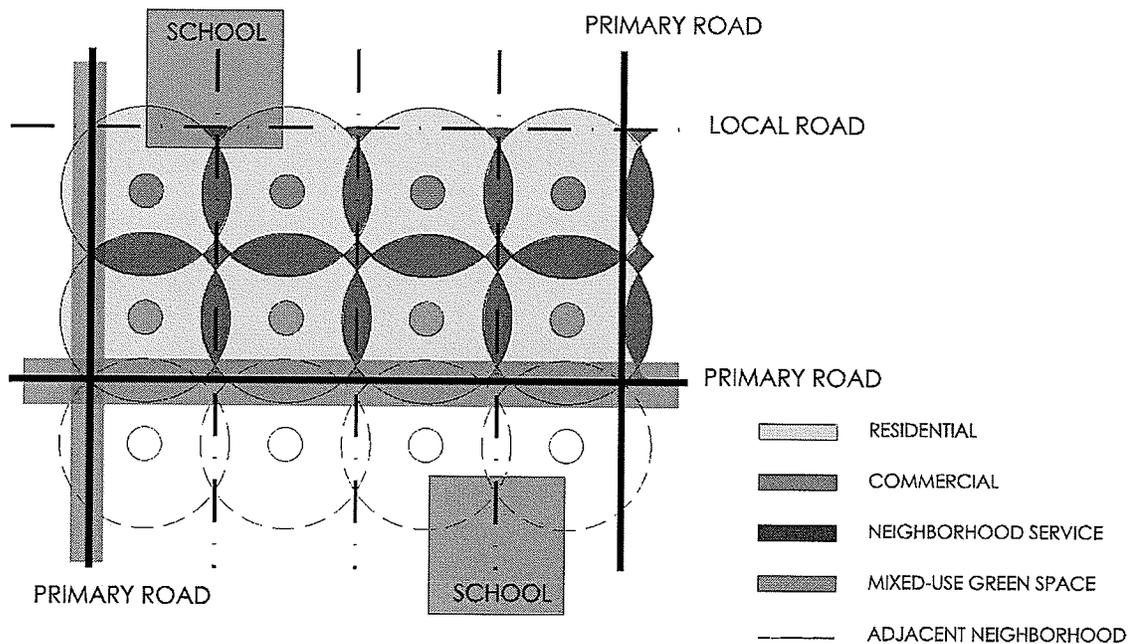


Figure.3.27 Analysis Diagram for Jiang Nan Xi community

Principal lessons that can be learned from this neighborhood are:

a. Overall planning - combining the traditional character and providing vibrant local culture and accessible public facilities.

- Developments during this period learned from both traditional planning and other planning principles such as the Neighborhood Units Principle. Improved standards which ranged from general planning to detailed house unit design set a minimum requirement for residential areas. Issues related to health and fire control were strictly prescribed. The elementary school was still an important component in determining the size and population of a neighborhood.
- Hierarchy of road systems was emphasized in planning. Although

underestimates of automobile usage occurred in most planning during the 1980s, separation of transit and pedestrians became an important planning concern in housing developments.

- Local characteristics which were missing in the 1960s were brought back in planning of the development. Designs reflect local topography and climate and architectural symbols were applied in more recent developments.
- Concerns of how to create a lively neighborhood life were raised in housing development after a long period of monotonous and formulaic planning. Commercial districts reappeared along primary roads encouraging dynamic movement from neighborhood to neighborhood. Instead of being located in the centre of a neighborhood, public services which combined with green spaces were set along local roads. Inside a cluster, planted green spaces were also close to small neighborhood services such as barbers' shops and playgrounds. This encouraged multiple outdoor activities to take place.

b. Hierarchy of open space (Fig 3.28– Fig 3.32)

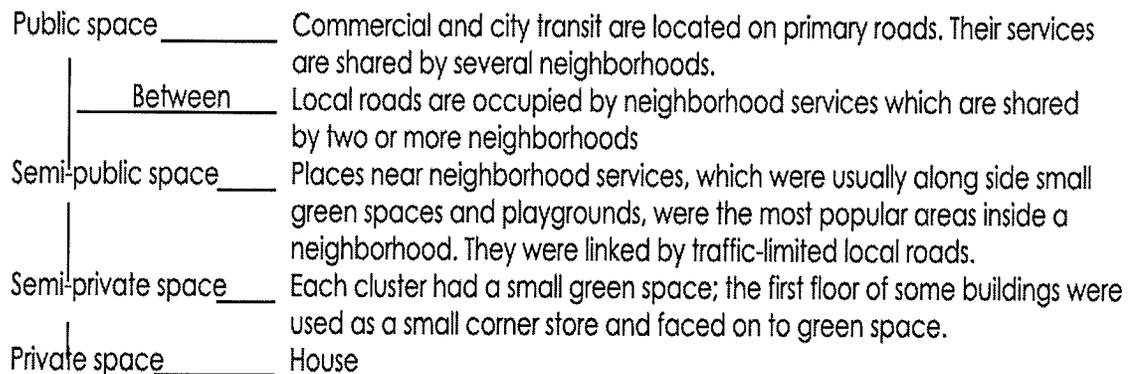


Figure.3.28 Analysis Diagram for Hierarchy of Open Space

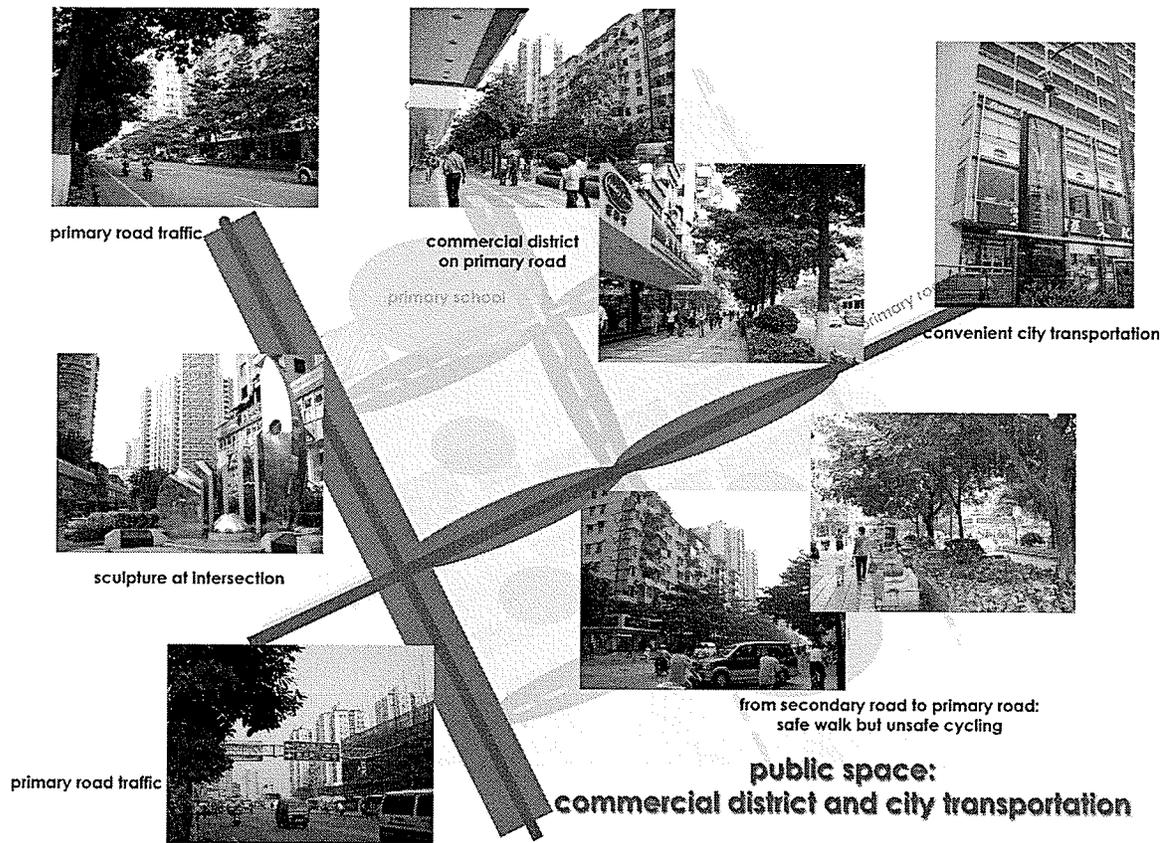


Figure.3.29 Analysis Diagram of Public Space

lively space:
school + neighborhood service + green space

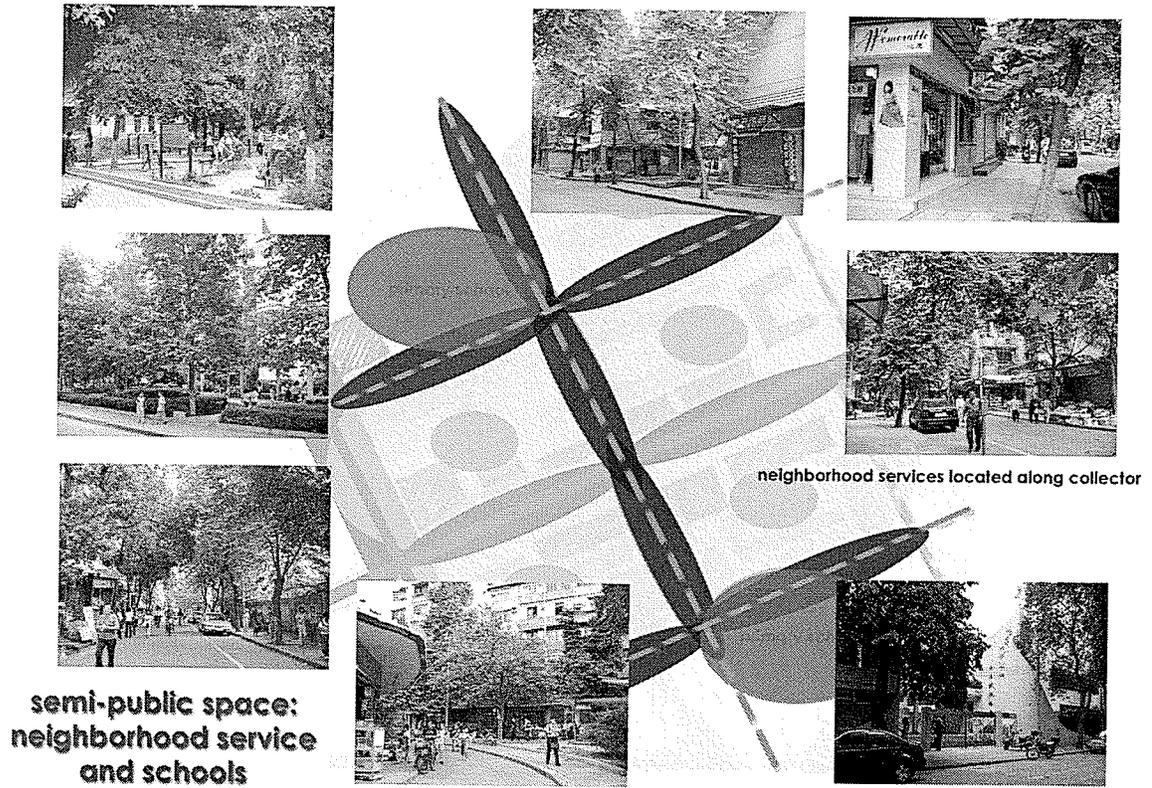


Figure.3.30 Analysis Diagram of Semi-Public Space

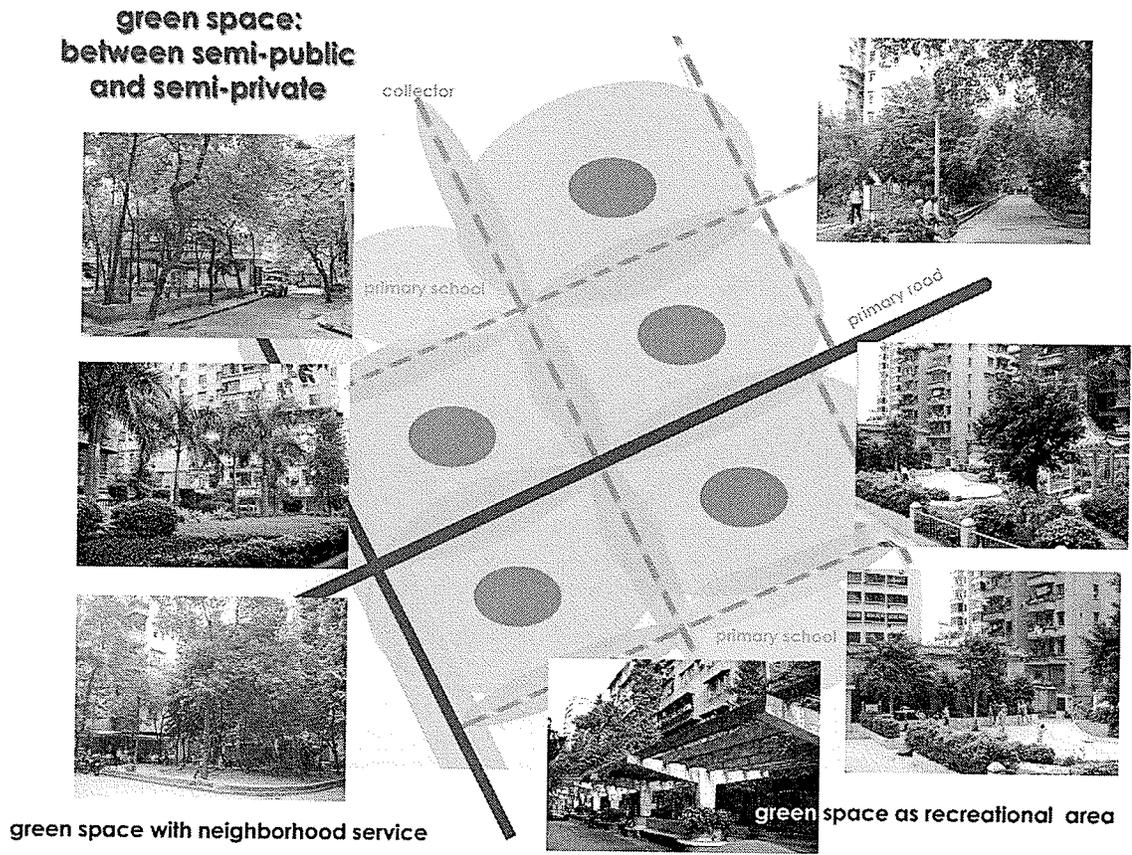


Figure.3.31 Analysis Diagram of Green Space

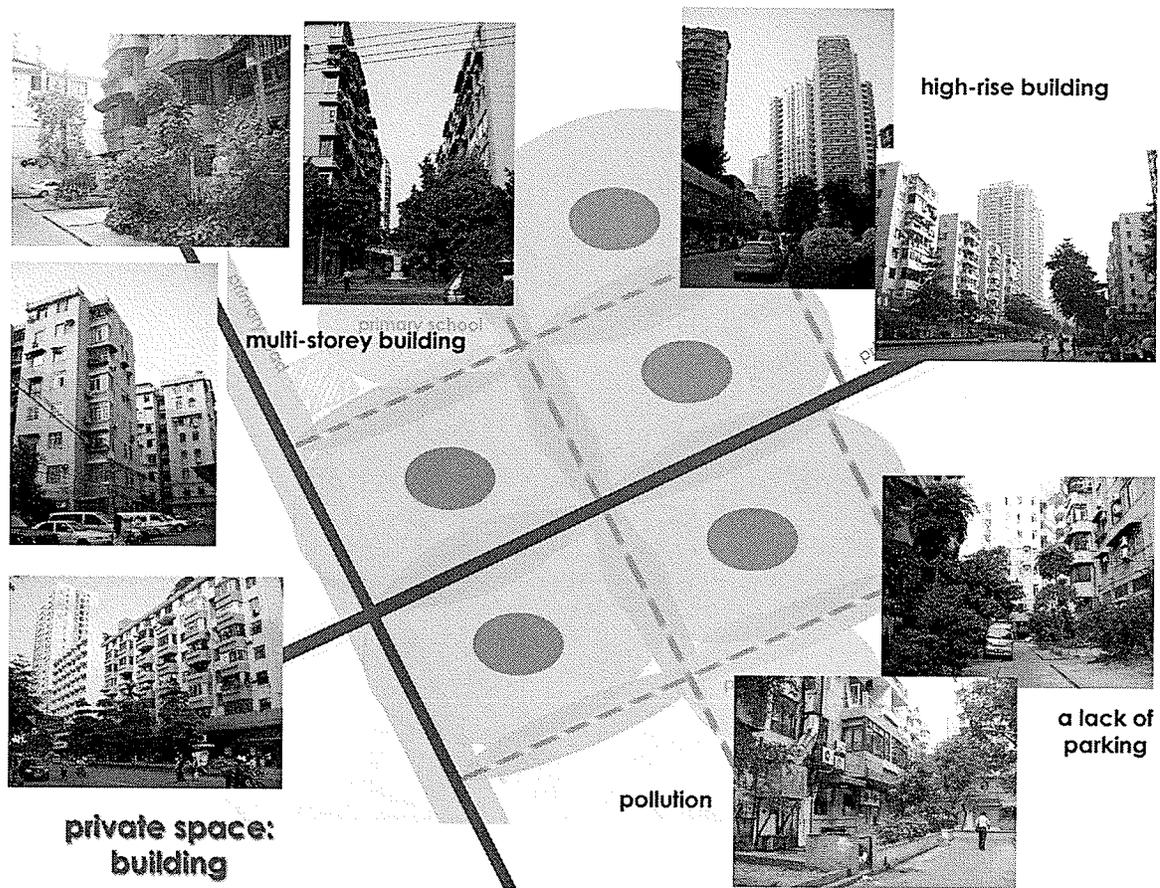


Figure.3.32 Analysis Diagram of Private Space

c. Disadvantages: security and pollution issue (Fig 3.32)

- Safety was the main concern of a neighborhood which was open and lacked security systems. After a long period of living with colleagues, housing reform pushed people to leave the compound and live around strangers. Unfamiliar circumstances and neighbors decreased the sense of community and people took less care of their surroundings. Furthermore, with row-style planning it was hard to develop a semi-closed neighborhood which could be seen as self-protected to the same extent as traditional residential areas.

- Lively neighborhood life also brought problems of pollution. Since most of the first floor of buildings which was not carefully designed for business was used for commercial or neighborhood service purposes, pollution from sources such as waste, sewage and noise was unavoidable.
- Because of the underestimate of automobile usage, residential areas that developed in this period lacked sufficient parking. Although designers considered the road hierarchy in planning in order to separate transit and pedestrians, illegal parking now occupies local roads and even pedestrian paths in the neighborhood.

3.6 Summary of Case Studies

In this chapter, residential developments that were built during three significant periods have been studied and summarized. This study starts from an introduction of general background information for each period. After that, detailed planning issues including density, planning principles, circulation, public facility, public open space and neighborhood management systems were discussed. A conclusion diagram of each case that summarized from the previous study was given at the end of each case study.

In traditional residential development, planning strongly reflects the commercially-oriented character of Guangzhou. Shops located on major roads not only provide a convenient shopping experience to the local residents but also attract visitors from other neighborhoods. A hierarchy of open space was clearly defined in the traditional neighborhood and created a vibrant living environment for the residents.

Although residential developments built between 1949 and 1979 were not very much admired for historical and social reasons, planning principles such as neighborhood units are still suitable and are being applied in current practice.

Housing reform from early the 1980s has brought significant changes in China's residential developments. Developers and designers try to bring back the local character and provide a convenient daily lifestyle to the residents.

Studies of these three significant periods help in the understanding of local characteristics. They also provide a reminder how peoples' use of open space can reflect their preferences and that this can provide guidance for urban planning and landscape design.

CHAPTER 4. STUDYING CURRENT HOUSING DEVELOPMENT IN CHINA

CASE STUDY OF CURRENT PRACTICES (FROM THE MID 1990S)

On account of the wide range of current practices, a number of cases will be studied in this chapter. Common characteristics of these cases will be described first. These characteristics reflect the improved living conditions and quality of life in current housing developments. Three typical planning styles in current housing development in China will be summarized based on the case studies. After that, two more cases that are regarded as successful housing developments will be analyzed.

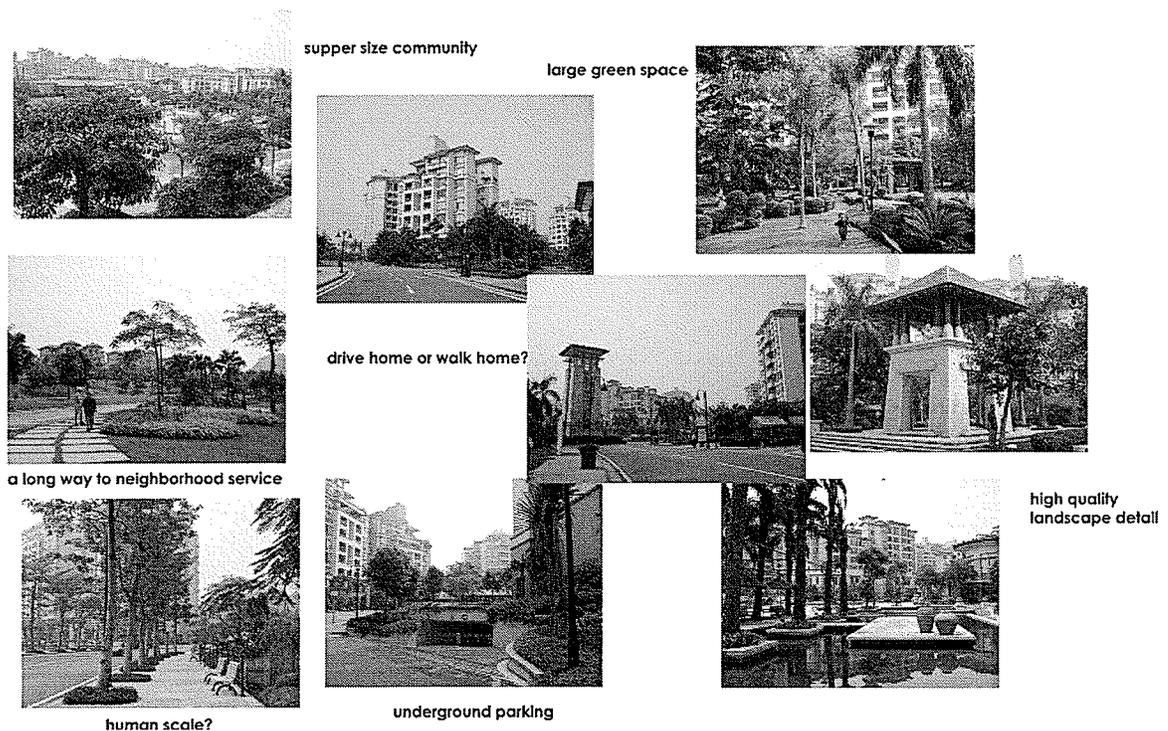


Figure.4.1. An overview of current practices

4.1 General Characteristics of Current Practices

4.1.1 Standards

Current practice uses a series of standards, which include planning, architecture, construction, mechanics, and fire control, published by the Ministry of Construction of the People's Republic of China as basic requirements for housing development. Regulations that relate to health and safety such as building construction and fire control are strictly imposed. Regulations that relate to planning and landscape architecture will be discussed in more detail in the following sections.

For better understand the following sections, some definitions of key words and key measurements are given here.¹¹

TITLE	DEFINITIONS AND MEASUREMENTS
LAND AREA (LA)	Sum of the site land area within the site boundary
BUILDING AREA (BA)	Total land area covered by residential buildings at main grade level.
BUIDLING AREA RATIO (BAR)	Building area ratio = building area / land area BAR = BA / LA
CAR PARK RATIO	Car park ratio = total number of car parks within the residential / total number of the residential units.

¹¹ Definitions and measurements are translated from China's residential planning code, *Code of Urban Residential Areas Planning & Design* (2002 Edition, Beijing). Some terms of the definitions and calculations use *Time-Saver Standards for Urban Design* (New York, 2003) for reference but have been revised according to the *Code of Urban Residential Areas Planning & Design*.

FLOOR AREA (FA)	Total floor area for residential use on all floors of buildings
FLOOR AREA RATIO (FAR)	Floor area ratio= floor area (hectare)/ land area (hectare) FAR = FA / LA
GREEN AREA	Sum of the green area that not only meets the sunlight requirement but IS also suitable for locating leisure equipment for the residents.
GREEN AREA RATIO	Green area ratio = green area / land area
PUBLIC FACILITY LAND AREA	Sum of the land area for constructing public facilities, includes total ground floor area of the all public facilities and its surrounding green area, parking and open space that belongs to and is used for public facilities.
ROAD AREA	Sum of the land area for all roads within the site boundary including ground level parking not used for public facilities.

Table .1.1. Key definitions and key measurement

4.1 2 Density

As suggested by Perry's Neighborhood Unit principles, (*Time-Saver Standards for Urban Design*. 2003) the population of a neighborhood that supports an elementary school is 5000. According to China's national planning standards, the population of a neighborhood ranges from 10,000 to 15,000, and which served by one elementary school. In the cases studied here, I have assumed that, due to the size of the population in China, the size of a neighborhood unit of 10,000 to 15,000 residents will not change significantly over the next 30 years. Therefore, in this practicum, a neighborhood unit with the population of 10,000 is taken as the standard model that will be applied.

In China, "capacity" is the phrase that is widely used to describe housing density. According to *Time-Saver Standards for Urban Design* and China's *Code of Urban Residential Areas Planning & Design*, "capacity" should refer to Floor Area Ratio (FAR). For better understanding $FAR = FA / LA = \text{Floor area} / \text{land area}$. (Table. 4.1)

In China, unofficially speaking, if a housing development has an $FAR < 1.2$ and the average suite size is > 120 square metres it is called "a luxury house". The FAR of high-rise buildings can be as high as 3. Although an FAR of 1.7 is common for multi-storey apartments. However, since FAR standards are not fixed or ruled by official regulations, they vary in different cities and even for different projects within the city on account of the economy, the climate and other considerations. The chart below shows the ideal Floor Area Ratio suggested in Shenzhen's ¹² housing development. (*Shenzhen Real Estate*

¹² Shenzhen is a city in Guangdong located between Hong Kong and Guangzhou

Statistics, 2004)

Suggested FAR in Shenzhen's Housing Developments

Type of housing	Villa	Townhouse	Multi-storey (< 7 storeys)	Semi-high rise (8 – 15 storeys)	High-rise
FAR	0.3 - 0.4	0.7 - 0.9	1.1 - 1.3	2.0 - 2.3	> 3.0

Table 4.2. Suggested FAR in Shenzhen's Housing Developments

High rise apartments are usually built in inner city redevelopment projects because of land values, whereas villa developments that occupy large land areas but serve less people are always considered to be luxury housing. Mixed housing developments that are mainly occupied by multi –storey apartments include three types of building form: high-rise apartments, multi-storey apartments and villas. In order to meet the requirements of an increasing population and to preserve the supply of land as well as to consider the quality of living conditions, multi-storey apartments will still be the main building form in housing developments. According to the case studies in this practicum, the density of a traditional residential area is 580 people per hectare. The density of mixed developments built after 1979 ranges from 450 people per hectare to 550 people per hectare. Residential areas that are occupied only by multi-storey apartments may have densities of as low as 400 people per hectare.

The development of “super size” communities is raising public concern. These super

communities are effectively new towns. Taking Guangzhou as an example, new housing projects that range from 240 to 800 hectares were under construction in the South China Block in late 2004. (Vanke, 2005) The development of “super size” communities should take account of not only housing but also other social aspects such as employment, public transit and public facilities. These super size developments in Guangzhou are residential only and there is no evidence that corresponding employment opportunities will be provided in these areas at the same time. Although the South China Block in Guangzhou is to be developed as a “Central Living District” promoted by the government, this is effectively a new town that does not address social issues.

4.1.3. Building form

The orientation of buildings is still strongly emphasized in current practice. Houses that face south north are favored and are more highly valued. Unlike apartments built in the 1960s which had a basic appearance and employed simple construction technologies, current housing developments seek various styles in building form that employ modern materials and advanced technologies. In addition to traditional Chinese architectural forms, foreign forms such as European and South Asian styles are commonly seen in current housing developments. (Fig.4.2)

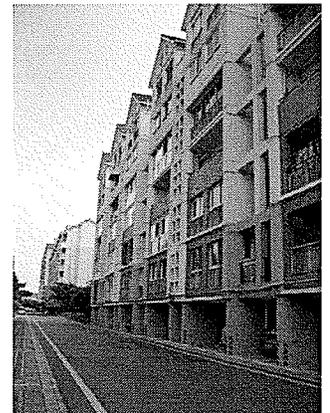


Figure.4.2. Various building forms in residential projects

4.1.4 Car ownership/Parking

Increasing use of private automobiles in China brings concerns about transit systems and parking provision. The current minimum parking requirement in housing developments is 0.5 spaces per family. Normally, one car per family is a reasonable assumption for new residential development. Some developments retain a certain amount vacant land for future parking. Two types of parking are normally found in current practice. The first one is outdoor parking which includes street parking and parkades. However, outdoor parking requires large areas of land and this is recognized as a valuable resource for open space, especially green space. Therefore, street parking is always only for temporary parking or service parking in most new housing developments in Guangzhou. Indoor parking is becoming more common in residential areas. This includes first floor parking which occupies the first floor of apartment blocks and underground parking. Two types of underground parking are used in current practices. One is basement parking and the other is to park the cars under central green space. In order to save land and create a pedestrian only environment, underground parking is more popular, especially in small size housing developments.

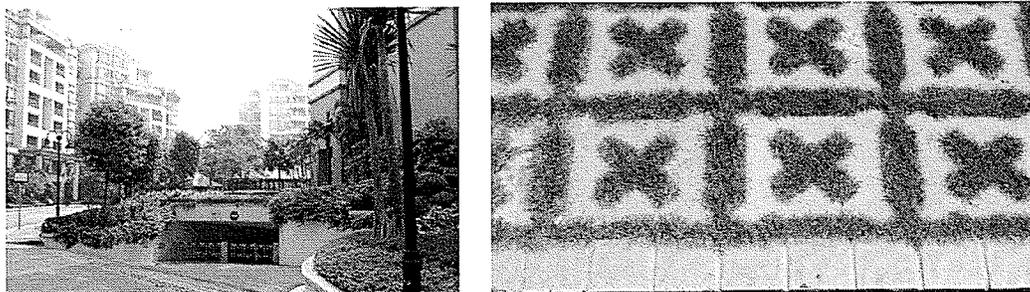


Figure.4.3. Underground parking facilities (left) and concrete grass blocks for ground parking (right)

4.1.5. Circulation

Most new residential developments are enclosed neighborhoods. Primary roads or municipal roads rarely run through them - even in “super size communities”. Main traffic loops inside the neighborhood are usually located in the outer area and run away from the central living areas thereby leaving most of the central area free for pedestrians. Vehicles and pedestrians usually have different entrances to the residential area. Vehicles can enter the underground parking facilities from the outer loops while pedestrians can reach apartments by walking through a safe open space. Pedestrian-only spaces can create more green space and recreational places for outdoor activities. According to the *Code of Urban Residential Areas Planning & Design*, the minimum width for fire truck access is four metres. Normally, these four-metre wide accesses are surfaced with concrete grass blocks or grass grids without any shrubs, trees, structures or other landscape feature so that vehicles can pass unhindered through these areas in emergency. Meanwhile, visually, concrete grass blocks can produce a greener visual effect than other hard paving.

Inner city development does not cause many concerns with respect to public transportation in China particularly in a city like Guangzhou that has a more mature and complete transit system than other cities. (Gaubatz, 1999) However, residential areas located in new housing areas or suburbs require specific transit services. In Guangzhou, most of the housing developments have their own shuttles that serve local residents. They travel between the residential areas and landmarks of the inner city.



Primary roads run outside of the community



From primary road to local road



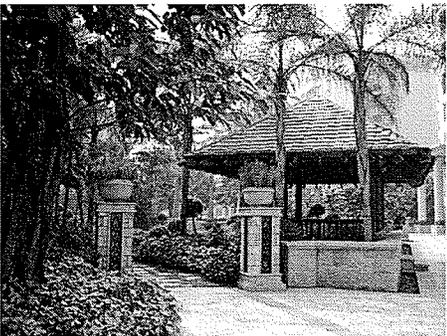
Pedestrian path from local road to primary road



Local road



local road-a tennis court located on the right hand side



Pedestrian path within clusters

Figure. 4.4 Circulation hierarchy of Agela Residential Development, Guangzhou

4.1.6 Public buildings

Most of public buildings such as commercial facilities, fundamental educational facilities, medical service buildings, entertainment facilities, and neighborhood service and management facilities are covered by the *Code of Urban Residential Areas Planning & Design*. The *Code* also suggests detail areas and the proportions of each public building based on different population. For example, for one neighborhood, every 1,000 people should have about 330-1,200 square metre (building area) of educational facilities which should occupy 700-2,400 square metres land.

In new residential developments, luxury housing projects focus on high technology construction, high security and the integration of neighborhood services and facilities. Common housing projects that target non-luxury consumers place more emphasis on a convenient service for daily life and vibrant neighborhood culture that encourages various outdoor activities and improves communication between residents. However, in some of the new housing projects, it is observed that people prefer to shop in a corner shop rather than using the centralized commercial facilities, even though the intention of such centralized design was for an convenient access for all residents.

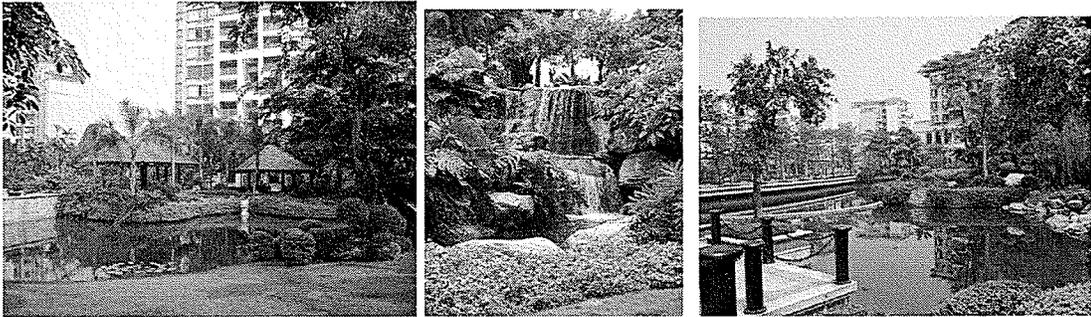
4.1.7 Public open space

Public open space, especially green space, is generally well designed and constructed in most current luxury housing projects. A comfortable and pleasant landscape becomes one of the most important factors affecting people's choice of housing.

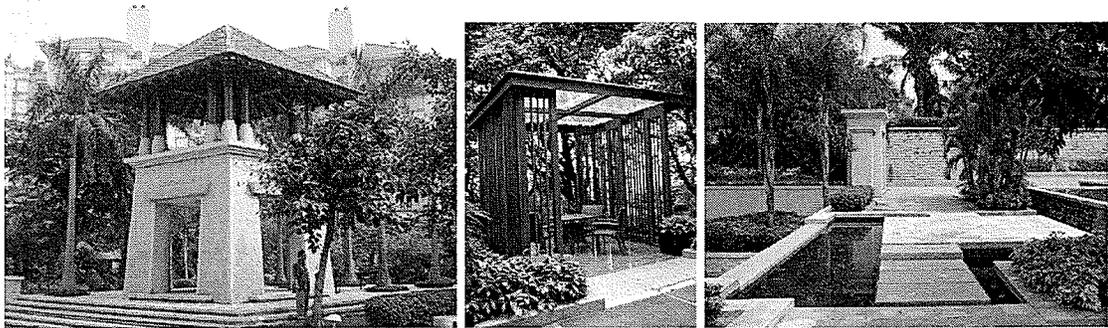
Attractive landscape designs and innovative technology are provided in residential developments in order to improve their “livability”. (Fig 4.5)



Greenery lobby garden and elevated space



Water feature to imitate the natural environment



Landscape structures



Neighborhood gardens

Figure. 4.5 Landscape elements in public open spaces

A lively neighborhood culture encourages residents to explore and wander in open spaces with various outdoor activities. However, some elegant gardens without meaningful uses become “look at” spaces rather than “live in” landscapes. Social interaction between neighbors was observed in other small, open spaces in between the building blocks rather than in the programmed community spaces. Meanwhile, children prefer to play closer to home rather than to go to a playground that is programmed in a central area and which requires users to cross the street. In recall of the traditional neighborhoods, children enjoy playing in a narrow street close to home even it lacks playground equipment. Furthermore, inappropriate use of imported material such as plants and pavements may increase the investment value of housing projects but rarely reflects the local character of a neighborhood.



Figure. 4.6 Typical “look at” landscape that lacks pedestrian access and user-welcome attractions

4.1.8 Neighborhood Management and Security

Most of new developments in big cities such as Beijing, Shanghai, and Guangzhou usually hire a specific estate management company to be in charge of the management and security of semi-closed communities. The company is usually owned by the developers and its responsibilities include managing and maintaining the public space, planting trees, disposing of rubbish, handling complaints and ensuring security. Management companies have a mature management system and well-trained employees to take care of a neighborhood's daily issues. However, residents are seldom involved in the management program. Hiring a management company may save residents' time and energy on neighborhood management matters, but decreases their senses of belonging to the neighborhood.

4.2 Case Studies of Three Typical Planning Styles used in China's Current Residential Developments

Planning standards and regulations in China are used as a guideline for residential developments throughout the country. Although municipal governments may have additional guidelines for designers and developers according to the local situation, layouts of current residential developments in China still have strong similarities even in different regions. (Zhu, 2004) In this section, three typical planning styles for current residential developments will be examined. These layouts are widely found in current practices. Advantages and disadvantages of each layout will be summarized. Examples

that were built in Guangzhou are used to illustrate the different layouts.

4.2.1 Style One – Enclosed Layout (or Nuclear Layout)

4.2.1.1 General information

The Dong Yi Garden project¹³, was built in 1998 in Guangzhou. It has a total area of 17 hectare and a population of approximately 10,000 giving it a density of about 588 people per hectare. (Fig. 4.7 & Fig 4.8) As shown in the plan, this is an enclosed neighborhood with a large green space located in the centre of the site and surrounded by residential buildings. Housing in this layout usually has better sunlight and ventilation because of the greater distances between buildings. The large green central space provides an ideal leisure space for residents in a crowded urban settlement.

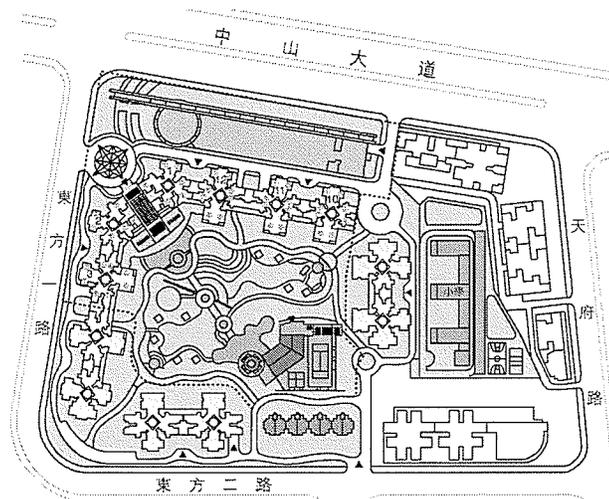


Figure. 4.7 Dong Yi Garden Master Plan

(plan source: scanned from advertising brochures published by developer)

¹³ Developed by New World China Land Ltd. Landscape designed by Place, Australia. Architectural and planning designed by Huasen Architecture and Engineering Design Consultants Ltd

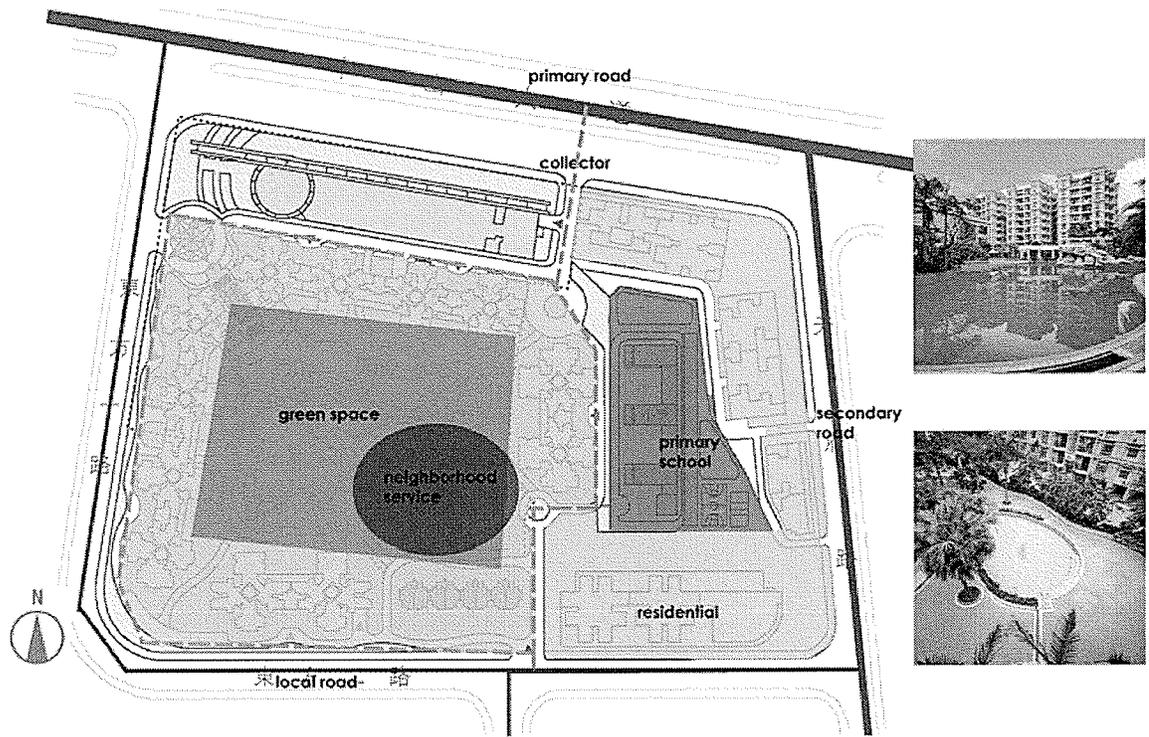


Figure. 4.8 Analysis diagram of Dong Yi Garden

(images resource: *Guangzhou Characteristic Property*. Diagram drawn by author)

4.2.1.2 Analysis of Enclosed Layout

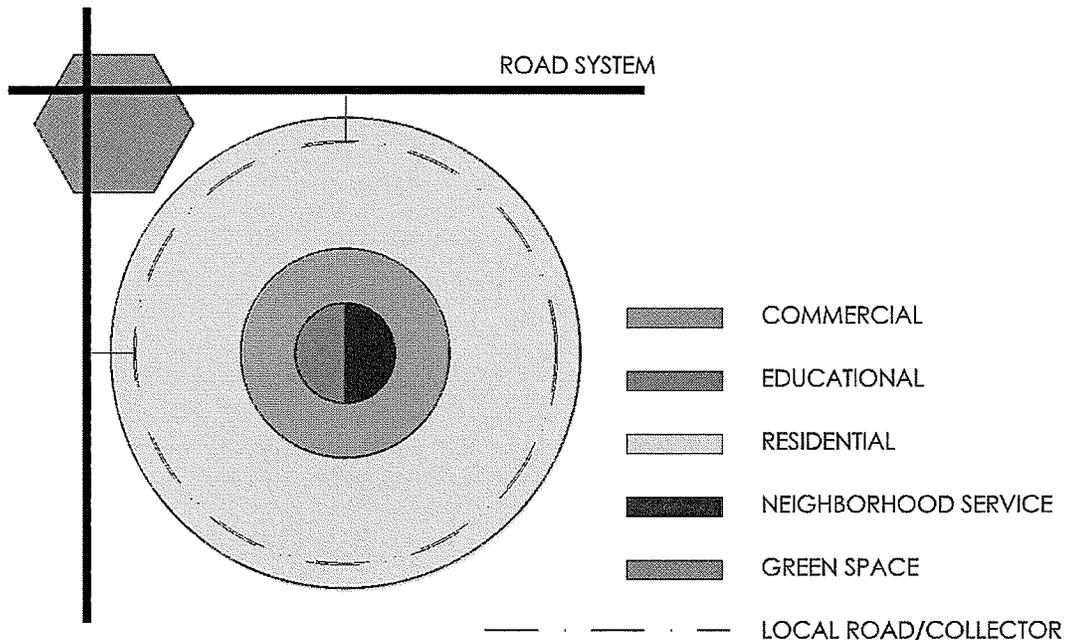


Figure. 4.9 Analysis diagram of Enclosed Layout

Enclosed layout represents a typical loop type plan. This can be commonly found in current practice especially in small size housing developments. Its characteristics, and its strengths and weaknesses are listed as follow.

- It is a closed neighborhood that can only be accessed by local residents. It is a secured neighborhood but lacks direct interaction and connection with other neighborhoods. Isolated neighborhoods like these are not good for creating a vibrant public realm for the whole community.
- The two entrances that connect the neighborhood to outside areas are located on city roads. The local road for residents' vehicles is located in the outer area of the neighborhood; other open space is safe for pedestrians. Underground parking leaves most of the ground for recreation and green space.

- Apart from shopping areas located outside the neighborhood, public buildings such as recreation centres and public open spaces are all located in the central area that is surrounded by residences. Commercial activities that are located on the city road can promote lively daily life in the surrounding area; they also increase the actual use of commercial buildings. Centrally located neighborhood services and educational facilities provide a safe and quiet semi-public space for the neighborhood. However, central green space without a specific use might become a scene for viewing but not a space for gathering. Furthermore, the lack of clusters and semi-private spaces would also militate against communication between residents.

4.2.2 Style Two – Centripetal Style

4.2.2.1 General Information

Cannes Garden¹⁴, which represents the Centripetal Style of residential planning, was built since 2002. The total land area is 23 hectare with population of about 12,500 people. The density is approximately 545 people per hectare, the Green Area Ratio is 40% and the Floor Area Ratio is 1.7. This planning style has a strong centripetal layout and buildings are set radially. Circulation layout and a continuous green belt also run

¹⁴ Developed by China Oversea Holdings; architectural design by RMJM Hong Kong Ltd.; landscape designed by Belt Collins International (HK) Limited

from the outer edge toward the centre of the site. This strong centripetal direction helps to create a focal point of the residential area. It is usually used on hilly site developments.



Figure. 4.10 Plan of Cannes Garden. (images resource: *Guangzhou Characteristic Property*)

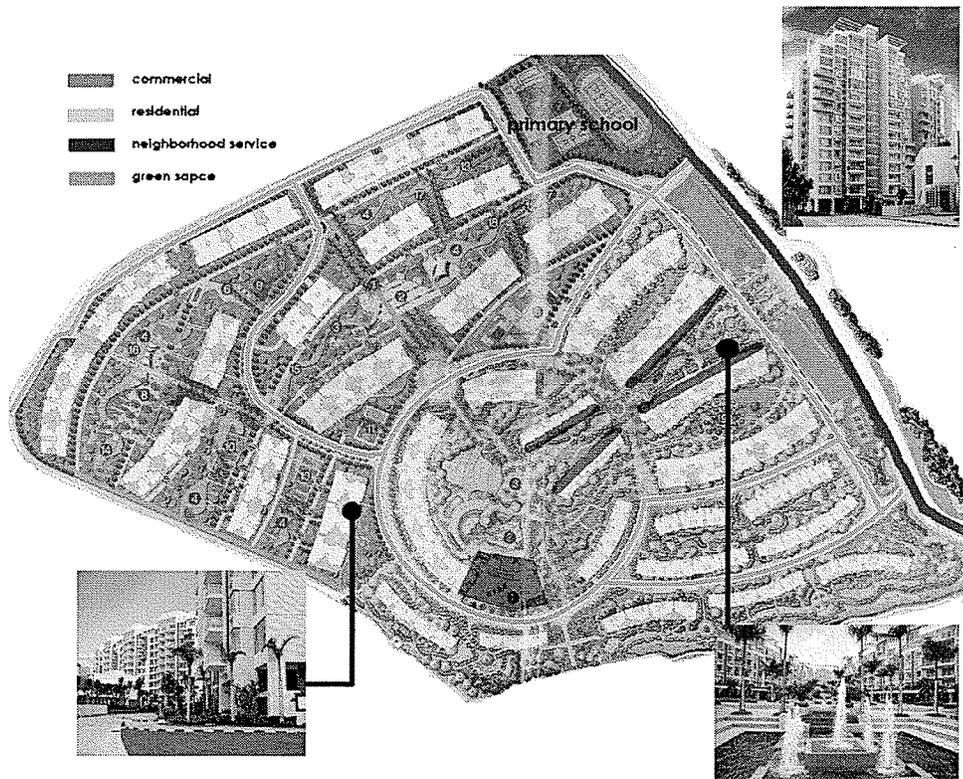


Figure. 4.11 Analysis Diagram of Cannes Garden
(images resource: *Guangzhou Characteristic Property*. Diagram drawn by author)

4.2.2.2 Analysis of Centripetal Layout

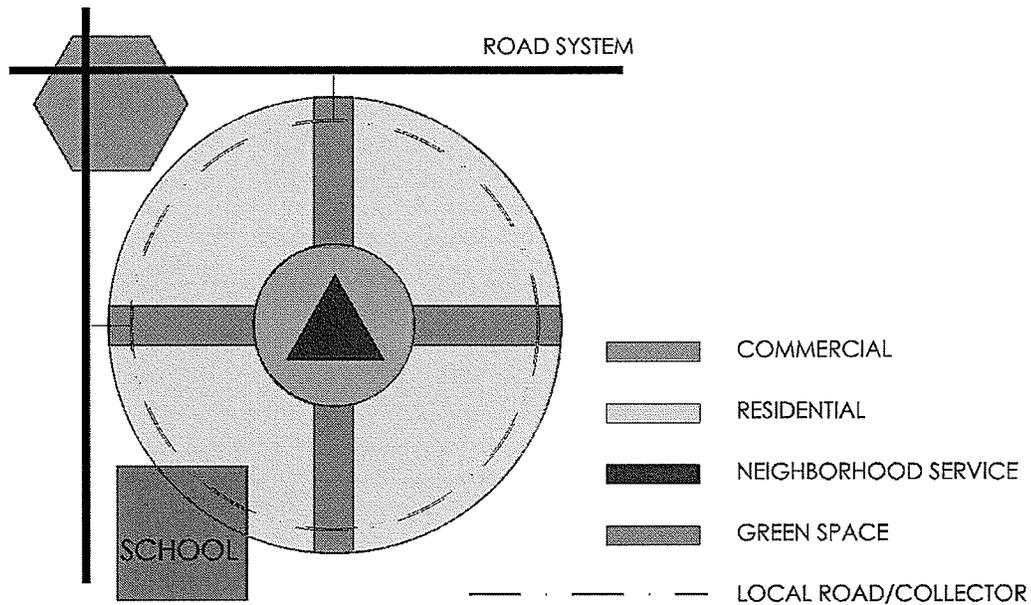


Figure. 4.12 Analysis Diagram of Centripetal Layout

Centripetal layouts lead to a stelliform neighborhoods structured by continuous green spaces.

- Central green space with neighborhood services located in the centre of the whole neighborhood; the extensions of central green space form the framework for overall site planning.
- It is a pedestrian-friendly neighborhood with separation of traffic and pedestrian pathways. Diversity of pedestrian pathways that point to the centre provide a pleasant and lively walking experience for residents.
- Various combinations of clusters provide active spatial movement while buildings are still located on south-north orientation.
- Commercial buildings are located outside the neighborhood and can also be used

by residents living in adjacent neighborhoods. Green space close to neighborhood services offers a place for diverse outdoor activities. Instead of being located in one isolated spot, green space extends in different directions and connects the centres of a number of clusters; this structure creates a continuous green space that encourages movement within the neighborhood.

4.2.3 Style Three – Axis Style

In the following sections, Axis Style layouts will be divided into two sub-categories according to different types of axis. One uses the road network as the axis while another one uses the greenbelt. These two Axis Styles were found in one residential project.

4.2.3.1 General information

Gallopade Park¹⁵ started being constructed from 1997. It is about 46 hectares with approximately density of 556 people per hectare. Two different planning layouts were applied in this project. But both of them use an axis as the basic component to frame the planning layout. Several enclosed clusters were located along a green belt to form the northern area. Each cluster has its own central green area. Such enclosed layouts provide a private and quiet living environment for the residents. Buildings in a linear row were set

¹⁵ Developed by Hopson Development Holdings Limited; architecture designed by JADL Design Ltd; landscape designed by Belt Collins International (HK) Limited

on a south-north orientation giving better sunlight and ventilation. All buildings and green areas are parallel to on another.

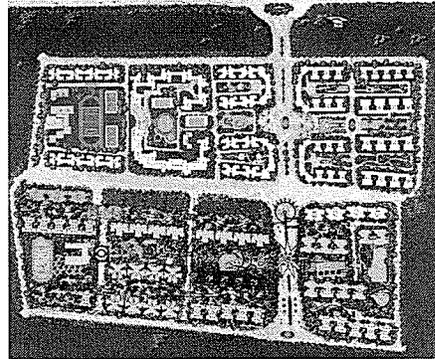


Figure. 4.13 Plan of Gallopade Park
(images resource: *Guangzhou Characteristic Property*)

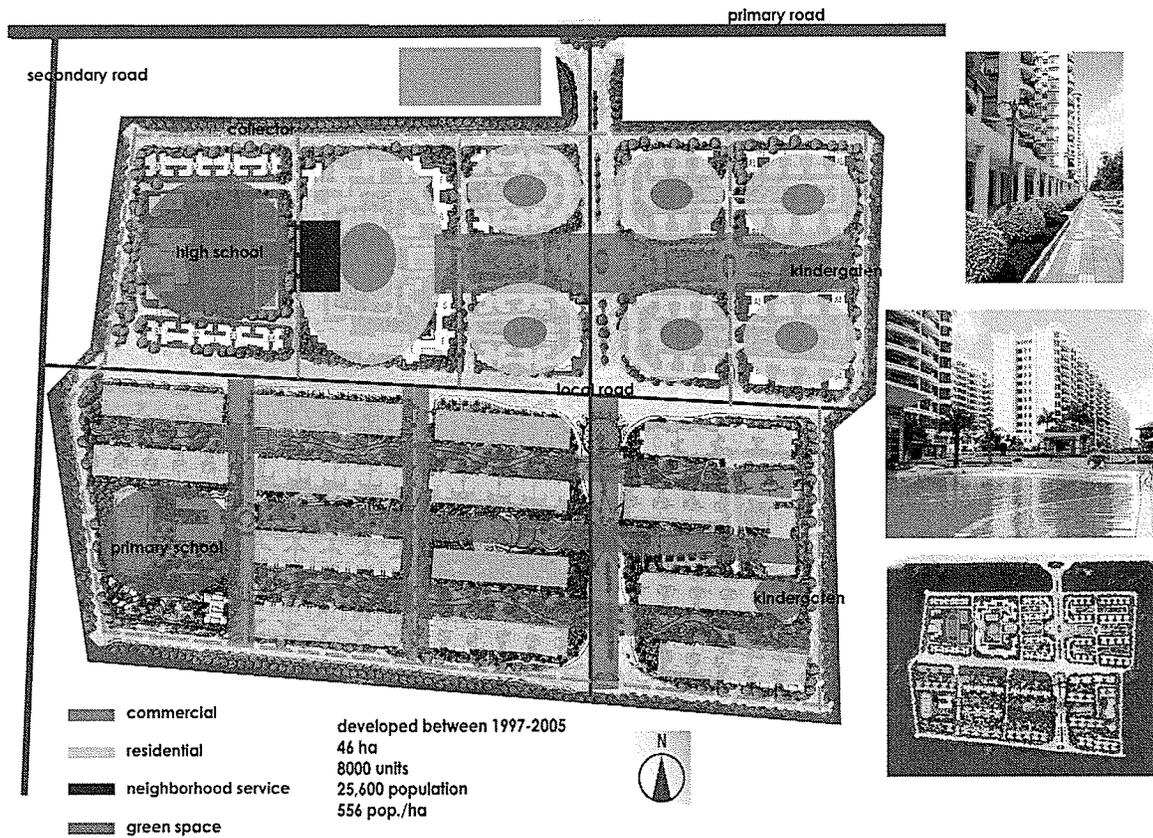


Figure. 4.14 Analysis Diagram of Gallopade Park

(images resource: *Guangzhou Characteristic Property*. Diagram drawn by author)

4.2.3.2 Axis Style One - Road Network as the Axis

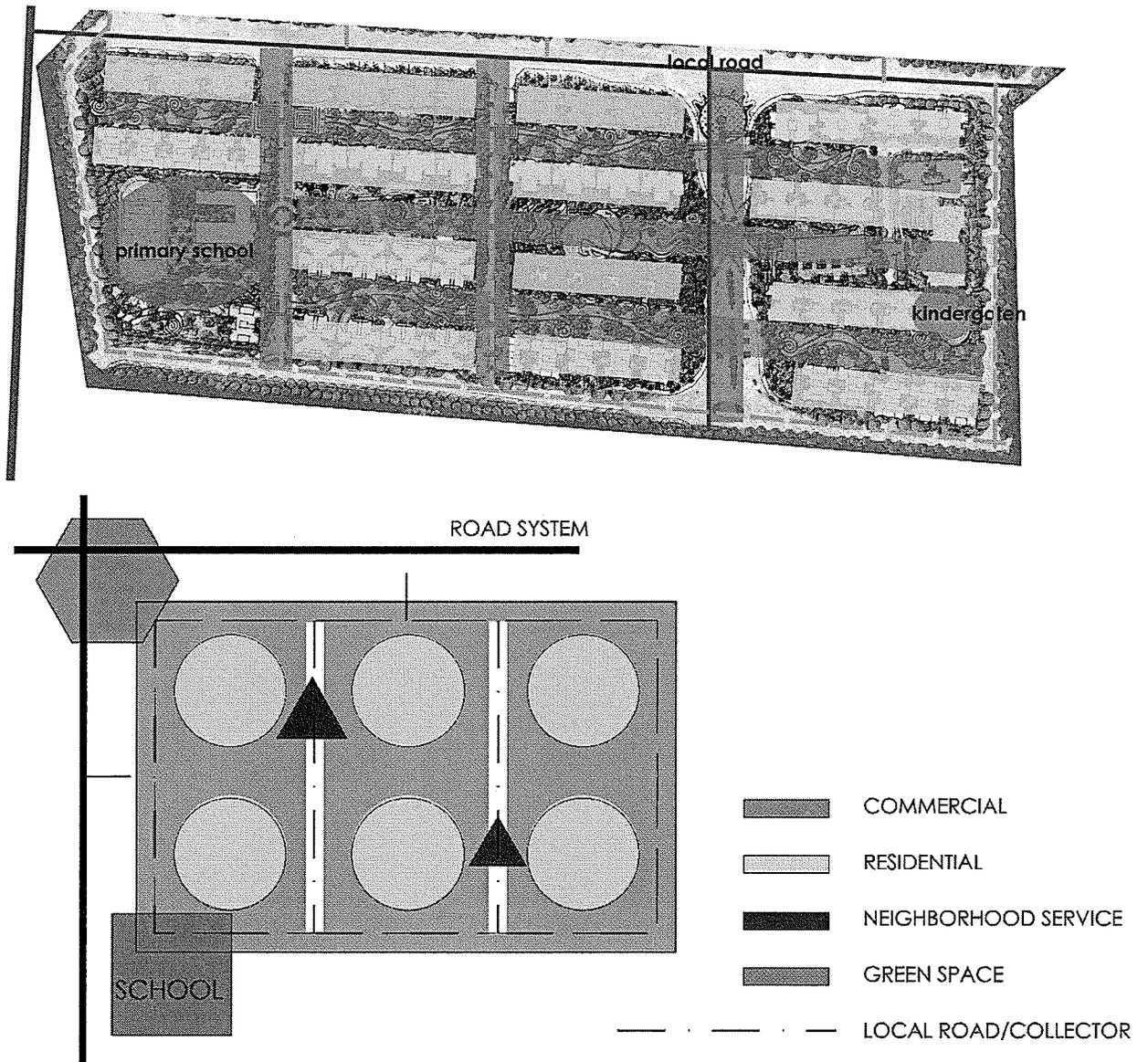


Figure. 4.15 Analysis Diagram of Axis Layout One
 (images resource: *Guangzhou Characteristic Property*. Diagram drawn by author)

This style has similar characteristics to the housing developments built in the 1960s but has improved green space.

- A chessboard road network divides the neighborhood into several blocks. Buildings are set in rows that ensure good orientation but might result in formulaic spatial movement.
- Detailed designs of green space can improve the quality of open space. Continuous green spaces are connected to each other. However, the lack of variation in the activities that can happen in common areas decreases the efficient use of the green spaces.
- A neighborhood that lacks a centre or a focal point may result in a loose structure and decrease the connections between clusters.
- Commercial buildings that are shared with other neighborhood are located at the entrance area. This ensures privacy and a quiet environment within the neighborhood but isolates the neighborhood from the outer areas.
- Educational facilities that are set at the corner of the neighborhood should be located in the centre and surrounded by residences; they can become a visual focus and change the loose structure that results from this row-style layout.

4.2.3.3 Axis Style – Greenbelt as an Axis

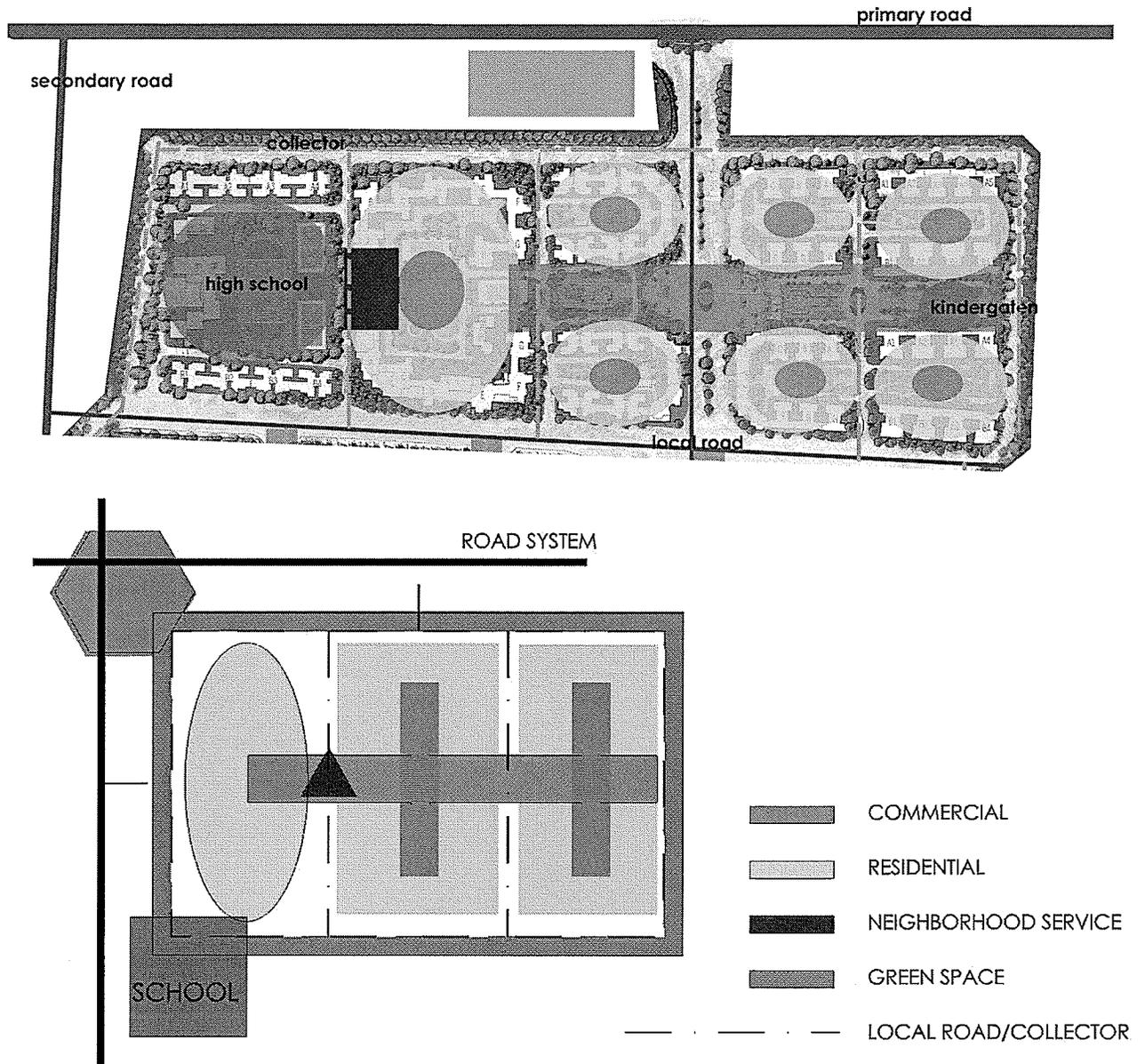


Figure. 4.16 Analysis Diagram of Axis Layout Two
 (images resource: *Guangzhou Characteristic Property*. Diagram drawn by author)

Compared with Style Three -- which is developed for the same housing project -- Style Four is more organized and represents a clearer hierarchy of open spaces.

- A continuous green belt that is located in the centre forms a semi-public space in

the neighborhood; it is also a main structuring element of the overall planning. Kindergarten and neighborhood services are also designed on green belt that provides a place for various outdoor activities. Semi-closed clusters with an inner small green space are located along the central green space. Each cluster has its own semi-private space for gathering.

- Commercial and high school facilities, which can be shared with other neighborhoods, are located along the outer area; so that they can be accessed easily from adjacent neighborhoods.

4.3 Case studies of Two Successful Residential Developments

The styles analyzed above are based on their general planning characteristics. These are some of the common layouts that can be found in current practice. However, lively local neighborhood culture requires not only appropriate planning with clear hierarchies of open spaces; it also requires suitable detailed design to ensure human-scale streets and the use of local materials. For example, narrow streets in traditional residential areas encourage communication between residents and provide safe places for multiple outdoor activities. In housing projects that were developed in the 1980s, a smaller number of streets reflected appropriate human-scale so as to create a diverse hierarchy of open space for different uses.

In this section, two cases are that widely known for their lively neighborhood life and reflection of local culture will be introduced. The first project, Vanke Wonderland,

became a planning model that is studied and copied in many residential developments. The second project, Ling Nan Garden, is regarded as the first modern residential project in Guangzhou that comprehensively reflects the local characteristics in planning, architectural and landscape design. (Nan Fang Daily, 2005)

4.3.1 Vanke Wonderland in Shenzhen¹⁶

Vanke Wonderland was constructed between 1999 and 2004. Total area is 37 hectares with a population approximately of 15,000, giving a density of 407 people per hectare. The Floor Area Ratio is 1.45 and the Green Area Ratio is 40%. Vanke promoted a theory termed “Open Community” in most of their developments. “Open community” emphasizes that neighborhoods should have interaction and connection with the city fabrics by maximizing the use of public transportation, the city road network and public facilities. Meanwhile, new neighborhoods should provide the same open access to everyone and provide public services for other neighborhoods. The “Open community” concept also promotes a vibrant neighborhood culture and encourages communication between neighbors. (Vanke, 2005)

¹⁶ Developed by Shenzhen Vanke Real Estate Co., Ltd. Architecture designed by Shenzhen Tsinghua Yan Architectural Design Co., Ltd. Planning by Hepu Architecture International Co. Ltd.

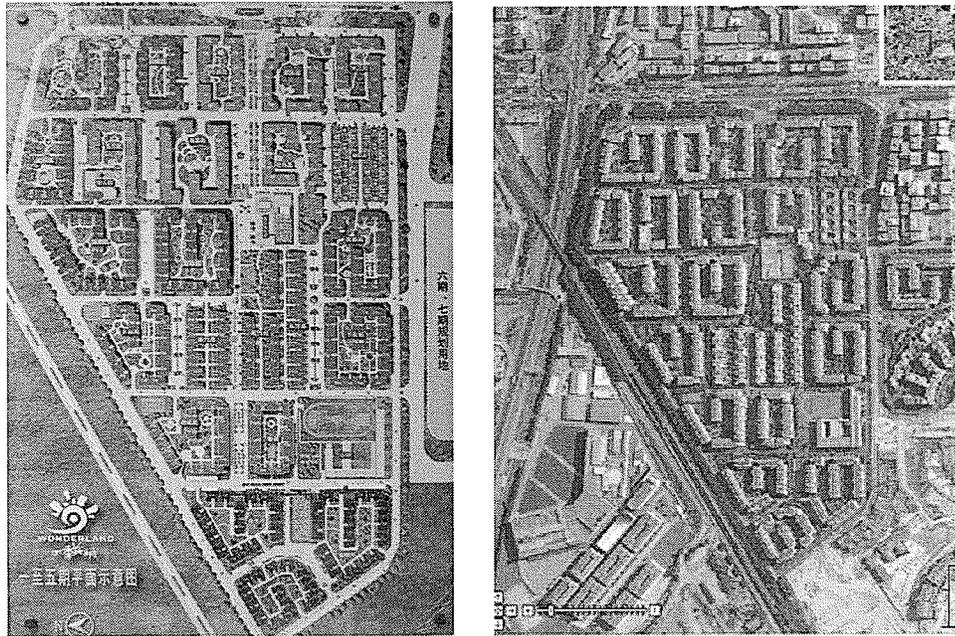


Figure. 4.17 Plan of Vanke Wonderland

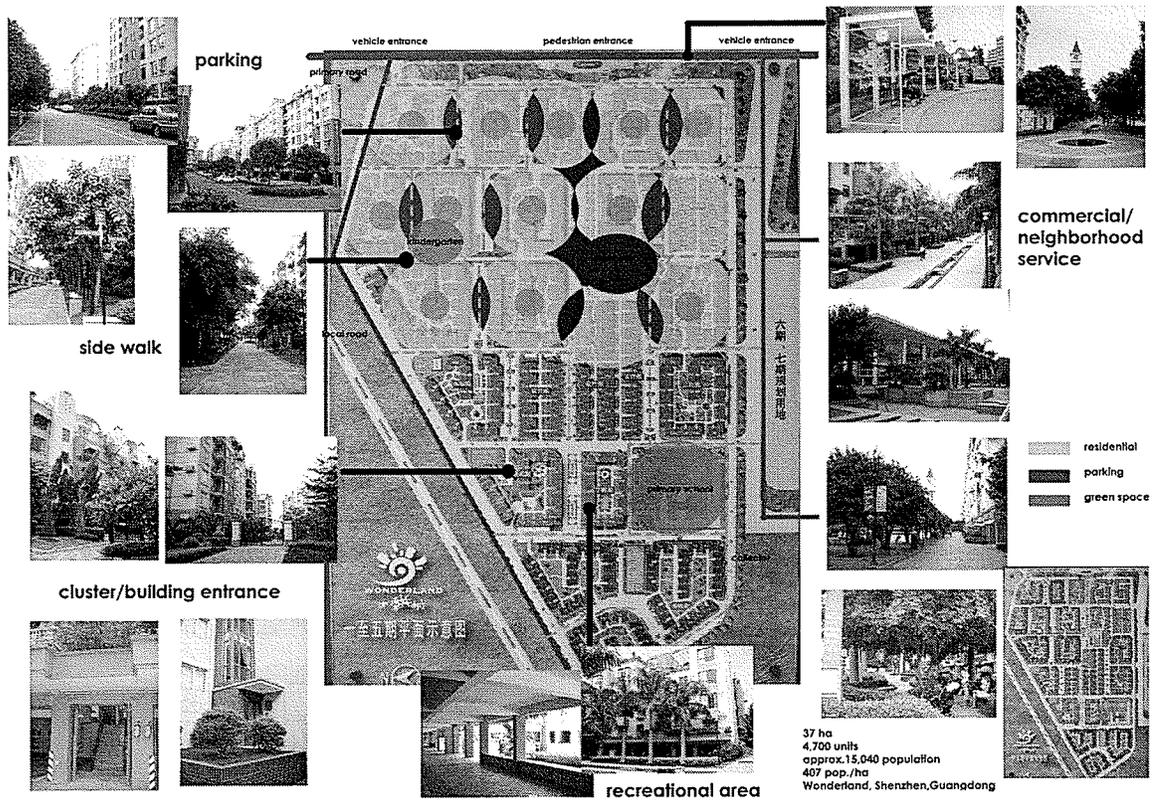


Figure. 4.18 Analysis Diagram of Vanker Wonderland

- This is an open neighborhood that welcomes anyone to visit, wander and shop. A security system is provided at the entrance of each cluster. The streets are open but each cluster is enclosed. It defines a very clearly hierarchy of public space and private space.
- Separate entrances are provided for pedestrians and vehicles. Ground level and first floor parking is predominant. Streets that allow vehicles are narrow and designed with speed bumps and blocks that limit the speed of traffic. Pedestrian pathways are mainly located in the central area and combined with commercial streets and green “strips”.
- A main commercial street is located at the pedestrian entrance and extends into the core of the neighborhood. Open Commercial Streets provide a convenient shopping experience for the local residents and also attracts outside visitors. It becomes a connection between the outside environment and the inner neighborhood. Green “strips” are set along the centre of the commercial street. Pocket parks and resting area along with the commercial street provide ideal relaxation and communication spaces for local and outside people. Neighborhood services and a gathering plaza are set at the core of the neighborhood but have a linkage with the open commercial street. Educational facilities are located in quiet locations away from commercial areas.
- Various plants grow alongside the narrow streets and provide shaded and pleasant spaces for walking. Water features and pergolas are designed along

pedestrian pathways.

- The hierarchy of open spaces is clearly defined in this neighborhood. The commercial street that can be accessed by anyone is located in the core of neighborhood; it forms a transitional space between public space (city roads) and semi-public space (neighborhood services and gathering plaza). Overlaps between clusters are used as locations for parking, neighborhood services and educational facilities that have an easy access for all residents. Each cluster with an inner green space is secure; it provides a safe semi-private space for children and inner-cluster communication between neighbors. Although it is an open community, it still has a clearly definition between a vibrant open space and a quiet inner environment as a result of the design of the space hierarchy.

4.3.2 Ling Nan Garden in Guangzhou

Built in 2002, Ling Nan Garden¹⁷ is about 7 hectares with population of 3799. Its density is approximately 540 people per hectare. It can be regarded as a successful project that applied a series study of local character. First of all, the project designers considered the “comb style” in overall planning because this traditional layout reflects the local climate and provides an ideal sunlight and natural ventilation system for all housing. Then also did a comprehensive study on building height, building size, building distance,

¹⁷ Developed by Guangzhou Urban Construction Group. Architecture design by City Construction & Development Design Institute Co.,Ltd

energy saving and numbers of units. For example, buildings are being laid out on the basis of research data for sunlight and shade requirement. They also argued that, for this particular site, an enclosed cluster that has 100 to 130 units would be an ideal size for daily communication and interaction between neighbors.

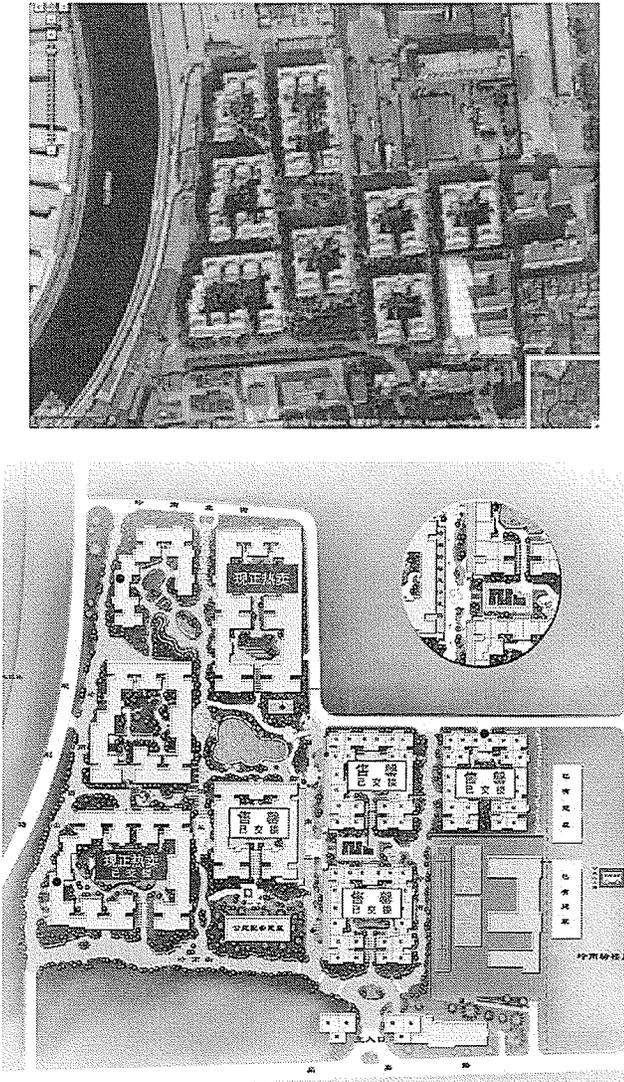


Figure 4.19 Plan of Ling Nan Garden

(images resource: *Guangzhou Characteristic Property.*)

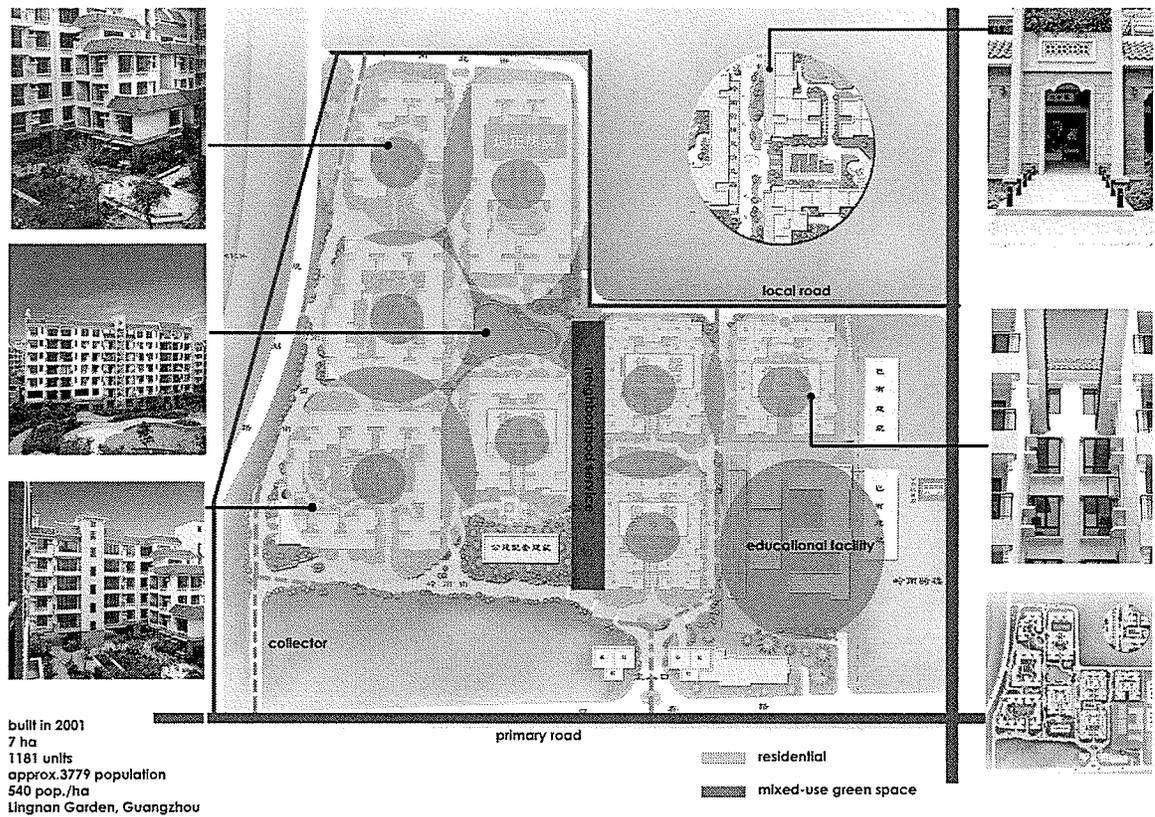


Figure. 4.20 Analysis Diagram of Ling Nan Garden
 (images resource: *Guangzhou Characteristic Property*. Diagram drawn by author)

- This was the first commercial housing development in Guangzhou that strongly reflects “South China Local Culture” by considering local characteristics such as climate, traditional planning, local materials and architectural form.
- The size of this development is only 7 hectare with a population of 3799. It can be seen as a big cluster. It is comprised of multi-storey apartments with similar density to traditional housing developments.
- Underground parking leaves most of the ground area for public open space.

Stores located on the first floor of buildings with a traditional architectural form, Qi Lou, are set along a north-south Street. Another two north-south streets are designed as green space with neighborhood services that also occupy the first floor of buildings. Green spaces are connected to each other to form a continuous open space in the neighborhood.

- By learning from the traditional “comb style” planning, some spaces on the first floor are vacant without walls or windows; they allow east-west ventilation to go through and bring breezes into the cluster. Since this housing development is located close to primary roads, research was undertaken on how to decrease the noises and sulfur dioxide levels in the air. Rather than using imported plants and material, local material such as stone slab and local plant material including *Eucalyptus* spp., *Ficusvirens* spp. and *Bombax malbaricum* were widely used in this neighborhood.

4.4 Summary

In this chapter, current residential developments in China are studied and summarized. Three typical planning styles - the Enclosed Style, the Centripetal Style and the Axis Style - that are commonly found in China are illustrated. These three styles address different planning concerns and try to improve the living environment through various approaches.

The Enclosed style creates a large and centred green space for residents. The

relatively large gathering space also ensures better sunlight and ventilation for the whole neighborhood. The Centripetal style has a strong direction and attracts residents' attention to the centre of the neighborhood. The Axis style can help to divide the neighborhood into several smaller spaces. Meanwhile, it still ensures the neighborhood has a continuous linkage through the axis. This linkage can be road system or continuous landscape along the axis. Although each planning style has its own strengths, weakness and limitation can still be found with each style. A common argument about these styles is that they focus more on the inner spaces than considering connections and interaction with surrounding areas.

Successful housing development projects examined in the final section of this chapter show that interactions and connections between different spaces can help to create a continuous and vibrant city life throughout the whole neighborhood. These successful practices also remind us of the value of aiming to bring back the local traditional neighborhood character in the planning of current projects.

CHAPTER 5. REKINDLING LOCAL NEIGHBORHOOD CULTURE

After a series of studying significant periods' of housing development and current practices in China, we may ask, "Why people admire the traditional neighborhood even though it had poor living conditions and lacked green space? Why do people feel that they are closer to their neighbors in traditional neighborhoods even though they do not really have a plaza or large gathering spaces available? Why do new developments have more spaces but less exciting outdoor activities?"

Vibrant neighborhood culture can be reflected through people's activities. Their enjoyment, happiness and a sense of belonging are very important for the establishment of neighborhood culture. Neighborhood culture cannot be designed, but it can be promoted through people's interactions, communication and daily activities. Although neighborhood development planning principles cannot create a culture or design residents' activities, they can provide a user-friendly environment for various outdoor activities and facilitate the establishment of a healthy and sustainable "Neighborhood culture". As Jan Gehl indicated, the extent and character of outdoor activities are greatly influenced by physical planning. It is possible through planning decisions to influence patterns of activities, to create better or worse conditions for outdoor events, and to create lively or lifeless cities. (Gehl, 1987)

In this chapter, firstly we will examine the relationship between people's activities and planning patterns. Secondary, we will illustrate a pattern that might stimulate people's activities. This stimulation can increase the opportunity for interaction and

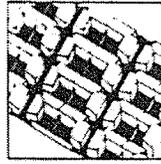
communications and may facilitate the establishment and rekindling of local neighborhood culture.

5.1. Local Neighborhood Culture Reflected through People's Activities in Open Spaces

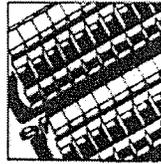
5.1.1 Types of open space

To examine people's activities in a neighborhood, it is necessary to make a brief review of the types of open space where people's different activities mostly taken place.

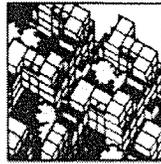
According to *Time-Saver Standards for Urban Design*, open spaces can be divided into the following categories, Common Open space shared by all dwellings; Common open space shared by groups of units; private open space adjacent to other working units; private open space that adjacent to dwelling units: private open space on grade adjacent to dwelling unit. (Fig. 5.1)



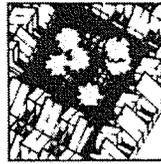
a. private open space on grade adjacent to dwelling unit; common open space reduced to access.



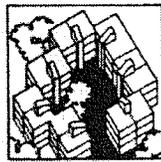
b. private open space on/in building structure, adjacent to dwelling unit; common open space reduced to access.



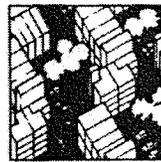
c. private open space on grade or on/in building structure, adjacent to dwelling unit; common open space shared by groups of dwelling units.



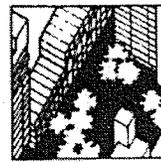
d. private open space on grade or on/in building structure, adjacent to dwelling unit; common open space, integrated with parking, shared by groups of dwelling units.



e. common open space shared by groups of dwelling units.



f. common open space, integrated with parking, shared by groups of dwelling units.



g. common open space shared by all dwelling units.

Figure. 5.1 Types of Open Space

(images resource: *Time – Saver Standard for Urban Design*)

Oscar Newman also described the structure of open space. The clear structure which includes private, semiprivate, semipublic, and public spaces helps to promote natural surveillance, helps the inhabitants know which people belong, and improves the

possibility for making group decisions concerning shared problems. (Newman, 1973)

(Fig 5.2)

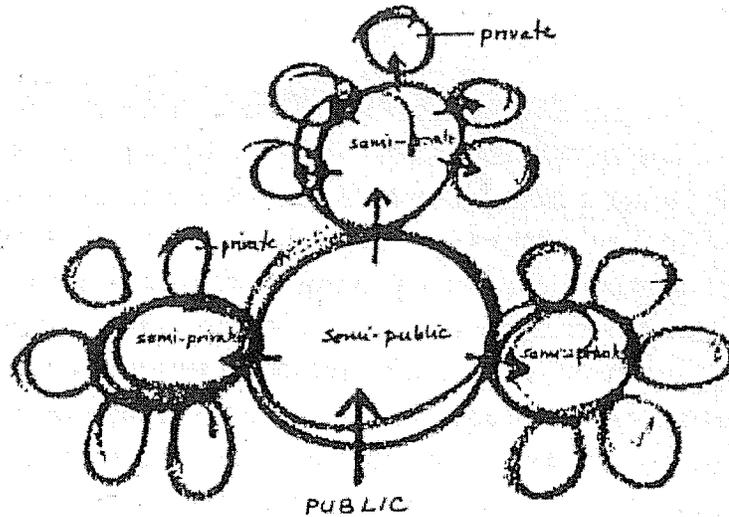


Figure. 5.2 Types of Open Space by Oscar Newman

(images resource: *Life between Buildings*)

In her book the *Life and Death of Great American Cities*, Jane Jacobs stated a clear demarcation of public and private space is one of the important factors to define a successful neighborhood.

Public spaces in residential areas are used more when these spaces have the requisite quality. It is necessary to have all types and sizes of spaces from the little residential street to the city square. The hierarchy of open space can reflect the hierarchy of social activities which range from private communication within a house to a public communication in city level. Meanwhile, it is important that there should be gentle transitions between the various categories of public spaces. (Gehl, 1987)

5.1.2 Outdoor activities in open space by Jan Gehl

Jan Gehl simplifies and divides outdoor activities in public spaces in a city into three categories, necessary activities, optional activities, and social activities, reflecting people's different demands on the physical environment.

Necessary activities include activities we have to do every day such as going to work, shopping, waiting for a bus or a person, running errands et cetera. These activities are more related to walking. These activities will take place throughout the year, under nearly all conditions; the participants have no choice.

Optional activities will occur if there is a wish to do so and if time and place make it possible. This category includes such activities as taking a walk to get a breath of fresh air, standing around enjoying life, or sitting and sunbathing. Most of the recreational outdoor activities take place in pleasant and comfortable outdoor environments. Therefore, physical planning is particularly important to optional activities.

Social activities are activities between people in public spaces. Social activities include children at play, greetings and conversations, communal activities of various kinds, and passive contacts through simply seeing and hearing other people. These activities could also be termed "resultant" activities because social activities occur spontaneously, as a direct consequence of people moving about and being in the same spaces. This implies that social activities are indirectly supported whenever necessary and optional activities are given better conditions in public spaces. Although the physical framework does not have a direct influence on the quality, content, and intensity of social

contacts, architects and planners can affect the possibilities for meeting, seeing, and hearing people through physical planning.

5.1.3 Planning decisions that influence peoples' activities with specific reference to residential developments in Guangzhou

In this section, by reference to Jan Gehl' research focusing on people's activities in open space, the previous case studies of residential developments in Guangzhou will be summarized and, in particular, on the planning of their open spaces. It will also explain why local neighborhood culture that is reflected through planning and people's daily life is valuable to be rekindled in current practices.

5.1.3.1 To assemble or disperse

To Assemble or Disperse

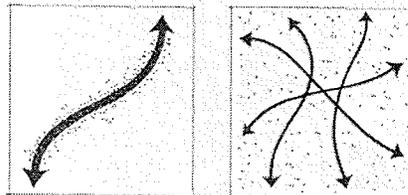


Figure. 5.3

(images resource: *Life between Buildings*)

Jan Gehl indicated that if activities and people are assembled sensibly, it is possible for individual events to stimulate one another, and it usually results in a better environment for both public and private activities. Such assembly should be related to

relevant human dimensions which provide a comfortable distance for people to see and experience. Meanwhile, assembling should not only focus on small scale, it should also consider all levels of scale ranging from regional planning for the city to small scale planning for people's individual communications.

According to Jan Gehl's research, in the entire history of human settlement, streets and squares have been the basic element around which all cities were organized. At a large scale, traditional good city structures indicate that public spaces are the most important elements in the city plan and alongside which all other functions are effectively located. At medium scale, well-arranged form can be found with all buildings assembled around a square or along a street which provides a reasonable and walkable distance for people to experience various outdoor activities. At smaller scale, the size of space is crucial for people's communication and interaction. Narrow and shorter streets reduce walking distances and increase pedestrian traffic flow thereby increasing the interaction between people when they spend more time on the street. It also encourages various outdoor activities to take place in public spaces.

In the previous studies of residential development in Guangzhou, favorable neighborhoods like the traditional, Nan Hua Xi, and Jiang Nan Xi communities are all located along the city primary roads. Neighborhoods are assembled along the major road systems, and public facilities are all nearby within a walkable distance. At a smaller scale, traditional neighborhoods have narrow street only two metres wide. This distance helps

people to have a more direct and close communication and contact with their neighbors. Meanwhile, narrow streets become an ideal and safe leisure space for children and for seniors. On the other hand, considering the local climate, narrow and shady streets provide a comfortable setting for residents. Public spaces along commercial streets and neighborhood service centres are places for gathering which encourage more interaction and activities. Spaces inside the clusters are more dispersed are provide a private and quiet living environment.

5.1.3.2 To Integrate or segregate

Integration implies that various activities and categories of people are permitted to function together or side by side. Segregation implies a separation of functions and groups that differ from one another. Various activities and functions incorporated in public space allow people to participate in these events. It is not about the integration of buildings but the integration of various events.

To Integrate or Segregate

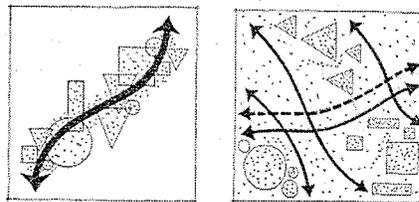


Figure. 5.4

(images resource: *Life between Buildings*)

In the study of Work-Unit Compounds developed in 1950s, people who worked together also lived together. Public facilities were located within the compound. People

seldom needed to go outside. It is a monofunctional area that was isolated from the other neighborhoods. In current practice developments built after mid the 1990s also typically planned with living zones separated from their surrounding neighborhoods by fences or walls. Enclosed housing developments with boundary gates may create a sense of security for residents and may also be easy for neighborhood management, but they breaks down connection and interaction between neighborhoods. At a larger scale, such separation may result in a dispersed city layout in which neighborhoods are isolated without linkage or continuous landscape between them.

On the other hand, unlike the traditional neighborhoods or the open neighborhood like Jiang Nan Xi and Vanke Wonderland, some new residential developments, for example the Enclosed Style and Centripetal Style, locate different public facilities separately. Commercial streets are located at the outer area while neighborhood services and green space are located at the centre of the neighborhood and only used by local residents. This separation creates several dispersed zones for different activities. The Nan Hua Xi community, Jiang Nan Xi community, Vanke Wonderland and Ling Nan garden are mixed-use neighborhoods in which public facilities and neighborhood service are linked to each other through out the whole neighborhood. Commercial streets are located along the primary road while neighborhood services are located on secondary roads. The linkage between them is usually green space or a pocket park. Educational facilities are located in a more quiet space such as a local road but close to neighborhood services. Areas around educational facilities become another favorable “hanging-out” location

usually including playgrounds, for kids and parents. Such layouts encourage multi-activities to take place along the street and along a continuous landscape. This increases meeting opportunities and stimulates the interaction between people.

Another issue affecting integration is the traffic system. As Jan Gehl argued, dividing traffic between pedestrians and automobiles results in a separation of people and activities. "It becomes duller to drive, duller to walk, and duller to live along the roads and streets because a significant number of the people in transit are now segregated from other city activities". In Jiang Nan Xi and Vanke Wonderland, pedestrian paths and vehicles driveways are side by side with speed bumps to control traffic speed. Street dimensions allow one or two cars to drive on local roads. Within a smaller zone like a neighborhood garden or in the space between buildings, bicycle and pedestrian paths are major traffic considerations. Meanwhile, shaded walking streets with public facilities encourage people to walk along and stay longer in the public space. Integrated activities are welcome on the street while convenient traffic roads provided nearby and link people to other neighborhoods throughout the whole city.

5.1.3.3 To Invite or Repel

Public spaces can be inviting and easily accessible and encourage people and activities to move from the private to the public environment. They can also be designed so that it is difficult to get out of them. Equally, the design of transitional zones between public and private space is also very important to encourage people to move between

them. As mentioned by Jan Gehl, flexible boundaries between public and private space will often be able to function as connecting links and make it easier for residents and activities to move back and forth. A gradual transition between public and private spaces greatly assists people in participating in or keeping in close contact with live and events in the public space.

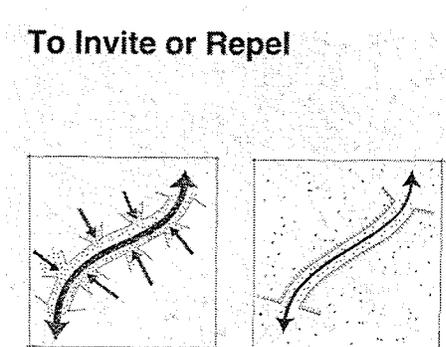


Figure. 5.5

(images resource: *Life between Buildings*)

Distance, route quality and mode of transportation can greatly influence the connections between people and outdoor activities. Daily shopping excursions are not only a question of getting supplies. Outdoor activities do not just have their functional purposes such as shopping or having a meal outside, but also become stimulants for interaction and communication between people.

One of the major reasons that people go to the street is because there is something to do out there. A street that is mixed with different functions attracts people to go and to stay longer. Traditional neighborhoods like Jiang Nan Xi and Nan Hua Xi communities provide multiple-activities along the street from the public space - the commercial street-

to a semi-public space- the pocket park and small areas between buildings. Transitional zones between public space and private space are usually the location of playgrounds, parks and corner stores mixed with neighborhood services such as kindergartens and small shops. Narrow streets lined with trees and other planting provide a comfortable walking experience to people. A clear hierarchy of roads with roads of varying dimensions also provides easy access for residents. Primary roads that are mainly used by public transit and commercial traffic provide a linkage through the city. Secondary roads and local roads that have convenient neighborhood services are usually used by local residents. Neighborhood paths that connect the public space to homes are ideal open space for kids and neighbors to “hang out” daily. The circulation system and the public spaces are linked together and provide a continuous cityscape and streetscape. They attract people to go out for necessary activities and then stimulate the potential occurrence of optional activities and social activities.

5.1.3.4 To Open Up or Close In

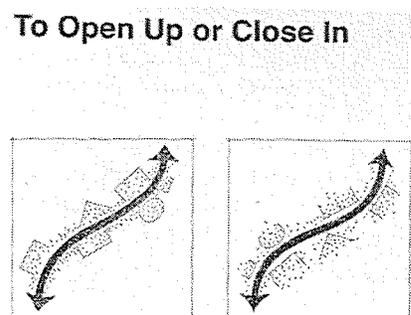


Figure. 5.6

(images resource: *Life between Buildings*)

Jan Gehl stated that contact between the public environment and adjacent residences,

shops, factories, workshop, and communal buildings can be a marked extension and enrichment of possibilities for experiences, in both directions. It is remarkable how few events and functions in new building and urban renewal projects are made visually accessible. Both the unthinking and the conscious fencing in of people and activities are questionable in most cases. The result will almost always be a dispersal of people and an effective closing - in of people and activities, emptying the public spaces of human beings and interesting attractions.

New residential projects are mostly fenced for security and management reasons. Continuous fences or walls become barriers between neighborhoods and prevent interaction between each other. If neighborhood services and commercial facilities are located at the centre of neighborhood, this increases such separation and isolates the neighborhood in the same way as the Work - Unit Compounds built in the 1950s, leading to a situation where today's residents are strangers but not colleagues. Traditional neighborhoods are open communities without boundary wall and fences. Security issues are seldom a major concern within these neighborhoods; furthermore, they are well - known as having few crimes. This sense of security results from many issues such as the close relationship between neighbors, the resident - involved neighborhood managements system, and the clear hierarchical circulation system and open space that stimulates communication and interaction between neighbors. In successful current practice like Vanke Wonderlands, security control is only located inside the cluster while other public

spaces are open to everyone. To open – up means an increasing opportunities ofor people to experience a continuous exploration and wandering from one neighborhood to another throughout the whole city.

5.1.4 Summary

The above studies examine people’s activities in open spaces and the impact they have on planning considerations. A vibrant neighborhood should have an open space system that assembles and invites people to participate in integrated events on open streets. When multiple activities take place in open space, communication and interaction between people may be increased. Traditional neighborhoods and successful residential developments in Guangzhou all have lively street life for residents. Such a lively environment benefits from a clear hierarchical road system and open space that allows continuous and various outdoor activities to take place throughout the neighborhood. Meanwhile, connections between each neighborhood also provide an opportunity to extend the street life throughout the entire city.

5.2. Rekindling Local Neighborhood Culture through Planning - the Proposed Pattern

5.2.1 The proposed pattern

As we mentioned at the beginning of this practicum, neighborhood development planning principles cannot create a culture or design residents’ activities, but they can

provide a user-friendly environment for various outdoor activities and facilitate the establishment of a healthy and sustainable “Neighborhood culture”.

In this section, key elements of a general planning pattern that may create more opportunities for outdoor activities and rekindle the neighborhood culture in Guangzhou will be summarized based on the previous case studies and analysis of planning considerations. This is not a pattern that should be copied or applied everywhere in any situation. It only illustrates some key elements, which are learned from other practices, and which designers should consider when they address residential design in Guangzhou.

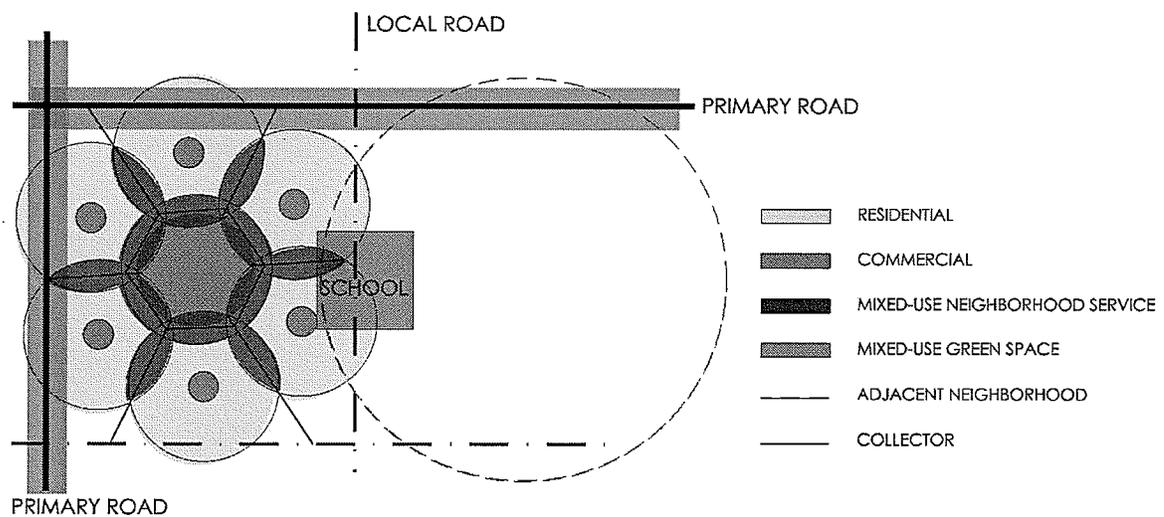


Figure. 5.7 General Planning Pattern Sketch for a neighborhood

5.2.1.1 Consideration of local characteristics

Local characteristics should never be overlooked in neighborhood design. The same design layout cannot be completely copied or recycled in different regions. Otherwise neighborhoods will lose their unique style and their most important characteristic which is termed local neighborhood culture in this pracitcum.

For example, in Guangzhou, commercially-oriented development has been produced over the last one hundred years. Moreover, warm weather allows shopping experience become the most important outdoor activity through the entire year. Arcaded buildings protect people when they shop during hot summer and rainy days. The comb style layout provides better ventilation and hence, greater comfort for outdoor life. Local materials, like stone slabs, are widely used in traditional neighborhoods because they are good for drainage. In short, the unique character and characteristics of each region should not be neglect in design. To understand and examine these characteristics are fundamental stepping-stones for the design of a neighborhood which will be fully used by people.

5.2.1.2 Hierarchical of road system

Hierarchical of road systems should be established. Circulation that includes primary roads, secondary roads, local roads, collector and pedestrian paths should have direct or indirect connections in order to build up a comprehensive road system. City roads that have a convenient public transit system should not pass through the neighborhood. Local roads should not divide clusters and should connect to city roads. Collector roads should have some access to local road or city roads.

Only traffic - calming controlled vehicles should be allowed in the neighborhood. Traffic speed and flow control features such as bumps, curving streets and one-way routing should be considered inside the neighborhood. In order to avoid straight drives through the neighborhood, landmark or green barriers should be considered at traffic

nodes. Pedestrian pathways should mainly be within the neighborhoods especially in areas that are close to educational facilities and the neighborhood core. Narrow driving lanes and widened sidewalks with cycle lanes and shade - giving planting can encourage pedestrians to have a safe walk through the neighborhood.

Under local climatic conditions, streets that run from north to south are comfortable areas for outdoor activities because of the patterns of shade and sunlight that they create. East-west oriented streets should be combined with green space that may improve the microclimate.

Use of the public transit system should be strongly promoted especially in crowded big city like Guangzhou and underground parking and partly ground level parking should still be considered in new developments.

5.2.1.3 Hierarchy of open space

Events that relate to daily life should happen in the intersections between clusters and between neighborhoods while private space should be quiet and safe.

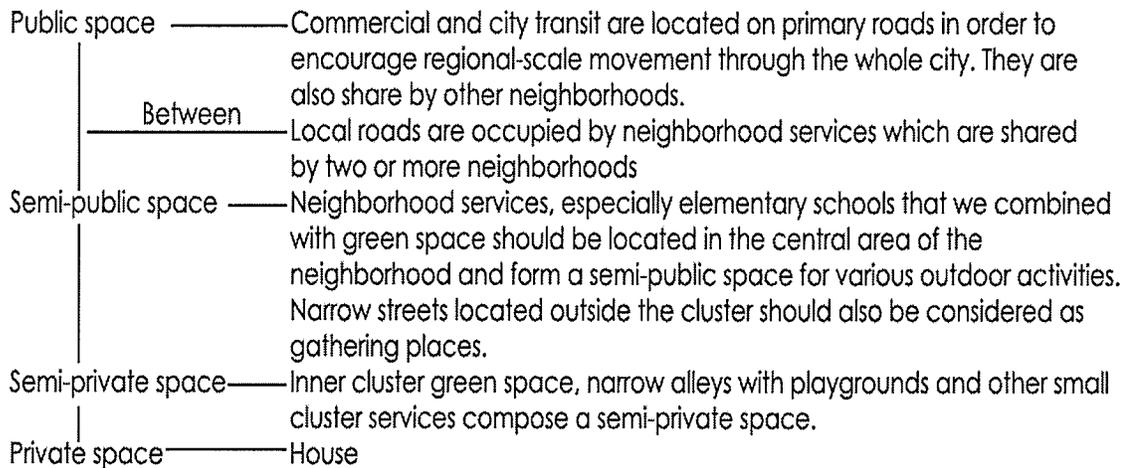


Figure. 5.8 Open Space Analysis

5.2.1.4 Public Facilities

Major commercial and public facilities such as theatres, museums, and hospitals should be located between neighborhoods and along primary roads. These services are usually shared by multiple neighborhoods and they are also the landmarks that attract people to visit from other areas. Public buildings should also be combined with green space such as city parks to create a continuous landscape for various outdoor activities. The transit system should provide linkages between these buildings.

At a smaller scale, within the neighborhood, educational facilities and neighborhood services are mainly used by local residents. Educational facilities should give comprehensive consideration to the users, children and students. Safe circulation should be the priority of the design. A place that has educational facilities, green space and neighborhood services such as playgrounds, corner stores is usually the most popular

zone within a neighborhood. This is the area that allows multi-activities to take place and provides opportunities for meeting and chatting between people.

5.2.1.5 Green Space

Green space within a neighborhood includes central green space, clustered green space and scattered green zones. It should be kept in mind that central green space in neighborhoods should not be isolated. It should be mixed with public facilities or neighborhood service in order to create a diverse, user-friendly area to attract and invite people to enjoy the landscape.

Clustered green space and scattered green zones not only beautify the neighborhood, but also provide a comfortable and pleasant landscape for outdoor activities.

5.2.1.6 Management

To hire a management company may be an effective way of managing the neighborhood with systematic and high-technology approaches. However, residents should be involved in the neighborhood management system in order to help the management company to have a better understanding and clearer image of this neighborhood. Meanwhile, such involvement can also help the residents to create a sense of belonging and responsibility to the neighborhood.

5.2.1.7 The Pattern at a Larger Scale

Although the neighborhood scale is the principal concern of this practicum, it is still necessary to have a brief sketch of the pattern at a larger scale.

At a regional scale, spaces between a numbers of neighborhoods could be occupied by community services or a community landmarks. Along with the road system which can link several communities together, ideally, the city should have a comprehensive layout with continuous landscape and multiple activities. The following figure shows the relationship between neighborhoods.

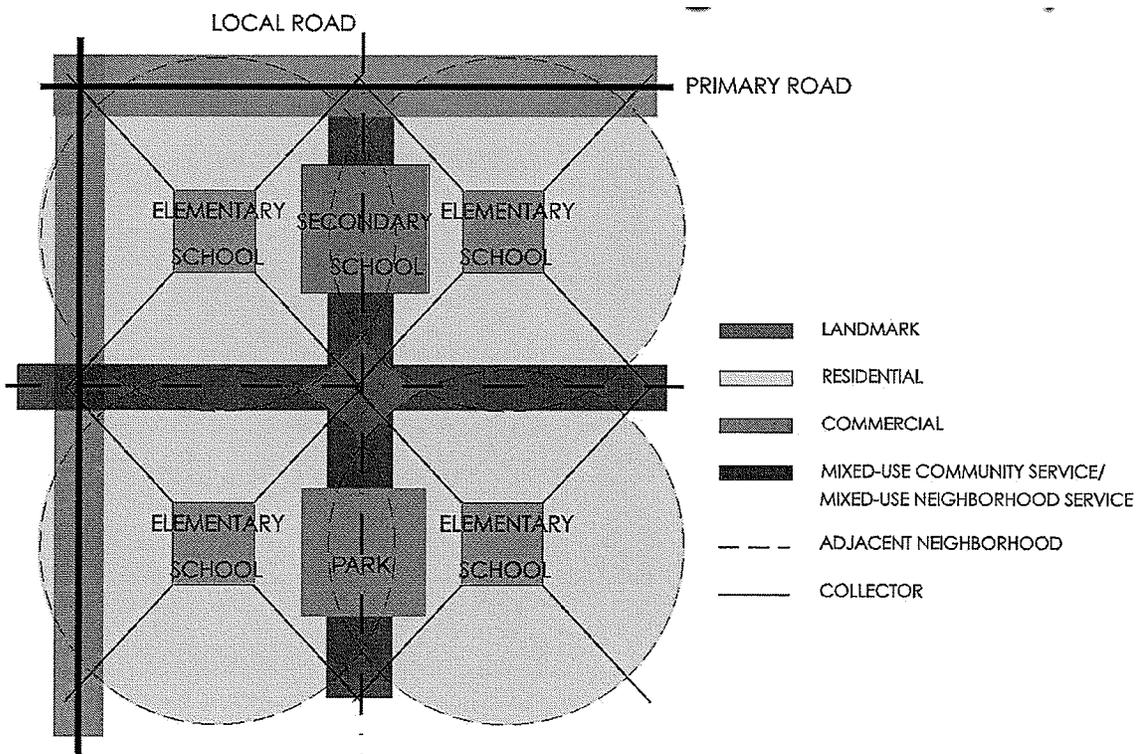


Figure. 5.9 General Planning Pattern Sketch for a community

5.2.2 Limitation of the pattern

The above pattern for the planning of key elements planning pattern is developed based on the previous study that mainly related to physical planning issues. The major limitation of this pattern will be the consideration of political issues and design regulations imposed by government. In China's context, residential developments are strongly influenced by a series of policies such as commodity-housing policy, land-lease policy and real estate market regulations. On the other hand, planning, architectural and construction regulations also affect the pattern of development. For a long period and till today, residential planning is limited and significantly impacted by government regulations. The basic layout of a residential neighborhood is usually firstly set up based on the regulations. (Zhu, 2004) After that, designers and planners will try to improve and revise the layout within the limitation of these regulations.

It should also be noted that this pattern only lists some key elements for the general planning of residential developments in Guangzhou. Further details should be considered during design. For example, the width of the road system will affect the traffic flow and circulation in a city as well as within a neighborhood. The pattern may also be affected by topographical condition of different areas. Moreover, detailed elements of the layout such as the shape of the road, whether straight or curved, the size of each green space, the combination of the building cluster-number and shape of the buildings, and user-friendly landscape elements should all be considered during detail designs.

5.4. Application of the Pattern

In this section, key elements from the proposed pattern will be applied in a residential development site in Guangzhou. Design sketches will be provided to illustrate the planning and the design considerations.

5.3.1 The site

5.3.1.1 General Information

The site is located in Panyu District in the south of Guangzhou and within the Central Living District (CLD) that promoted by the Guangzhou government since the late 1990s. The CLD is primarily occupied by many new residential developments of various sizes and styles. Since it is promoted by the government, convenient transit systems and road system are provided in this area. There are also several municipal parks located within the CLD although other public facilities are primarily provided within the residential developments in this area. .

The study site is currently about 20 hectares and started construction in 2000. The project was suspended for a period due to financial issues and has subsequently re-started. The developer started selling the units in 2005 and the price is about 6,000 yuan per square metre today. It is a little bit higher than other residential developments due to its convenient location. The developer is seeking an opportunity to getting more land in adjacent areas and develops it as a large residential development. The planned Floor Area

Ratio of this project is 1.98; the total population is about 11,000 people and the approximately density is 550 people per hectare.

The site is on the west side of one of the major primary roads in Panyu District and towards to the city centre. Secondary roads are located on the north and south of the site. The town hall, city park and subway are all nearby. Previously, the site was occupied by small factories and scattered low-rise and low quality houses built over 20 years earlier.

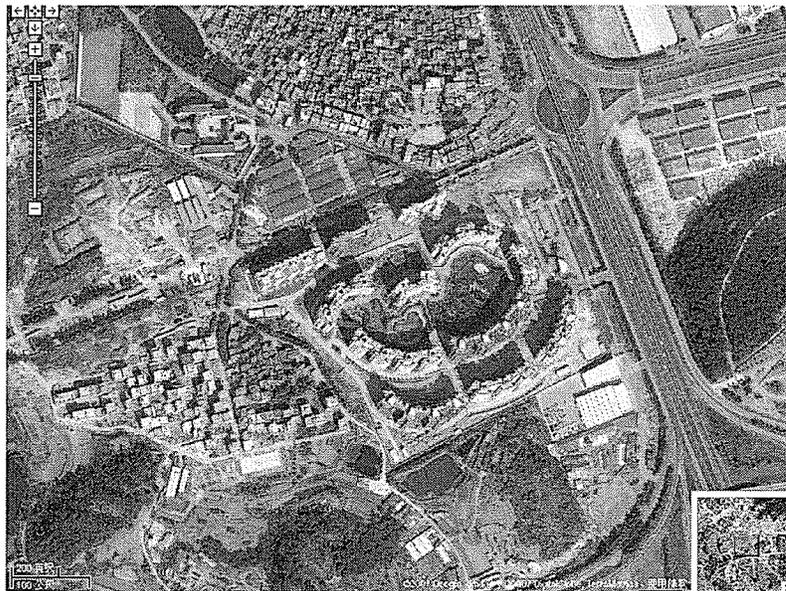


Figure. 5.10 Aerial Photo of the Study Site



Figure. 5.11 A Model of the Proposed Development Site
 (images resource: model made by developer; photo taken by author)



Figure. 5.12 Site Plan

5.3.1.2 Planning Style



Figure. 5.13 An aerial photo of the studied neighborhood.

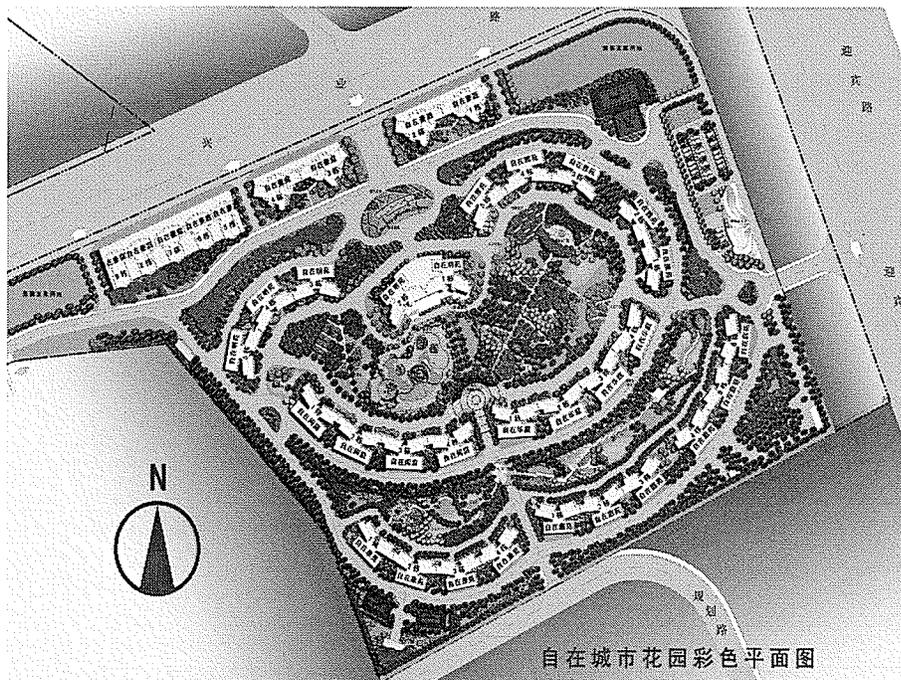
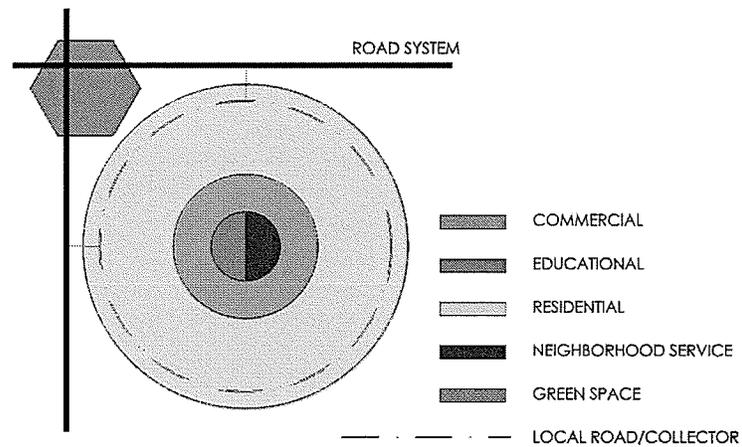


Figure. 5.14 Built Area Master Plan
(images resource: *provided by developer*)

The site has only been partially built. From the proposed model and the built area master plan (Fig5.13 & Fig 5.14), the Enclosed Style planning for this project can be

clearly seen. A commercial street is located along the primary road and the secondary road. This maximizes the use of the transit system and ideally can attract more people to come and shop in the neighborhood. Services and green space are centralized inside the neighborhood and can only be used by local residents. Parking is partially on ground level and exclusive to the outer edges which creates pedestrian-only access in the core are.



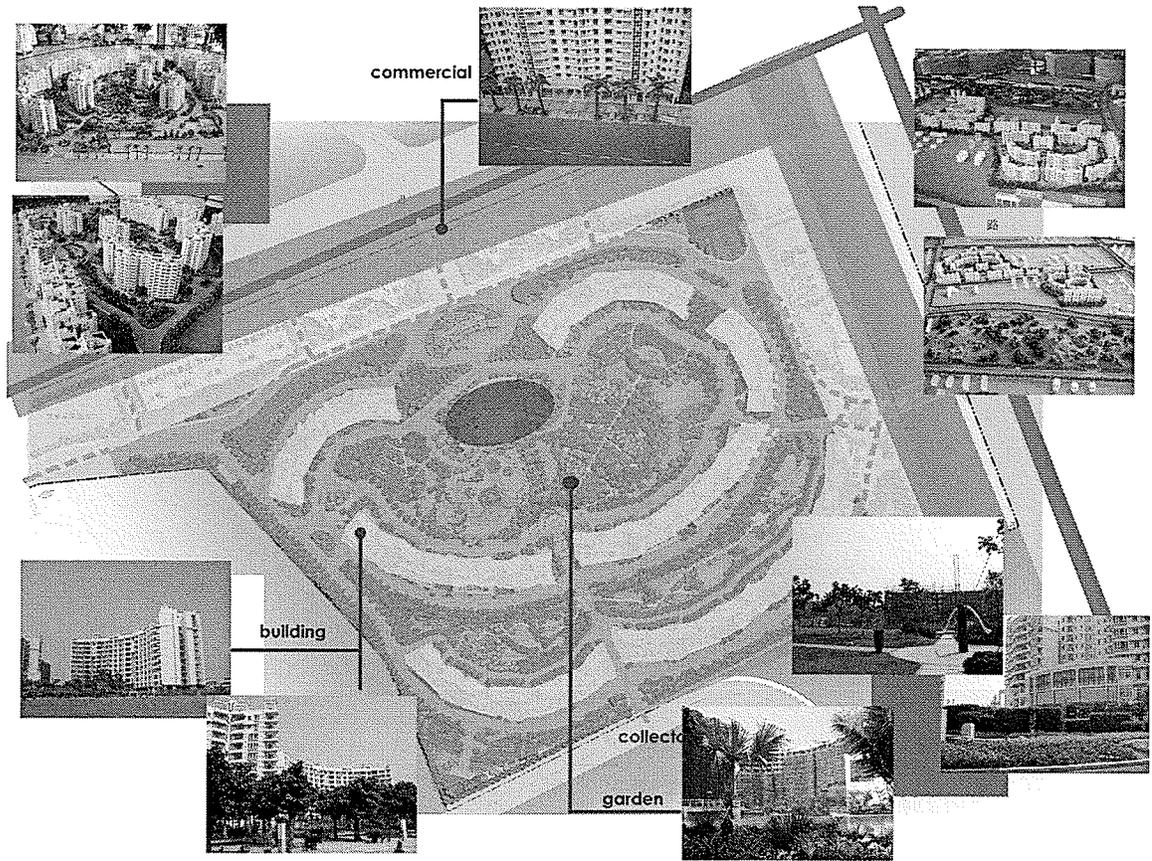


Figure. 5.15 Analysis diagram of the site

The development is typical of the Enclosed Planning Style which creates a closed neighborhoods that can only be accessed by local residents. It is a secured neighborhood but lacks direct interaction and connection with other neighborhoods. Isolated neighborhoods like these are not good for creating a vibrant public realm for the whole community. Centrally located neighborhood services and educational facilities provide a safe and quiet semi-public space for the neighborhood. However, central green space without a specific use might become a scene for viewing but not a space for gathering. Furthermore, the lack of clusters and semi-private spaces would also militate against communication between residents.

5.3.2 The concept sketch

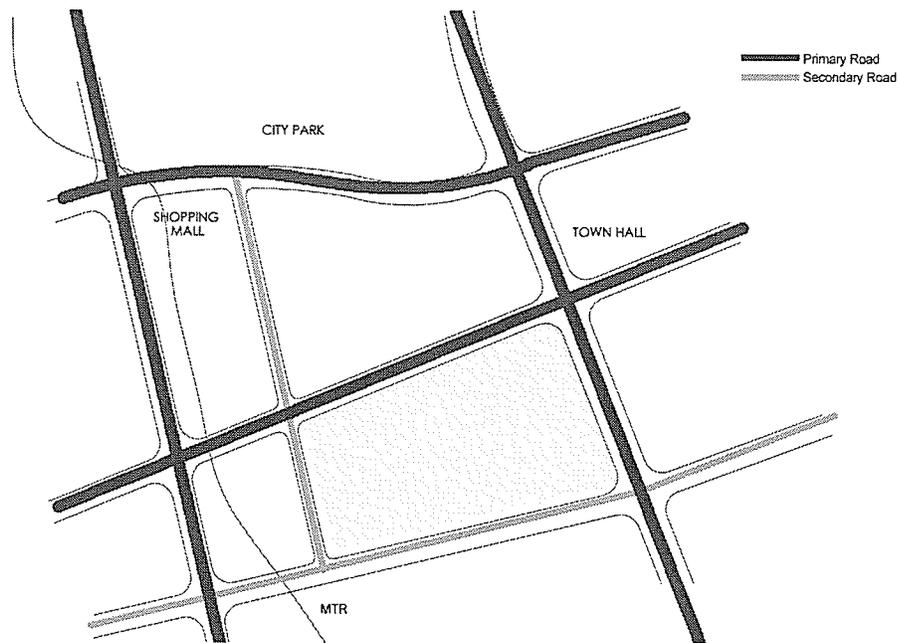


Figure. 5.16 Analysis diagram of existing road

The concept sketch starts with an analysis of the existing road. Primary road and secondary roads have already set up the fundamental hierarchy of the circulation in this area. To propose a network road system, we need to consider the connection of each road and the possible location of public facilities.

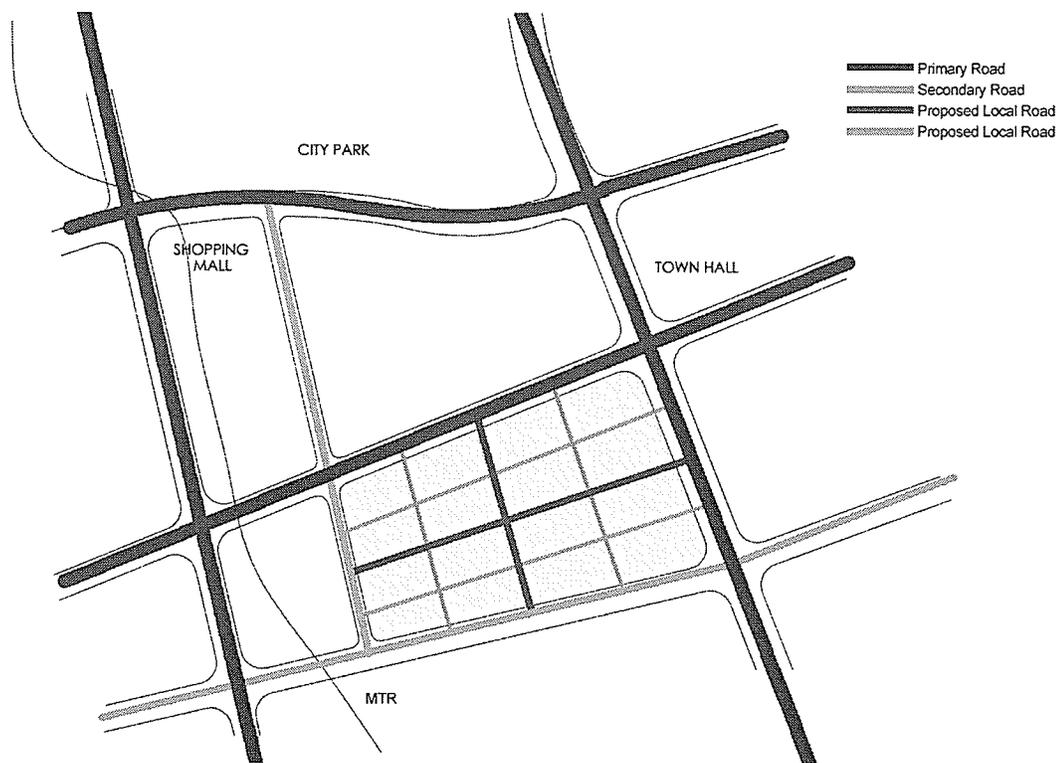


Figure. 5.17 Proposed network circulation system

As mentioned earlier, the road system proposed here is only a sketch layout that shows how the planning might proceed. The network could be more flexible and variable in order to control the direct local and through traffic flow.

In terms of road connections, major local roads should connect to the primary roads and secondary roads and allow people in and out of the neighborhood to catch the public transit system. Secondary local roads (which are the lighter green in Fig 5.17) should primarily connect to the major local roads, the darker green lines. Secondary local roads may or may not have direct connection with the city roads. This pattern can be revised when its detailed layout is designed. Meanwhile, connection to the MTR is also critical. It should be borne in mind that if the local road was connected to the MTR

directly, then the adjacent neighborhood might become a crowded zone and will be separated into two pieces by the numbers of people walking through it. This will obviously affect the privacy and layout of the adjacent neighborhood. Therefore, the road network should try to guide people to walk to the MTR on local roads and then secondary roads (the orange ones in Fig 5.18) instead of walking through the adjacent neighborhood. Another possible solution would be for area that the MTR passes – through to be an open space such as park, shopping mall, or other public facility. It might be a major gathering space for group activities.

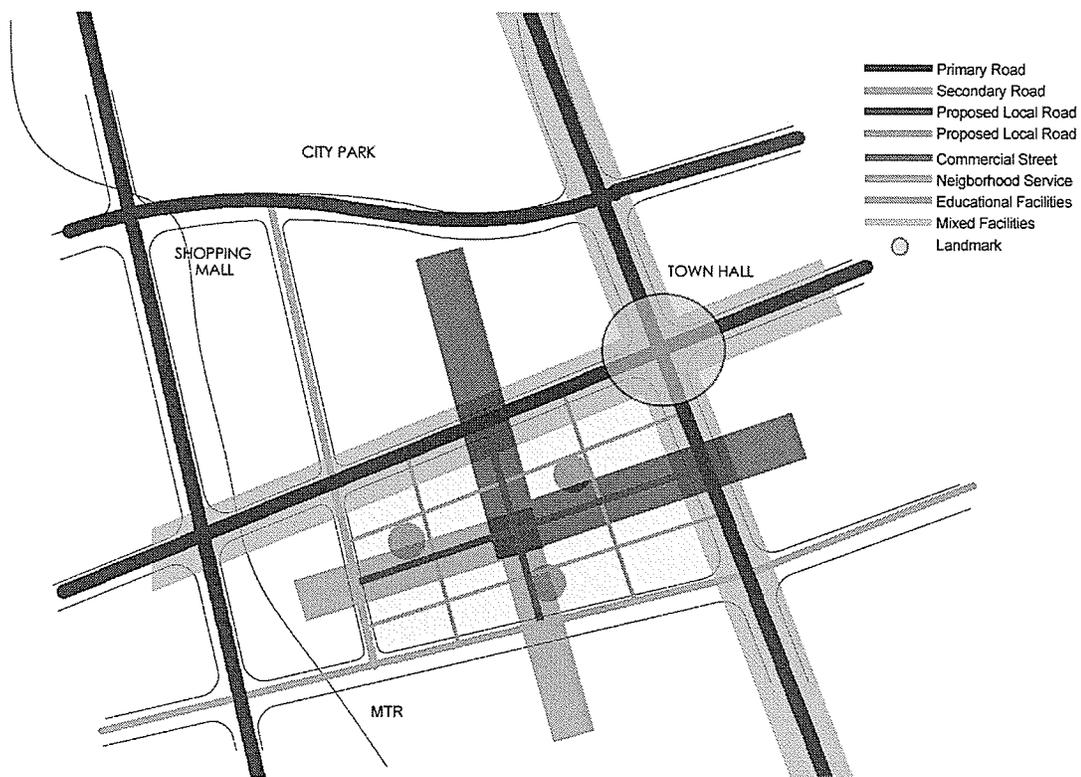


Figure. 5.18 Proposed locations of public facilities

Public facilities should be located along the major road system as well as being integrated with the hierarchy of open spaces. Areas on primary roads can be used for

mixed facilities such as cultural events and major commercial streets. Intersection zones, for instance between the town hall and the residential area, should be landmarks and focal points of the whole community. These areas should be more open and buildings should be set-back to create generous view. Commercial and neighborhood services could be connected with each other so as to encourage a series of outdoor activities taking place. In terms of the hierarchy of open space, commercial streets, which welcome everybody, should be an extension of the primary road system while neighborhood services, which are mainly used by local residents, should be located in a relatively quiet area close to local roads. Educational facilities should also be located in a more inner area so as to create a semi-public space along with the neighborhood service and green spaces.

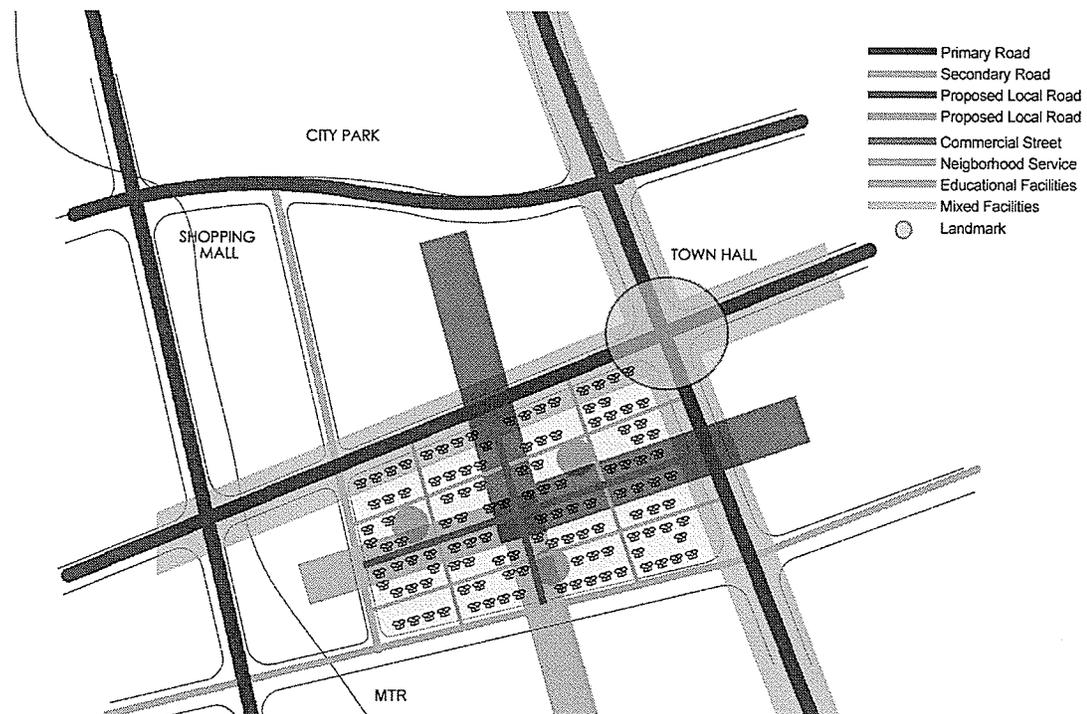


Figure. 5.19 Proposed general layout of the site

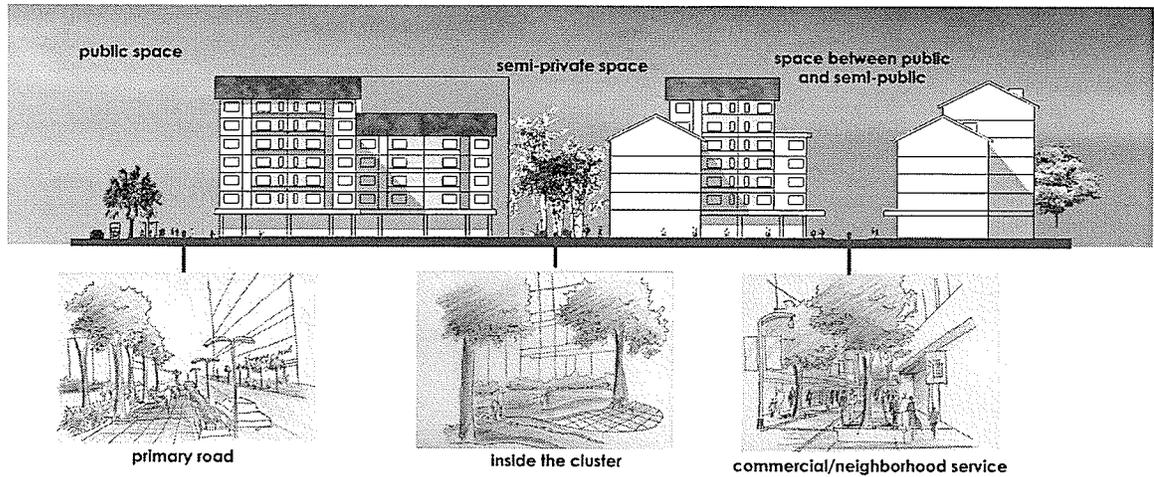


Figure. 5.20 Sketches of open space

Following the above general layout, the site is divided into several clusters. Building layout can vary according to the shape of the site and other technical data such as sunlight and ventilation pattern. Building form can also be diverse in order to create the image of the neighborhood. Figure 5.20 illustrates some ideas for the open spaces. On the other hand, while progressing the design in more detail, it is possible to revise and improve the general layout for a better planning solution. Revision and improvement should always follow up the consideration of people's activities within a neighborhood and the hierarchy of open space which provides a pleasant area to stimulate the interaction and communication between people.

5.4. Conclusion

Following to a series of studies and research based on people's activities within a neighborhood, key elements of a neighborhood design in Guangzhou are examined. A pleasant and comfortable open space which can stimulate people's necessary activities,

optional activities and social activities through daily life can facilitate the creation of a vibrant neighborhood. Lively and admirable neighborhoods usually have distinctive characteristics that are praised by generations. It is noteworthy that these characteristics can be found in successful neighborhoods that were built in different periods. Furthermore, unique characteristics also reflect the local culture that has developed over a long period. It is valuable to analyze these characteristics in order to develop a research method for designing a neighborhood that can reflect the local neighborhood cultures.

Rather than designing a perfect planning pattern for residential developments in Guangzhou or promoting this pattern to all parties, this practicum has explored how designers can learn from the past and from successful or unsuccessful case studies. It might also remind designers to consider what people need, what people want and what people do in a neighborhood. This might facilitate designs that rekindle and promote local neighborhood characteristics and which are reflected in people's activities.

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