

# DESIGNING THE SUPERBLOCK

A Model for Taipei Redevelopment

by

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by Li-Pei Wang

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## ABSTRACT

As many other cities in developing countries, the City of Taipei is currently confronting enormous redevelopment pressures. These pressures endanger the survival of the city's physical and social fabric. But they also offer the opportunity for the city to improve its environment.

The thesis argues that these redevelopment pressures can instead be well absorbed through the strategic adoption of selective examples of traditional Taiwanese urban form. Development interventions can then be enhanced through the incorporation of successful precedents from both the local context and from abroad. Thus, the thesis presents a flexible redevelopment proposal by re-designing a typical urban superblock in the City of Taipei; it illustrates the importance of historical precedents, as these may fit one or more particular situations in a Taipei superblock. Both the process itself and the outcome of these prototypical design strategies should be applicable to other similar Taipei superblocks.

The goal of this design of the redevelopment process is to create a superblock of livability, flexibility, and feasibility. Livability is realized through the rediscovery of traditional Taiwanese urban

design strategies and their adaptation to the contemporary city of Taipei.

Flexibility is accomplished by offering the possibility for various redevelopment scenarios, thus evolving a complex, fine-grain urban fabric. Feasibility is demonstrated by proposing a series of public actions, such as direct government interventions, redevelopment regulations and guidelines, transfer of development rights, and various incentives and disincentives that lie within the power of government today in Taipei.

The thesis starts out by inspecting different aspects of the contemporary physical context of the city. Traditional urban design strategies and new urban development trends are then juxtaposed to reveal the strengths and weaknesses of both.

The main body of the thesis describes the redevelopment project, which consists of a series of design strategies. A number of diagrams, ranging in scale from city-wide analyses to larger-scale studies of the superblock explore various layers and aspects of urban information. These different readings serve as the foundation upon which the redesign proposals are based. Precedents from Manhattan, New York; Savannah, Georgia; and Beacon Hill and Back Bay in Boston are studied and compared to reveal the distinctive

characteristics of each. Inspired by, and based on the above research, four different superblock redevelopment scenarios and three housing prototypes and block consolidation approaches are put to the test as design exercises. Meanwhile, calculations of projected population, density, and demands substantiate the design proposal.

On the basis of the previous steps and some general observations on the city itself, the thesis argues that making streets special “places”, is a powerful organizing principle for urban design. Good paths, especially streets, do not only carry the function of traffic circulation, but also foster social interactions, commercial activities, and surprises that enrich the urban experiences. In addition, various configurations and sizes of blocks will help creating a complex, fine-grain urban environment, and will positively affect land values. Hence the redevelopment of the superblock becomes primarily a street-design and block-reconfiguration project. The design of three major streets within the superblock demonstrates how the public and private realms can work together and reform the physical shape of the urban environment

without aggressive maneuvers, such as massive destruction, massive rebuilding, and large-scale redevelopment with high-density tower buildings.

The final section of this thesis is an implementation framework that suggests the means to realize of the redevelopment/re-design goals. Since there currently exists no comprehensive urban design guidelines for the City of Taipei, this proposal suggests a flexible framework of design regulations that allows the design exercises in this thesis to be repeated and applied to similar blocks in the city, and to come up with different results that address the changing needs for different sites over time.



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## INTRODUCTION

A messy environment, limited space, and urgent redevelopment pressures propelled by the city's growth are all among the most pressing physical urban issues confronting the City of Taipei. Located in the Taipei Basin in the northern corner of Taiwan (Fig. 1.1), the city consists of a total area of 272 km<sup>2</sup>, of which only 39% is usable as urban land. The remainder consists of agricultural land, mountains, and water. The population in 1990 was roughly 2.7 million and the urban density reached 25,000 people per km<sup>2</sup>. For the year 2010 the city has a projected nighttime population of 3.85 million and a daytime population of 6.75 million.<sup>1</sup>

The traditional urban environment that was created during the Japanese colonization with hierarchical spatial orders and homogeneous urban fabric has been subjected to slow destruction during the past two decades in order to accommodate accelerated growth quickly and inexpensively. What has emerged instead on the real estate market, as a manifesto of modernity to many local people, have been out-of-scale development and redevelopment projects with high-rise buildings and extensive set-backs. The revised building codes and urban regulations in the late eighties and early nineties further encourage this physical renunciation of the past.

This neglect of traditional urban form is actually an amputation that dislocates traditional cultural and social aspects of city life. Social places in the past such as temple forecourts, street arcades, and back alleys suddenly disappear in those ambitious new projects. People who had been fascinated by shiny glass towers and aggressive concrete masses, and who moved into an apartment there now feel lost in the neighborhoods these new projects have created. These are environments where everybody lives physically much closer together—most of the time one front door faces another in an apartment building—but where most people feel isolated psychologically. These people seldom chat with each other, most of the residents in one building do not even know anyone else any more. There are no “places” in this kind of urban form that allow social interactions to happen.

I believe that aspects of traditional urban form are capable of addressing contemporary urban issues and the needs brought about by accelerated growth in the City of Taipei. It was the naive ideology of certain urban and architectural theories applied to the development of Taiwan during the last twenty years that made us ignore urban values the city had always enjoyed. Urban development turned

1. Division of Urban Planning, Department of Public Works, Taipei Municipal Government, *Taipei 2010*. (Taipei: Division of Urban Planning, Department of Public Works, Taipei Municipal Government, 1992), pp. 501-506.



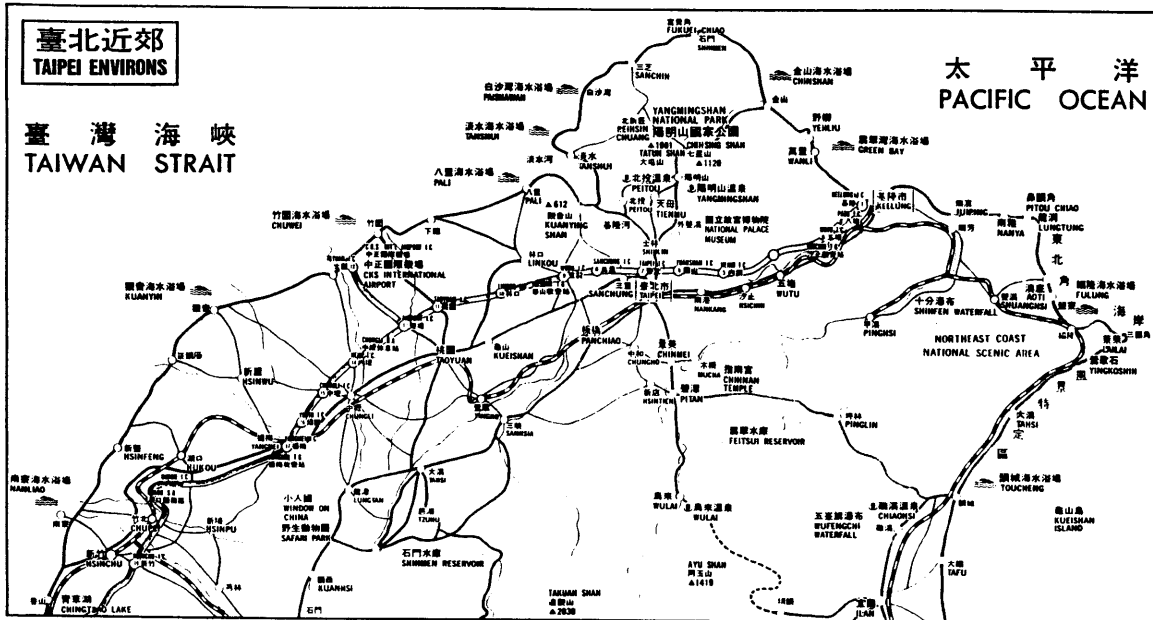


Fig. 1.1 "Taipei Environs" and northern Taiwan

bluntly to a fashion that attracts speculating developers, overwhelmed buyers, and relaxed policy makers. The current vacancy rate<sup>2</sup> and the projected FAR based on population growth rate<sup>3</sup> further prove that the built FAR for this fashion of development/redevelopment has far exceeded even the future demand in 2010.

The thesis therefore intends to demonstrate that it is possible to create a model for using components of traditional

urban form in a modern context to accommodate current redevelopment pressures. The outcome of this model certainly creates a much more desirable environment than that generated by current development trends. The model redevelopment process itself should also be repeatable with enough flexibility so that its application to similar situations in the city could respond to changing needs over time and in different locations.

2. According to a 1990 census, the vacancy rate for residential units in the City of Taipei was 9.4%.  
 3. See V. Projections for 2010, THE PROJECT.



## URBAN CONTEXT OF TAIPEI CITY

## I. TOPOGRAPHY

The City of Taipei is located in the eastern half of the Taipei Basin, which is an alluvial land formation that was reclaimed from water only about two to three hundred years ago.<sup>1</sup> Several waterways encircling and flowing through the city possess not only geographical significance, but are also of historical and political importance. The Dan Shui River is the eastern boundary between the City of Taipei and the County of Taipei; its mouth at the Strait of Taiwan in the past had lured speculating European adventurers and Chinese immigrants to the island.<sup>2</sup> The Shin Dien Stream and its tributary, the Jing Mei Stream, define the southern border of the city and cut into the hills. The Keelung River winds through the central part of the city and divides Taipei into two very different topographical precincts; to the north of the river, hills and mountains constitute a scenery of sierra; to the south, plains reveal flat agricultural lands. The Keelung river also connects the Taipei Basin to the City of Keelung, a seaport where the Japanese army and Chinese Nationalists disembarked and where

each inaugurated their administration over Taiwan.<sup>3</sup> (Fig. 2.1)

Hills and mountains are the natural boundaries and landmarks of the city. They embrace the city on three sides: north, east, and west; the Seven Star Mountain<sup>4</sup> on the north was even used as the reference point when the city walls were laid out. Since the basin is surrounded by mountains, the river valleys that cut through them become the transportation channels connecting Taipei to the neighboring parts of Taiwan.

The City of Taipei has a total area of 272km<sup>2</sup>. The area of plains, whose elevation is lower than 20m above mean sea level, comprises 120km<sup>2</sup> (44% of total area); and the area of hills, whose heights exceed 20m, is 152km<sup>2</sup> (56% of total area).<sup>5</sup> The area of non-urban land uses, including "preservation", "agriculture", and "river front", constitutes 16,482 hectares, roughly 61% of the total city domain. Whereas urban land uses, including "residential", "commercial", "industrial", "educational", "institutional", "open space", "airport", and "redevelopment", comprise 10,695 hectares, or 39% of the total area.<sup>6</sup>

1. Bou-Lin Hu and Chao-Ching Yu, An Urban Design Approach to the Town Scape Study for the City of Taipei, (Chungli, Taiwan: Chung-Yuan Christian University Press, 1984), p. 53.

2. See II. HISTORY.

3. *Ibid.*

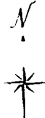
4. The altitude of the Seven Star Mountain is 1,120m, roughly 3,675ft, above mean sea level. It is the highest mountain of the ones surrounding the Taipei Basin.

5. Division of Urban Planning, Department of Public Works, Taipei Municipal Government, Taipei 2010: A Master Plan for Integrated Development, Vol. I, (Taipei: Division of Urban Planning, Department of Public Works, Taipei Municipal Government, 1992), p. 11.

6. *Ibid.*, p. 21.

臺北市都市計劃參考圖  
THE REFERENCE MAP OF  
T'AI-PEI CITY PLAN

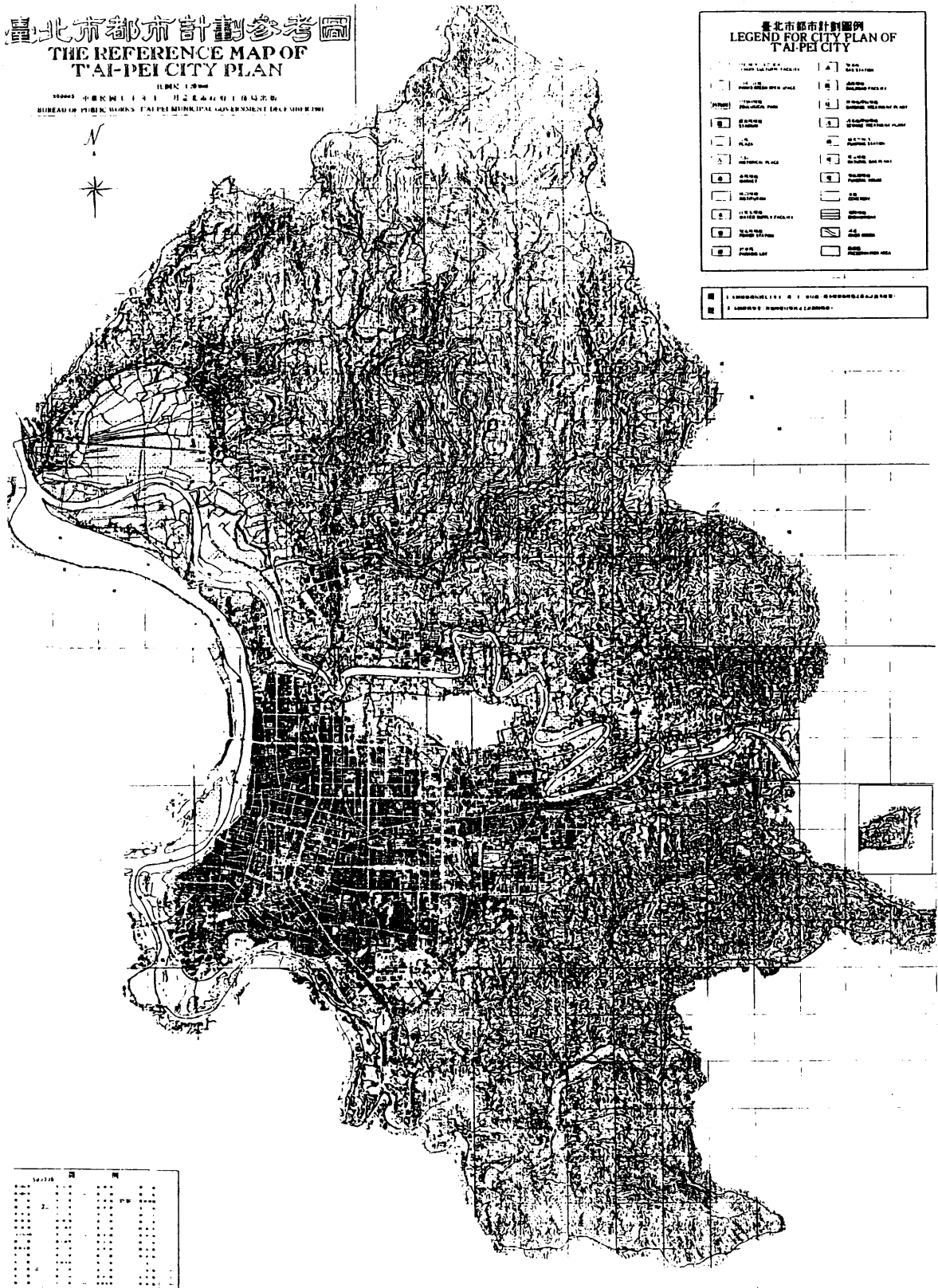
中華民國三十四年  
BUREAU OF PUBLIC WORKS, TAIPEI MUNICIPAL GOVERNMENT (1945)



臺北市都市計劃圖例  
LEGEND FOR CITY PLAN OF  
T'AI-PEI CITY

1. 第一類住宅區 (First Class Residential Zone)	11. 公園 (Park)
2. 第二類住宅區 (Second Class Residential Zone)	12. 學校 (School)
3. 第三類住宅區 (Third Class Residential Zone)	13. 體育場 (Stadium)
4. 第四類住宅區 (Fourth Class Residential Zone)	14. 紀念碑 (Monument)
5. 第五類住宅區 (Fifth Class Residential Zone)	15. 墳場 (Cemetery)
6. 商業區 (Commercial Zone)	16. 墳場 (Cemetery)
7. 工業區 (Industrial Zone)	17. 墳場 (Cemetery)
8. 倉庫區 (Warehouse Zone)	18. 墳場 (Cemetery)
9. 行政區 (Administrative Zone)	19. 墳場 (Cemetery)
10. 公共設施區 (Public Facility Zone)	20. 墳場 (Cemetery)

■ 第一類住宅區 (First Class Residential Zone)  
■ 第二類住宅區 (Second Class Residential Zone)



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Fig. 2.1 "The Reference Map of T'ai-pei City Plan" and the topography of the city

## II. HISTORY

The City of Taipei as we know it today did not exist until the end of nineteenth century. It first consisted of a few small settlements along the Dan Shui River waterfront, which were established in the later half of the seventeenth century. Before the river finally silted up from water transportation in the nineteenth century, these small villages functioned both as a gateway to the inner land of northern Taiwan and as trade centers for import and export.

The urban history of Taipei is a history of immigration, reclamation, and colonization. Portuguese sailors named the island of Taiwan "Formosa" in 1544.<sup>7</sup> The Spanish followed. They built Forte Santo Domingo at the mouth of the Dan Shui River in 1626 and advanced to the Taipei basin by 1632. The Dutch arrived later and displaced the Spanish around 1645.<sup>8</sup> The European dominance over Taiwan was officially terminated when the forces loyal to the fallen Ming Dynasty<sup>9</sup>

retreated from mainland China and defeated the Dutch in 1661, inaugurating "an event foreshadowing more recent history."<sup>10</sup>

The Ming forces were subjugated by the Ching dynasty, the last in Chinese history,<sup>11</sup> in 1683. Thus began the "official" Chinese immigration to Taiwan. The first imperial grant for the reclamation of the Taipei basin was issued in 1709 by the Ching court. Different groups of Chinese immigrants from then ensured the "city's" steady growth, which by then consisted of several market towns on the Dan Shui riverfront.

An armed conflict between Japanese forces and Taiwanese aborigines in south Taiwan in 1874<sup>12</sup> emphasized the strategic importance of this small island for the rulers on the mainland. In 1875, Taipei was awarded "Fu" status, that is "city," in the Ching administrative/governing system. Subsequently, in 1885, Taiwan was established as a province after the French navy was defeated in Keelung, a harbor thirty miles north of Taipei.

7. Jiah-Lin Chi, History of Taiwan, (Taipei: The Independent Evening Post, 1991), p. 410. My translation of author's name, book title, and quoted text.

8. Bou-Lin Hu and Chao-Ching Yu, An Urban Design Approach to the Town Scape Study for the City of Taipei, (Chungli, Taiwan: Chung-Yuan Christian University Press, 1984), p. 56.

9. Ming Dynasty preceded the Ching (or Qing) and enjoyed a life of 276 years from 1368 to 1644.

10. Charles A. Radin, "Island with an Elusive Identity," Boston Sunday Globe, 24 September 1995, p. 14. The author is referring to the KMT's fleeing from mainland to Taiwan in 1949.

11. Ching Dynasty was established by the Man people, a minority from the north-eastern part of China. The regime lasted 268 years from 1644 to 1912.

12. This incident is generally recognized as the "Mu Dan Shuo Event". In 1871 some Japanese fishermen lost their way in a storm and landed in southern Taiwan. Most of them were killed by aborigines living there after they entered the tribe territory. Although the survivors were rescued and escorted back to Japan by local government officials, the Japanese still decided to retaliate. In 1874 3,600 soldiers on battle ships financed by the Mitsubishi plutocracy, invaded south Taiwan. This was the first overseas military action for the Japanese since the sixteenth century; it initiated the next seventy years of Japanese invasions in Asia and the Pacific.

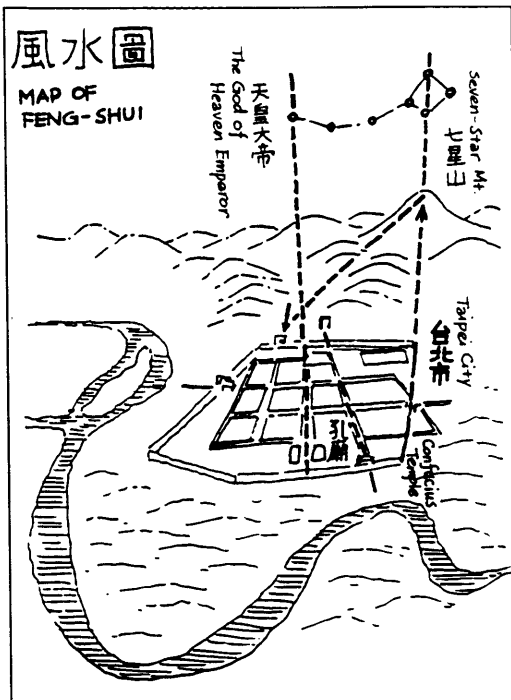


Fig. 2.2 Diagram of the "Feng-Shui" principle and the Taipei "Fu"

High-ranking officials were sent to be in charge of the physical development of the island and the formal political ties between Taiwan and China were reinforced.

It was against this background that Taipei was built as a walled city in 1884.<sup>13</sup> The wall-enclosed area was physically separate from the river front settlements and "was planned... as the seat of the Taiwan provincial government."<sup>14</sup> Taipei was the last city built according to the Chinese "Feng-Shui" city planning principles.<sup>15</sup> The natural attributes surrounding the city were "manipulated by city planners of the past to truly realize the essence pertaining to auspicious city layout."<sup>16</sup> It thus had a "back" (north) and "side supports" (east and west) of surrounding mountains, as well as an opening to the freshness of running water in the west and, more importantly, to the south.<sup>17</sup> Two sets of axes were laid out: the first, following the principal orientation of the walled enclosure, pointed toward the highest mountain north-eastern of Taipei; and the second, creating an absolute north-south system that dominates the street grid, pointed toward Polaris. These two axes therefore formed an angle within the city walls. (Fig. 2.2) Important buildings with symbolic meaning

13. The construction of the walls began in 1879 and was finished in 1884. It was a gesture of recognition for Taipei's municipality on behalf of the Ching Dynasty. Several other important landmarks and symbols of Chinese urban culture, such as the Confucius Temple, the Imperial Academy, and the "Yah-Men", namely the city government, were also built during the same time.

14. Information sheet prepared for Taipei Urban Design Studio held at MIT, Fall 1995. (Taipei: Department of Architecture, Tamkang University, 1995).

15. Bou-Lin Hu and Chao-Ching Yu, *An Urban Design Approach to the Town Scape Study for the City of Taipei*. (Chungli, Taiwan: Chung-Yuan Christian University Press, 1984), p. 54, quoting Alfred Schinz from unidentified material.

16. *Capital Center Historic Preservation District Plan*, (Taipei: Division of Urban Design, Department of Urban Development, Taipei Municipal Government, 1995), p. 2.

17. The north-south axis reveals both symbolic and practical aspects of classic Chinese architecture. "For the Chinese north represented the rigours [sic] winter and the threat of barbarian invasion-namely, evil influences. Hence all important buildings, public or private, opened towards the south."

Michele Pirazzoli-t'Serstevens, *Living Architecture: Chinese*, trans. Robert Aller (New York: Grosset & Dunlap, 1971), p. 11.

were also erected in “appropriate” locations accordingly to symbolize the perfect integration of an artificial city and the world of heaven.<sup>18</sup>

Although Taipei is the last walled city built according to ancient Chinese town planning principles, its walls did not enjoy the longevity of other Chinese examples. The Ching Dynasty lost a major war against Japan in 1894 and agreed to surrender Taiwan to Japanese control. Taipei was again chosen to be the seat of government after the Japanese occupation began in 1895. The urban reconstruction was certainly one of the new rulers’ priorities. The walls, symbolizing the old regime, were therefore the first artifact to be removed. The city walls and the West Gate were torn down in 1904<sup>19</sup> and four boulevards were built on top of their footprints. During the next fifty years from 1895 to 1945, the Japanese

altered the major orientation of the city from north-south to east-west to honor the rising sun, the symbol of the ambitious new Asian empire. The old grid system with its celestial reference was abandoned, grand boulevards running from the Governor’s House to the east were built (Ren-Ai Road and Shin-Yi Road today). Major institutional buildings, such as the Governor’s House (today’s Presidential Palace), the Supreme Court (Judicial “Yuan”<sup>20</sup>), the Bank of Taiwan, the Imperial Museum (Taiwan Provincial Museum), and the Taipei Hospital (Medical School of Taiwan University), were also erected in significant locations in the central part of the old walled city to symbolize the new political, economic, and intellectual control over this island.<sup>21</sup>

As for the physical appearance of the city, the Japanese

18. For more discussion on the metaphorical and symbolical meanings of what institutional architecture plays in an urban context in Chinese culture, refer to: Cheng-Hwa Wang, “The Imaging and Feng-Shui of Taiwanese Cities”, in *An Image Collection of Historical Sites in Taiwan*, ed. Jia-Shung Kuo, (Taichung, Taiwan: The Committee of Taiwanese Historical Materials, Taiwan Provincial Government, 1979), pp. 128-131. My translation of author’s name, book title, and quoted text.

19. “A Chronological List of Major Events in the City of Taipei during the 110 Years of City Wall Anniversary,” *Taipei Cultural Site Map*, (Taipei: Taipei Architects’ Association, 1994). My translation of author’s name, book title, and quoted content.

20. There are five departments, namely “Yuans”, under the President in the central government in Taiwan. They are: Examination Yuan, Judicial Yuan, Executive Yuan, Legislative Yuan, and Control Yuan.

21. The Governor’s House was completed in 1919; the Supreme Court, 1934; the Bank of Taiwan, 1900; the Imperial Museum, 1915; the Taipei Hospital, first built in 1898, then a major renovation followed in 1912. Other major public projects are: the Botanical Garden, 1896; the New Park, 1899; the Temple of War Gods, 1905; the City Government, 1915; Post Office, 1930; Airport, 1935; Public Assembly House, 1936; new Taipei Railway Station, 1940. Resources from Bou-Lin Hu and Chao-Ching Yu, *An Urban Design Approach to the Townscape Study for the City of Taipei*, (Chungli, Taiwan: Chung-Yuan Christian University Press, 1984); and “A Chronological List of Major Events in the City of Taipei during the 110 Years of City Wall Anniversary,” *Taipei Cultural Site Map*, (Taipei: Taipei Architects’ Association, 1994). My translation of author’s name, book title, and quoted content for the latter.



... brought to Taipei...  
the image of 19th-century European cities, which originated from Haussmann's Paris. Thus, an eclectic style dominated the whole city.<sup>22</sup>

But what was more profound than the fashion of street facades was the implementation of a simple and clear legal framework for future development. Building codes, environmental regulations, and civil laws<sup>23</sup> set by the Japanese all contributed to the early urban phase which survives until today in many sections of Taipei. Consequently, it was also during this period that particular forms of urban fabric and urban life were physically and legally established. These include a clear system of street hierarchies, street walls, continuous arcades, and linear commercial activities along different scales of paths, ranging from streets to alleys.

Taiwan returned to Chinese control after World War II. But only two years later, the civil war between the Nationalists (Kuo Min Tang) and the Communists blazed throughout the mainland. The KMT lost and fled to Taiwan in 1949, and since that time Taipei has been the capital of the Republic of China.<sup>24</sup> In the fifties and sixties, both economic and urban development occurred at a slow pace in Taiwan. Not until a series of critical events in the early 1970s<sup>25</sup> did the KMT give up completely the idea of invading China, and decided to dedicate itself to the development of the island.<sup>26</sup> An economic boom soon followed in the late 1970s, which accelerated the city's growth.

Most of the urban development in Taipei after 1949 followed the framework established by the Japanese.<sup>27</sup> However, due to the natural boundaries surrounding the Taipei Basin,

22. Information sheet prepared for Taipei Urban Design Studio held at MIT, Fall 1995. (Taipei: Department of Architecture, Tamkang University, 1995).

23. For information about these regulatory frameworks, refer to: Yan-Shian Chang and Mei-Jon Cheng, ed., The History of Taiwan and the Historiographical Materials, (Taipei: The Independent Evening Post, 1993), pp. 221-243. My translation of author's name, book title, and quoted text.

24. The Republic of China has been the official name of the KMT government since 1912; whereas the communist government has been ruling the People's Republic of China from 1949.

25. These major events include: the United States shifted its political recognition from Taiwan to the mainland as the "orthodox" Chinese Government in 1971. Taipei's seat in the United Nations was taken by Beijing in the same year. The hot war between Western powers and the Eastern world ended in Vietnam in 1975 with the communists proclaiming victory. The late Nationalist President Chiang Kai-Shek, who always dreamed of recovering mainland China by force, died in 1975.

26. For more information about economic growth in Taiwan refer to: Sun-Nien Hwa, A Research for the Taiwanese Economy Miracle, (Taipei, Hung Shue Publisher, 1992).

27. Bou-Lin Hu and Chao-Ching Yu, An Urban Design Approach to the Town Scape Study for the City of Taipei, (Chungli, Taiwan: Chung-Yuan Christian University Press, 1984), p. 55.

臺北市之長成 (THE GROWTH OF THE CITY OF TAIPEI) 1895—1956

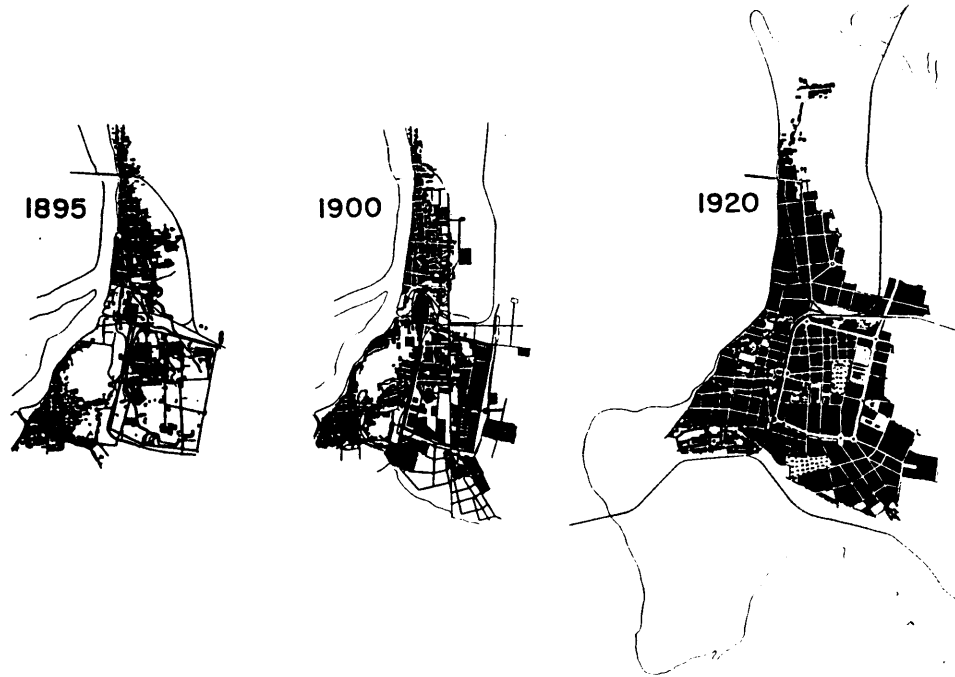


Fig. 2.3.1

*"The Growth of the City of Taipei", 1895, 1900, and 1920*

major expansion could only occur eastward from the historic walled city. The growth took place along the sides of the main thoroughfares such as Chung Shiao East Road, Dun Hwa South Road, and Ren Ai Road. Still to this day the city is organized by these arteries and enriched by street activities, especially commerce, along them. A revision of symbolism is accomplished by the link of the Presidential Palace and the Municipal Government at either ends of Ren Ai Road, an eastward boulevard that the Japanese had laid out. A rational grid system with irregularly formed streets, mostly reminiscence of the irrigation canals from the past, work

well throughout the expanded area in the city. High-rise office towers and apartment buildings have replaced the institutional structures as the dominant features of the skyline. (Fig. 2.3)

Fast growth in Taipei brings up certain issues the Japanese did not anticipate. As the city's density rises, land prices and living costs also increase; while traffic congestion, air pollution, and the lack of open space indicate a deteriorating physical environment and quality of life. What is even more urgent to deal with, is the lack of a clear and efficient social and legal network behind the physical reality.

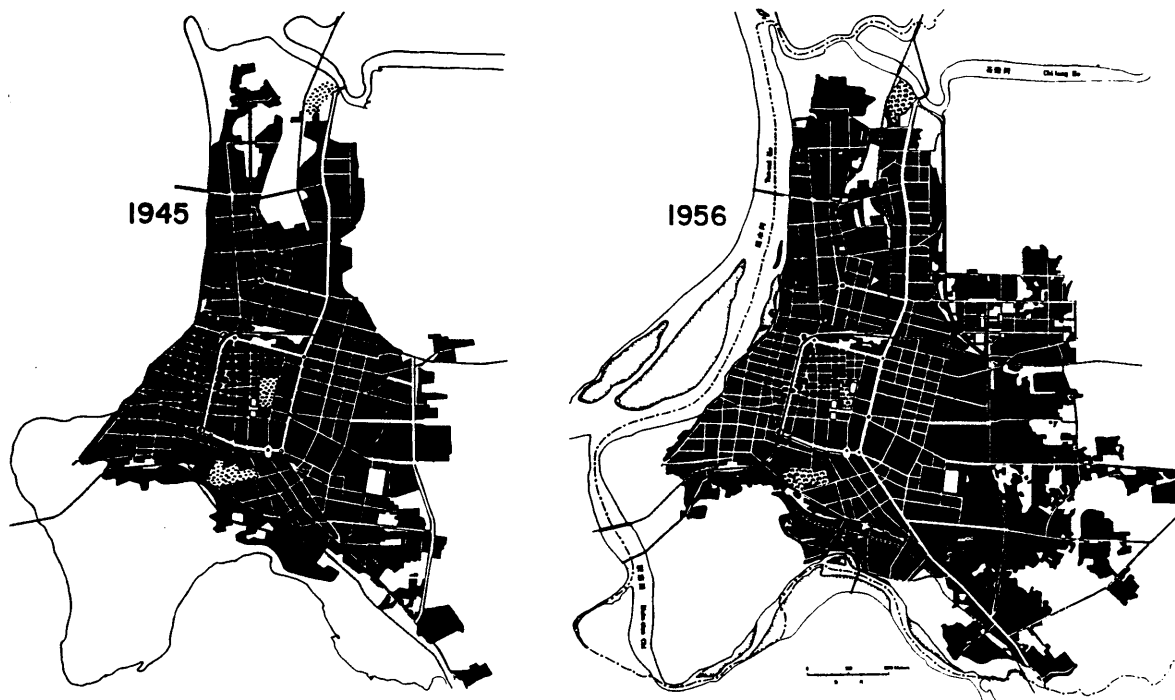


Fig. 2.3.2 *"The Growth of the City of Taipei", 1945 and 1956*

In the late 1970s and early 1980s, planners, developers, and government officials tried to respond to the above issues by proposing large parcel development and high rises with great set-backs.<sup>28</sup> The idea led to the birth of the Shin-Yi Redevelopment Project where the Municipal Government building complex is now located. It also represents the "new trend" of urbanism with which Taipei hopes to find its way out of the present predicament.

In 1992, the Department of Urban Development (DUD) was separated from the Department of Public Works and became an independent branch of the Taipei Municipal Government. This change acknowledged the importance of urban development issues in Taipei. In 1994, DUD published its first book regarding urban laws and regulations, in which new guidelines, such as set-back encouragement, were officially introduced. The Metropolitan Rapid Transit system, totally new to the urban history of Taipei, is now under intensive construction and tests.

28. Although the first master plan of Shin Yi Redevelopment Project was made in 1977, the entire area remained a waste land until the World Trade Center was completed in 1985 and stood alone in the site for yet another 8 years when the new City Government building joined it in 1993.

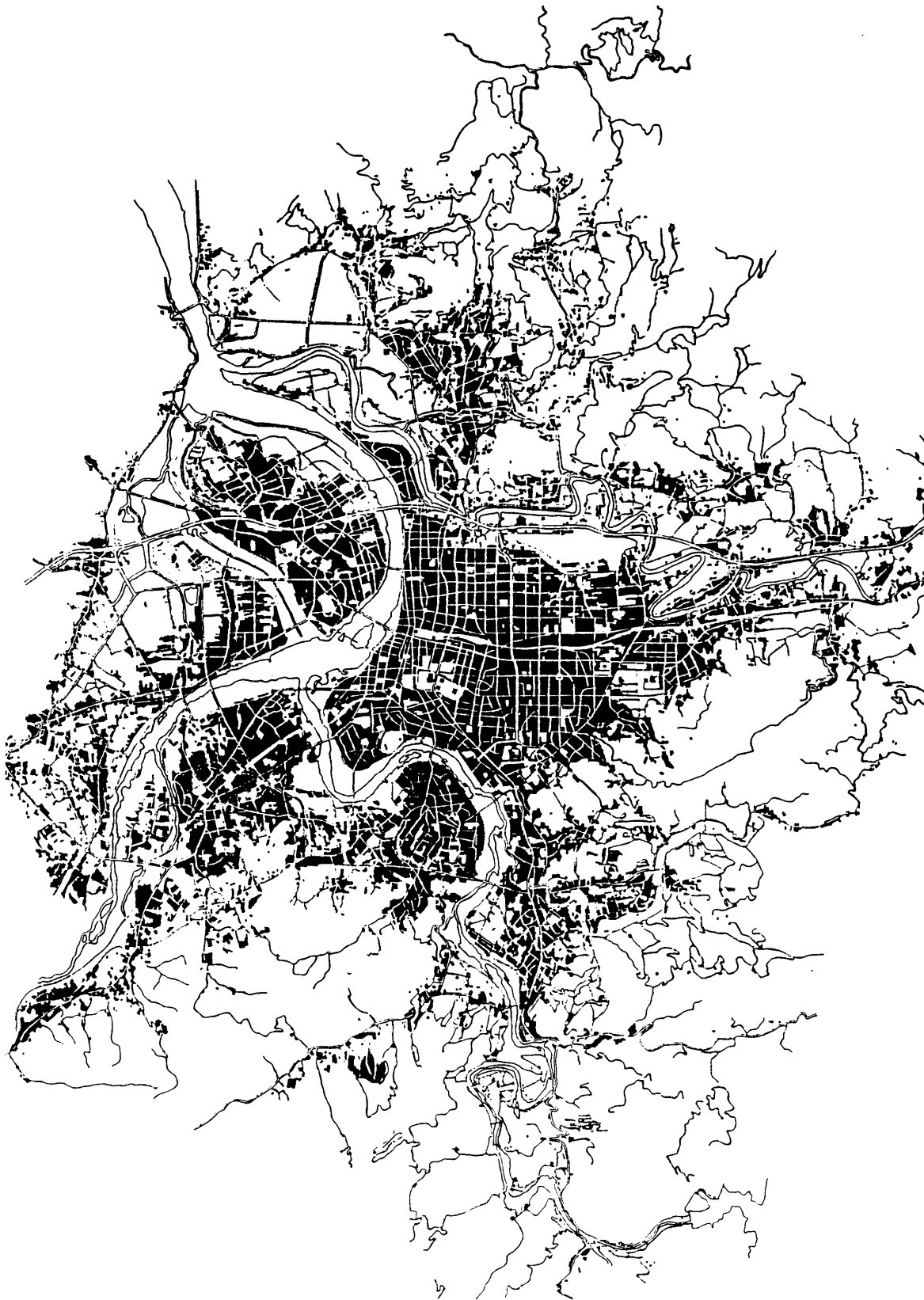


Fig. 2.3.3

*"The Growth of the City of Taipei", 1990*

The first MRT line will open in early 1996 and all four lines will be in service before the year 2010. This major public transit system is expected to have a crucial impact on the future development and redevelopment of the city: offering new commuting option; triggering development and/or redevelopment opportunities around station locations; and shifting residential land uses to the vicinity of MRT lines.

### III. URBAN PLANNING LAWS AND REGULATIONS

The Japanese introduced the first regulatory aspects to Taiwan's urban history. "Law No. 63," issued in 1896, one year after the Japanese take-over of the island, commenced such recording projects as population census, custom and cultural studies, and resource investigations. Published in 1899, "Ordinance No. 30" was the first set of laws in Taiwan regarding land use and building codes for urban areas. In 1900 the master plan for urban improvement in the City of Taipei and Taichung with the decree of "Building Codes for Taiwanese Housing" launched the physical urban reconstruction in both cities inside and out the old city cores. The major concern of these 1900 laws is the issues of public/private realms; and this concern is expressed through regulating the relationships between buildings and streets. Guidelines for arcades, building heights, public safety and sanitation, represent a few examples of what these laws emphasized. In 1932 a master plan for the City of Taipei with the projected population of 600,000. was completed and the grid street system that survives until today was introduced. In 1936 the then most comprehensive urban regulations — "Taiwan Urban Planning Ordinance" — were issued.

The war prevented the realization of the 1932 master plan and the 1936 ordinance. However, after the KMT arrived in Taiwan in 1945, most Japanese urban regulations were translated into Chinese and enforced by the new administration.

Regional planning issues entered the scene in the late fifties. United Nations consultants were invited to Taiwan to offer professional assistance on the regional/urban issues in the sixties. Bureaucratic systems and professional institutions were set up according to UN advice; but more importantly, the knowledge and concept imported by the western experts, such as the idea of community and the residential form of apartment, found an easy fit into the Japanese rational grid system in Taiwan.

From the early seventies on a series of "Comprehensive Development Plans for the National Land" were drafted by the Taiwanese central government. It was against this background that the City of Taipei issued its first "Comprehensive Development Plan" in 1978.<sup>29</sup> The latest version of this comprehensive plan was published in 1992. As the title "Taipei 2010" suggests, this 1992 edition envisions the city in the year 2010 and bases all proposals on the projections for that year.<sup>30</sup>

The Comprehensive Development Plan for the City of Taipei is a complex document that addresses a number of redevelopment aspects. In its scale it represents a significant departure from the small-scale concerns of the early Japanese ordinances. The abstract nature of the Comprehensive Development Plan makes it impractical for urban designers when dealing with physi-

cal architectural projects. In other words, the KMT administration has dedicated its efforts to ever larger-scale master plans in the past forty years but has left the urban design regulatory issues to building codes and other legal frameworks. The appearance of "The Compilation of Urban Development Laws and Regulations in the City of Taipei" in 1994 has been the first attempt at gathering all related urban laws, regulations, and guidelines scattered everywhere in Taiwanese law books in one single publication. The "Compilation" comprises six chapters, most of them are basic laws related to planning, building codes, land, and governmental organizations. Only a small portion of a single chapter deals with urban design, and the only three sets of design guidelines offered in this small portion address signage on a few special streets.<sup>31</sup>

The current trend in law-making has been to address broad, large-scale physical planning issues. Its contents have turned toward general development policies instead of physical design guidelines. The consideration of public/private realms at the street and block level, and the issues of urban design have been ignored in the regulatory framework. I argue that this lack of concern directly contributes to the messiness of the city today. In order to make the most of the current redevelopment opportunity to re-organize the city, this aspect has to be addressed in future development processes.

29. For more information regarding the history of the urban planning laws and regulations in Taiwan, see: Yan-Shian Chang and Mei-Jon Cheng, ed., *The History of Taiwan and the Historiographical Materials*, (Taipei: The Independent Evening Post, 1993), pp. 221-243. My translation of author's name and book title.

30. Refer to my summarized translation of "Taipei 2010" in Appendix attached to the thesis.

31. See my translation of the table of contents for the "Compilation", attached in the Appendix. Also refer to the Appendix for other information about current regulatory frameworks such as Zoning Ordinance, Urban Renewal Application Process, City Planning Process, and so on.

#### IV. REAL ESTATE MARKET AND FINANCING STRATEGIES

The real estate market in Taiwan and its strategies in financing and selling are unusual. Costly land and housing, high percentage of private ownership of residences, and a currently sluggish market but steadily increasing prices, can at least be partly explained by the cultural peculiarities of the Taiwanese real estate market.

People's attitude toward real estate is a crucial aspect. Like many other peoples in the world, the Chinese feel that property is "real" estate. However, the fascination that real estate means to the Chinese and the determination the Chinese have in buying it are both amazing. For most of the working people in Taiwan, the first goal for their savings is to purchase a residence; and for some of the people, buying real estate is the only form of investment they will ever engage in. With the help of economic growth in the late seventies, the entire decade of the eighties was the "golden age" for the real estate market. The percentage of private ownership of residences in the City of Taipei rose from 54% in 1976 to 70% in 1989.<sup>32</sup>

This boom in the real estate market also helped raise the prices of housing and land. Since the Chinese see their proper-

ty not only as a form of investment, but also as savings that could be passed from generation to generation. The Chinese do not trade their own residential real estate easily. This could partly explain why the real estate market is currently low in Taiwan with a high percentage of vacancy rate in the cities, but with sale prices that are nevertheless still extremely high. The average price of land could range from NT \$700,000 to \$2,000,000 per "Ping"<sup>33</sup> (roughly US \$700 to \$2,000 per ft<sup>2</sup>) and the housing price could range from NT \$350,000 to \$400,000 per Ping (roughly US \$350 to \$400 per ft<sup>2</sup>) in the east side of Taipei.

With such expensive land cost, the pre-sale system helps both potential buyers acquire their homes as well as developers collect capital. Here is how the system works: developers start selling their products before building them.

Advertising at this stage is the only communication between selling and buying parties. It is mostly done in three forms: 1. Tempting, even deceiving words and slogans, such as "Taipei Paris," "Urban Versailles," or "Imperial Mansion," are used as the names of projects. 2.

Attractive, and very often exaggerated, drawings and perspectives are printed in elegant brochures and distributed to the public. 3. The rhetoric the housing sales

32. Division of Urban Planning, Department of Public Works, Taipei Municipal Government, *Taipei 2010: A Master Plan for Integrated Development*, Vol. I, (Taipei: Division of Urban Planning, Department of Public Works, Taipei Municipal Government, 1992), p. 415.

33. "Ping" is a Japanese floor area unit that Taiwan has adopted since the Japanese colonization. It was the area of a piece of Japanese straw "carpet" called "Tatami". 1 ping is roughly 3.3m<sup>2</sup>. Please refer to the Conversion Chart in the Appendix for detailed numbers.

representatives employ when confronting customers is for people interested in buying to agree to a certain down-payment and to sign a contract with the developer. Included in this contract is a timetable of the payments due when certain construction processes are completed. Therefore, this contract obligates both parties to keep their promises on payment and construction. In most cases, the construction time would last for 2 to 3 years and by the completion of the building, the buyers would have paid 30% to 50% of the total cost and get the rest as a mortgage from a bank with their houses or apartments as securities. The home owners also own a share of the land according to the percentage of the floor area they purchase and/or the price they pay<sup>34</sup> in proportion to the total.

This pre-sale system is in general a win-win strategy for both parties. It has proved to work very successfully in urban Taiwan, especially with apartment housing and commercial building projects. The developer(s) only need to have a small amount of capital to start the project. The financial responsibility the buyers have is also very affordable. This “quasi-mortgage” contract between sellers and buyers avoids the substantial dependence on much higher interest-rate bank loans for both parties. By moving into a new residence, the household also shares a piece of the land—although a tiny

piece—and that satisfies the Chinese enthusiasm for real estate and secures the ownership of the property. Furthermore, this token ownership greatly reduces land-related taxes for all of the home owners in one housing project.

One of the inherent characteristics that this pre-sale system has is the number of land owners one would have to deal with for acquiring even a small piece of land for redevelopment. Negotiation with numerous owners and their children who inherit the property could be tedious and is often fruitless. The high land-acquisition cost also discourages any intention to turn privately owned urban land over to public uses. Therefore, government intervention in the process of urban redevelopment needs to take the form of more skillful and strategic operations instead of the simple buying and disposing of land.

34. Different floors may have very different prices per unit floor area. For example, 1m<sup>2</sup> on the first floor of an apartment may cost twice as much as 1m<sup>2</sup> on the 10th floor, since the first floor space is always considered to be potential for small businesses.







## TRADITIONAL URBAN FORM VERSUS THE NEW TREND

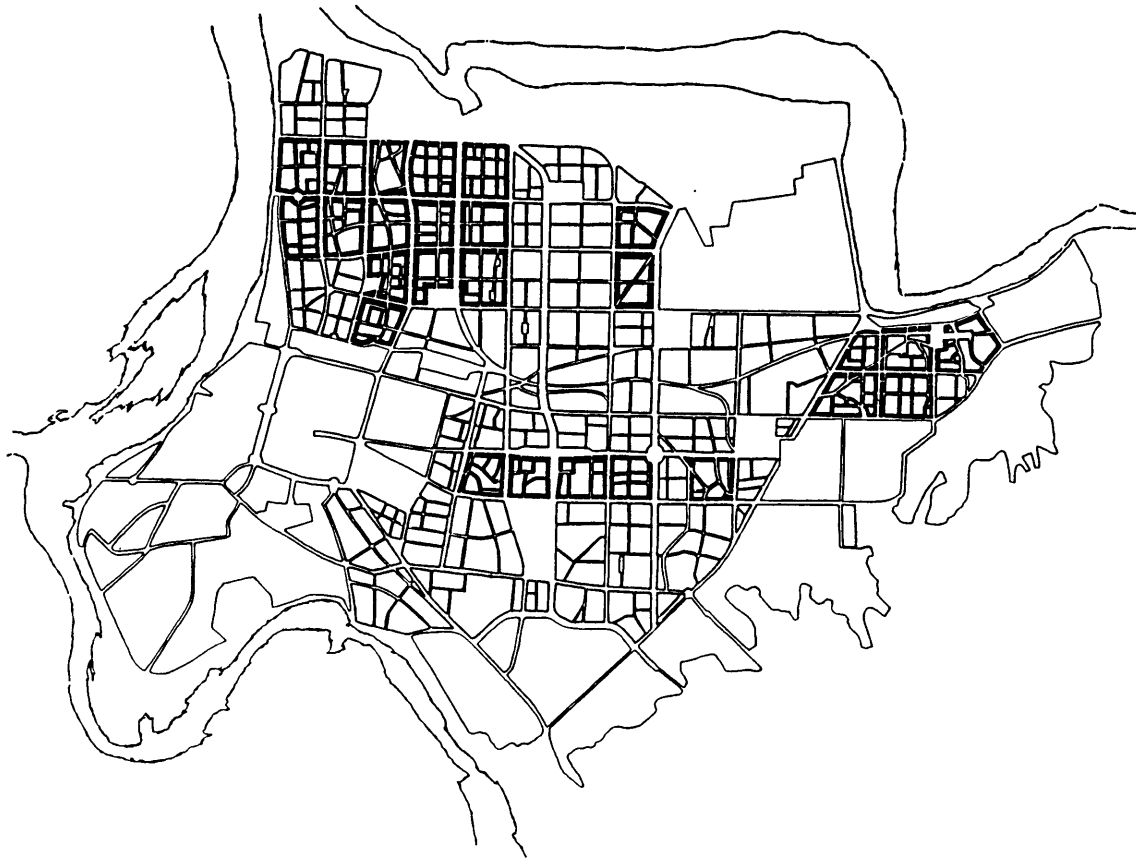


Fig. 3.1.1

*Urban fabric and superblocks in the City of Taipei*

Scale: 1/80,000

## I. COMPONENTS OF TRADITIONAL URBAN FORM

As the City of Taipei grew eastward, the Japanese street grid was followed and repeated until the growth was impeded by natural obstacles. The "traditional form" described here are therefore the products of the Japanese planning heritage whose time frame spans roughly the decades between 1900 and 1970. However, the structure of these planning strategies can still be clearly read today. The analysis of the urban fabric at a city-wide scale (Fig. 3.1.1) leads to the recognition of a modular and self-supporting "unit", the typical

Taipei urban super block.

These super blocks are defined by major city-wide thoroughfares. (Fig. 3.1.2) They are similar in size, ranging from 400m by 500m to 500m by 600m. They are also similar in structure. Present are always several internal grid streets, whose widths are narrower than the bounding thoroughfares. The grid streets cut into the super blocks and serve as the major inner streets. (Fig. 3.1.3) In many cases, these "formal" interior streets are interwoven with winding, "informal" ones. These organic streets trace the routes of former agricultural irrigation canals for rice paddies. Today, these winding streets are very often interesting



Fig. 3.1.2 A city-wide thoroughfare



Fig. 3.1.3 A major street within a superblock



Fig. 3.1.4 A minor street within a superblock

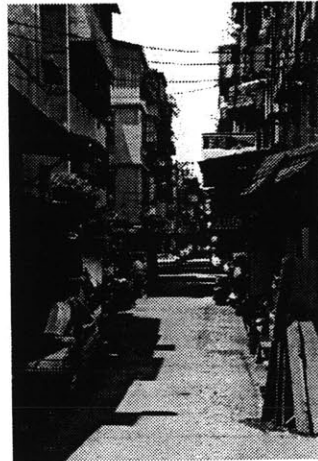


Fig. 3.1.5 A back alley between building

places such as street markets. As we move into the core of a superblock, we encounter many minor streets that run between sub-blocks (Fig. 3.1.4), and “back alley” spaces between buildings. (Fig. 3.1.5)

In addition, these superblocks resemble each other in physical profiles. According to an old building code, the building heights are limited to a maximum of 1.5 times the street width that the building faces. This creates an “enclave” profile with periphery buildings usually fronting wider arteries surrounding a superblock. These always possess much greater building heights, whereas the buildings inside the superblock are lower because of the

narrow streets on which they are located. (Fig. 3.1.6)

These superblocks also exhibit parallels in their land use. The higher-rise buildings on the edges always offer the linear and continuous arcade spaces for street activities and functions such as commerce, pedestrian circulation, and moped parking. The basement, first floor, even up to the mid-height floors in these periphery buildings are used as city-wide or district-wide commercial spaces or offices. The ground level in the “core” part of a block is seldom arcaded; however, neighborhood retail and services such as convenient stores, barber shops, and laundry occupy the spaces in the

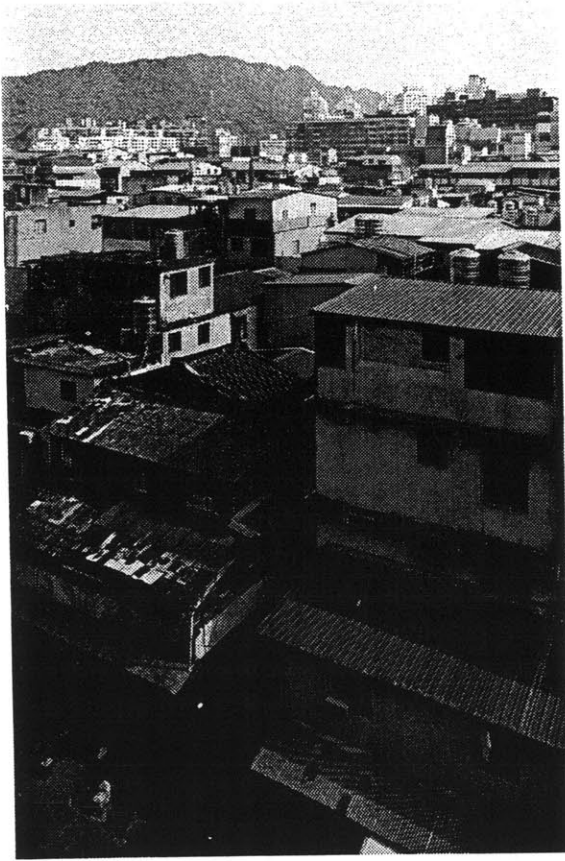


Fig. 3.1.6 The "enclave" physical profile

buildings facing major interior streets. The floors above are exclusively residential in both periphery and core cases. As one approaches deeper into a block, the streets get narrower, and the spaces become less commercial, more residential, and more private.

lements developed before 1895; 2. institutional blocks; 3. large-scale open spaces; 4. the airport district; 5. the Shin Yi new development area; and 6. areas where the rational grid meets with the natural boundaries.

Besides the structural, physical, and use similarities, the superblock's parcelization and property orientation also show a simple order. Since it is considered very desirable in Taipei to have simultaneous street frontage and back alley access, land sandwiched between two streets is usually divided into long, narrow strips of parcels perpendicular to the roads. Arguing that the building walls suggest this invisible structure, the diagram of

An hierarchical street network, an "enclave" massing profile, vertical and horizontal mixed-use pattern, collectively represent the common features shared by these Taipei superblocks. Their similarities in physical form also suggest a homogeneous social and cultural fabric in the city. There are only a few exceptions to this relationship between block form and content: 1. the old wall-city and set-

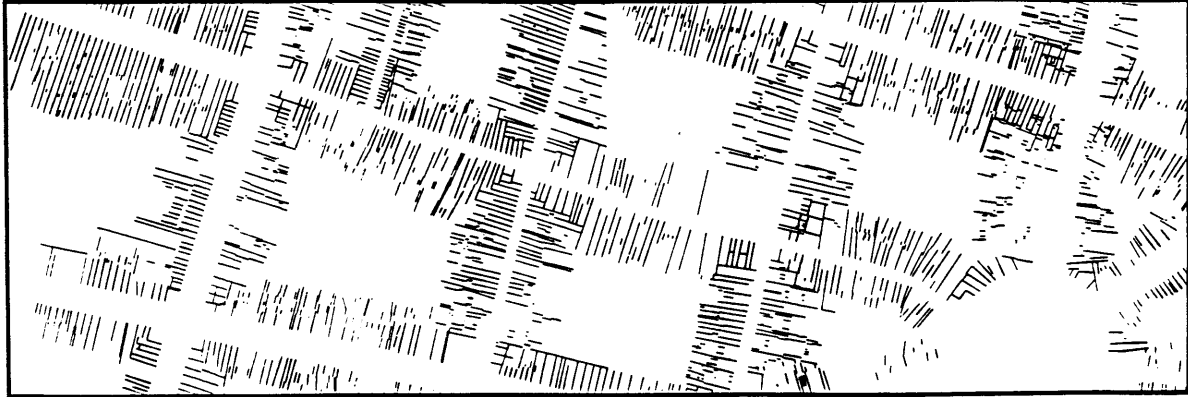


Fig. 3.1.7.1 *Vertical wall elements in a traditional urban environment*

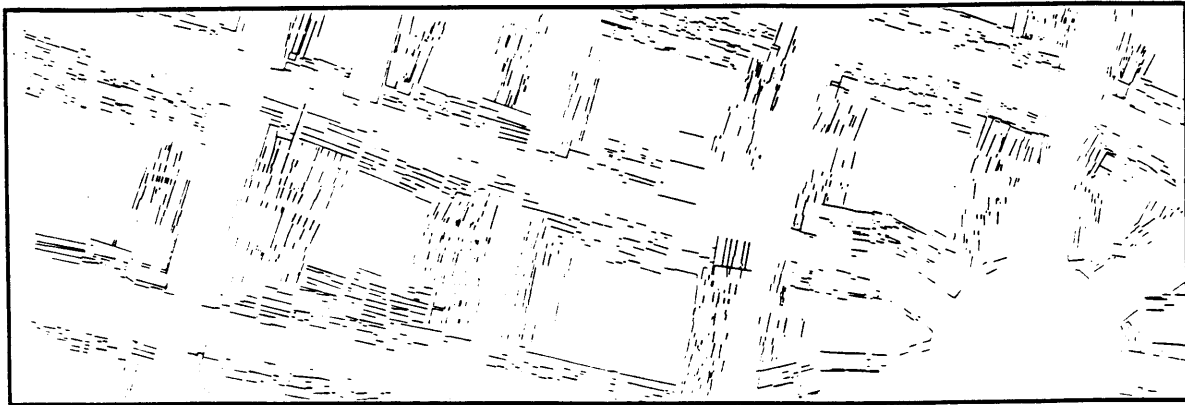


Fig. 3.1.7.2 *Horizontal wall elements in a traditional urban environment*

walls perpendicular to the streets shows extreme compactness and order; (Fig. 3.1.7.1) whereas the parallel wall diagram shows a random dispersion. (Fig. 3.1.7.2) The widths of these parcels often range from 4.5m to 6m and the depths can be anywhere between 15m to 25m. This phenomenon is particularly clear in the case where the lot is fronting a major street and intensive commercial activities are expected.

The important characteristics of traditional urban form in Taipei are therefore: 1. A rich and complex urban fabric of rational grids interwoven with informal paths.

2. A strong and clear spatial hierarchy of streets. 3. Linear and vital street activities with diverse uses. 4. Simultaneous front and back access for each dwelling unit; with the front as formal/commercial/city-wide space and the back as informal/social/neighborhood space. 5. A clear relationship between uses, building heights and their location within the hierarchy of different streets. 6. An emphasis on the spatial relationship between buildings and streets. 7. A simple and potent implementation framework. 8. Similar super blocks all over the city supporting a homogeneous social and cultural fabric.

## II. THE NEW TREND

Although the traditional urban form displays a powerful physical order and carries strong social connotations, the uniformly low-rise, low-density environment can no longer absorb the fast growth and development/redevelopment pressures that the city faces. Traffic congestion in major streets is so extreme that it flows into the residential superblocks for short cut and adversely effects the qualities and functions of various paths. Car and moped parking clogs pedestrian sidewalks, paths, and arcades. Illegal building encroachments on the ground level erode the public space of back alleys and street corners. Roof level additions intrude into the orderly "enclave" profile and the skyline.

The architectural imagery of the "International Style" has been adopted to tackle the development pressures exerted on the city of Taipei. The "International Style" has become the perfect symbol of modernity and progress for the Taiwanese people who use it to express a sense of identity in the global community. This style, as locally understood, has meant the creation of high-rise, articulated buildings with large set-backs as public plazas, plus large-scale green spaces that take up the area of an entire superblock. This wholesale adoption of fashionable architecture and planning principles has been further enhanced by the private developers' advertising of "modern" housing projects they build for sale. (Fig. 3.2.1) The traditional forms thus were ignored, even actively rejected, by the common people as well as by government officials. Regulations were cre-

ated to encourage higher FAR with lower ground coverage. Any newly acquired land was either used for large-scale development with monstrous buildings (Shin-Yi Development Area) or turned into out-of-scale parks (Park No. 7).

This new trend of development destroys the original physical fabric. (Fig. 3.2.2) The problems generated by the fast growth are not solved and the new problems created by these new forms have become increasingly apparent. Traffic congestion increases since the high-rise housing complexes bring in tremendous densities in an otherwise low-density superblock. Parking issues also become more serious because on-street, temporary parking and residential/underground parking are not integrated into the legal requirements. Building Codes, which have been the only regulating laws for these developments, do not adequately address larger urban issues beyond the building envelope. There are simply no urban design guidelines to regulate building-to-street relationships. Current zoning and land uses do not correspond to the regulated ones and various types of commerce scattered everywhere introduces messiness, noise, even nuisance and pornography into the residential neighborhood. The government has no way of directly intervening since the land prices are too high and the idiosyncrasies of people toward their personal real estate make land acquisition even more difficult.

What's worse is that the social and cultural impact these new physical forms have brought onto the city have been greatly underestimated. Social places such as front doors, street corners, back





Fig. 3.2.1 *A sketch from an advertising brochure of a private housing project*



Fig. 3.2.2

*A "new trend" high-rise housing complex*

alleys, and temple plazas are disappearing. Ground level activities with horizontal circulation are superseded by large-scale towers with independent floors of spaces strung by vertical circulation. Continuous "places" of the traditional urban type have been replaced by isolated "spaces" in the new trend. People feel disoriented and estranged in a "modern" environment. They don't chat with the neighbors anymore; they don't even know the people who live next door. The daily routine becomes going from the apartment to the elevator core to the lobby (if there is one) to the messy and polluted streets to another elevator core in another tower to another unit of space. There exists no neighborhood open/green spaces in residential

super blocks, no one goes to those super block open/green spaces during daytime because the tropical climate is too hot; no one visits the parks at night because they are too dangerous. Areas with high-rise buildings and great set-backs become dead districts and the hotbed for crimes after dark since nobody is outside on the streets.

Having experimented with this new trend for almost 20 years without solving some of the fundamental urban problems, it is about time to re-inspect the traditional treasures that we have always had. The following content demonstrates this effort in a design exercise for an urban super block in the City of Taipei.





## THE PROJECT

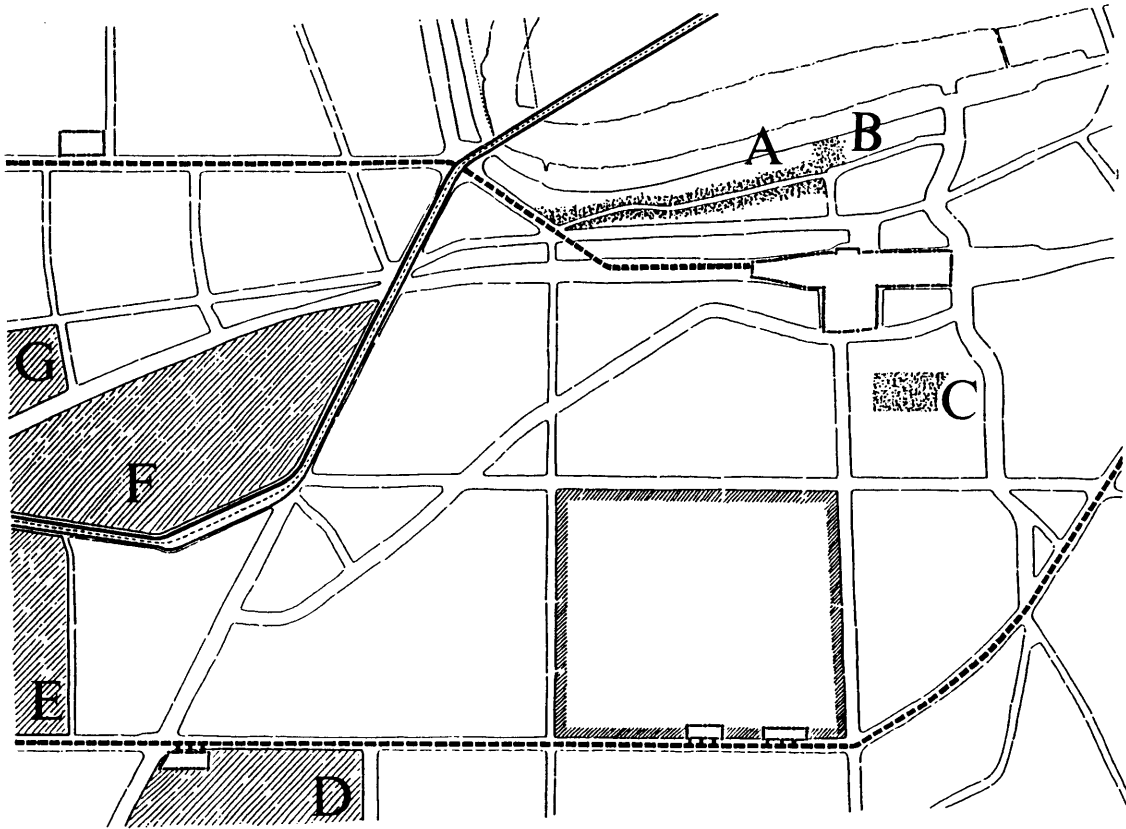


Fig. 4.1.1 *Redevelopment potential on Taipei's east side*

Scale: 1/15,000

## I. SITE SELECTION

From the preceding analysis we learn that there are a lot of similar blocks in the City of Taipei. I chose one super block in the eastern part of Taipei as my study site because of the following reasons:

### 1. Geographical Significance:

This super block is located at the eastern end of the city where the urban grids meets the natural boundaries, i.e., where the rational system is broken by the topography. This super block is the last one with an integral physical form in the eastern part of the city. (Fig. 3.1)

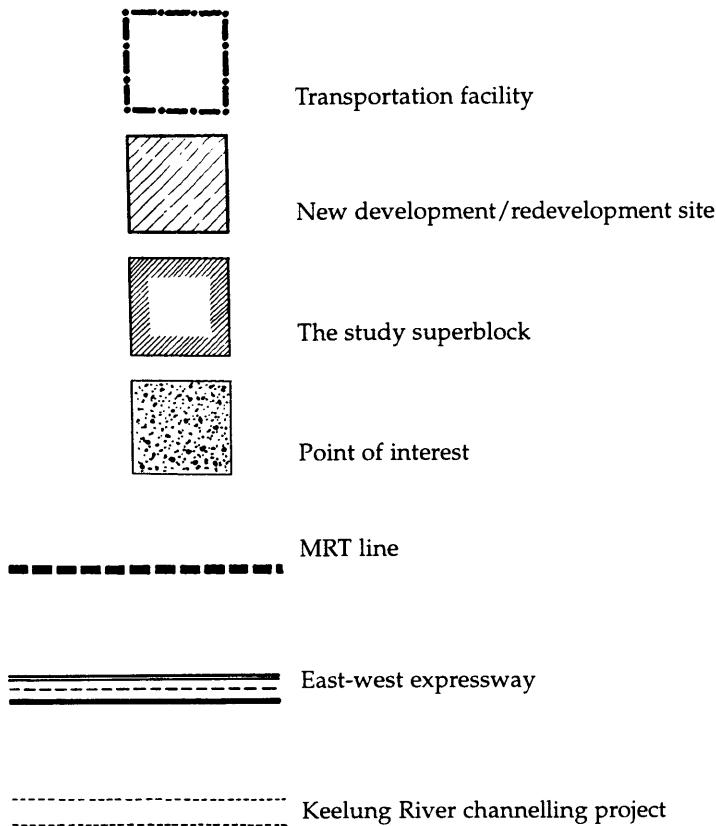


Fig. 4.1.1 Legend

## 2. Redevelopment Potential:

Since the city started on the west side and expanded eastward much later, this super block is far less developed than other western ones and its current density is below the city's average, too. But development pressures are mounting with infrastructure improvements. Accessibility to the immediate area is increased by the expansion of the east-west expressway, and by the building of the Metropolitan Rapid Transit system (a station is planned for the edge of this super block), and the newly proposed Sun-Shan transportation hub nearby. (Fig. 4.1.1)

## 3. Typological Features:

The selected super block comprises a dominating grid road system and a winding market street. Both networks are part of a larger structure that contains formal and informal typologies. (Fig. 4.1.2) This balance within the site makes it more representative as one of the typical Taipei super block and the mixture of typologies makes the study more interesting.

## 4. Proximity to Other

Development/Redevelopment Sites and Points of Interest. Surrounding the superblock, moving counter-clockwise, are located: (Fig. 4.1.1)



Fig. 4.1.2

Street network and spatial structure in the Sun-Shan area

Scale: 1/15,000

**A.** Rao-Ho Street night market, a famous, city-wide, night market street both for the city residents and tourists.

**B.** Tse-Yo Temple a Taoism temple that's more than 200 years old.

**C.** a wholesale garment district where merchants from all over the city purchase their stock.

**D.** Shin-Yi Development Area

**E.** Sun Yat-Sen Art District, a site is currently occupied by the Tobacco and Wine Monopoly Bureau. With the abandonment of the monopoly system, this land will soon be available for development. The city has proposed cultural and art facilities for the site.

**F.** Rail yard redevelopment project. The rail yard has become developable land after the railroad tracks were relocated underground few years ago. The city proposes a large-scale commercial and open space development on the site.

**G.** Jing-Hwa commercial development district; an extensive financial and commercial complex, Wei-Jing Project, is proposed for the site, which is owned by the Taiwanese financial company Jing-Hwa Cooperation.



This is an ideal site to demonstrate that traditional urban form and urban design principles applied to the contemporary city would generate a much higher quality of life by connecting the past with the present and the future. The currently typical "modern" approaches fail to provide a sense of continuity of urban form and urban life.



Fig. 4.2.1.1 Study superblock base map

Scale: 1/6,000

## II. SITE ANALYSES

In this section, diagrams are used to explore different layers and aspects of urban information contained in the study superblock. These readings serve as the foundation upon which the re-design proposals are based.

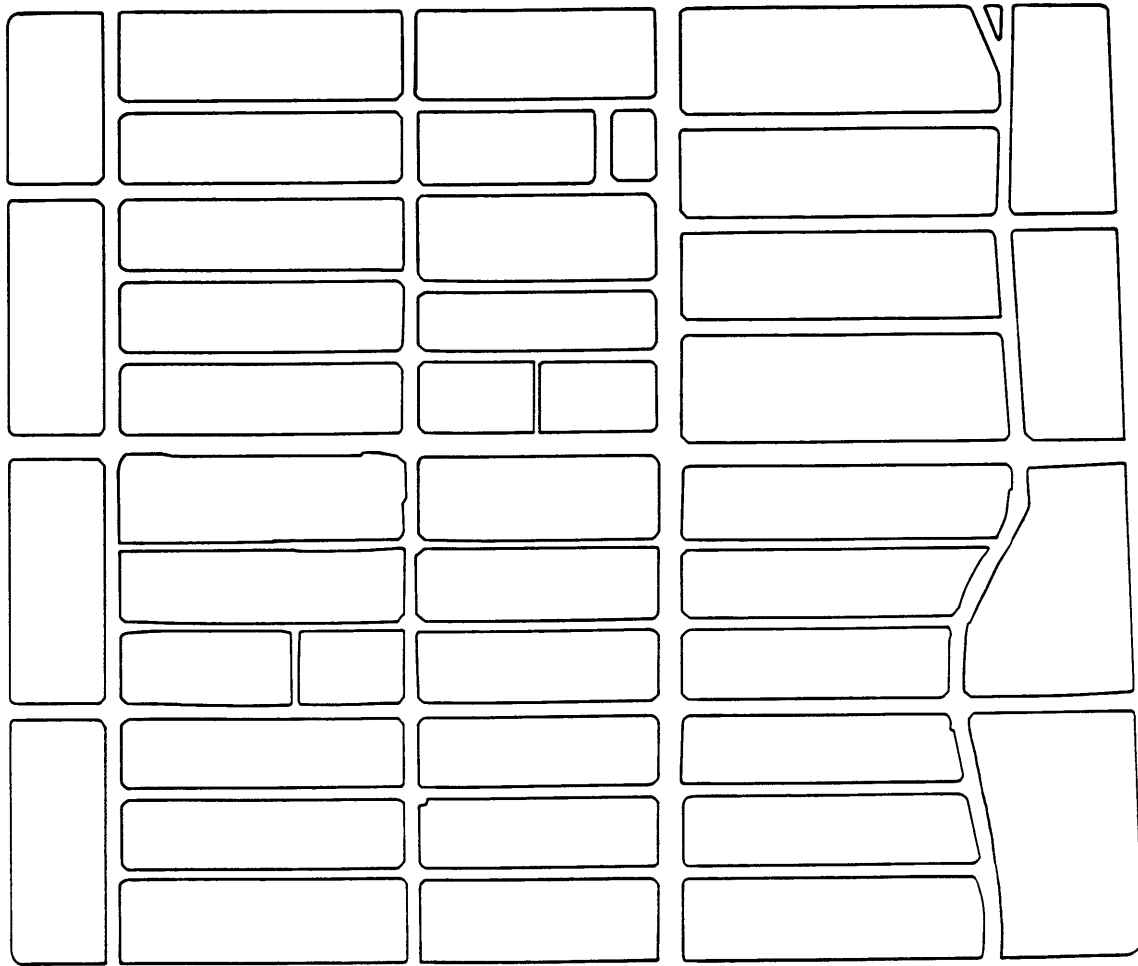


Fig. 4.2.1.2 Base drawing of blocks

Scale: 1/4,000

### 1. The Super Block Today:

(Fig. 4.2.1.1, 4.2.1.2, 4.2.1.3, 4.2.1.4)

The site is a microcosm of a much larger grid system which organizes the city. Divided into four quadrants by a pair of major interior cross streets, the super block is then cut into smaller rectangular blocks with an east-west direction. These blocks range in size from 35m by 120m to 45m by 150m in the "core" and 45m by 110m to 55m by 150m

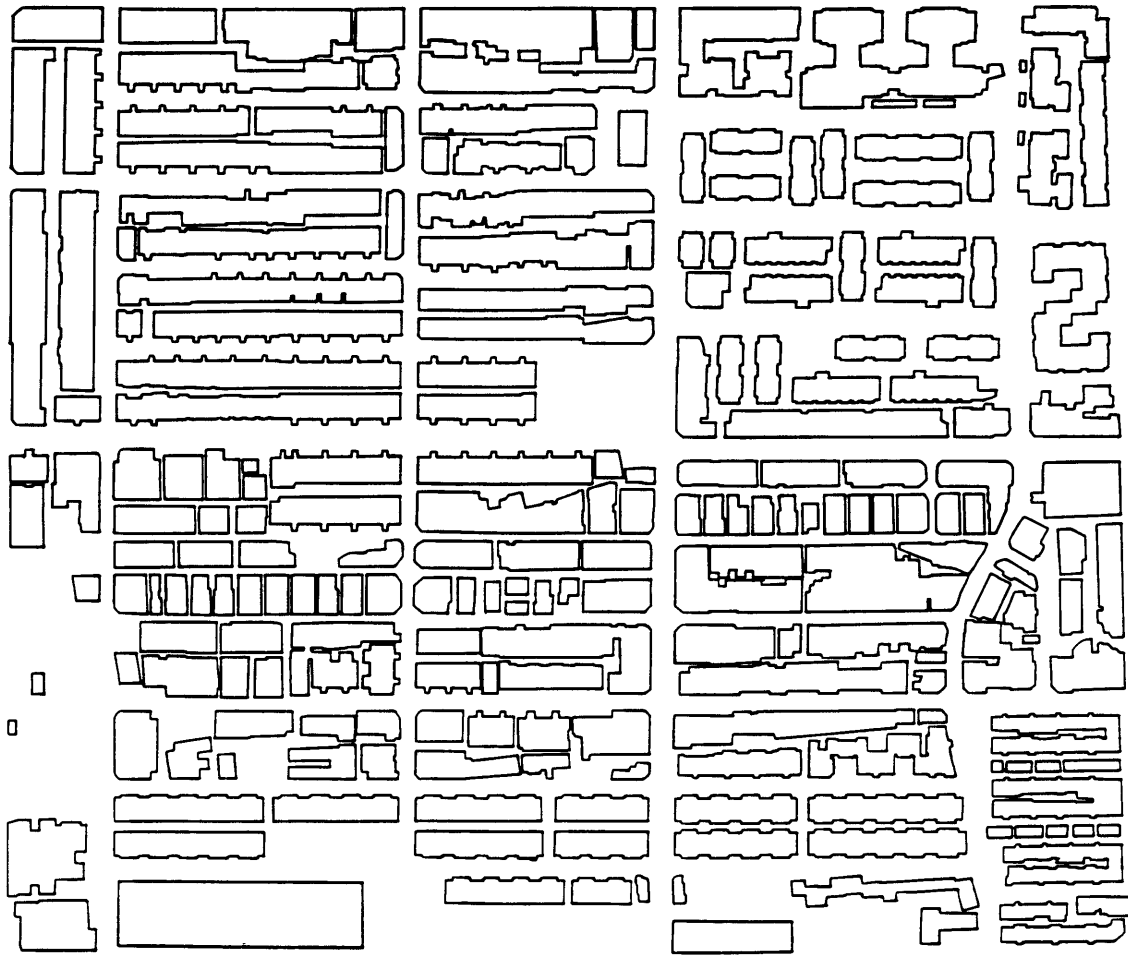


Fig. 4.2.1.3 *Base drawing of building footprints*

Scale: 1/4,000

at the "edge". The depths of the core blocks provide enough space for two rows of residential buildings separated by a narrow alleyway, so that each building enjoys the preferred north/south orientation and benefits from front and back access. At the edges, the block depths are very often 10m larger, providing enough room for larger-scale or

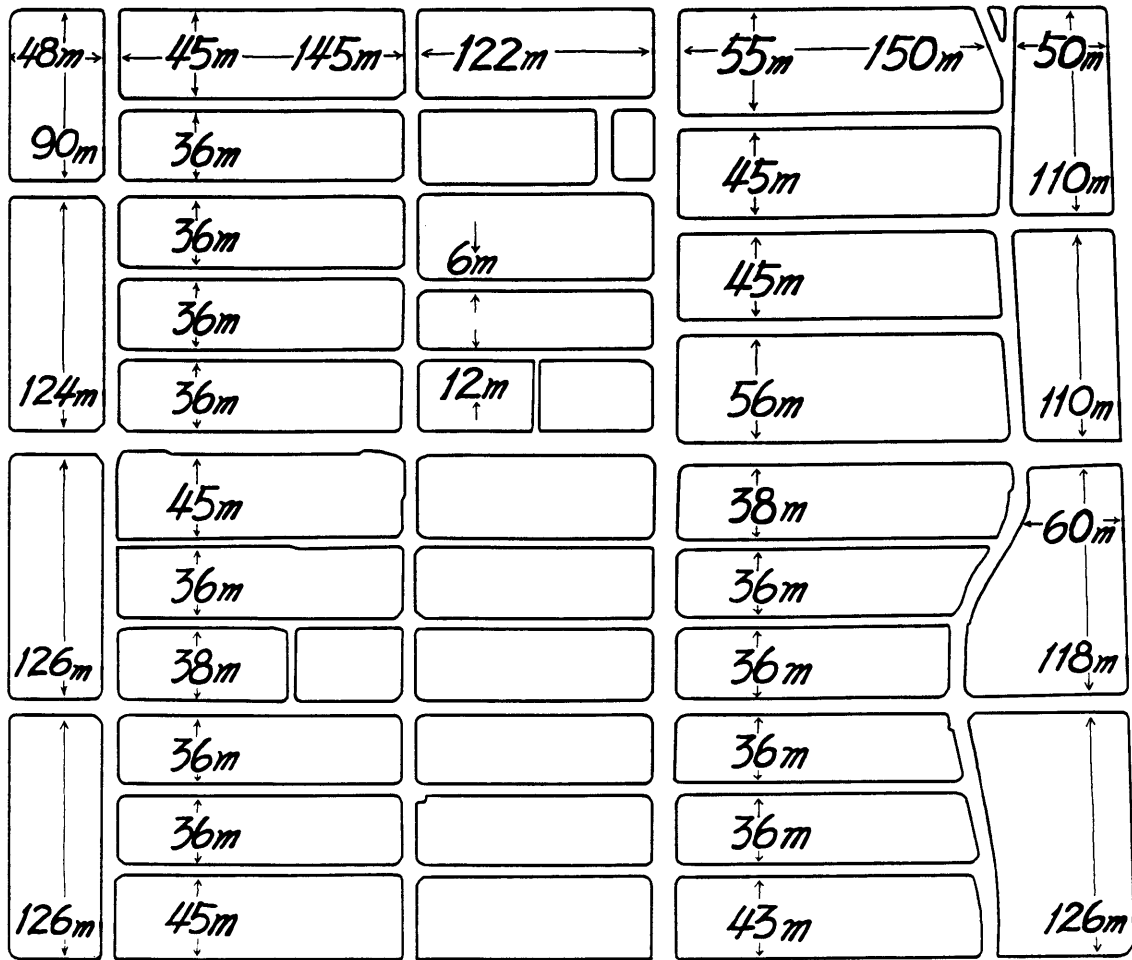


Fig. 4.2.1.4 Individual block sizes

Scale: 1/4,000

higher-rise development. The blocks on the periphery therefore form a band of larger buildings that wraps around the block and separates the core from the outside of the block.

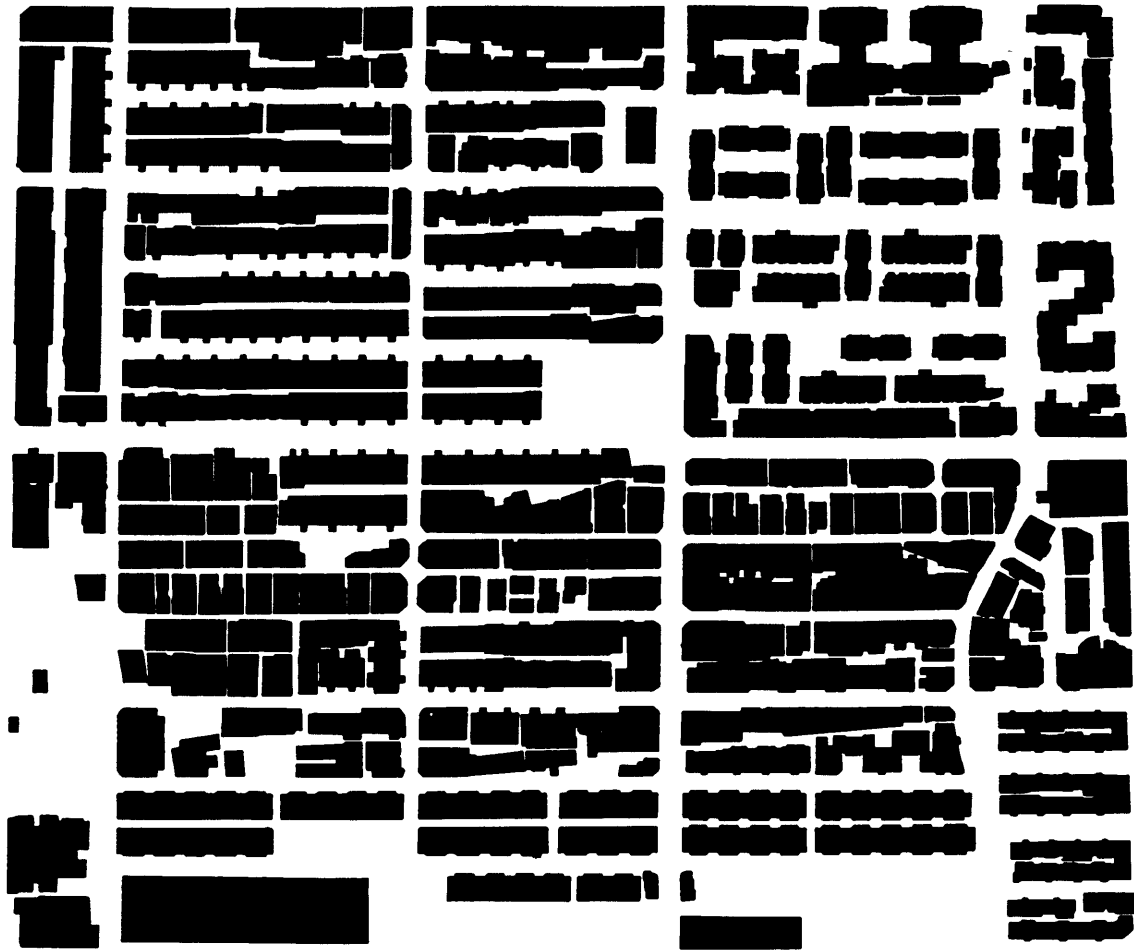


Fig. 4.2.2.1 *Figure ground*

Scale: 1/4,000

## 2. Figure Ground Readings:

(Fig. 4.2.2.1., 4.2.2.2)

The figure-ground drawing illustrates that some “new trend” development has already taken place in the corners of the north-eastern quadrant. These articulated buildings cut the unbuilt areas into scattered spaces, which function more like light wells for these high-rise towers than neighborhood places. The inner part of the north-eastern quadrant and most of the north-western quadrant are both occupied by long rows of apartment buildings. The circu-

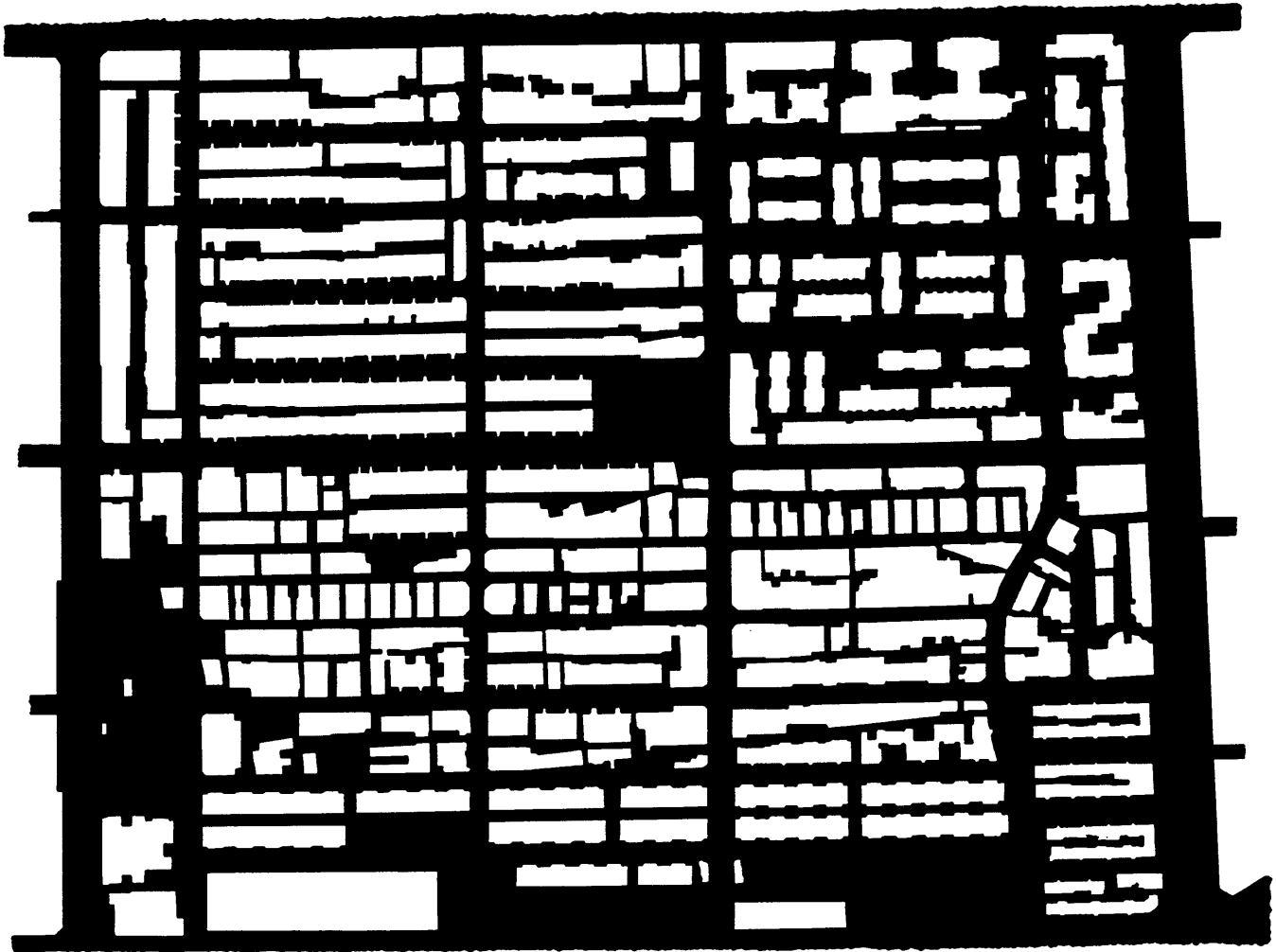


Fig. 4.2.2.2 *Reverse figure ground*

Scale: 1/4,000

lation cores very often protrude out of the long rectangles and invade the integrity of the linear spaces in front of them. These long boxes always run east-west and turn their sides to the north-south streets. The back lanes between two built bands are too narrow and long in proportion that the ground level residents either block them and build illegal encroachments to claim the land and to discourage any possible through-traffic;

in other words, these back alleys were never used as real "places." In the two southern quadrants, the urban fabric gets finer and more interesting with various types of spaces and built forms. The location of social gathering places becomes evident. However, certain paths get too fine in scale that they become useless.

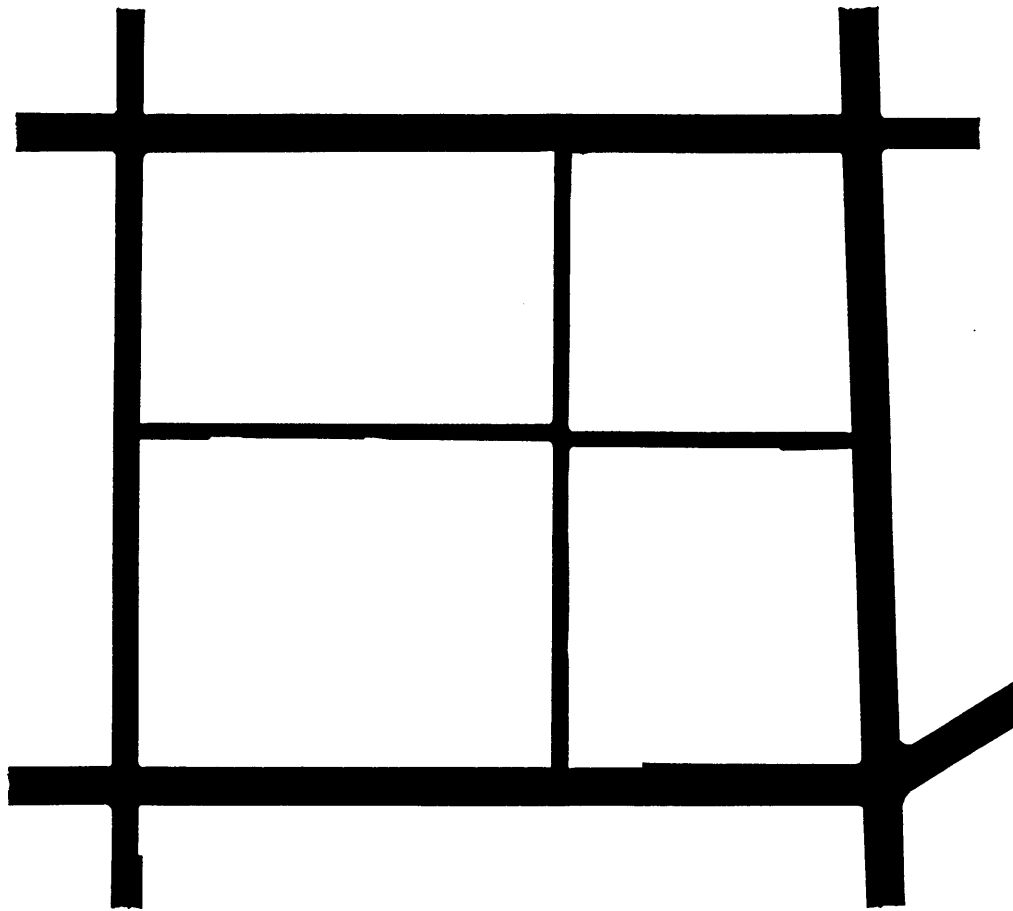


Fig. 4.2.3.1.1 *The first and second hierarchy of superblock paths*

Scale: 1/6,000

### 3. Street Structure and Hierarchy:

The previous section illustrates the important role played by different hierarchies of streets and paths in organizing and structuring the city. From the following diagram analyses, I find there are roughly four levels of paths which vary in scale and functions.

The highest level comprises paths that provide city-wide vehicular access to the super block. These thoroughfares also define the boundaries of a super block and generally have a width of 30m. (Fig. 4.2.3.1.1)





*Fig. 4.2.3.1.2 The secondary east-west path in the superblock*

The second level in the hierarchy of paths describes the through-traffic streets within the super block. They also provide access to the four quadrants. They very often form the skeleton of a super block and divide it into smaller sections—in this case the quadrants. These major inner streets of the study site have a width of 12m. (Fig. 4.2.3.1.1, 4.2.3.1.2)

Streets that divide the individual blocks within a super block comprise the third level in the hierarchy of paths.

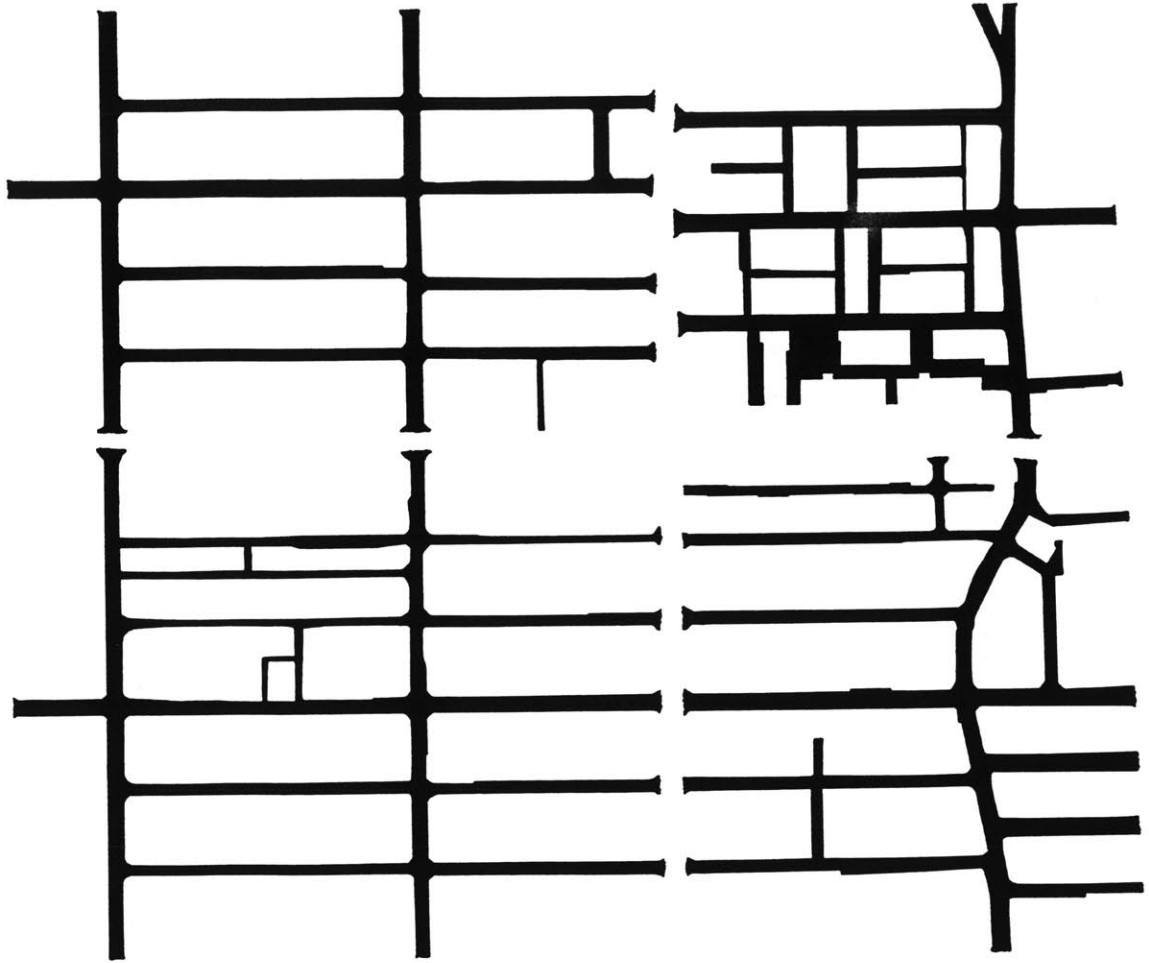


Fig. 4.2.3.2.1 *The third hierarchy of superblock paths*

Scale: 1/4,000

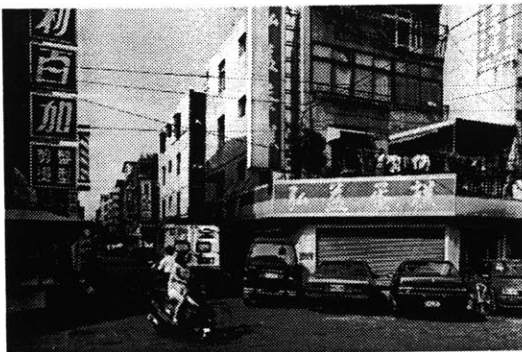


Fig. 4.2.3.2.2 *A third-hierarchy street intersection*

They are service streets for the commercial "edge blocks" or neighborhood streets for vehicular circulation, including cars, mopeds, bicycles, and pedestrians. They are very often 5m to 8m wide. (Fig. 4.2.3.2.1, 4.2.3.2.2)

Finally, the back alleys between the buildings within one block comprise the fourth category. They are alleyways for pedestrian, bicycle, sometimes moped circulation. The alleys also func-

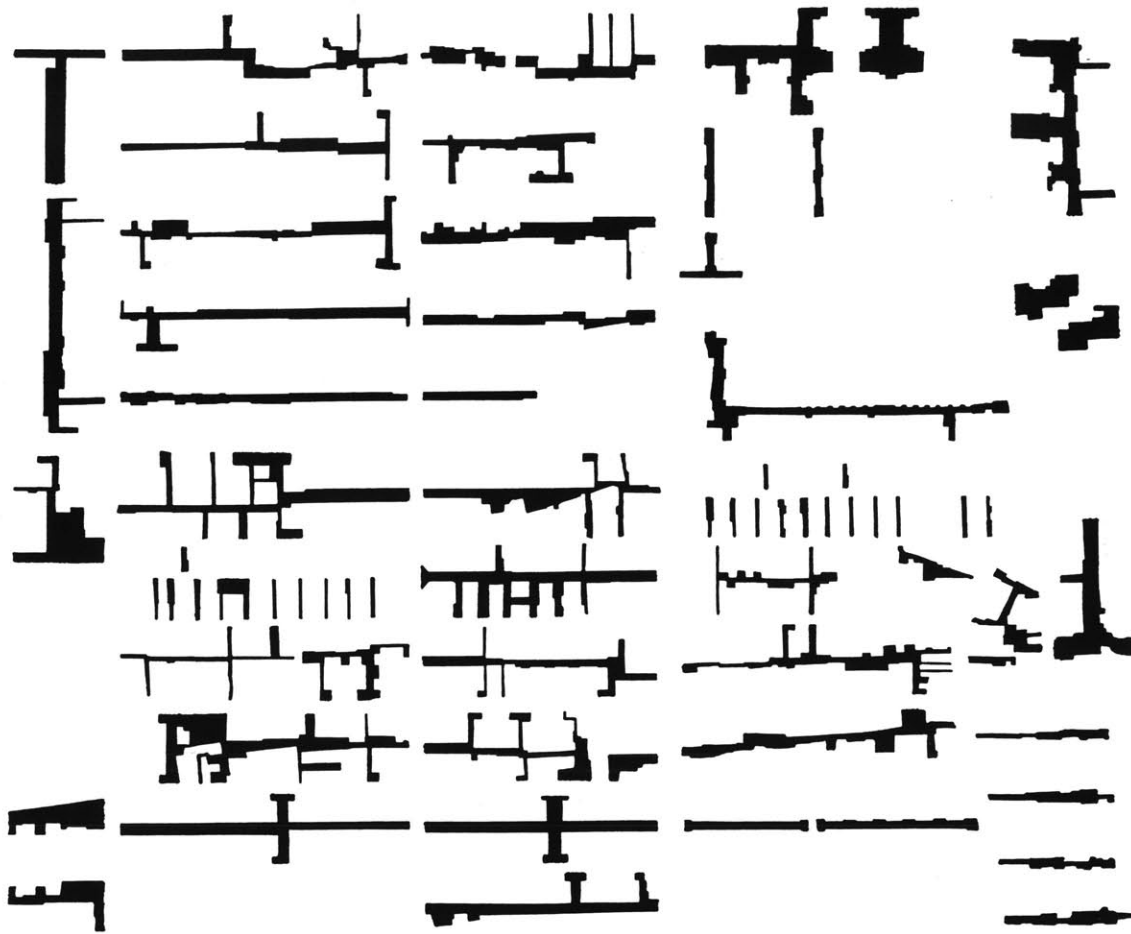


Fig. 4.2.3.3.1 *The fourth hierarchy of superblock paths*

Scale: 1/4,000

tion as semi-private spaces for service locations (for example laundry facilities), as informal neighborhood gathering places, and as children's playground. The width varies from less than 1m to 5m. (Fig. 4.2.3.3.1, 4.2.3.3.2)

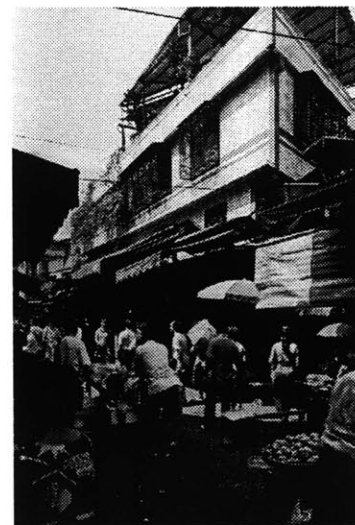


Fig. 4.2.3.3.2 *An alleyway used as a market place*

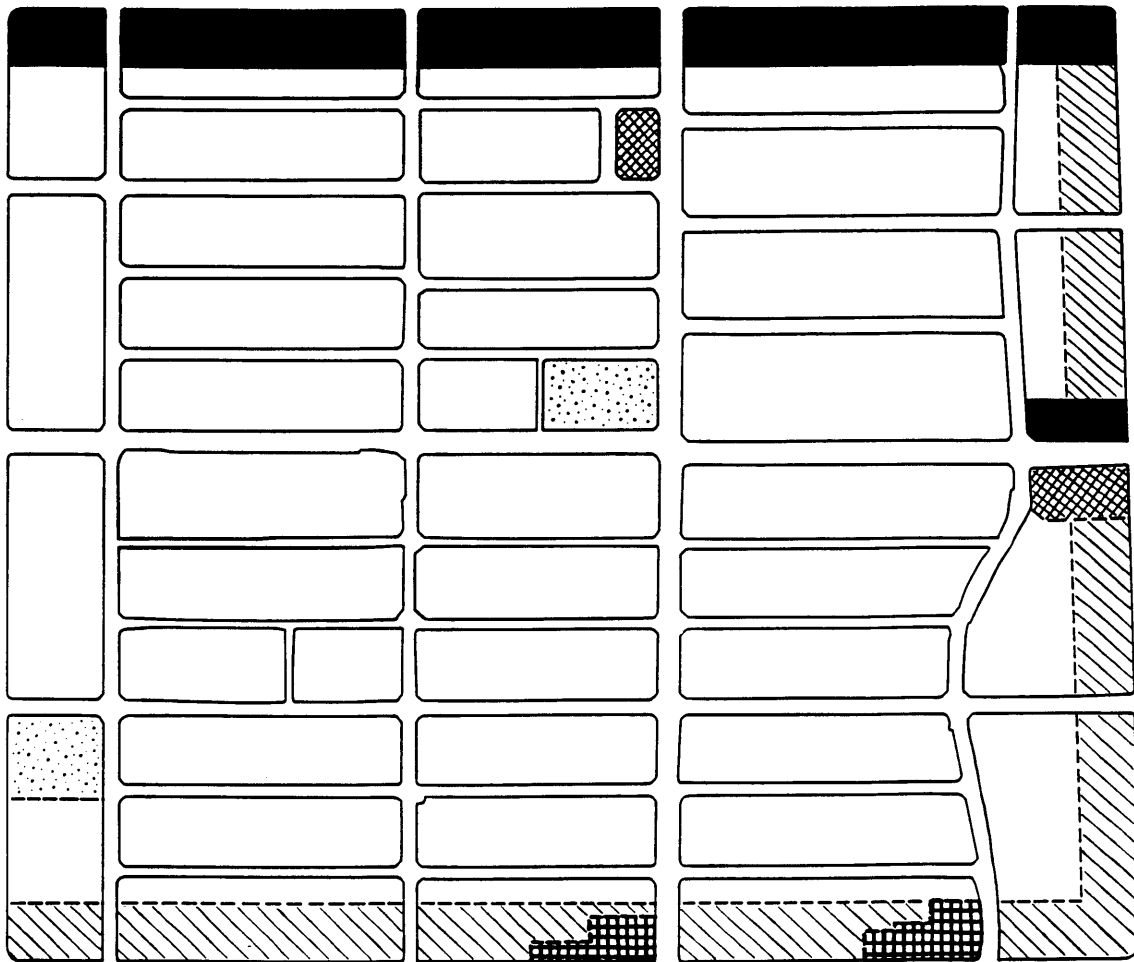


Fig. 4.2.4.1 Official zoning and land uses

Scale: 1/4,000

#### 4. Official Versus Actual Uses:

(Fig. 4.2.4.1, 4.2.4.2)

According to the "Taipei Urban Planning Zoning Map"<sup>1</sup>, only a long strip on the north edge of the super block is zoned for commercial uses. The east and the south edges are residential 3-1<sup>2</sup>, with the exception of small parcels zoned for commercial, market, and transportation uses (the future MRT station exits). Within the core of the super block, two areas of green space and one market place are designated; the rest is exclusively intended for residential uses.

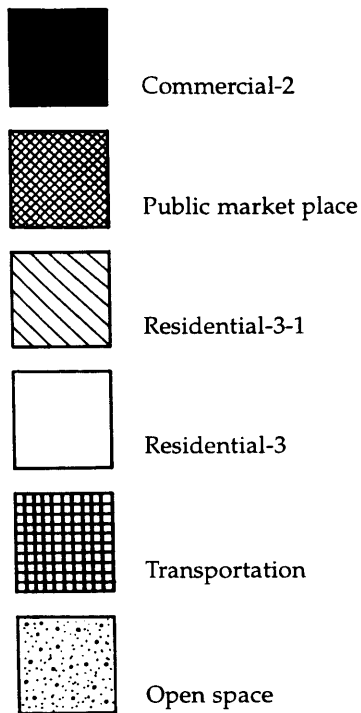


Fig. 4.2.4.1 Legend

But the current situation presents a very different pattern compared to the official zoning map. Today, city-wide commercial uses located mostly on the southern edge of the block to take advantage of future accessibility improvements

there due to the new MRT station. The district-wide commercial activity is located on the northern and eastern edge. It penetrates into both the east-west street

1. Urban Planning Committee of Taipei, Taipei Urban Planning Zoning Maps, (Taipei: Taipei Municipal Government Employees' Cooperative Society, 1993). My translation of author's name and book title.  
 2. For detailed information, refer to "Table of Zoning" and "Use Groups and Zones" in Appendix IV, Regulatory Frameworks in the City of Taipei.

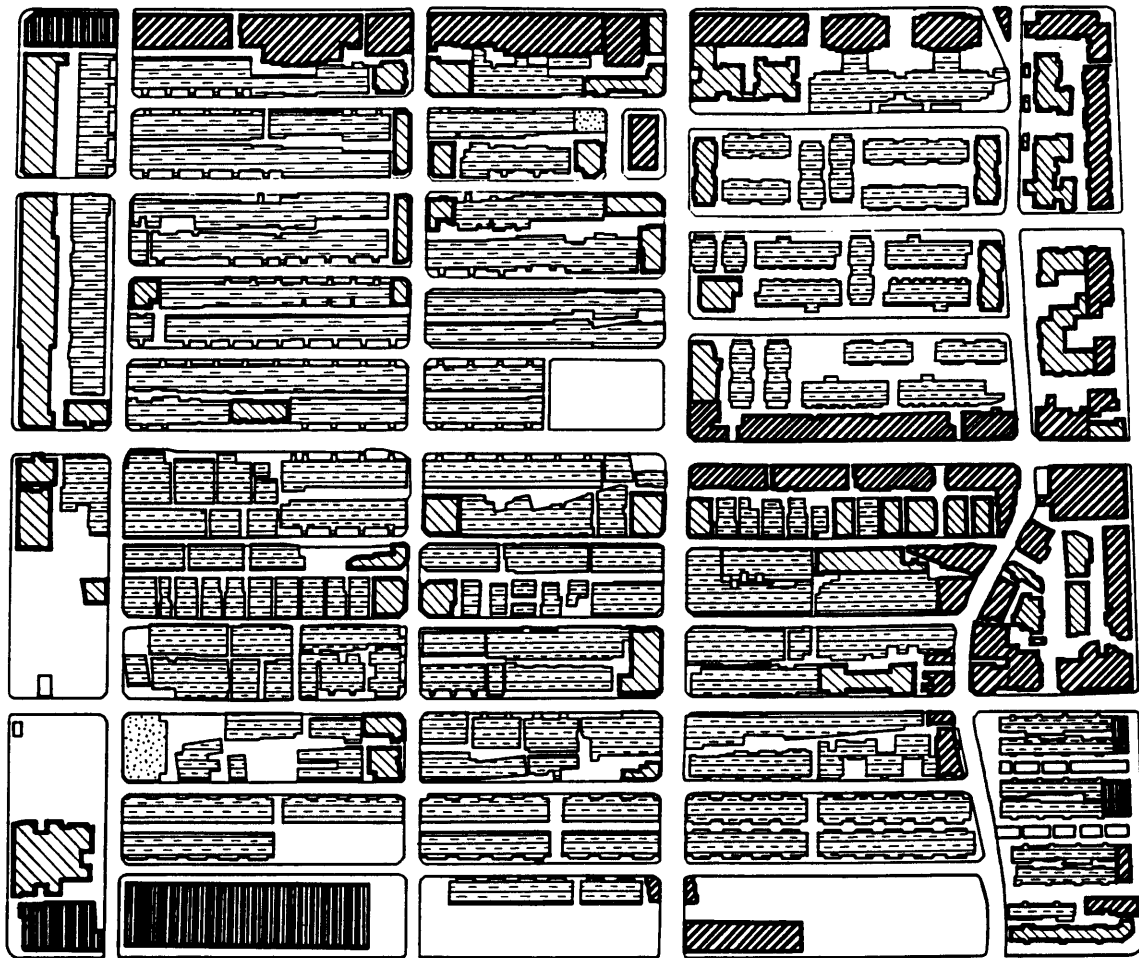


Fig. 4.2.4.2 *Actual land uses*

Scale: 1/4,000

and the north-south informal market street inside the super block. Neighborhood stores and services are clustered at the corners where inner streets intersect. They are also found along the major interior streets of the block.

There is a close relationship between the existing uses and the different street types on which they are located. The wider a street is, or, the more

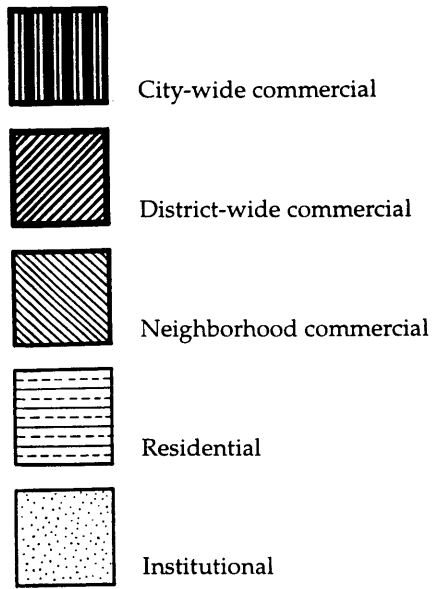


Fig. 4.2.4.2 Legend

traffic volume it carries, the greater the commercial activity expected there. Whereas the narrower a path is, the more it is characterized by private and social neighborhood uses.

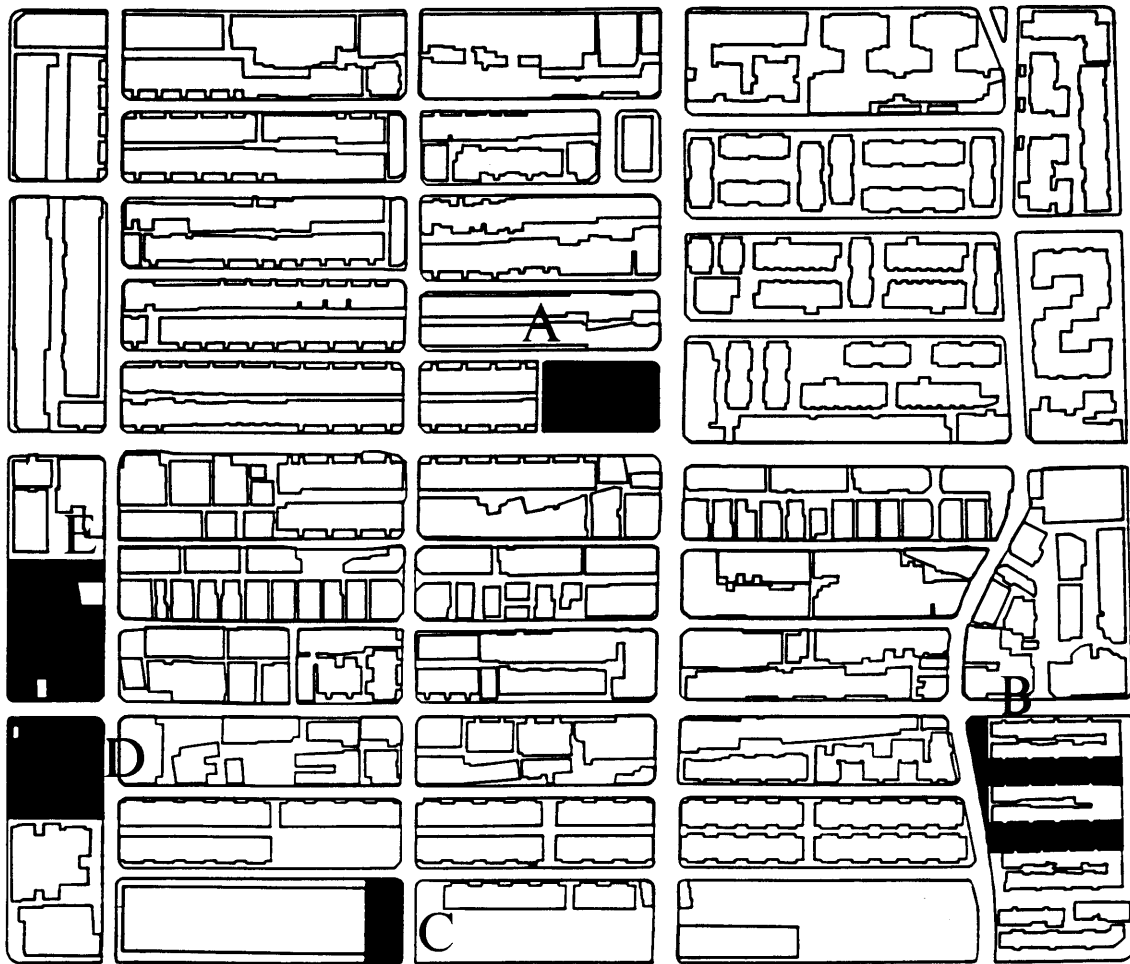


Fig. 4.2.5.1 Open spaces

Scale: 1/4,000

## 5. Spaces, Circulation, and Parking:

(Fig. 4.2.5.1, 4.2.5.2)

There are very few public open spaces located within the super block. Only two areas, **A** and **D**, out of five are zoned and used as parks. Area **B** is a green space integrated with a housing project with public access. Area **C** is the required set-back for the large-scale department store next to it. Parcel **E** is zoned residential but currently used as a children's playground. There is no "network" of public open spaces and an "in-

between", semi-public system such as a series of arcades, is also missing here. I also suggest that given a fixed total area of public open space, a few large areas do not work as well as a series of smaller ones that are distributed throughout a super block.

The super block again shows representative characteristics of the city's circulation system. Most of the interior streets run east-west, only four of them follow a north-south direction.



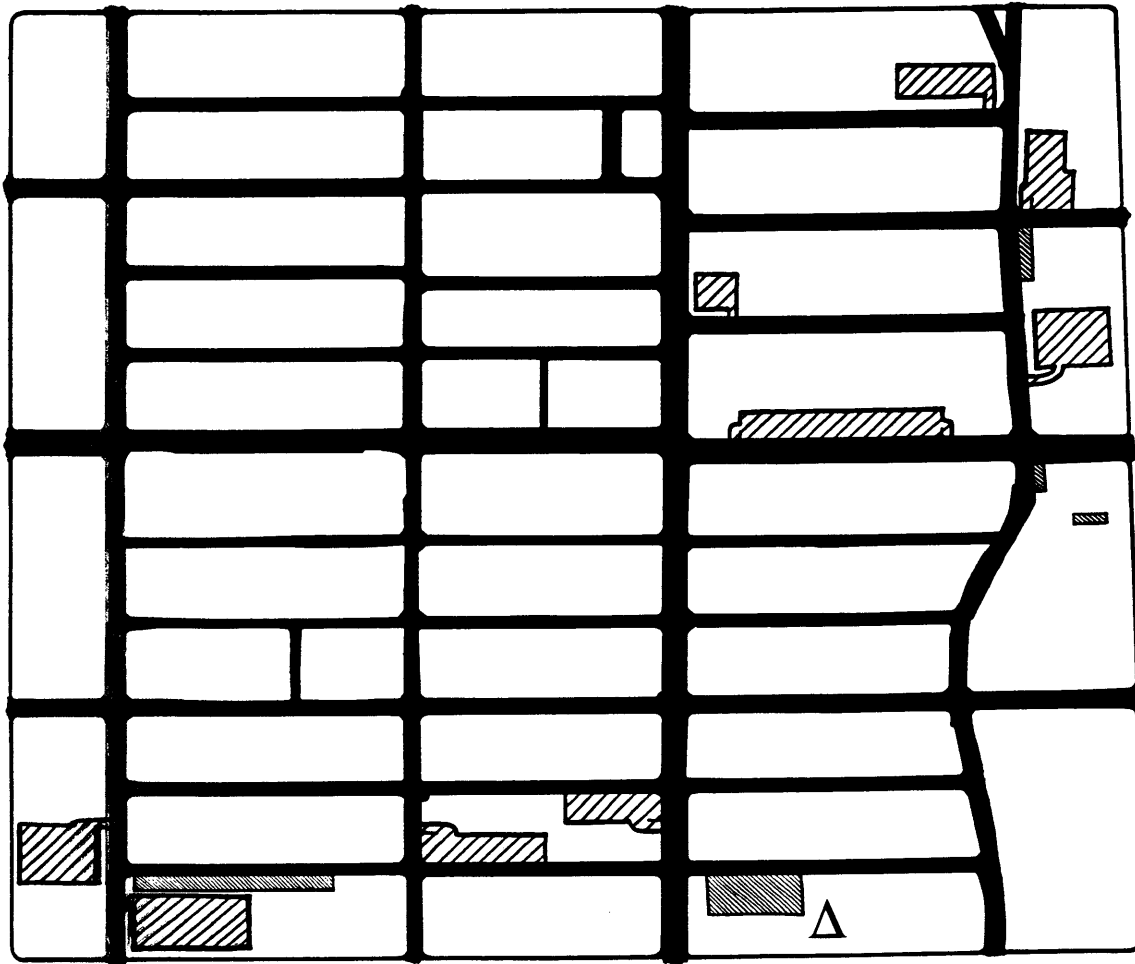


Fig. 4.2.5.2 Street system and parking facilities

Scale: 1/4,000

Parking facilities are extremely insufficient. Only nine underground parking garages exist on the site; together they do not offer enough parking spaces for the users of the buildings associated with the parking structures. No moped parking is seriously considered nor designed for. One on-surface parking area (Δ) is actually an empty lot where speculating developers are still waiting for the right moment to build.

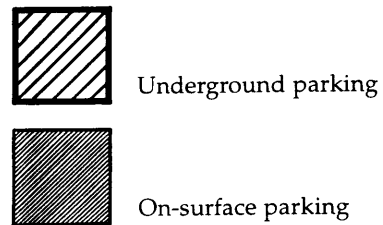


Fig. 4.2.5.2 Legend

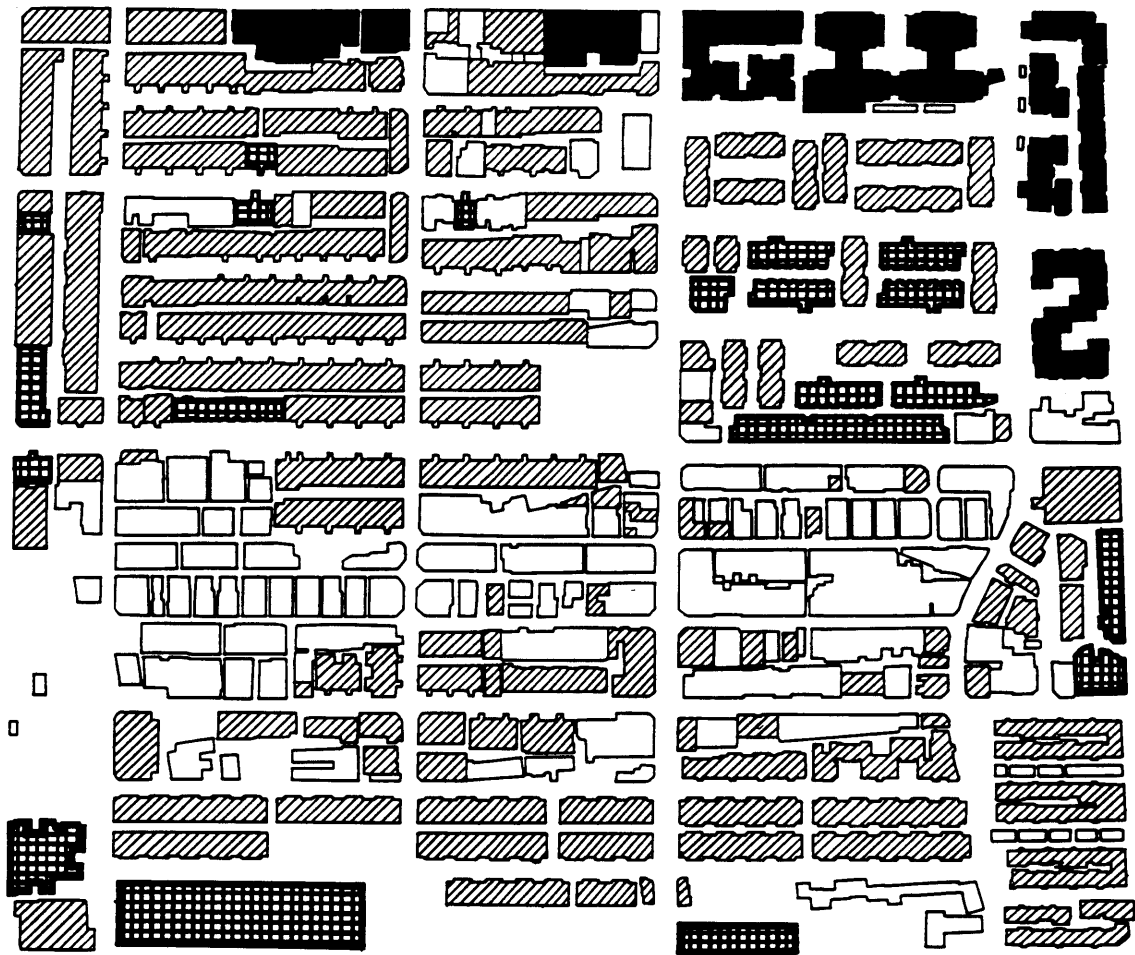


Fig. 4.2.6.1 Building heights

Scale: 1/4,000

#### 6. Building Height and Redevelopment Potential: (Fig. 4.2.6.1, 4.2.6.2)

The super block is occupied predominantly by mid-rise, four- to six-story buildings. However, different quadrants have various building height characteristics. The north-eastern quadrant has the highest density on the site. Its corners face city-wide thoroughfares and are defined by are built with 15 to 17 story high-rise apartment buildings. The interior part of the block is occupied by a public housing project with building heights ranging from five to seven sto-

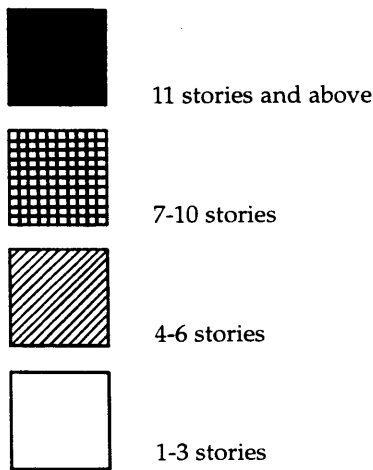


Fig. 4.2.6.1 Legend

ries. The south-eastern quadrant consists of roughly 50% mid-rise buildings, 40% low-rise (less than three stories), and 10% five- to seven-story buildings on the periphery. The south-western quadrant shows the lowest density in the super block with many older buildings (built in the late sixties and early seventies) that are only two or three stories high. Its southern edge, however, is lined with two rows of public apartment buildings, and since early 1995, a newly erected

department store. The latter is strategically located in close proximity to the new MRT station to capture additional customers. The north-western quadrant has a very homogeneous fabric and physical profile dominated by four- to six-story, rectangular apartment buildings with extruding vertical circulation shafts.

An appraisal of areas with redevelopment potential areas is shown on the "hard-soft" diagram. The "softer" a building, the more likely it is to be rede-

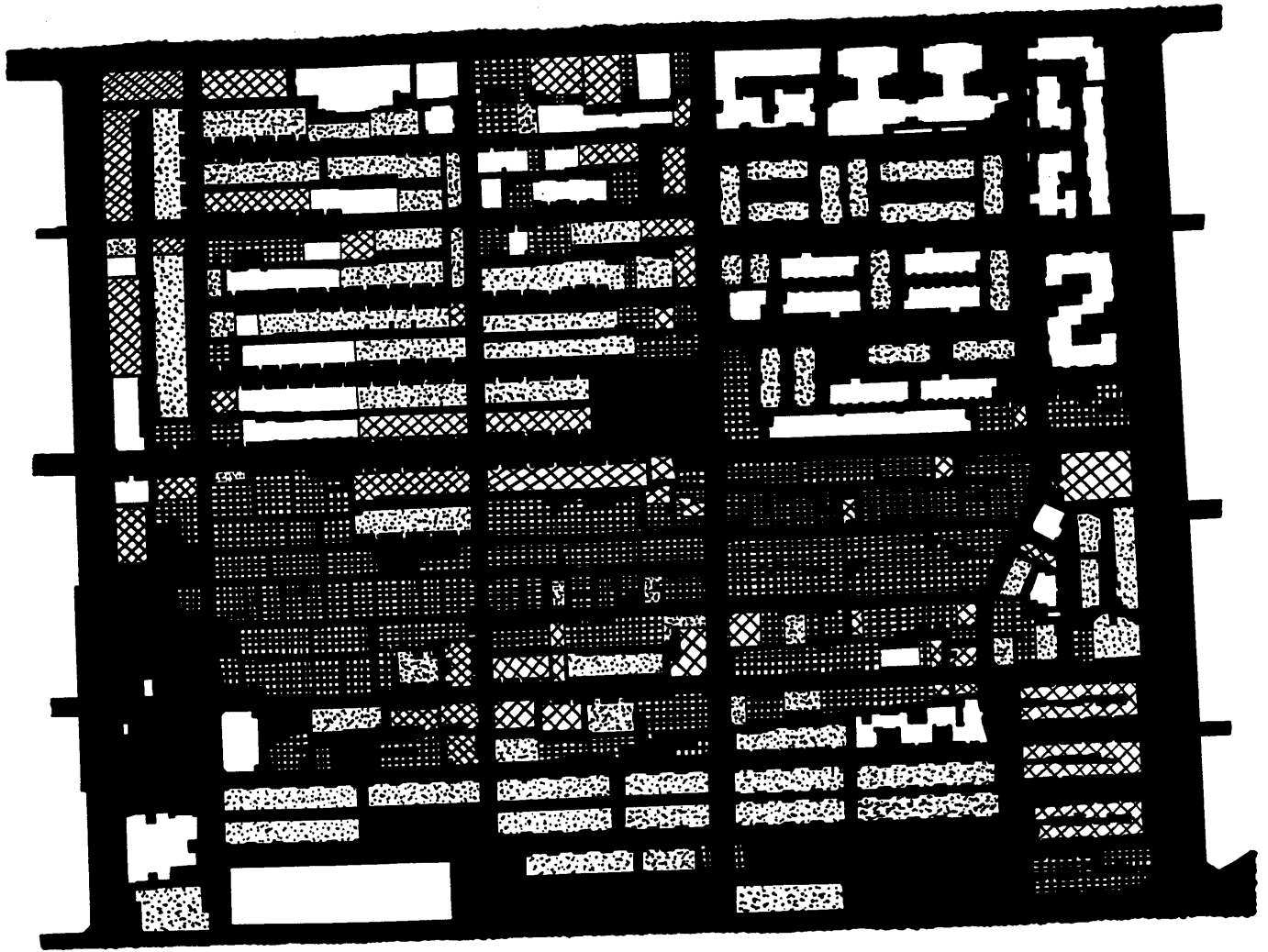


Fig. 4.2.6.2 *Hard/soft diagram*

Scale: 1/4,000

veloped in the near future. The criteria for softness (i.e. near-term redevelopment) are as follows:

1. the age of a building—the older structures are more likely to give way to new development;
2. the height of a building—the lower ones, especially the ones with fewer than four stories, are likely to be rebuilt to absorb projected higher density and to generate enough sales revenue to pay for the construction costs;
3. the location of a building—the closer a building is located to a wider street, the

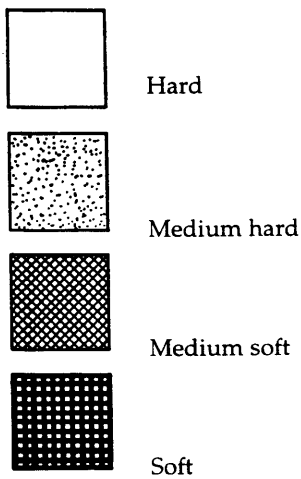


Fig. 4.2.6.2 Legend

greater its potential for redevelopment;  
 4. the feasibility of acquiring land—easier acquisition of land renders redevelopment more attainable.

As a result, the high-rise, edge buildings are the “hardest” and the ones in the south-western quadrant are the “softest”. Mid-rise apartment buildings and public housing structures are “medium-hard” to “medium-soft,” depending on their location and associated land acquisition issues.

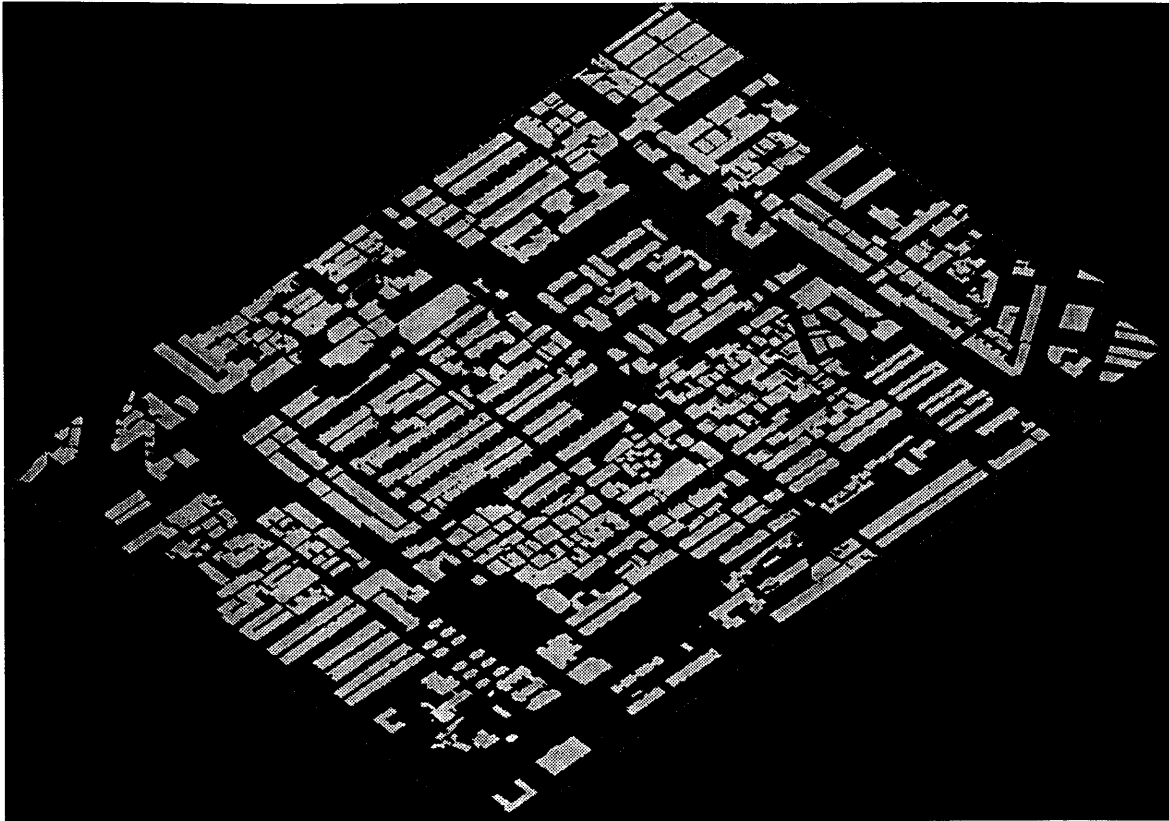


Fig. 4.2.7 *Axonometric*

7. The Super Block in Three Dimension:  
(Fig. 4.2.7)

In conjunction with the two-dimensional analyses presented above, the digital model facilitates a three-dimensional understanding of the study site.



### III. PRECEDENTS

This section analyzes several precedents from abroad to determine the strength and weaknesses with respect to their applicability in Taipei. Other parts of the thesis assess traditional Taiwanese urban form components, the new trend in development strategies, and various layers of information for the selected superblock.

#### 1. Urban Blocks in Manhattan, New York: (Fig. 4.3.1)

The strengths of the Manhattan grid system lies in its uniform configuration throughout the city and in the flexi-



Fig. 4.3.1 Urban blocks in Lower East Side, New York, NY

bility inherent in the particular lot arrangement for each block. The Taipei grid system may adopt both of these characteristics.

The size of a typical Manhattan block is 200ft by 800ft (roughly 61m by 244m), with lots measuring 25ft by 100ft (roughly 7.6m by 30.5m). All lots are oriented north-south. Street frontage per lot is limited to one of the two 25-foot sides. On the east and west block faces the lots always turn 90° to create another street front that faces the north-south Avenues of the city.

Although these lots were originally laid out for town houses, row houses,



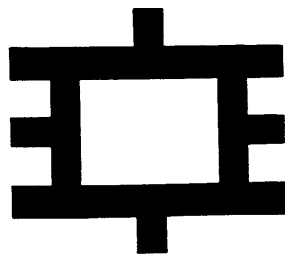


Fig. 4.3.2.1 Street pattern in Savannah, GA

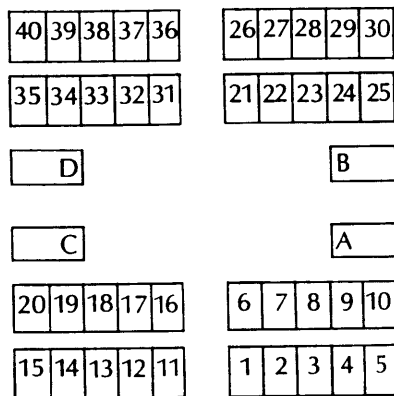


Fig. 4.3.2.2 Distribution of town lots in Savannah, GA

or apartment buildings, developers may acquire several lots and build a large-footprint, high-rise building in the later redevelopment process, usually facing the avenues. Institutional buildings such as churches also find an easy fit in this type of block and lot structure. This flexibility adds variety to redevelopment but at the same time, provides a uniform framework; together these contribute to the vitality of urban life.

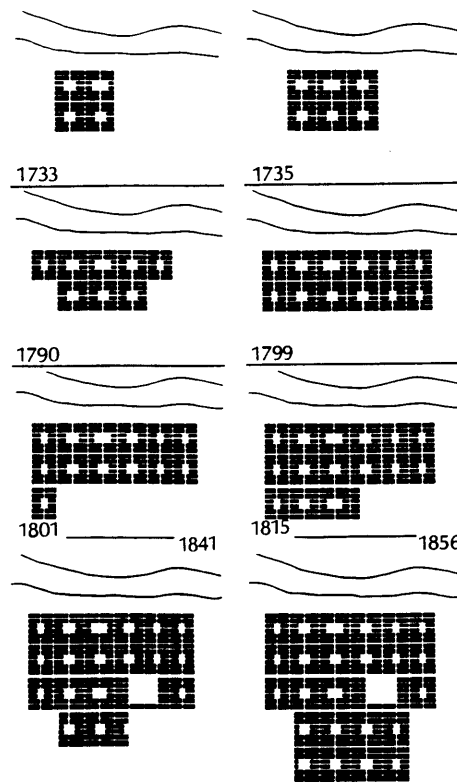


Fig. 4.3.2.3 The growth of Savannah, from 1733 to 1856

## 2. Residential Squares in Savannah, Georgia: (Fig. 4.3.2.1, 4.3.2.2, 4.3.2.3)

The genius of the Savannah square lies in its simple form, which combines landscaping and traffic considerations in a high-quality residential environment.

These open green spaces “‘have no monumentality. They are too small and too separate. They are certainly no benefit to modern through traffic. But they create pools of light in the geometry of a grid-iron plan.’ and: ‘The square by



Fig. 4.3.3.1 *Figure ground of Beacon Hill, Boston, MA*

Scale: 1/6,000

frequent repetition becomes an integral part of the street pattern and creates a series of rhythmically placed openings which give a wonderful sense of space in a solid built townscape.' As Feiss contends, the square itself is small yet it is of peculiarly suitable dimensions...".<sup>1</sup>

The key to success of Savannah's urban structure is captured by the moderate scale of the squares and their rhythmic repetition, simple but functional street pattern, and the repeatability of residential squares. Furthermore, these characteristics contribute to the quality of

urban life in these squares. The squares are not simply a series of spaces, but generate vital "places."

### 3. Beacon Hill and Back Bay, Boston: (Fig. 4.3.3.1, 4.3.3.2)

The fine-grain and complex fabric in Beacon Hill, and the continuous street front with back alleys in Back Bay, are the distinguished features considered very desirable.

The preservation of Beacon Hill's urban structure is not only the result of historical accumulation, but also derives

1. Historic Savannah Foundation, Incorporated, *Historic Savannah*, (Savannah, Georgia: Historic Savannah Foundation, Incorporated, 1968), p. 45.



Fig. 4.3.3.2 Figure ground of Back Bay, Boston, MA

Scale: 1/6,000

from a very careful regulatory framework that ensures and protects the urban form, including the scale of architectural elements. Design guidelines have been developed for the preservation of its most important characteristics.

The dimensions of the blocks in Back Bay range from 200ft by 500ft to 200ft by 800ft (roughly 61m by 152m to 61m by 244m). The uniform, continuous street fronts do not only provide pleasant urban street scapes, but also make possible a wonderful experience of procession. The landscaped central spine of

Commonwealth Avenue, Back Bay's core, further reinforces this experience.

The back alleys between two rows of buildings are used as service and parking lanes. Some of them are wide enough to accommodate attachments to the existing town houses. These amenities include balconies, small porches, and decks.

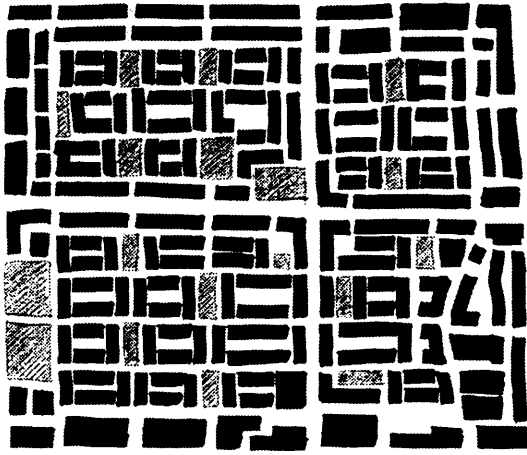


Fig. 4.0.1 *Figure ground of Scenario I*  
Scale: roughly 1/8,750

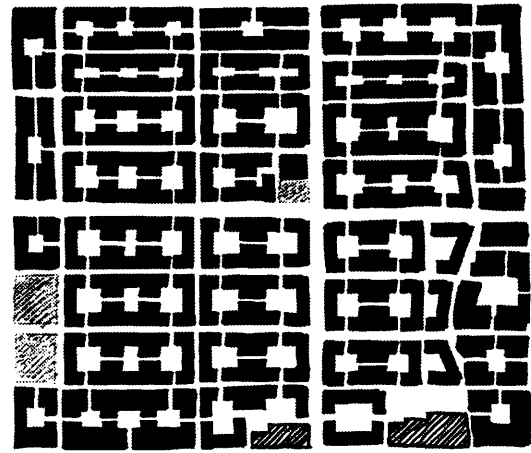


Fig. 4.0.2 *Figure ground of Scenario II*  
Scale: roughly 1/8,750

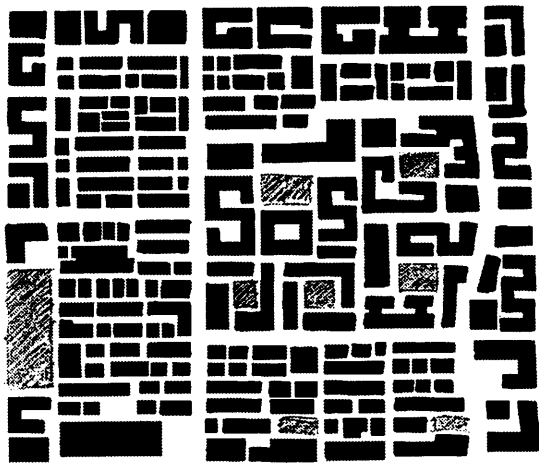


Fig. 4.0.3 *Figure ground of Scenario III, IV*  
Scale: roughly 1/8,750

#### IV. REDEVELOPMENT SCENARIOS

This section presents a series of preliminary design exercises that put certain generic ideas of urban form to the test. The analysis uncovers opportunities and drawbacks of historical precedents if they were to be implemented in the City of Taipei. The study superblock is assumed to be representative of other similar blocks in Taipei. (Fig. 4.0.1, 4.0.2, 4.0.3, 4.0.4, 4.0.5)

The criteria by which to judge the strengths and weaknesses of these rede-

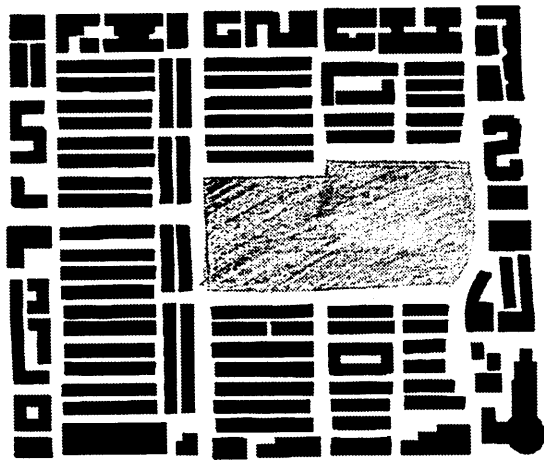


Fig. 4.0.4 *Figure ground of Scenario V*  
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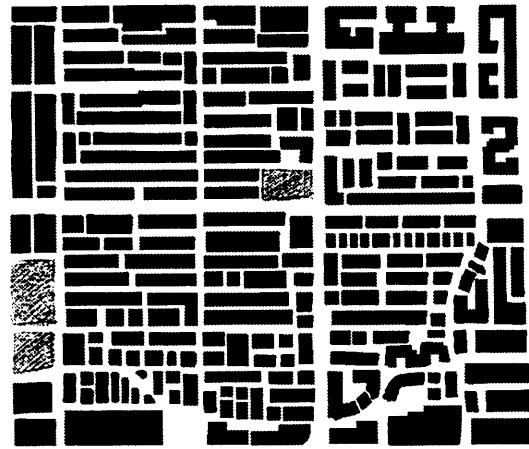


Fig. 4.0.5 *Figure ground of Scenario VI, VII*  
Scale: roughly 1/8,750

velopment patterns are: 1. Livability; whether they address the future needs in responding to the current inadequacies by strategically adopting selective examples of traditional urban form. 2. Flexibility; whether these patterns offer the opportunity for a fine-grain, complex urban fabric that allows various redevelopment possibilities. 3. Feasibility; whether they establish a sustainable redevelopment model satisfying both economic and regulatory requirements.

Definition of terms used in this discussion:

I have labeled the entire study area a SUPER BLOCK; the four sections divided by the major cross streets within the superblock are called QUADRANTS; the smallest unit surrounded by public streets is called a BLOCK; and a plot with discernible property lines within a block is called a PARCEL.

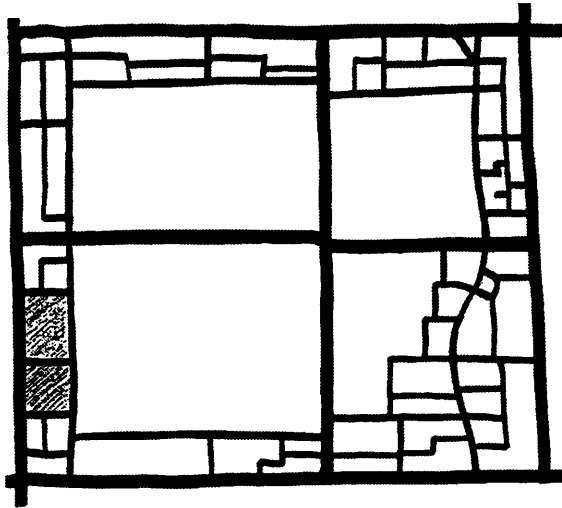


Fig. 4.4.1.1 *Superblock structure*  
Scale: roughly 1/8,750

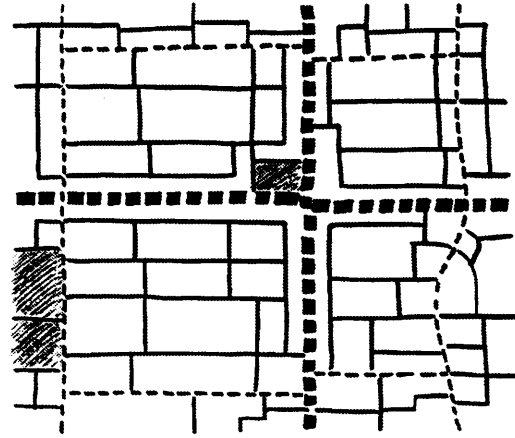


Fig. 4.4.1.2 *Street network*  
Scale: roughly 1/8,750

1. Scenario I, A Superblock of Paths  
(Fig. 4.4.1.1, 4.4.1.2, 4.4.1.3, 4.4.1.4)

This scenario is an exercise to maximize the path-oriented urban form and to analyze the design implications. Only minimum consideration is given to existing conditions; I assume that the whole superblock is entirely redesigned. However, the following items are recognized and preserved in this scenario: a. The major cross roads within the superblock as a powerful organizing tool. b. The crooked market street as a vital place. c. The MRT station as an opportunity to trigger redevelopment. d. The existing open spaces as a break in the

densely built urban environment and as a reference to the past. e. The linear organization of activities along the streets to anchor the redevelopment into an historical tradition of important commercial streets.

The preserved, as well as the created paths in this scenario are used as mechanism for: a. organizing the entire superblock. b. separating uses. c. dividing quadrants and blocks. d. providing circulation of traffic, air, and light. e. discouraging vehicular and pedestrian through-traffic. f. offering places for activities.

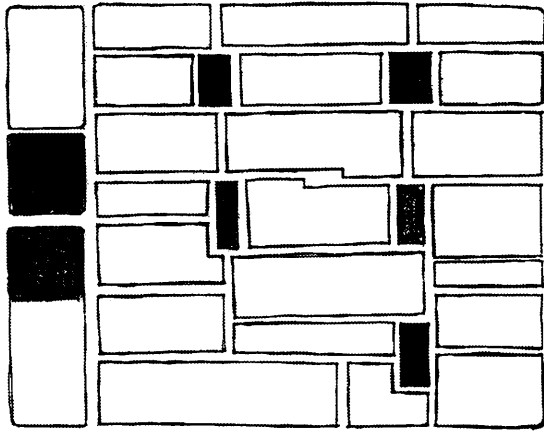


Fig. 4.4.1.3 *Proposed block configuration*  
Scale: roughly 1/4,375

The urban design ideas of the Savannah square, the Manhattan parcel orientation, and the Back Bay alleyways are combined in the study site to offer the following: a. a more evenly-distributed open space network throughout the superblock. b. requirements for parcels adjacent to squares to orient building fronts towards the open space. c. discouraging through traffic on certain streets. d. ensuring a linear, semi-public space between buildings in the same block for social and service functions.

This scenario offers smaller blocks (40m to 50m by 60m to 70m) defined by streets and helps build a finer urban grain. It also limits the opportunity for

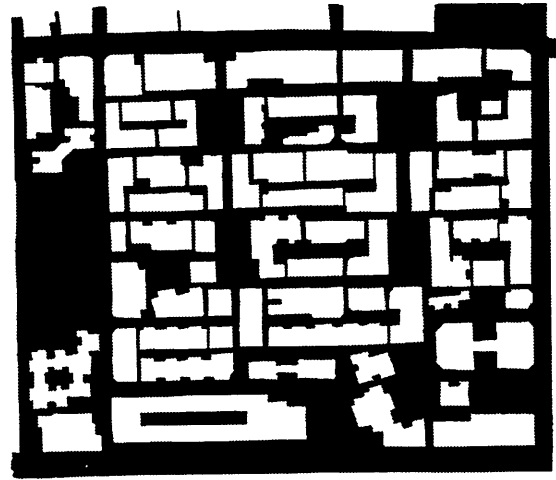


Fig. 4.4.1.4 *Detailed reverse figure-ground*  
Scale: roughly 1/4,375

large scale development within short periods of time. Furthermore, the width of the blocks can accommodate alleyways or fire lanes, but not courtyards, thus strategically implementing the idea of a path-oriented design.

This redevelopment strategy works well with the existing superblock configuration. The recovery of traditional aspects of street life is its social goal. However, more surface area dedicated to streets and paths means higher FARs for the new buildings to absorb the projected growth. A balance between the two factors, paths and FARs, is the key to achieve success in this scenario.

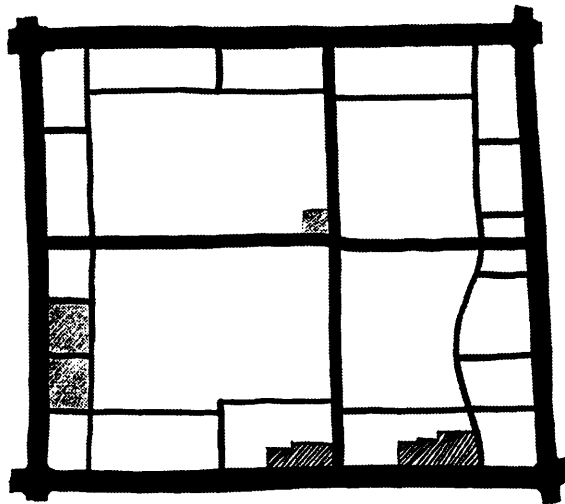


Fig. 4.4.2.1 *Superblock structure*  
Scale: roughly 1/8,750

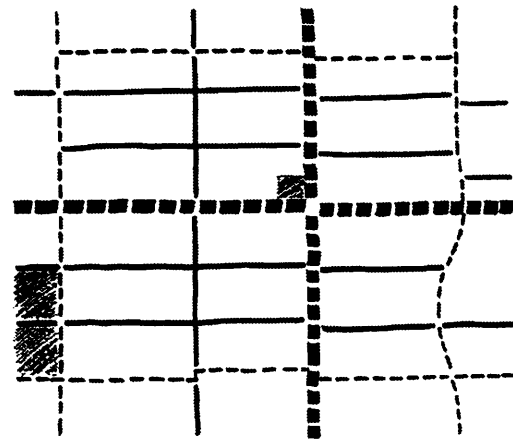


Fig. 4.4.2.2 *Street network*  
Scale: roughly 1/8,750

2. Scenario II, A Superblock of Courtyards  
(Fig. 4.4.2.1, 4.4.2.2, 4.4.2.3, 4.4.2.4)

This scenario maximizes the courtyard housing form and explores how this housing type can contribute to an exploration into urban form options. Only minimum consideration is given to existing conditions; here too, I assume that the superblock redesigned in its entirety. The five assumptions from the previous scenario are here acknowledged as well.

Inspired by the traditional Chinese courtyard house, this scenario suggests that courtyards, as semi-public

spaces, can be assimilated into the contemporary urban context. The original Chinese courtyard house was built for one extended family who shared a single courtyard space. The courtyard in the present proposal is enlarged and shared by a group of families who are neighbors. This new adoption also suggests the possibility that the courtyard fosters a sense of neighborhood and community among the people who share the space. As a result, the courtyards are the spatial mechanisms for achieving the following:

- a. organizing the entire superblock.
- b. separating uses.
- c. dividing quadrants



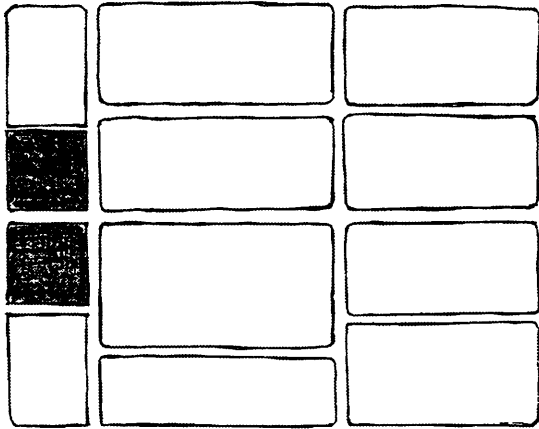


Fig. 4.4.2.3 Proposed block configuration  
Scale: roughly 1/4,375

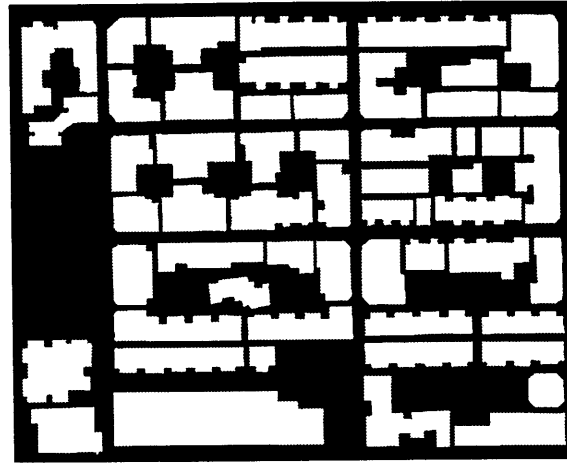


Fig. 4.4.2.4 Detailed reverse figure-ground  
Scale: roughly 1/4,375

and blocks. . offering places for semi-public activities. This strategy offers larger blocks (45m ~ 60m by 130m ~ 150m) and, therefore, provides larger parcels for development. Block and parcel consolidation and the redevelopment flexibility these consolidated configurations offer resemble the Manhattan block prototype. The width of the blocks is generous enough for courtyard housing and other building types.

Land acquisition is an issue in this type of redevelopment. In order to ensure a generous semi-public central courtyard space within a building com-

plex, large parcels are required for this type of development. The proportion of the courtyard in relation to the buildings around it is a critical issue in order to render space desirable. However, as discussed in the "Urban Context" section, it is very difficult to acquire such extensive building plots in Taipei today. In addition, the building density this type of redevelopment can absorb is also a significant factor in evaluating this scenario.

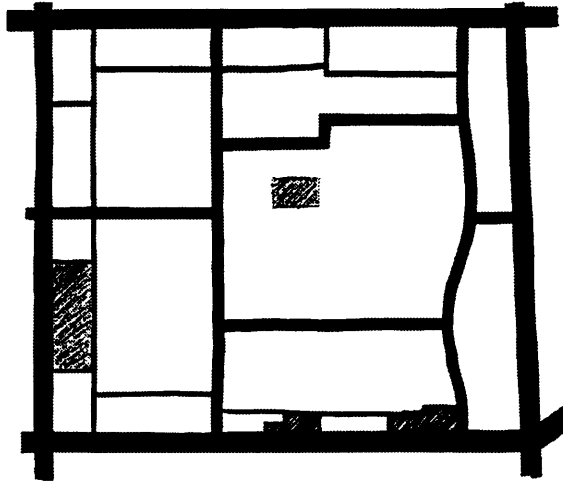


Fig. 4.4.31 *Superblock structure*  
Scale: roughly 1/8,750

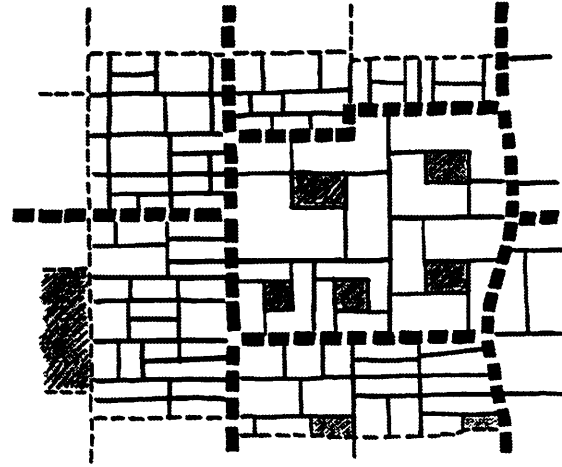


Fig. 4.4.3.2 *Street network*  
Scale: roughly 1/8,750

3. Scenario III, A Superblock with a "Solid" Core  
(Fig. 4.4.3.1, 4.4.3.2, 4.4.3.3, 4.4.3.4)

Compared to the previous approaches, this scenario maintains more of the existing condition, even though it by no means suggests a less provocative redevelopment strategy. I envision that the city government and developers agree to clear some of the "soft" buildings and public housing units in the center of the superblock to make room for new building opportunities. This center piece is then developed into a "solid core" with high-rise residential apartment buildings. City-wide commercial

areas are still located on the periphery, whereas the local and neighborhood commercial areas will surround the new core.

4. Scenario IV, A Superblock of Large-Scale Redevelopment with High-Rise Buildings and Large Set-Backs  
(Fig. 4.4.3.1, 4.4.3.2, 4.4.3.3, 4.4.3.4)

This scenario assumes that the city government will encourage large-parcel development comprised of high-rise buildings with great set-backs for the study site. This model of development was first adopted in the Shin Yi Redevelopment Project. Building height

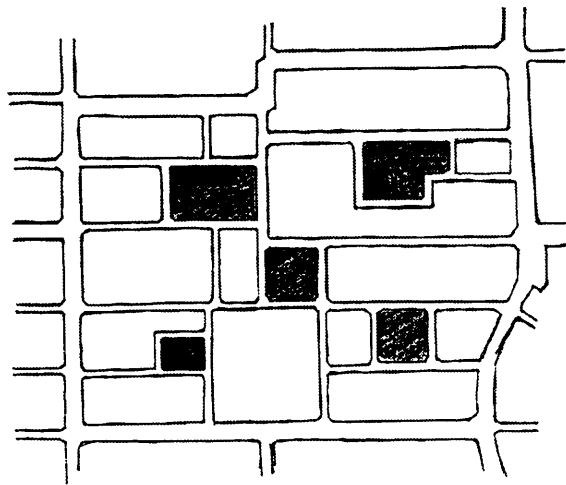


Fig. 4.4.3.3 *Proposed block configuration*  
Scale: roughly 1/4,375

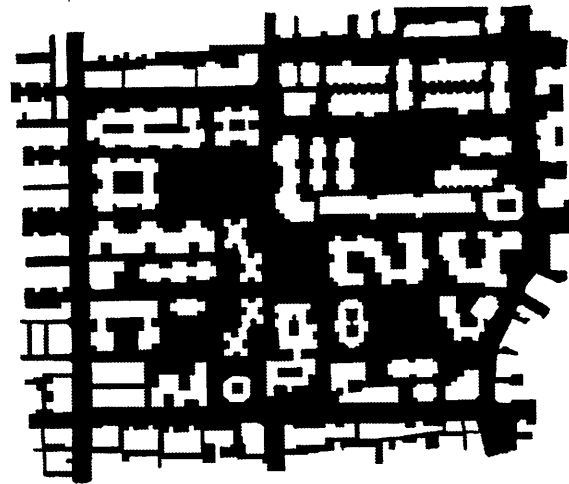


Fig. 4.4.3.4 *Detailed reverse figure-ground*  
Scale: roughly 1/4,375

incentives would be provided that encourage developers to consolidate parcels and to create additional open space.

In conjunction with the "solid core" scenario, the present scenario has tremendous ability of accommodating extensive growth and high density. The redevelopment cost is also greatly reduced by building only a limited number high-rise towers that achieve the same density as many more mid-rise apartment buildings, whose relative construction costs are much higher. This tower-open space combination also corresponds to the current Taipei "fashion"

of urban redevelopment. However, the continuous street frontage full of activity found in traditional urban form is forfeited. More importantly, as I argued in the previous chapters, the loss of the social and cultural fabric, caused by the dramatic departure from traditional urban form may never be replaced or compensated for. Social interaction among residents, in particular, is likely to be severely compromised in this redevelopment scenario.

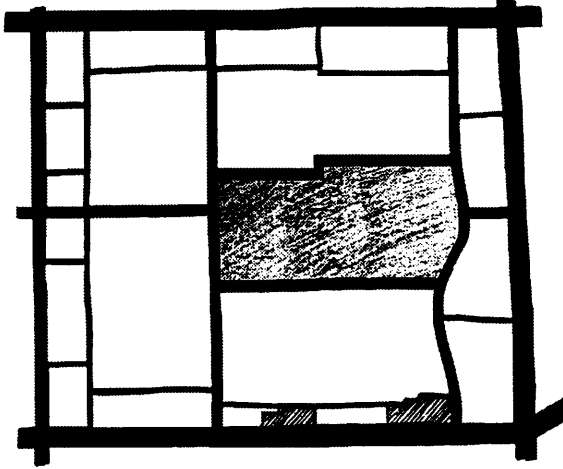


Fig. 4.4.4.1 Superblock structure  
Scale: roughly 1/8,750

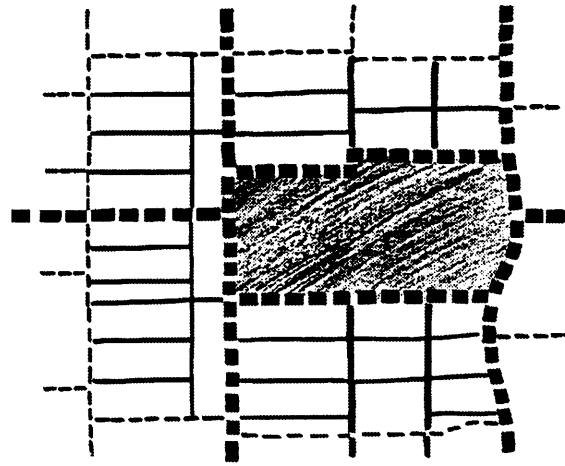


Fig. 4.4.4.2 Street network  
Scale: roughly 1/8,750

5. Scenario V, A Superblock with a "Void" Physical Core  
(Fig. 4.4.4.1, 4.4.4.2, 4.4.4.3, 4.4.4.4)

This is the inverse version of the physical core redevelopment scenario. A core of open space is proposed, mimicking the idea of Central Park in New York at a much smaller scale. This scheme also echoes the "new trend" of creating large areas of open spaces in Taiwan. Building profiles step higher and higher from around the void core until they reach the edges of the superblock.

6. Scenario VI, A Palette of Incremental Growth with Options for Development/Redevelopment  
(Fig. 4.4.4.1, 4.4.4.2, 4.4.4.3, 4.4.4.4)

The least possible direct government intervention occurs in this scenario. The city offers a set of guidelines that demonstrate the redevelopment opportunities and possibilities for the superblock. The city also helps institute local redevelopment committees comprised of residents, developers, professionals, and public officials. The Beacon Hill precedent provides the inspiration for a regulatory framework that secures and implements this type of incremental growth

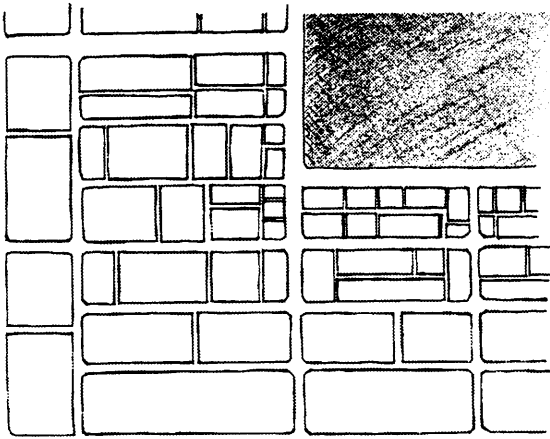


Fig. 4.4.4.3 *Proposed block configuration*  
Scale: roughly 1/4,375

with redevelopment options and public participation. Developers are encouraged to develop whatever areas of land they can acquire—as long as they work together with other groups. Different redevelopment patterns and scenarios, limited only by parcel size and economic concerns, will be seen here; thus creating a palette of different urban fabric types, block sizes, building forms, all of which foster various street activities.

The miniature “central park” in this combination means much higher densities in the rest of the superblock; that will inevitably lead to high-rise redevelopment which this thesis objects to.

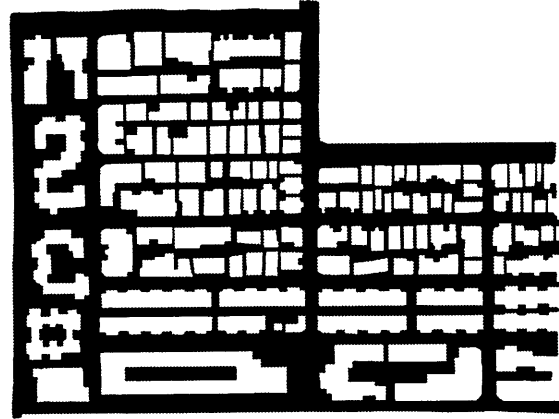


Fig. 4.4.4.4 *Detailed reverse figure-ground*  
Scale: roughly 1/4,375

Higher housing prices and maintenance issues for the upkeep of the open space are further disincentives for this scenario. This redevelopment option, however, is a flexible one, and possibly a more efficient mechanism, which lets the market deal with the urban issues. Given the fact that land prices in Taipei are extremely high, it makes more sense to choose a market mechanism as opposed to direct government intervention. Still, only a comprehensive regulatory framework with input from professionals and local residents can minimize the potential destruction of urban life forms by free market forces.

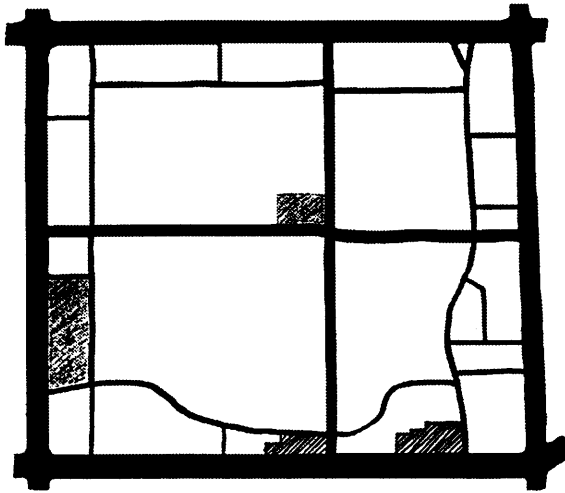


Fig. 4.4.5.1 *Superblock structure*  
Scale: roughly 1/8,750

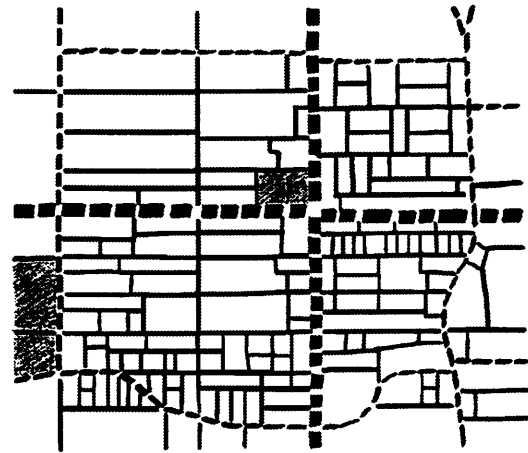


Fig. 4.4.5.2 *Street network*  
Scale: roughly 1/8,750

7. Scenario VII, A Superblock with an Informal Street  
(Fig. 4.4.5.1, 4.4.5.2, 4.4.5.3, 4.4.5.4)

This scenario acknowledges the role that the irregular street pattern plays in the urban life and fabric of Taipei. The organic streets found in many superblocks of the city are reminiscent of the agricultural irrigation canals from a pre-urban past. The canals have served as property lines ever since. The richness of the resultant urban form, combined with the vitality of street life contained in the “crooked” streets are quintessential aspects of Taipei’s image and character.

In this scenario, the city government clears the public housing in the southern part of the superblock and superimposes an organically-shaped street, mimicking the successful precedent of the market street in the eastern half of the block. Similar streets are found in superblocks throughout the city. The new street will function not only as a secondary commercial “band” behind Chung Shiao East Road and the newly-built large department store, but it also channels the development pressure brought on by the MRT station into a linear activity zone, a traditional urban concept that has been abandoned in recent development projects. Human-scale

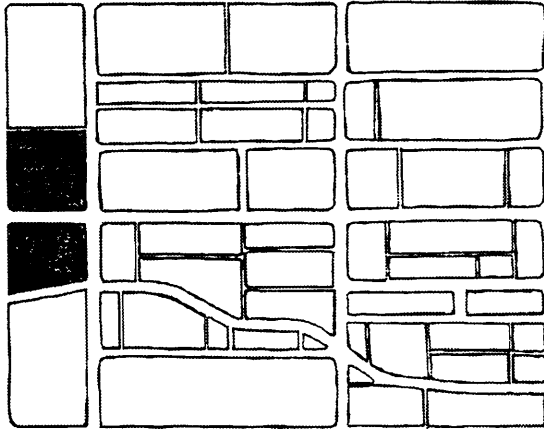


Fig. 4.4.5.3 *Proposed block configuration*  
Scale: roughly 1/4,375

streets, a pedestrian environment, plus small businesses that embody a different mentality of commerce than the close-by department store, all contribute to offering an alternative shopping environment for local and city-wide customers alike. Blocks will be redeveloped according to existing property lines. Much smaller parcels are located along the new street to present the opportunity for low-rise, high-density development that shares the same street frontage, another characteristic feature of traditional urban street prototypes.



Fig. 4.4.5.4 *Detailed reverse figure-ground*  
Scale: roughly 1/4,375

The other parts of the superblock are less likely to benefit from direct government intervention given land ownership and land price characteristics. Therefore, redevelopment is not proposed for these areas in the first phase. Nevertheless, the area should be subject to a series of regulations and guidelines that reflect the likely impact of the new informal street and the MRT station on the entire block. A superblock that features a variety of street prototypes, block sizes, building types, and street activities can be achieved in this scenario.

## V. PROJECTIONS FOR 2010

In this section of the project study, a series of calculations present an exploration of the current and projected official "Taipei 2010" statistics for population, density, and demand. These projections are critical to determine whether the various development/redevelopment prototypes are feasible strategies to accommodate the city's growth. These numbers support the argument that the expected maximum density in 2010 is considerably lower than the "new trend" of development suggests and that Taipei does not need to forfeit a great urban design heritage.

### 1. Population, Housing, Motor Vehicles, and Other Requirements:

According to the numbers offered in "Taipei 2010":

#### a. Statistics of current population, density, and number of persons per household:

The city-wide nighttime population density had reached 25,000 people per km<sup>2</sup> in 1990.<sup>2</sup> (p. 72) In 1990, Shin Yi Precinct, with an area of 10.9530 km<sup>2</sup>, had reached the population of 244,953 and 74,525 households. The density then was 22,364 people per km<sup>2</sup> with 3.29 persons per household. (p. 82) In 1991 the nighttime population in Shin Yi Precinct was 254,575 people. The area included 75,766 housing units. The density was 28,918 people per km<sup>2</sup> with 3.36 persons per household. (p. 584) Daytime populations are calculated at 1.75 times the nighttime number for the entire city. (p. 506)

#### b. Statistics for projected population, density, and housing units:

The expected population density in 2010 will be 42,300 people per km<sup>2</sup> during nighttime and 74,200 people per km<sup>2</sup> during daytime. (p. 506) For the Shin Yi Precinct, 316,743 people are projected to live in 94,268 housing units by 2010. If the number of people per household is assumed to remain the same, 18,502 more housing units will be needed by 2010. (p. 584)

#### c. Motor Vehicle Statistics:

In 1988, car ownership stood at 1 per 7.8 persons, mopeds at 1 per 5.1 persons. The number of motor vehicles in the city shows an average annual increase of 13.2% for cars and 7.84% for mopeds between 1979 and 1988. (p. 189) If no restrictions or disincentives are instituted, in the year 2010, there will be 1 car per 4.67 persons and 1 moped per 4 persons. (p. 558)

#### d. Statistics for the study superblock:

i. 1990 daytime population was 11,113 to 12,423, and nighttime population stood at 6,350 to 7,099.

ii. 2010 projected daytime population is 14,370 to 21,070, and nighttime population 8,211 to 12,012.

iii. Number of people per household in 2010: 3.29 to 3.36.

2. The term "night-time population" refers to the residential population.



- iv. Total number of housing units in 2010: 2,444 to 3,651.
- v. Number of additional housing units required from 1990-2010: 400 to 1,607.
- vi. 1990 number of cars was 845 to 945 (1 car per 7.52 persons) and the number of mopeds 1,270 to 1,420 (1 moped per 5 persons).
- vii. 2010 projected number of cars is 1,758 to 2,572 (1 car per 4.67 persons) and the number of mopeds 2,053 to 3,003 (1 moped per 4 persons).

**2. Maximum FAR under Existing Policy for the Study Superblock:**

According to the zoning ordinance offered in “Taipei Urban Zoning Map,” most areas in the superblock are zoned as residential-3, the street front on Chung Shiao East Road (the south traffic thoroughfare) and Sun Shan Road (the east traffic thoroughfare) is residential-3.1, and the street front on Yung Ji Road (the north traffic thoroughfare) is commercial-2.<sup>3</sup> The maximum FAR and coverage for these zones are, respectively: 2.25 and 50% for R-3; 3 and 50% for R-3.1; 6.3 and 70% for C-2. (p. iii and p. 105)

The study superblock is a trapezoid with two sides measuring 565m and 580m each, and a width of 496m.

**a. The superblock area:**

$$((565\text{m} + 580\text{m}) \text{ by } 496\text{m}) / 2 = 283,960\text{m}^2$$

$$= 28.4 \text{ hectares} = 85,897.5 \text{ ping} = 3,056,502.8 \text{ ft}^2$$

**b. Maximum floor area under existing policy:**

**i. commercial-2:**

$$(30\text{m} \times (49\text{m} + 146\text{m} + 122\text{m} + 165\text{m} + 49\text{m})) \text{ Yung Ji Rd.}$$

$$+ (50\text{m} \times 25\text{m}) \text{ Sun Shan Rd.} = 17,180\text{m}^2$$

$$17,180\text{m}^2 \text{ by } 6.3 = 108,234\text{m}^2$$

**ii. residential-3.1:**

$$(30\text{m} \times (76\text{m} + 85\text{m} + 87\text{m} + 56\text{m} + 56\text{m})) \text{ Sun Shan Rd.}$$

$$+ (30\text{m} \times (41\text{m} + 154\text{m} + 121\text{m} + 150\text{m} + 49\text{m})) \text{ Chung Shiao E.}$$

$$- (37\text{m} \times 22\text{m} + 28\text{m} \text{ by } 8\text{m} + 55\text{m} \text{ by } 20\text{m} + 22\text{m} \text{ by } 12\text{m}) \text{ MRT station}$$

$$= 23,848\text{m}^2$$

$$23,848\text{m}^2 \text{ by } 3 = 71,544\text{m}^2$$

**iii. residential-3:**

$$(49\text{m} \times 60\text{m}) + (17\text{m} \times 146\text{m}) + (17\text{m} \times 122\text{m}) + (25\text{m} \times 165\text{m})$$

$$+ (22\text{m} \times 78\text{m}) + (37\text{m} \times 146\text{m}) + (37\text{m} \times 92\text{m}) + (46\text{m} \times 164\text{m})$$

$$+ (49\text{m} \times 123\text{m}) + (37\text{m} \times 146\text{m} \times 3) + (45\text{m} \times 122\text{m})$$

$$+ (31\text{m} \times 122\text{m}) + (37\text{m} \times 60\text{m}) + (45\text{m} \times 164\text{m}) + (56\text{m} \times 167\text{m})$$

$$+ (23\text{m} \times 85\text{m}) + (49\text{m} \times 128\text{m}) + (45\text{m} \times 148\text{m}) + (38\text{m} \times 148\text{m})$$

$$+ (38\text{m} \times 148\text{m}) + (44\text{m} \times 122\text{m}) + (38\text{m} \times 123\text{m})$$

$$+ (37\text{m} \times 122\text{m}) + (38\text{m} \times 167\text{m}) + (35\text{m} \times 150\text{m})$$

$$+ (36\text{m} \times 138\text{m}) + (20\text{m} \times 18\text{m}) + (38\text{m} \times 60\text{m})$$

$$+ (60\text{m} \times 88\text{m}) + (49\text{m} \times 52\text{m}) + (36\text{m} \times 148\text{m})$$

3. Refer to “Taipei Urban Zoning Map” or Zoning Ordinance in Appendix for detailed numbers and regulations.

$$\begin{aligned}
&+(36\text{m} \times 148\text{m})+(14\text{m} \times 150\text{m})+(36\text{m} \times 122\text{m}) \\
&+(36\text{m} \times 122\text{m})+(14\text{m} \times 122\text{m})+(36\text{m} \times 144\text{m}) \\
&+(36\text{m} \times 150\text{m})+(14\text{m} \times 154\text{m})+(52\text{m} \times 56\text{m})+(44\text{m} \times 26\text{m}) \\
&= 187,911\text{m}^2 \\
&187,911\text{m}^2 \text{ by } 2.25 = 422,799.75\text{m}^2
\end{aligned}$$

c. Maximum FAR under existing policy:

$$\begin{aligned}
&(17,180\text{m}^2 \text{ by } 6.3)+(23,848\text{m}^2 \text{ by } 3)+(187,911\text{m}^2 \text{ by } 2.25) / \\
&(17,180\text{m}^2 + 23,848\text{m}^2 + 187,911\text{m}^2) \\
&= 602,577.75\text{m}^2 / 228,939\text{m}^2 = 2.63
\end{aligned}$$

3. **Projected FAR in 2010:**

According to "Taipei 2010," a public survey reveals that an ideal net apartment floor area<sup>4</sup> would be 35.57 ping (117.59m<sup>2</sup>).<sup>5</sup> However, research suggests that long-term goal for the size of housing units should comprise 46.87 ping (154.951m<sup>2</sup>) of net living space plus 11.92 ping (39.405m<sup>2</sup>) of public facility space. That means, a gross floor area of 147.454m<sup>2</sup> to 194.356m<sup>2</sup> per unit is considered "ideal". (p. 589)

a. Total floor area on projected housing demand in 2010:<sup>6</sup>

- i. minimum number of units and minimum "ideal" floor area per unit:<sup>7</sup>  
2,444 units x 147.454m<sup>2</sup> = 360,377.57m<sup>2</sup>
- ii. minimum number of units and maximum "ideal" floor area per unit:<sup>8</sup>  
2,444 units x 194.356m<sup>2</sup> = 475,006.06m<sup>2</sup>
- iii. maximum number of units and minimum "ideal" floor area per unit:  
3,651 units x 147.454m<sup>2</sup> = 538,354.55m<sup>2</sup>
- iv. maximum number of units and maximum "ideal" floor area per unit:  
3,651 units x 194.356m<sup>2</sup> = 709,593.75m<sup>2</sup>

b. Total parking area on projected demand in 2010:<sup>9</sup>

- i. for cars (20m<sup>2</sup> per parking space, plus 25% of the total area for driveways):  
(1,758 x 20m<sup>2</sup>) by 1.25 = 43,950m<sup>2</sup>  
(2,572 x 20m<sup>2</sup>) by 1.25 = 64,300m<sup>2</sup>
- ii. for mopeds (3m<sup>2</sup> per parking space, plus 20% of the total area for driveways):  
(2,053 x 3m<sup>2</sup>) by 1.20 = 7,390.80m<sup>2</sup>  
(3,003 x 3m<sup>2</sup>) by 1.20 = 10,810.80m<sup>2</sup>

4. "Net floor area" in Taiwan means the private living space in a unit. The floor area for public facilities such as apartment entrance halls, stairways, and utility spaces, is calculated separately.

5. "Ping" is a Japanese floor area unit that Taiwan has adopted since the Japanese colonization. It was the area of a piece of Japanese straw "carpet" called "Tatami". 1 ping is roughly 3.3m<sup>2</sup>. Refer to the Conversion Chart in Appendix for detailed numbers.

6. Minimum and maximum numbers of housing units are derived from item 1.d.iv.

7. "Minimum 'ideal' floor area per unit" refers to the number derived from the public survey described in section 3.

8. "Maximum 'ideal' floor area per unit" refers to the number derived from the long-term goal research described in section 3.

- iii. minimum required parking area: **51,340.80m<sup>2</sup>**
- iv. maximum required parking area: **75,110.80m<sup>2</sup>**

c. Projected FAR in 2010 according to the numbers of items a. and b.<sup>10</sup>

- i.  $((a.i. + b.iii.) + ((a.i. + b.iii.) \times 8.11\%)) / \text{total buildable area}$   
 $= (411,718.37\text{m}^2 + (411,718.37\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 1.9442**
- ii.  $((a.i. + b.iv.) + ((a.i. + b.iv.) \times 8.11\%)) / \text{total buildable area}$   
 $= (435,488.37\text{m}^2 + (435,488.37\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 2.0565**
- iii.  $((a.ii. + b.iii.) + ((a.ii. + b.iii.) \times 8.11\%)) / \text{total buildable area}$   
 $= (526,346.86\text{m}^2 + (526,346.86\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 2.4855**
- iv.  $((a.ii. + b.iv.) + ((a.ii. + b.iv.) \times 8.11\%)) / \text{total buildable area}$   
 $= (550,116.86\text{m}^2 + (550,116.86\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 2.5978**
- v.  $((a.iii. + b.iii.) + ((a.iii. + b.iii.) \times 8.11\%)) / \text{total buildable area}$   
 $= (589,695.35\text{m}^2 + (589,695.35\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 2.7847**
- vi.  $((a.iii. + b.iv.) + ((a.iii. + b.iv.) \times 8.11\%)) / \text{total buildable area}$   
 $= (613,465.35\text{m}^2 + (613,465.35\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 2.8969**
- vii.  $((a.iv. + b.iii.) + ((a.iv. + b.iii.) \times 8.11\%)) / \text{total buildable area}$   
 $= (760,934.55\text{m}^2 + (760,934.55\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 3.5933**
- viii.  $((a.iv. + b.iv.) + ((a.iv. + b.iv.) \times 8.11\%)) / \text{total buildable area}$   
 $= (784,704.55\text{m}^2 + (784,704.55\text{m}^2 \times 0.0811)) / 228,939\text{m}^2$   
**= 3.7055**

Given the maximum projected density and a required FAR of 3.7, according to "Taipei 2010," buildings of seven stories in residential-3 areas under the current zoning ordinance (50% coverage) would be able to absorb the growth; whereas 5-story buildings in commercial-2 zones (70% coverage) are enough to fulfill the same task.

9. Numbers derived from item 1.d.vi. and vii..

10. Assuming that one, all the existing zoning, FAR, and coverage regulations remain unchanged; two, the percentage of different zone areas are kept constant; three, no incentives for building parking spaces are implemented; four, new public transit system would encourage people to leave most of their cars and mopeds at home. Therefore, the demand for road surface area will remain proportional to the total buildable area. All the parking spaces are covered, i.e., parking spaces have to be taken into consideration in calculating FAR. The area percentage of commercial-2 is:  
 $17,180\text{m}^2 / (23,848\text{m}^2 + 187,911\text{m}^2) = 8.11\%$

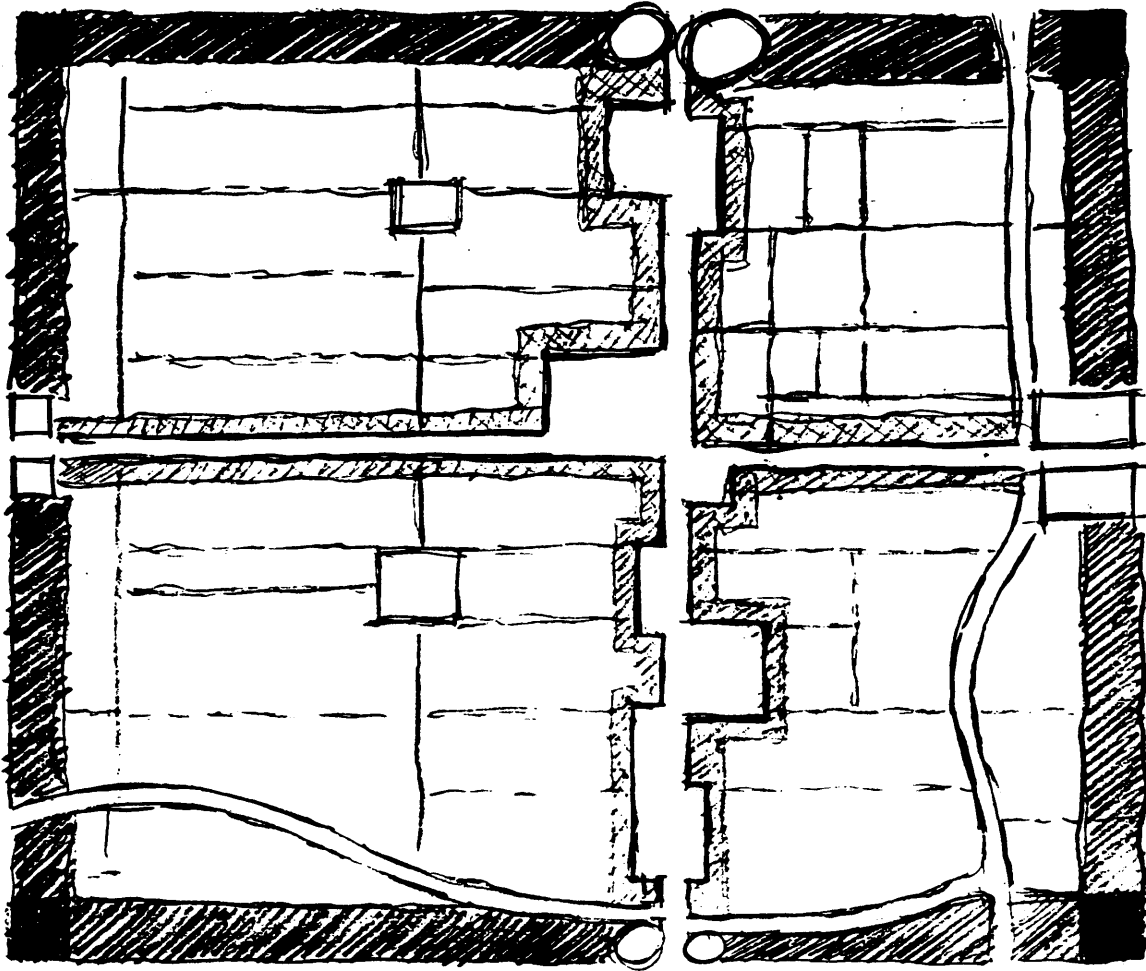


Fig. 4.6.1.1

Conceptual diagram

Scale: 1/4,000

## VI. DESIGNING THE SUPERBLOCK

The design proposal for the study superblock is based on the insights gained from the site analyses, the precedent study, the redevelopment evaluation, and projected growth calculations. The proposal demonstrates the attainability of the thesis argument at an urban design scale and selects various ideas, prototypes, and successful strategies from precedents, a crucial component of the proposed redevelopment process.

### 1. Design Concepts: (Fig. 4.6.1.1, 4.6.1.2)

There are three principle design concepts which target issues of urban structure, urban form, and urban redevelopment. Each embodies a distinctive approach; together all three contribute to the goal of building a Taipei superblock with livability, flexibility, and feasibility.

#### a. An enclave superblock:

##### i. the physical profile:

High-rise buildings (12-18 floors) are deployed along the superblock edges. The bulk of these buildings is regulated

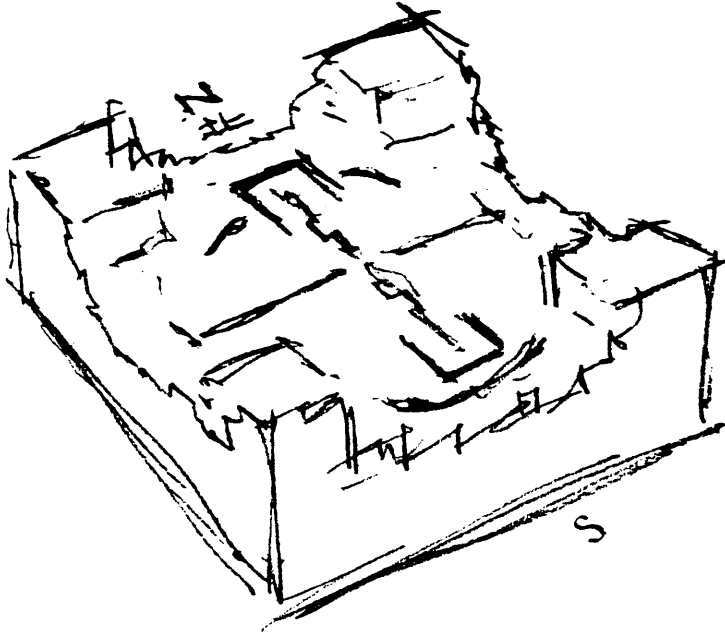


Fig. 4.6.1.2

*Three-dimensional concept*

so that the building width is relatively narrow, thus leaving enough "back alley" space for service functions. The set-back or unbuilt area created by these buildings serve as openings for light, air, and wind for the inside of the superblock. The building height along the major inner streets is prescribed as mid-rise (6-8 floors) and descends toward low-rise (3-6 floors) in the center of the block.

ii. **uses:**

City-wide and/or district-wide commercial, office space, and entertainment are expected to locate on the superblock edges. District-wide and/or neighbor-

hood commercial, small businesses, and mixed use with residential will occupy both sides of the major inner streets. Residential with a minimum of neighborhood commercial, mostly services, will dominate the core of the superblock.

iii. **architectural design guidelines:**

Character buildings are placed at strategic locations to mark the superblock as a whole; buildings other than these should be less articulated. Continuous arcades are required on the superblock edges and along major inner streets. Sinage has to be considered in the overall facade design.

b. Path-oriented urban design:

i. **organization and hierarchy:**

A hierarchy of paths is used as a planning tool to organize the superblock. Such a system of differentiated streets accomplishes the following:

- a) dividing quadrants and blocks;
- b) separating uses;
- c) providing circulation for traffic, air, and light;
- d) encouraging or discouraging vehicular through-traffic;
- e) offering places for activities.

These paths include various levels of traffic arteries for vehicular circulation; commercial streets and mixed-use roads for vitality and livability, and; pedestrian access and back alleys as service lanes or social places. Their hierarchical order is organized in the following manner:

- a) streets for through-traffic and access to the quadrants. (the cross roads penetrating the entire superblock)
- b) service streets for the commercial edge. (the "back lanes" between the city-wide commercial edges of the superblock and the four mixed-use, residential quadrants)
- c) neighborhood streets for residential vehicular circulation, including cars and mopeds. (east-west streets between blocks)
- d) neighborhood streets and places for activities and pedestrian, bicycle, and moped circulation. (north-south streets between blocks, with green spaces and newly-created places)
- e) alleyways for pedestrian and bicycle circulation. ("back alleys" between buildings in the same block)

ii. **the different conception of north-south streets and east-west streets:**

North-south paths and streets are enriched by newly created places strung along them. These places are neighbor-

hood parks, small-scale open spaces, and required building set-backs. They are landscaped, and adorned with special pavement and fixtures. Roadside parking is also incorporated into the design.

These places will be activated by pedestrian-oriented traffic and commerce. On the other hand, east-west paths and streets retain their primary function for vehicular circulation such as through-traffic and service.

The decision to intensify and improve north-south paths by creating new places carries multiple meanings. Chinese culture has always favored a north-south orientation for environmental considerations such as light and air. Locating in the north and facing south is a status symbol. In addition to this cultural preference generally, the large-scale urban fabric of Taipei reveals a similar organization of a pair of cross axes (Dun-Hwa Road and Ren-Ai Road) with major arteries following an east-west direction. Furthermore, Taiwan is located in a sub-tropical region where sunshine is not necessarily always an amenity; favoring north-south orientation instead of east-west would therefore make much more sense for local residents.

iii. **the concept of reinforcing edges:**

Edges of the superblock and the four quadrants are reinforced by building high-rise structures in the former and mid-rise, continuous street walls in the latter.

Continuous arcades offer a consistent element to define the boundaries of the superblock and the quadrants, to unify the street level environment, and to provide a refuge from strong sunshine and afternoon thunderstorms typical in the city.

iv. **the concept for creating multiple corners and paths:**

Corners and small-scale paths are special places in a densely built-up environment.

A legal framework has to support the opportunity to increase the number of these places, an essential aspect of the revitalization of traditional urban form. Instead, current development practices, the “new trend,” dispenses with these elements of traditional urban form. Regulations and guidelines regarding block reconfiguration, re-parcelization, FAR, building bulk, building height, built coverage, front, back, and side yard requirement, minimum and maximum building site, all have to take the issue into consideration.

c. Multi-scenario redevelopment:

i. **a new informal street:**

The informal street is a prominent feature of Taipei’s traditional urbanism. These streets, whose course follows the irrigation canals from the past, are lined with buildings of idiosyncratic footprints. Many of these informal streets have evolved into lively commercial centers. Compared to the grid thoroughfares, which are characterized by heavy traffic flow, these informal streets provide a different layer of urban form and experience.

In this design proposal, I envision that the city government decides to trade the public housing site in the southern part of the superblock for a new informal path, which will revitalize a monotonous streetscape and provide the setting for a more active street life. The proximity of this new path to two exits of the new MRT station further enhances street vitality as well as land value. The latter would eventually pay off the cost of land acquisition and infrastructure costs. A Transfer of Development Rights (TDR) program would be implemented to channel the demand for housing to the edges of the superblock.

ii. **parcelization:**

Based on a traditional module of 4.5-6.5m by 15-20m (approximately 15-22ft by 50-65ft), parcels are newly plotted in the redevelopment blocks and re-oriented at the block ends. Modular parcels are combined into larger ones when facing the street front. Incentives for consolidating all parcels into one to benefit large-scale landmark architectural projects should only be implemented at block corners or at other strategic locations within the superblock.

iii. **individual blocks:**

Different redevelopment strategies and scenarios are proposed according to different locations, existing hard-soft conditions, and redevelopment opportunities for an individual block. In the north-west quadrant, in-fill and the creation of a green space in the middle of a north-south street are the major interventions. In the north-east quadrant the following strategies are employed: using open space as the central core and redeveloping the surrounding blocks by consolidating smaller parcels. In the south-east quadrant, block reconfiguration and re-parcelization are executed to ensure that the existing street market will work better in conjunction with a variety of building types; whereas the high-rise landmark buildings on the superblock corners mark the site as a whole. As for the south-west quadrant, major operations include the creation of a new informal street and street market, as well as new block configurations and sizes, introducing a variety of building types, and implementing a TDR program for vacant lots.

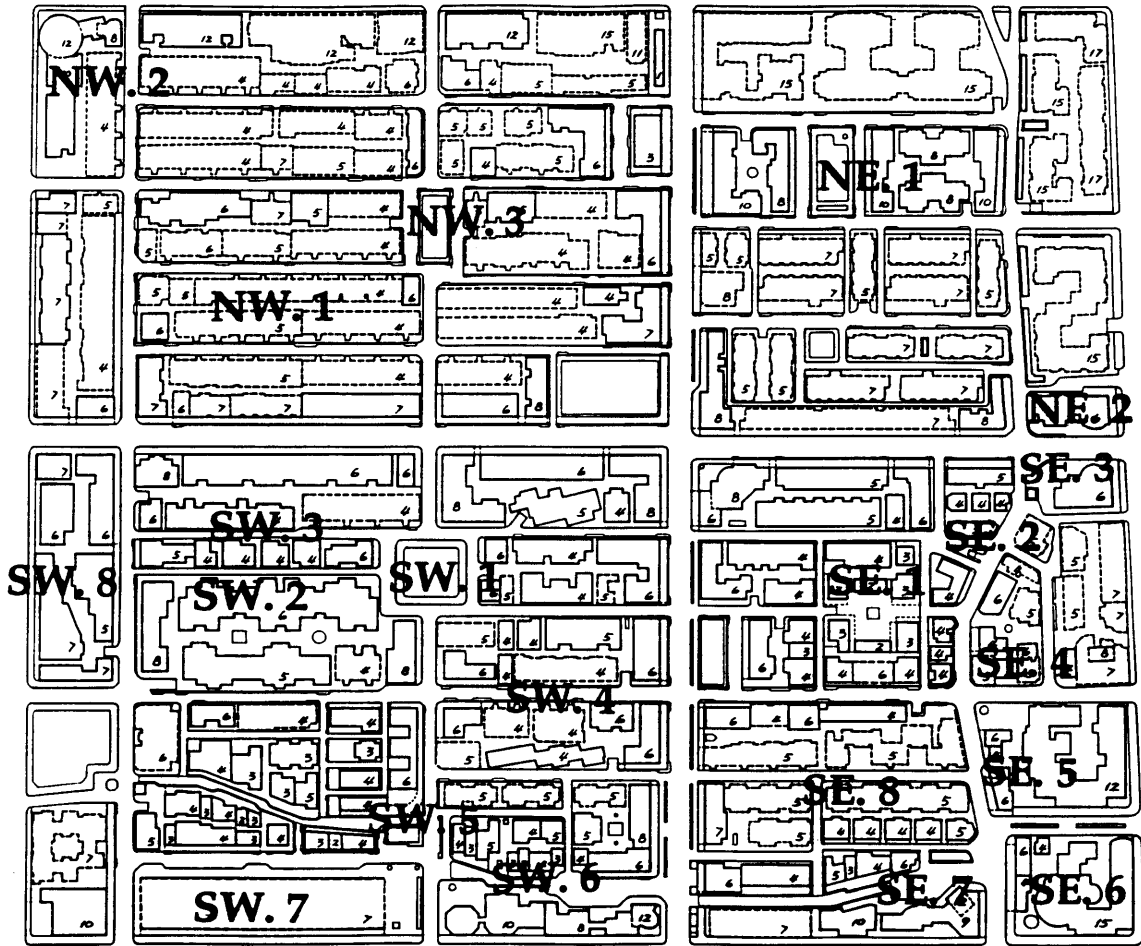


Fig. 4.6.2.1.1

Proposed master plan

Scale: 1/4,000

## 2. The Design:

### a. Master plan:

(Fig. 4.6.2.1.1, 4.6.2.1.2, 4.6.2.1.3)

Different strategies are utilized in the four quadrants according to existing conditions, redevelopment potential, and future growth projections.

In the north-eastern quadrant, most of the high-rise buildings are preserved. The public housing blocks next to the northern residential towers are proposed to be reconfigured and consolidated into three new blocks with higher density housing, a public park, and semi-

public courtyards. (**NE. 1**) The "entrance" block officially zoned as commercial-2 is proposed to be a special-height location for an articulated building as the gateway to the midsection of the superblock. (**NE. 2**)

The function and character of the existing winding market street are reinforced in the south-eastern quadrant by creating two market places with different scales, (**SE. 1, 4**) and two sections of mid-rise, small-scale, mixed-use buildings along the street to preserve the linear nature of Taiwanese street commerce.



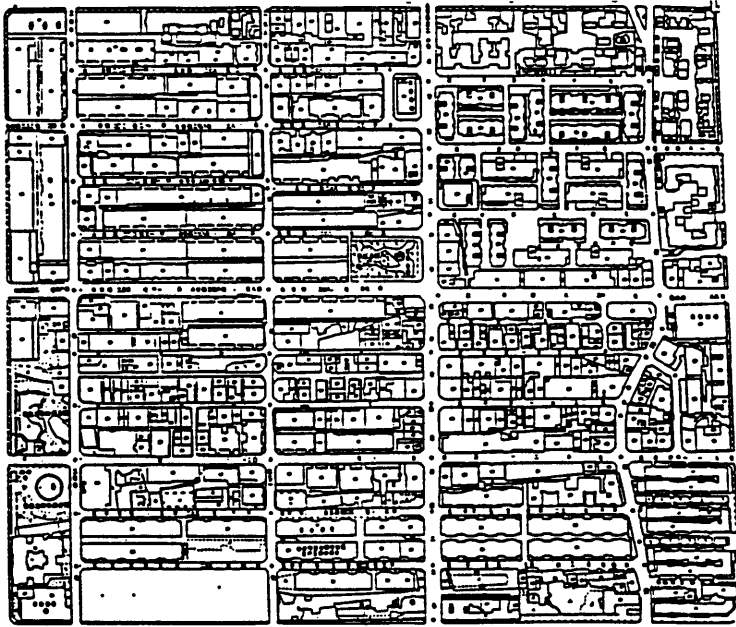


Fig. 4.6.2.1.2 Existing master plan Scale: 1/6,000

(SE. 2, 5) A gateway building location is again proposed for the entrance to the block at this location. (SE. 3) The superblock edges are registered and defined by high-rise buildings with office- and apartment buildings, (SE. 6) or MRT station joint development projects. (SE. 7) Various building types, from preserved public housing to private town houses (SE. 8), are presented to show redevelopment flexibility and options.

Substantial redevelopment is proposed for the south-western quadrant.

The "soft" core currently occupied by two- and three-story older buildings is proposed to give way to a green square (SW. 1) surrounded by a courtyard housing complex, (SW. 2) several single family town houses, (SW. 3) and other new small-scale interventions interspersed with preserved buildings. (SW. 4) The southern edge of this quadrant, also the southern edge of the superblock, is animated by new opportunities. These are generated by the new

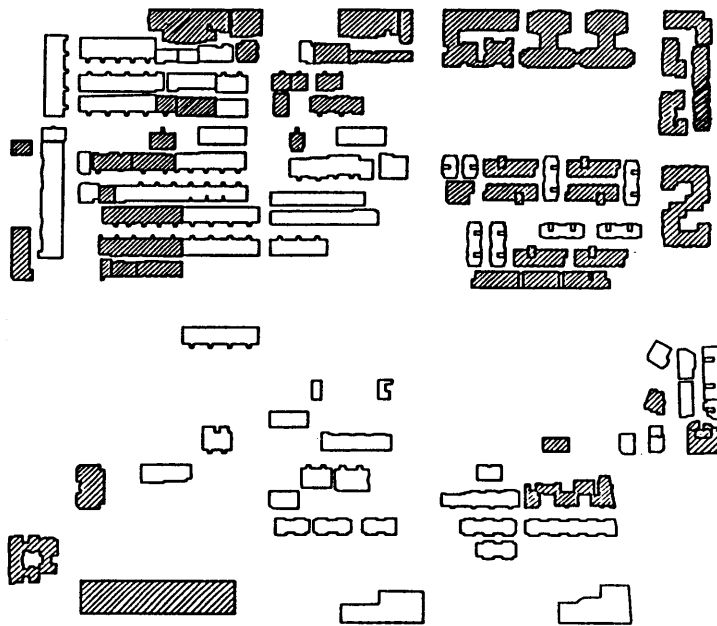


Fig. 4.6.2.1.3 Preserved building footprints Scale: 1/6,000

informal street and its pedestrian commercial activity, (**SW . 5**) the new MRT station joint development project, (**SW . 6**) and the newly built luxury department store. (**SW . 7**) The existing park is preserved and the vacant lot next to it is developed for TDR projects, (**SW . 8**) such as apartments for relocated public housing residents who had to vacate buildings for the creation of the new informal street.

Infill projects dominate the redevelopment proposal in the north-western quadrant. Walk-up apartment buildings

typical in this section (**NW . 1**) are maintained because of their good condition and relatively young age. The north-west corner block (**NW . 2**) is chosen for another landmark building to complete the "corner registration" for the superblock. Another residential square is included in the middle of the quadrant (**NW . 3**) to offer a respite from the densely built-up environment.

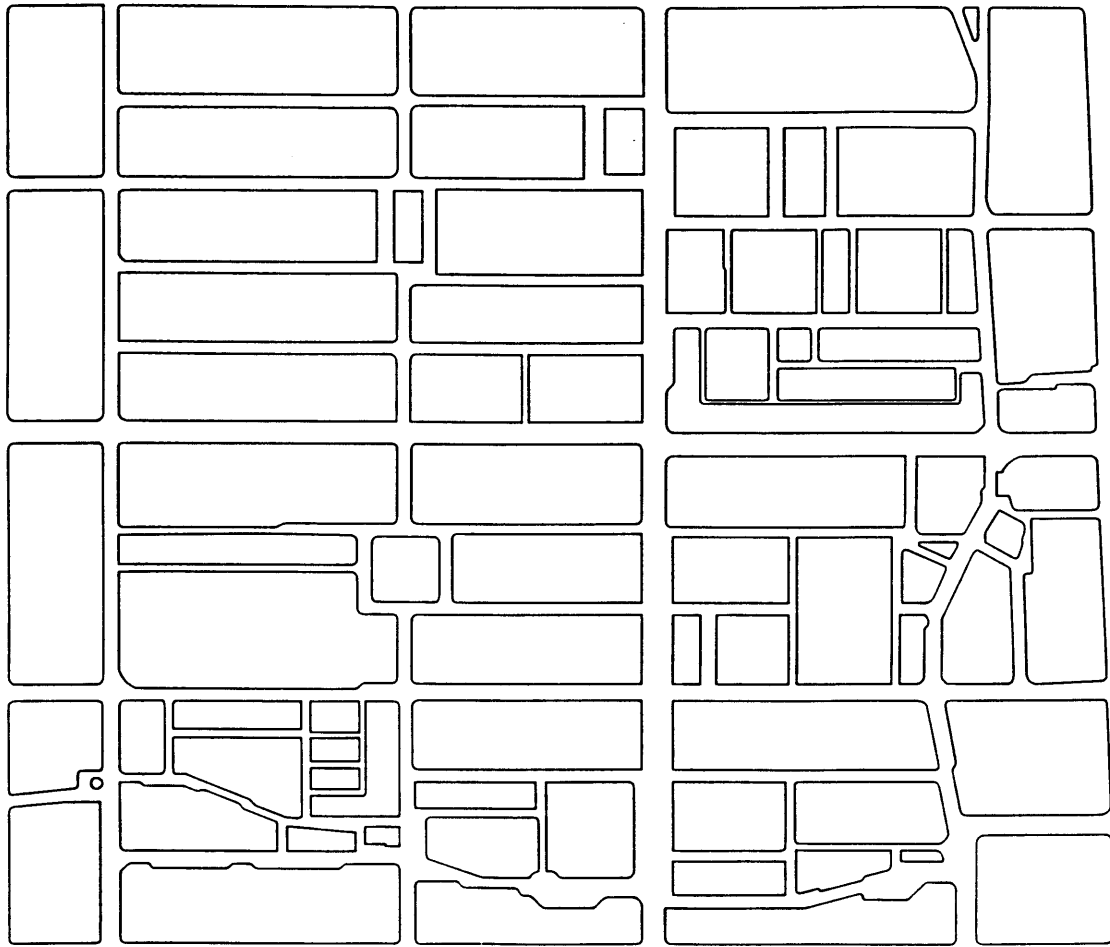


Fig. 4.6.2.2.1

*Proposed block configuration*

Scale: 1/4,000

b. Blocks and block reconfiguration:

(Fig. 4.6.2.2.1, 4.6.2.2.2, 4.6.2.2.3)

As the existing and proposed block diagrams indicate, the major operation of block reconfiguration takes place in the centers of the north-eastern and south-eastern quadrants, and the south edges of both southern quadrants. As a result, the forms, sizes, and configurations of these individual blocks are more diverse. The path-oriented design concept manifests

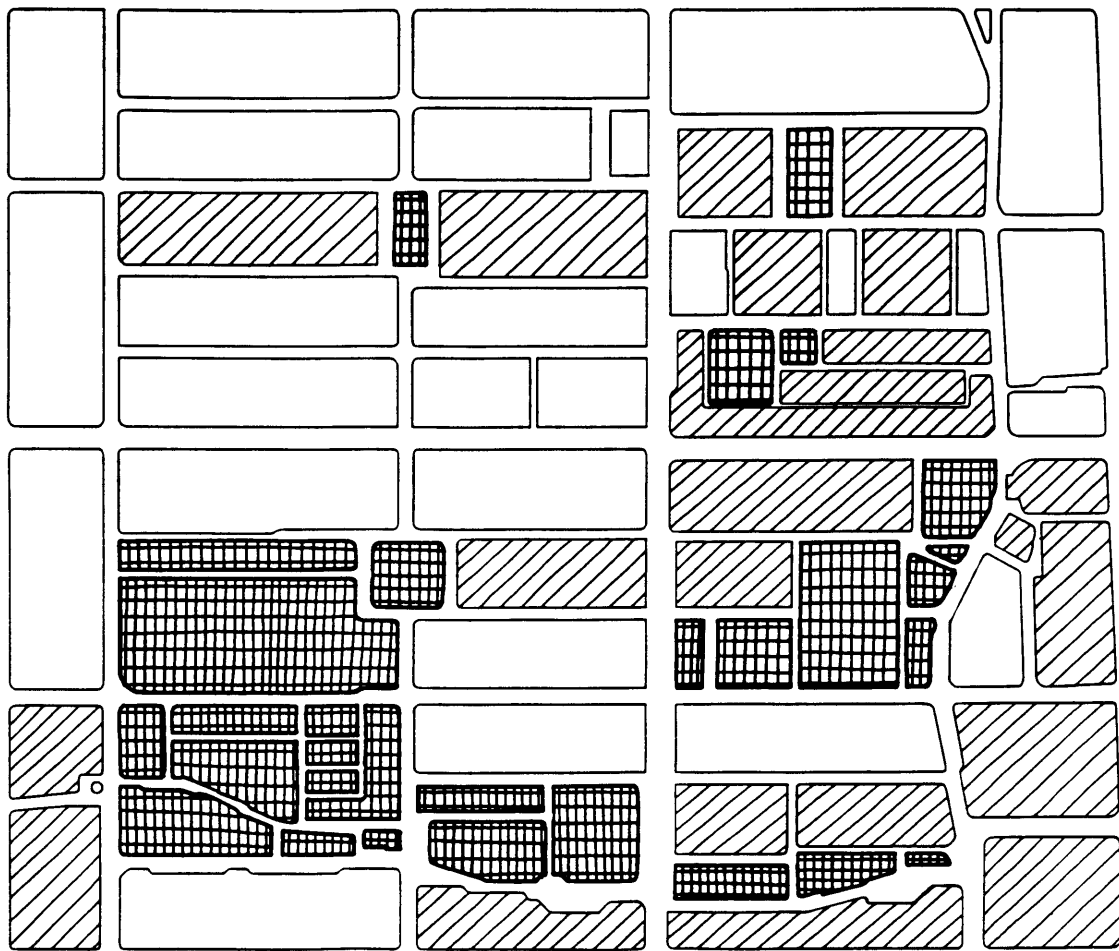


Fig. 4.6.2.2.2

Block configuration areas

Scale: 1/4,000

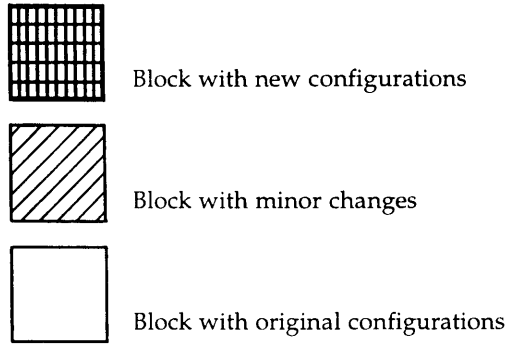


Fig. 4.6.2.2.2 Legend

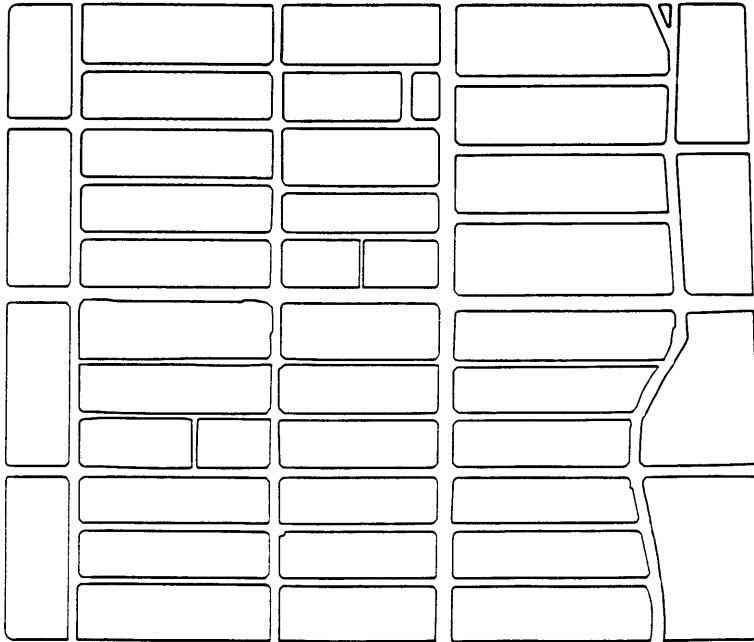


Fig. 4.6.2.2.3 Existing block configuration Scale: 1/6,000

itself through the large number of different path types and their hierarchical relationship, as well as the large area dedicated to total path area. The path strategy further enables various redevelopment scenarios and building types to occur simultaneously; the site is thereby forged into a fine-grain, complex urban form.

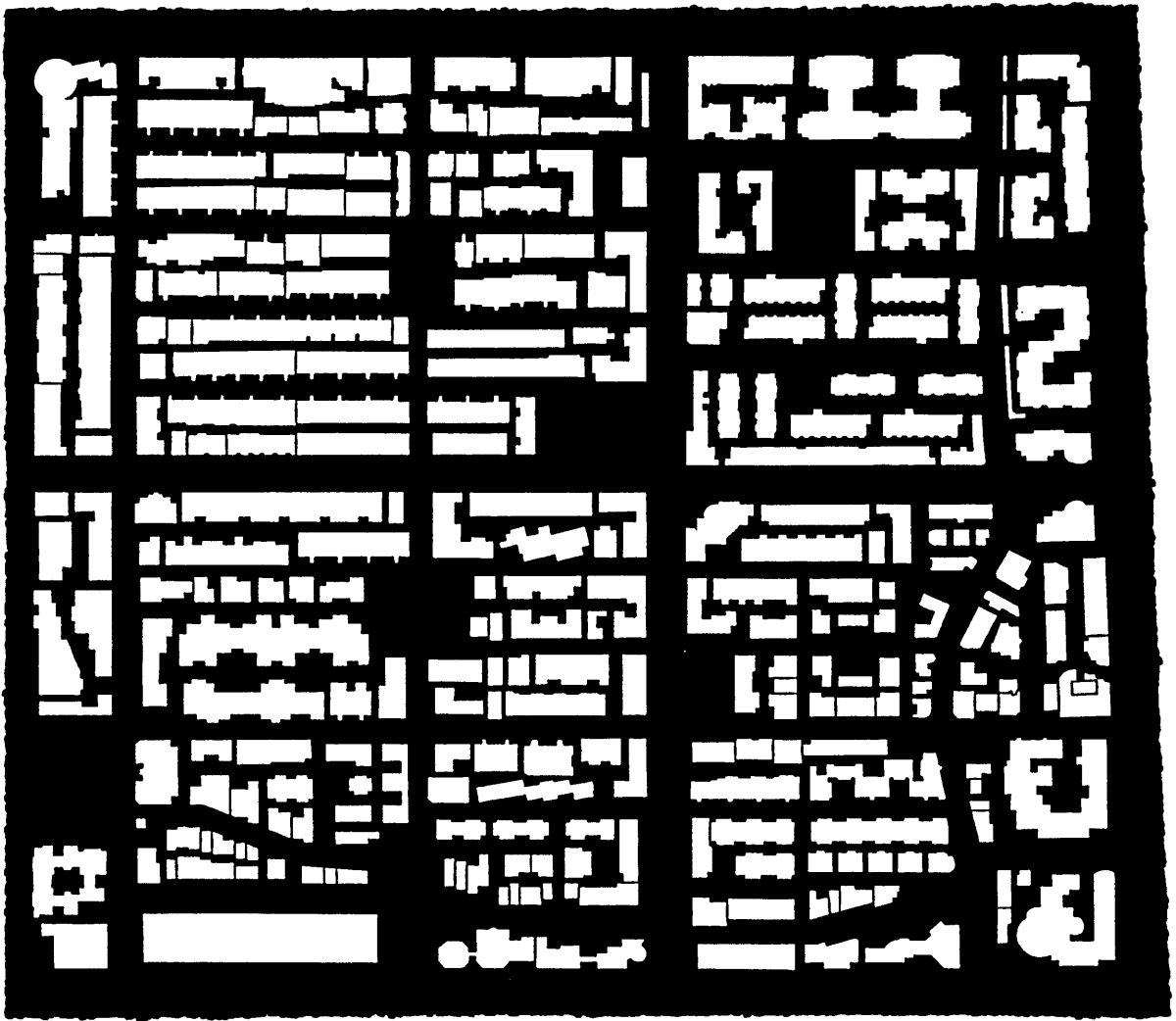


Fig. 4.6.2.3.1

*Proposed figure-ground*

Scale: 1/4,000

c. Figure-ground:

(Fig. 4.6.2.3.1, 4.6.2.3.2)

The proposed figure-ground drawing shows more unbuilt area than the existing situation. The spatial structure also reveals a much looser and varied pattern due to the path-oriented design concept. Building footprints on the superblock edges and interior illustrate the enclave nature of the redevelopment proposal. They also show the variety of building

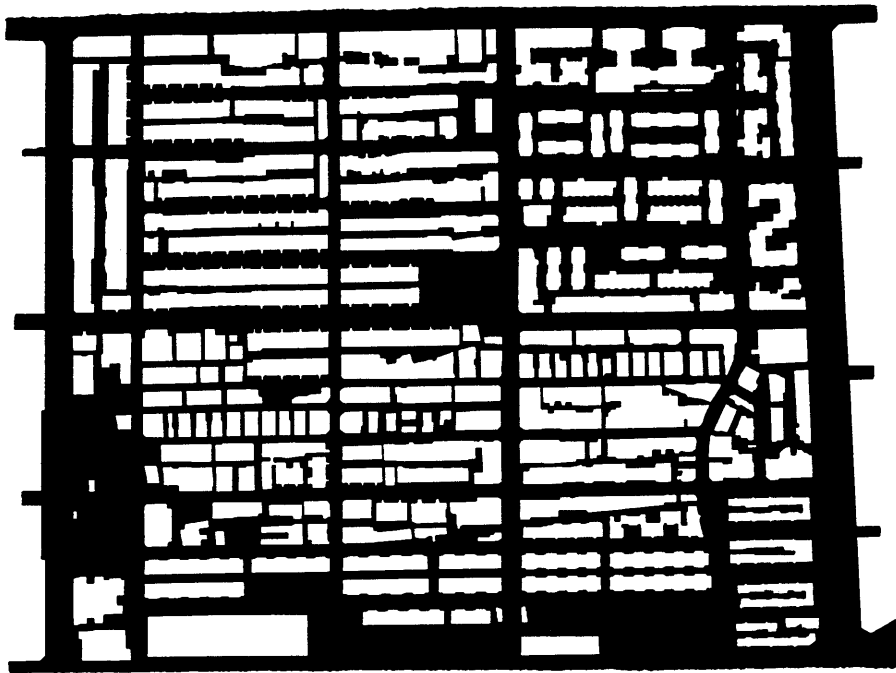


Fig. 4.6.2.3.2 Existing figure-ground Scale: 1/6,000

types possible. The proportions of the new residential buildings follow traditional principles, and a time-tested plan that enjoys simultaneous front and back access. The widths of the paths are also carefully considered so that even the smallest scale of paths provide usable spaces.

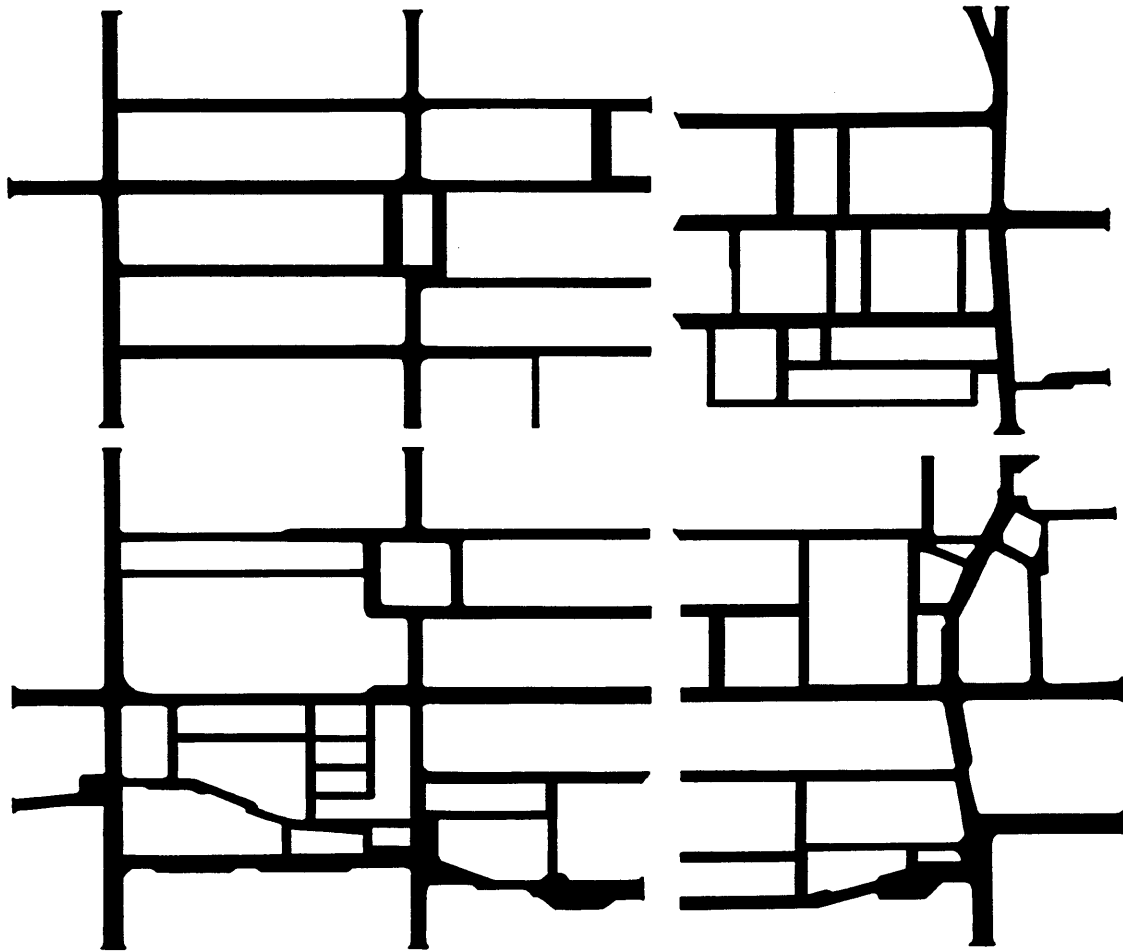


Fig. 4.6.2.4.1

*Proposed network of third-level streets*

Scale: 1/4,000

d. Street hierarchy:

(Fig. 4.6.2.4.1, 4.6.2.4.2, 4.6.2.4.3, 4.6.2.4.4)

The proposal assumes that the first and second level in the hierarchy of streets and paths are maintained as the skeleton of the new block. Major changes happen in the third and the fourth levels of the path hierarchy. In the north-eastern quadrant, the existing excess in the number of third level streets and the absence



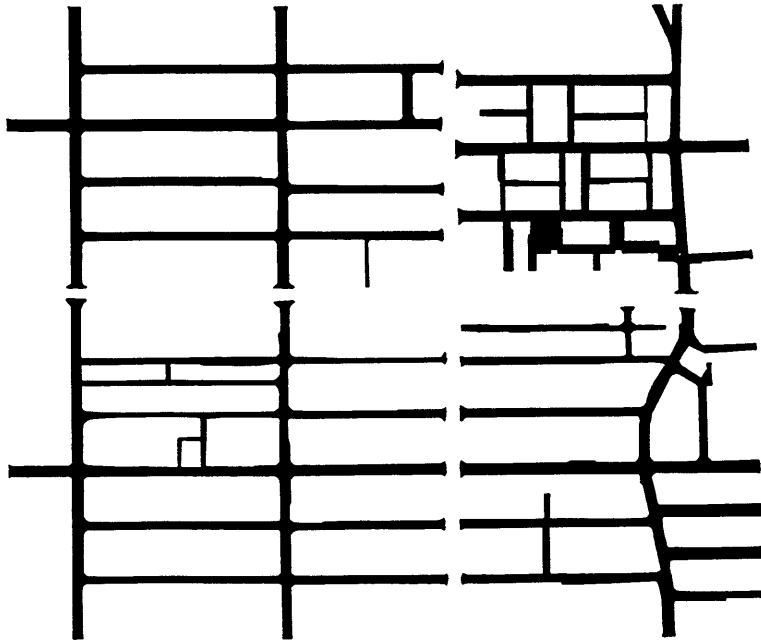


Fig. 4.6.2.4.2 Existing third-level streets

Scale: 1/6,000

of small-scale neighborhood paths is rectified. In the two southern quadrants, a variety of interventions are introduced at the third level in the path hierarchy to enliven the monotonous grid pattern; whereas the scattered, small alleys of the existing fourth hierarchy are consolidated into interesting places of usable sizes.

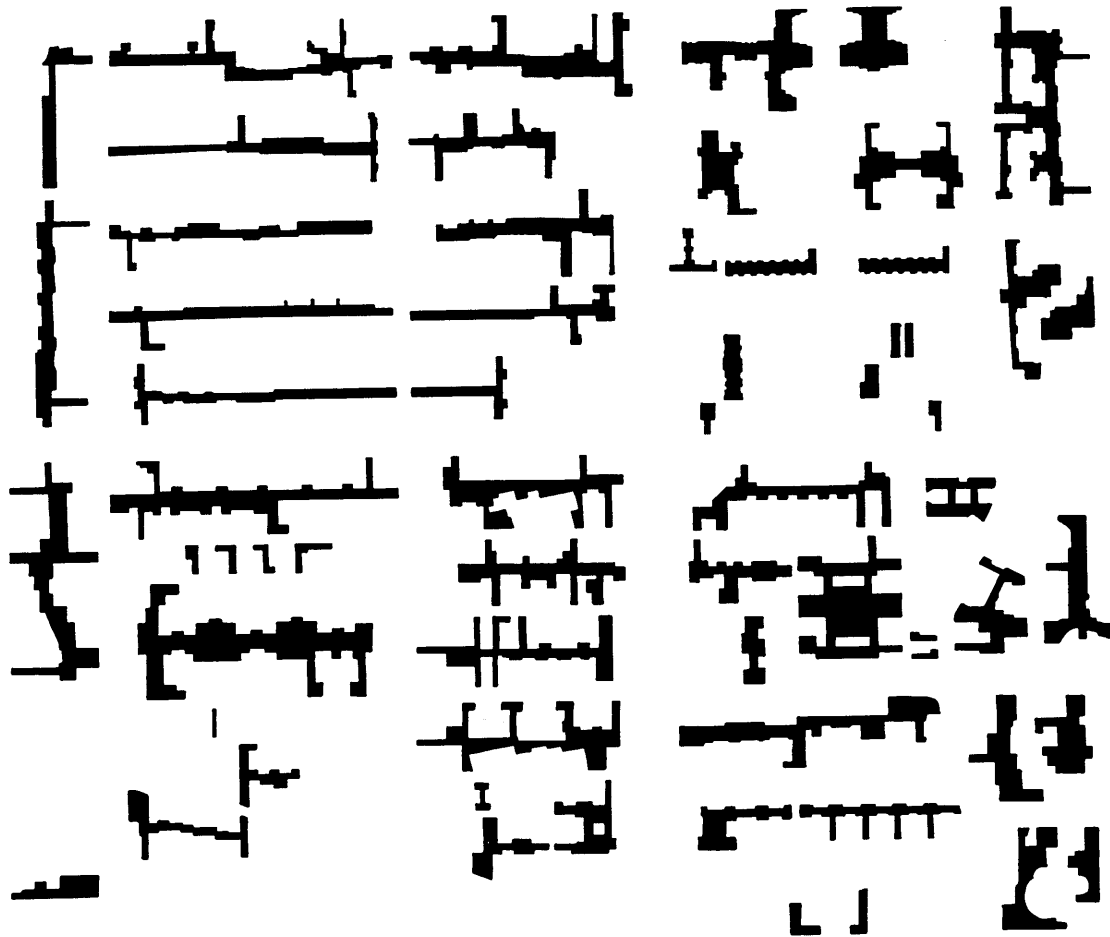


Fig. 4.6.2.4.3

*Proposed network of fourth-level streets*

Scale: 1/4,000



Fig. 4.6.2.4.4 Existing network of fourth-level streets Scale: 1/6,000

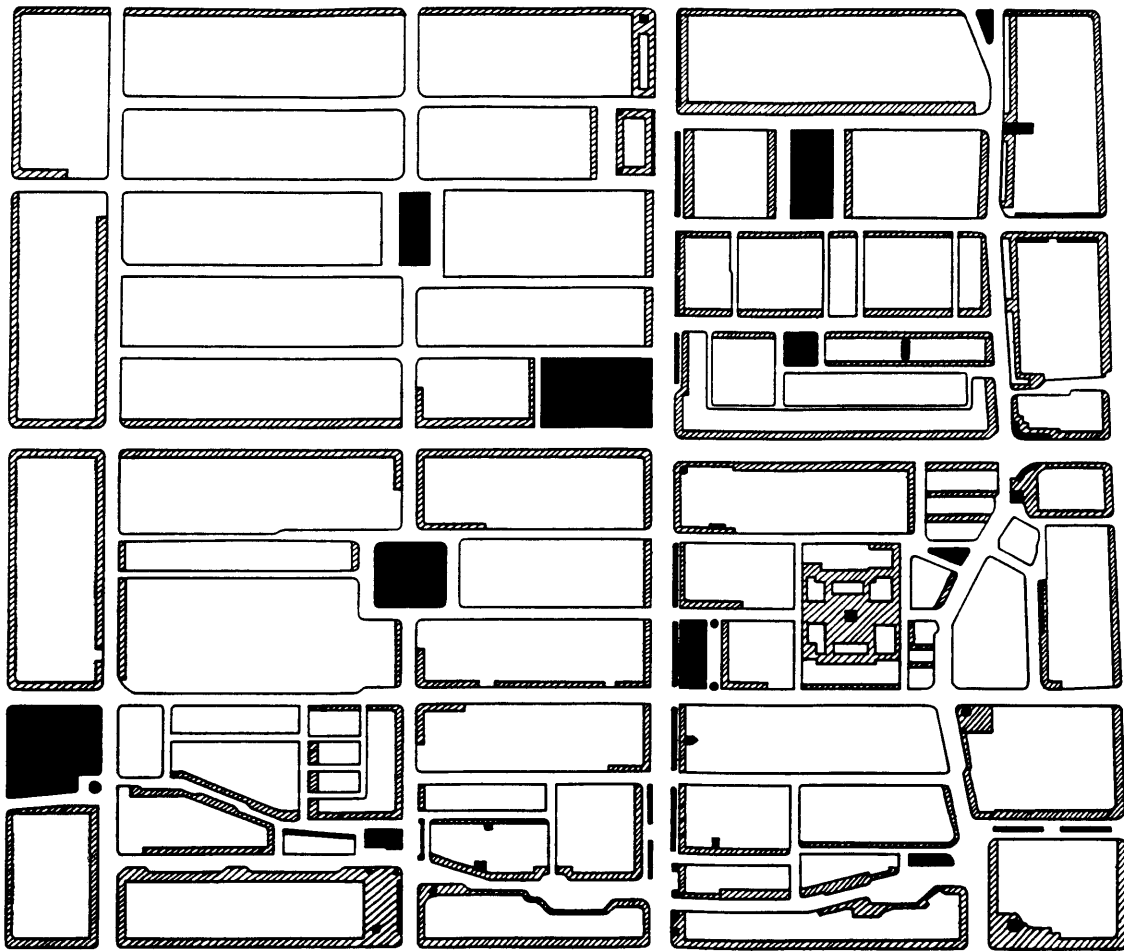


Fig. 4.6.2.5.1

Proposed open space network

Scale: 1/4,000

100

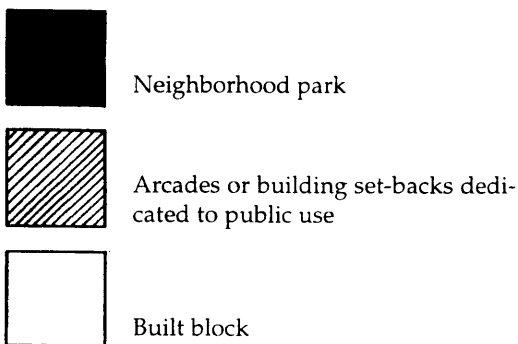


Fig. 4.6.2.5.1 Legend

e. Open space network:

(Fig. 4.6.2.5.1, 4.6.2.5.2)

In contrast to the existing condition, there are many more smaller open green spaces evenly distributed within the superblock. These spaces have been consciously designed as part of the block reconfiguration process. Many of them also discourage through-traffic. Furthermore, these open spaces are connected with each

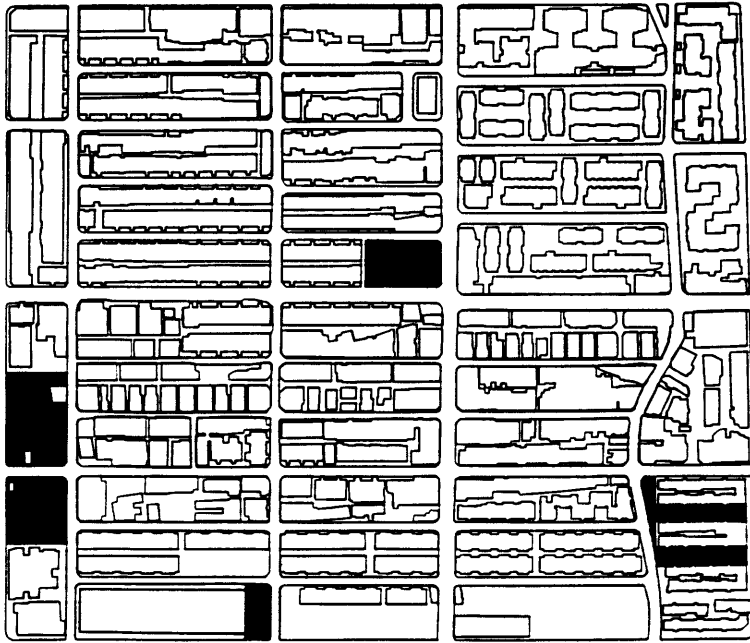


Fig. 4.6.2.5.2

*Existing open spaces*

Scale: 1/6,000

other by various types of semi-public spaces such as arcades, building setbacks, and small-scale plazas. This link transforms a collection of autonomous spaces into a “network” that is more accessible to all the residents of the superblock.

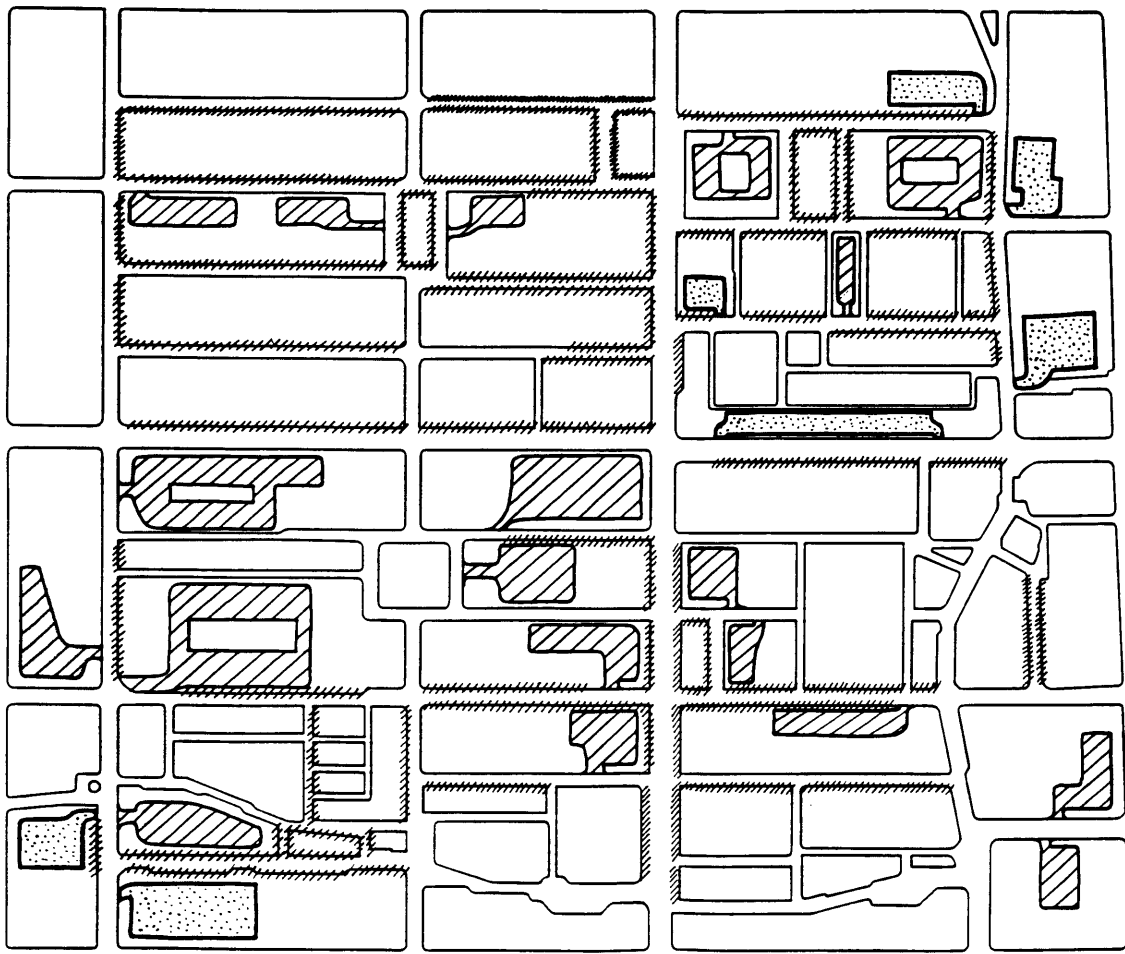


Fig. 4.6.2.6.1

Proposed parking facilities

Scale: 1/4,000

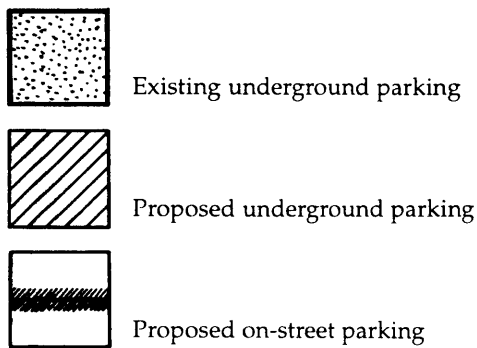


Fig. 4.6.2.6.1 Legend

f. Parking facilities:

(Fig. 4.6.2.6.1, 4.6.2.6.2)

Incentives for building underground parking are an indispensable component of implementing the superblock design.

It is also the most important action to guarantee smooth traffic circulation both in the city and within the superblock.

Not only is it required to integrate underground parking in all the redevelopment

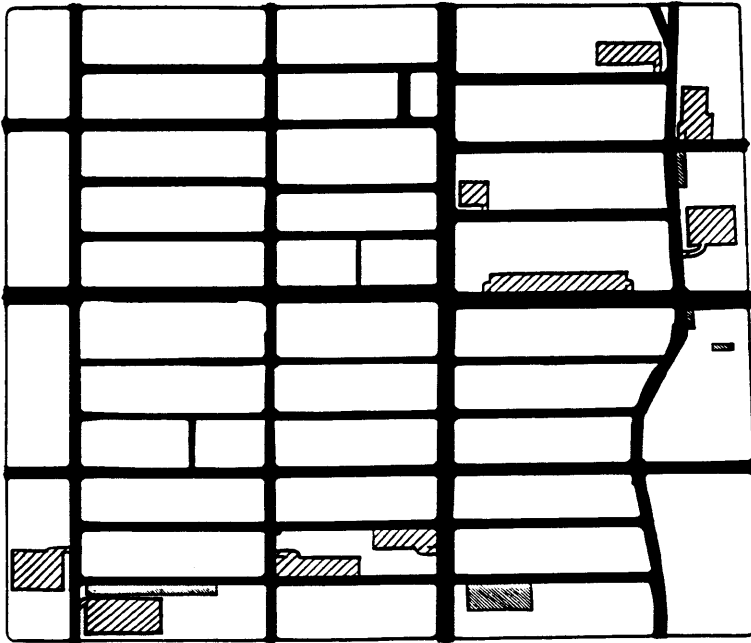


Fig. 4.6.2.6.2 Existing parking facilities

Scale: 1/6,000

programs, but it is also critical to devise an effective ownership and management system that turns the facilities into a source of revenue both for the management party and for local residents. With residential parking located underground, most temporary parking still has to be accommodated above ground, especially in commercial street. The on-street parking has to be integrated into the curb, easement, and arcade design. Major inte-

rior streets, east-west traffic streets, and streets surrounding special places like markets, are subject to integrate above-ground parking features as part of the total street design. Finally, the on-street parking forms an integrated network with the underground residential parking.



Fig. 4.6.2.7.1

*Superblock north elevation*

Scale: 1/4,000

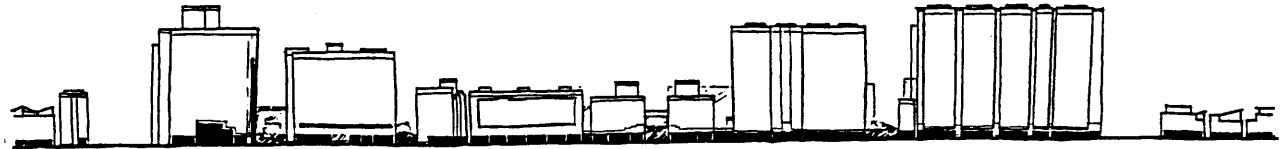


Fig. 4.6.2.7.2

*Superblock east elevation*

Scale: 1/4,000



Fig. 4.6.2.7.3

*Superblock south elevation*

Scale: 1/4,000



Fig. 4.6.2.7.4

*Superblock west elevation*

Scale: 1/4,000

g. Superblock Edge elevations:

(Fig. 4.6.2.7.1, 4.6.2.7.2, 4.6.2.7.3, 4.6.2.7.4)

Medium-high (7-12 stories) to high-rise (13 stories and above) buildings are proposed for the superblock edges to form city-wide large-scale street walls. Low coverage (less than 60%), high FAR (6 and above), with increased maximum building height (2 times the street width, 30m in most cases on the superblock edge) make these buildings tall, slim,

with set-backs to provide for light, air, and view corridors to benefit the interior of the superblock. Arcades on the ground level unify the four edges while providing sheltered activity zones for pedestrians.



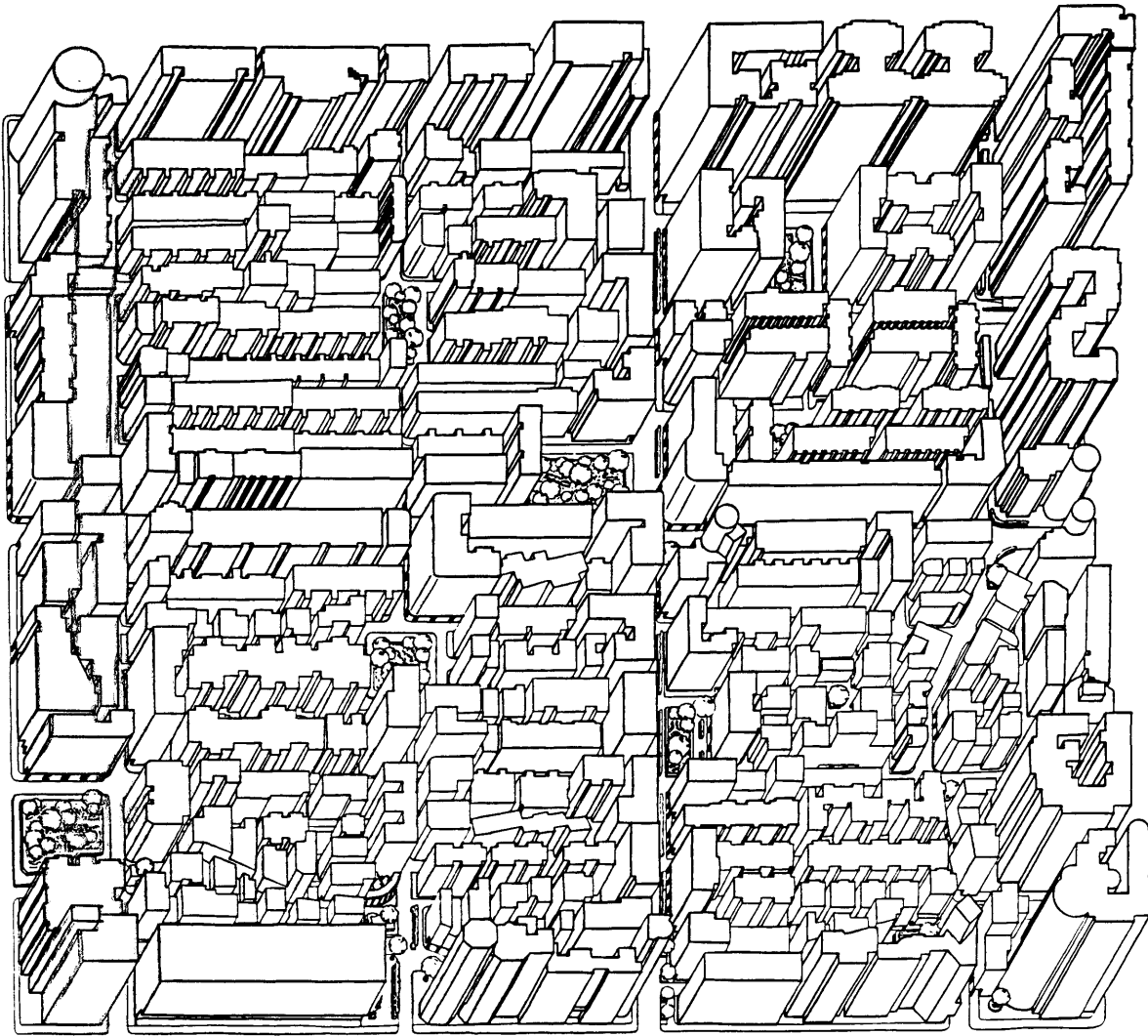


Fig. 4.6.2.8

Axonometric

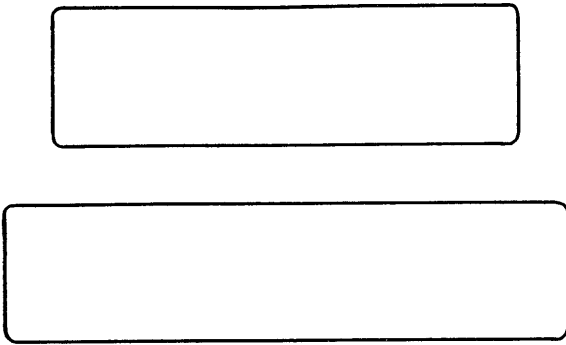
Scale: 1/4,000

h. **Axonometric:** (Fig. 4.6.2.8)

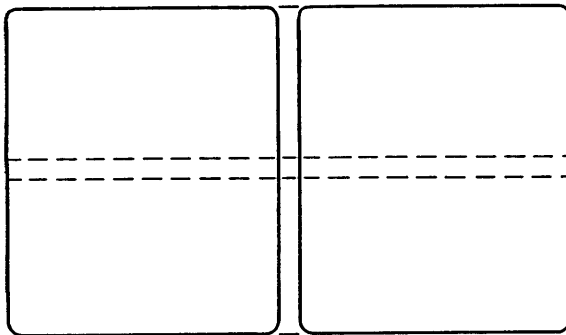
As a result of the enclave concept, both the edges of the superblock and the four quadrants are visually reinforced by taller buildings compared to those of the interior. However, the edge buildings lining the superblock are individual masses separated by voids, whereas the border buildings for the four quadrants

form continuous street walls. In order to accommodate the city growth and to justify the area dedicated for public open spaces and paths, all of the redeveloped sites are zoned for higher buildings compared to the existing ones.

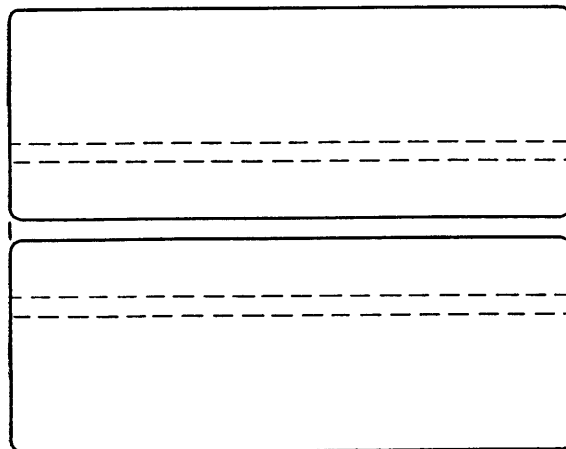
Pattern I 36m x 120m to 36m x 145m



Pattern II 70m x 85m



Pattern III 55m x 145m



## VII. HOUSING PROTOTYPES AND BLOCK CONSOLIDATION

Since different redevelopment strategies are implemented in different quadrants, it is necessary to demonstrate how the superblock design proposal described here can be achieved through the most basic elements in a residential superblock: housing type and block configuration. Three patterns of block configuration and re-configuration are proposed and each corresponds to a particular housing prototype. (Fig. 4.7.0)

Fig. 4.7.0 Block configuration patterns  
Scale: 1/2,000

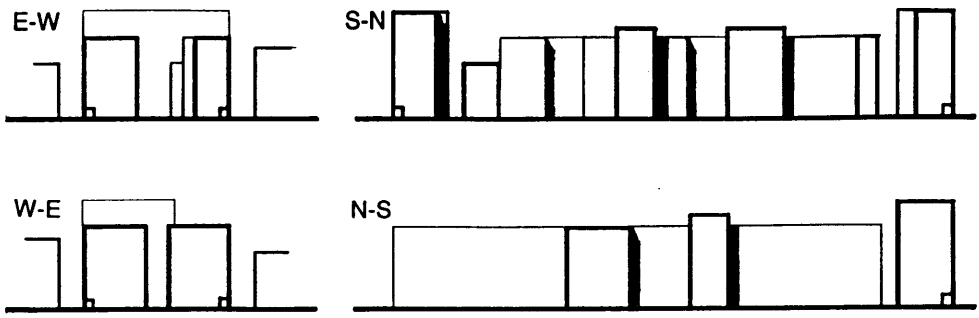


Fig. 4.7.1.2 *Diagrammatic elevations* Scale: 1/2,000

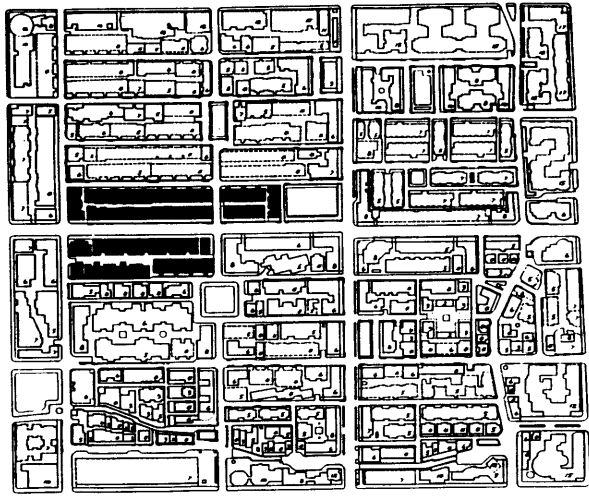
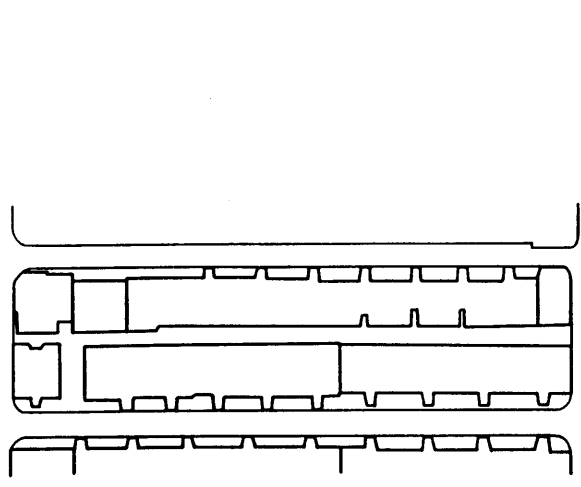


Fig. 4.7.1.1 *Application locations*

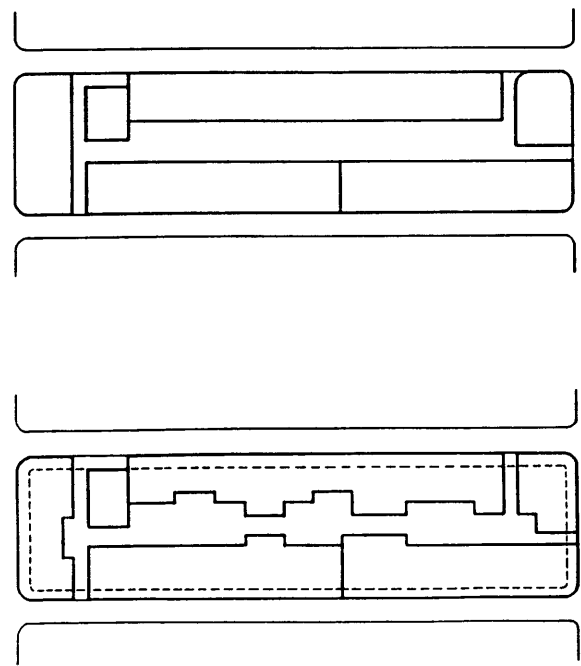


Fig. 4.7.1.3 *Block evolution* Scale: 1/2,000

1. Evolution Pattern I, Redevelopment with Walk-Up Apartment Buildings and Original Block Configuration: (Fig. 4.7.1.1, 4.7.1.2)

Pattern I proposes that the original block configuration be maintained and that the typical Taipei walk-up apartment building be kept in the redevelopment process. This building type works well with the existing limited block depth. Buildings are placed at the far northern and southern boundaries of the block, leaving enough back alley space for service and social functions. Arcades are planned surrounding the block for pedestrian access. Parcels on the east and west ends of the block are re-oriented so that their former sides are now fronts.

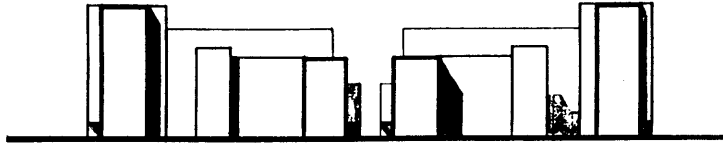


Fig. 4.7.2.2 *Diagrammatic elevations*

Scale: 1/2,000

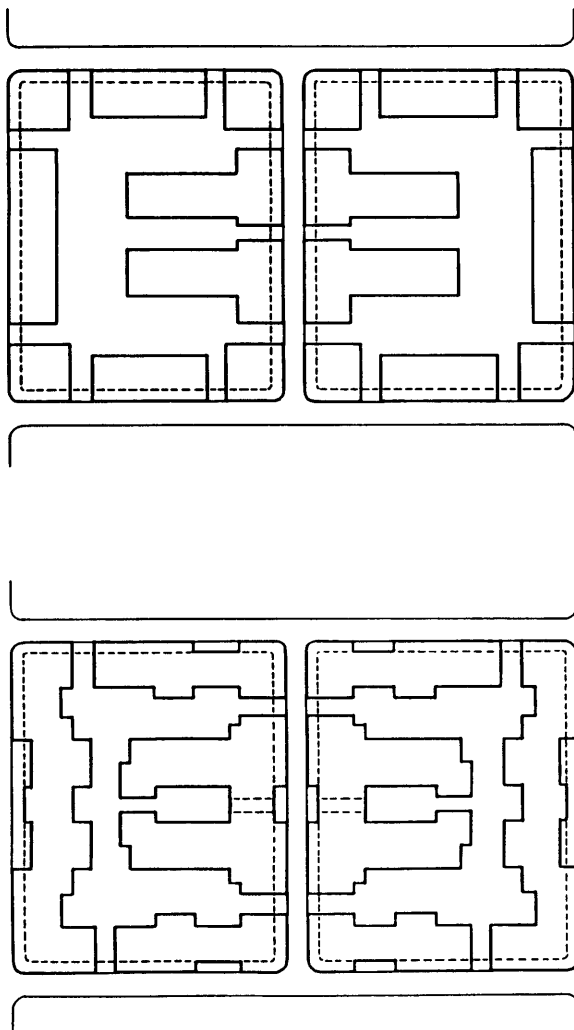


Fig. 4.7.2.3

*Block evolution*

Scale: 1/2,000

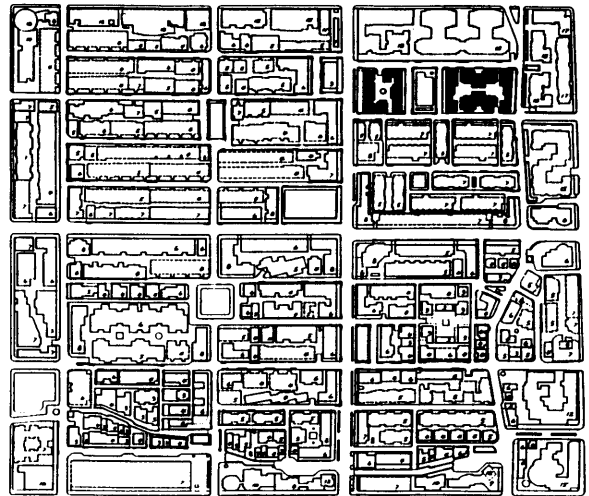


Fig. 4.7.2.1 *Application locations*

2. Evolution Pattern II, Redevelopment with Vertical Block Consolidation:  
(Fig. 4.7.2.1, 4.7.2.2)

Pattern II changes two elongated east-west blocks into two rectangular north-south blocks by eliminating the existing east-west street and introducing a new north-south street. Arcades are again proposed for the perimeter of the new blocks and there is more flexibility in choosing housing types given the additional block depth.

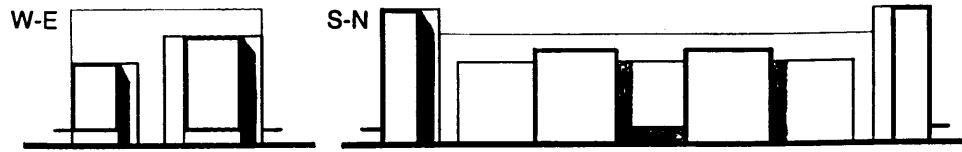


Fig. 4.7.3.2 *Diagrammatic elevations* Scale: 1/2,000

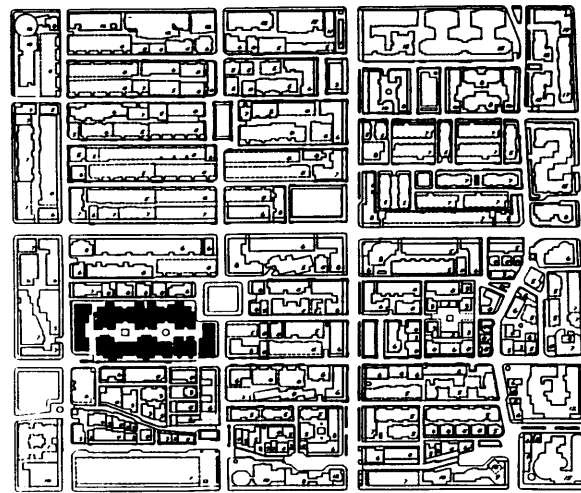


Fig. 4.7.3.1 *Application location*

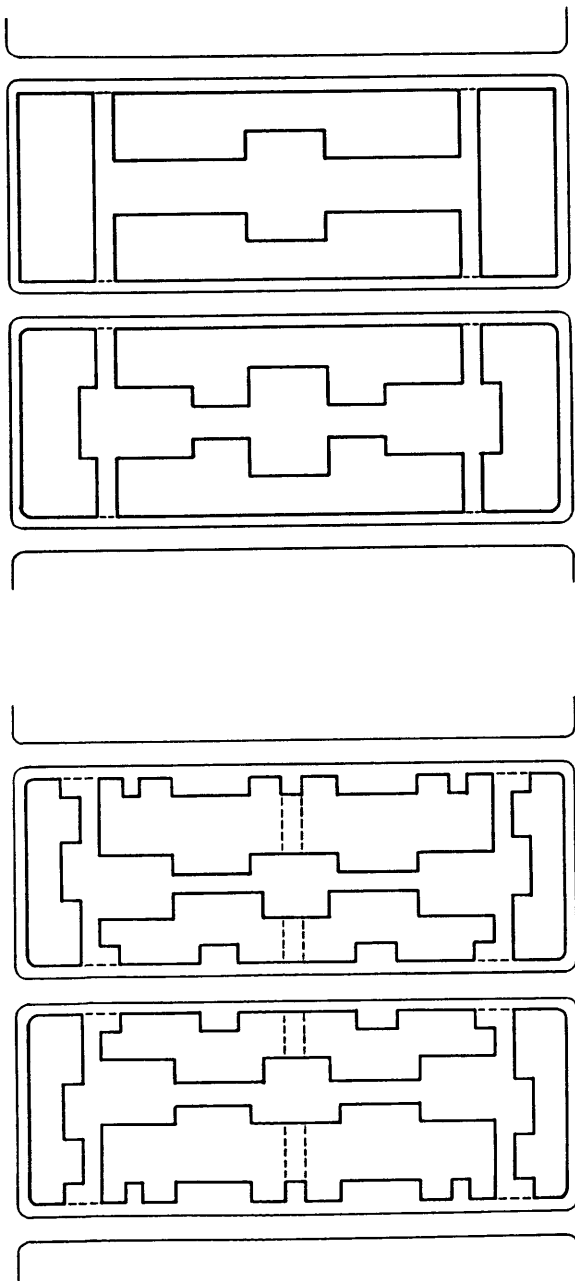


Fig. 4.7.3.3 *Block evolution* Scale: 1/2,000

3. Evolution Pattern III, Redevelopment with Courtyard Housing Complex and Horizontal Block Consolidation: (Fig. 4.7.3.1, 4.7.3.2)

Pattern III consolidates three original blocks into two rectangular ones. The width and depth of the new block configuration permits the creation of a housing complex with enough space for interior courtyards. The block-wide comprehensive redevelopment pattern also facilitates the creation of large underground parking facilities.



Fig. 4.8.0.1

*The east-west traffic street*

Scale: 1/4,000

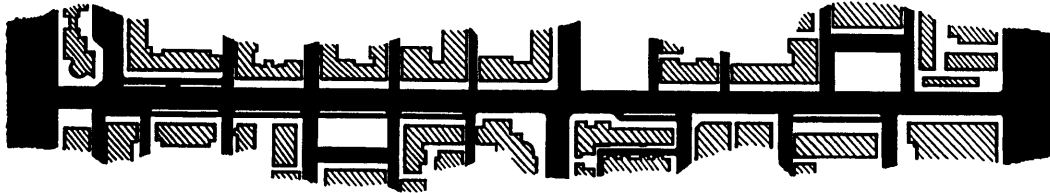


Fig. 4.8.0.2

*The north-south street with special places*

Scale: 1/4,000

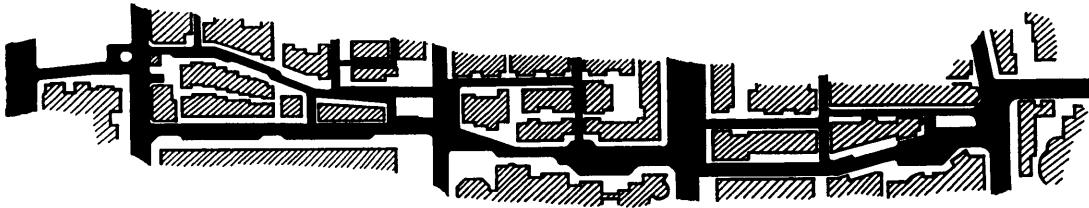


Fig. 4.8.0.3

*The new informal street*

Scale: 1/4,000

## VIII. DESIGNING THE STREETS

The investigations in this thesis corroborate that "Taipei today is largely a city of streets."<sup>1</sup> A typical Taipei superblock is also a superblock of streets. It is an environment where streets are filled with objects and events that occur spontaneously. These streets, as special places, are the most powerful and distinctive urban elements that organize the city and enrich the urban experience. They also represent the most effective arena for government to intervene in the urban

design process. Here, urban improvements can take place given the existing public ownership; land prices are too high for the public sector to acquire substantial areas for significant interventions.

The design of three major streets with different characteristics and different functions within the superblock demonstrates how the public and private sectors can collaborate to improve the urban environment. A good street design is also used as an incentive for incremental neighborhood redevelopment without

aggressive intervention, such as comprehensive destruction and large-scale redevelopment with high-density tower. The current "new trend" embodies the latter form of city building, which occurs over a short period of time.

(Fig. 4.8.0.1, 4.8.0.2, 4.8.0.3)

1. Gary Hack, "Taipei: Forming the New Chinese City", Taipei Sun Shan District Study: Four Visions (Boston: Massachusetts Institute of Technology, 1995), p.3.

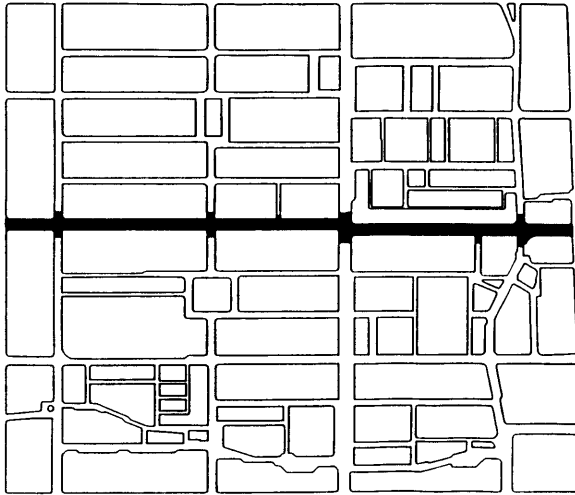


Fig. 4.8.1.1 *Street location*

1. The East-West Traffic Street:  
(Fig. 4.8.1.1, 4.8.1.2, 4.8.1.3)

Guided by the major design concept of differentiating north-south from east-west streets, this major east-west street, at a width of 12m within the superblock, is designed as a street that encourages through-traffic. Arcades alongside the street with special pavement provide a pedestrian refuge from the traffic flow. (1, 2) The arcades also provide a buffer zone between the road surface and the expected active commercial ground floor. These buildings are serviced from the street, so that tempo-

rary on-street parking is integrated into the curb designs. (3) Street intersections are embellished with small corner plazas generated from the dedicated building set-backs space. (4, 5, 6) In spirit and in form these corner plazas represent the traditional temple plaza but they satisfy contemporary urban space requirements for sidewalks, street landscaping and so on. Walk-up apartment buildings with a vertical mixed-use pattern are proposed for both sides of the streets. They form a continuous street frontage that channels the flow of activities and protects the private interior residential core. The concern for simultaneous front and back access is illustrated in the detailed plan. (7, 8)



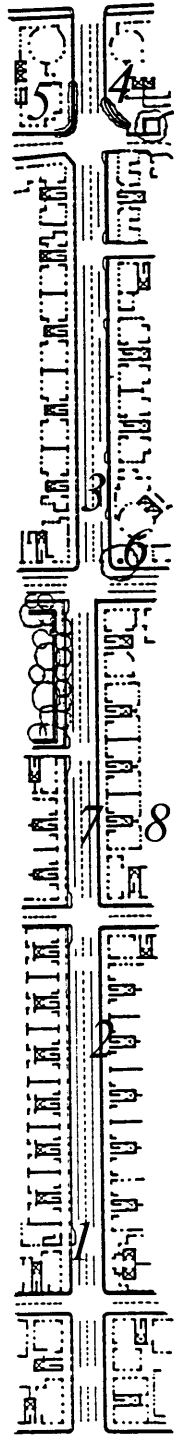


Fig. 4.8.1.2

Street plan  
Scale: 1/3,000

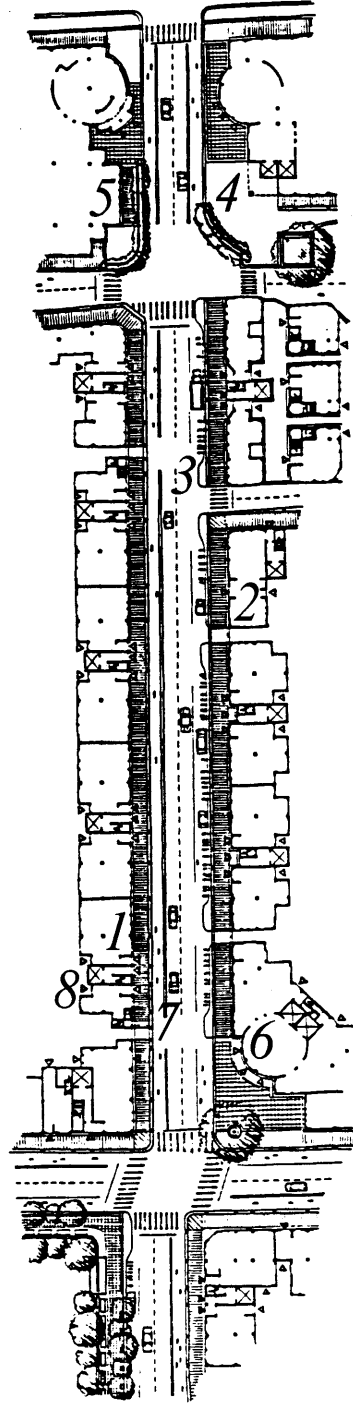


Fig. 4.8.1.3

Detailed street plan  
Scale: 1/1,500

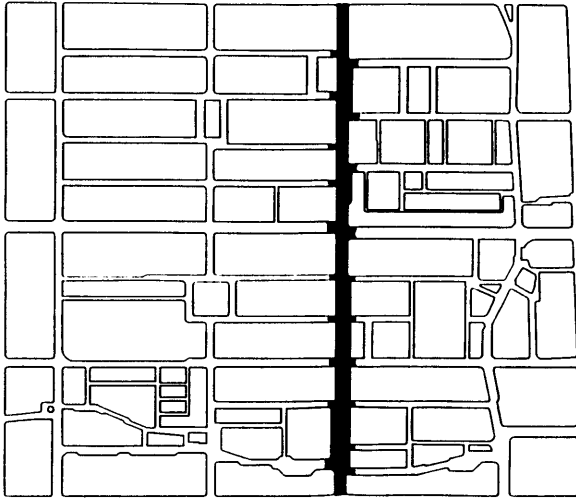


Fig. 4.8.2.1 *Street location*

2. The North-South Street with Special Places: (Fig. 4.8.2.1, 4.8.2.2, 4.8.2.3, 4.8.2.4)

The major interior north-south axis is enriched by a series of articulated places including the MRT station (1), a neighborhood open space (2), a corner plaza (3), a neighborhood community park (4), a market place (5), and street market stalls (6). All of these places are connected to each other by arcades as well as by linear street landscaping. The special street landscaping for north-south streets contributes to the differentiation of north-south streets from east-west thoroughfares. The different street

design helps orient people within a superblock, identifies different places, and adds variety to the physical environment. Public ways for different types of travel modes are identified by the following devices: arcades and sidewalks for pedestrians, separated lanes for mopeds, and traffic lanes for cars. On-street parking is integrated into street landscaping, so that it does not become a visual nuisance. Buildings surrounding the market place are required to have arcades. These enlarge the market area on the one hand and, on the other, enhance the value of surrounding buildings by providing commercial opportunities on the ground floor.

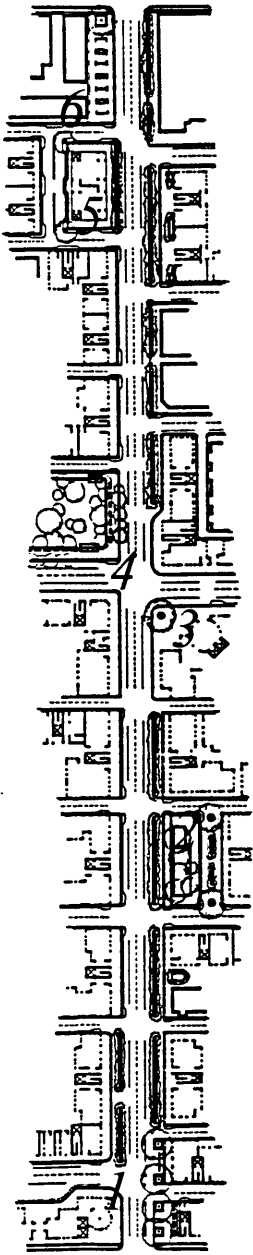


Fig. 4.8.2.2  
Street plan  
Scale: 1/3,000

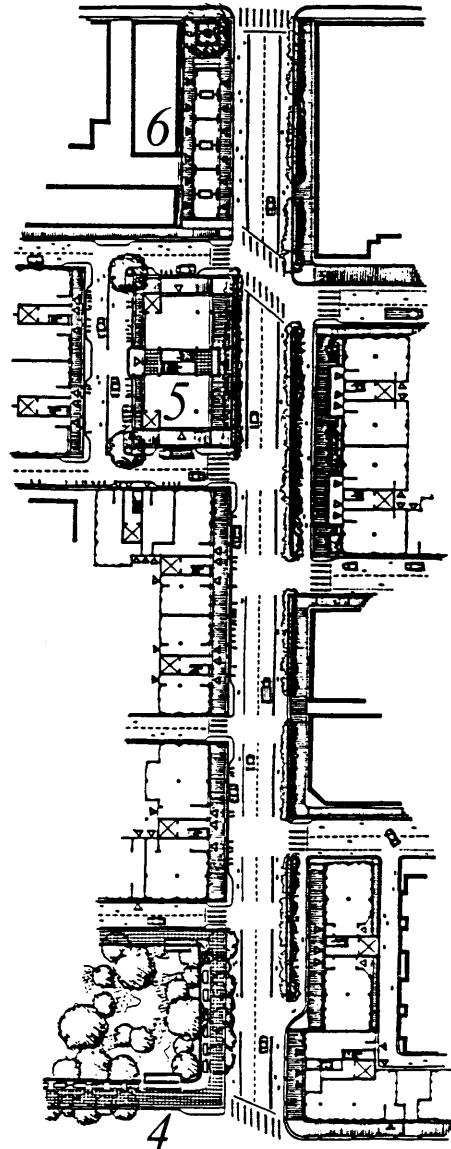


Fig. 4.8.2.3 Detailed street plan (north)  
Scale: 1/1,500

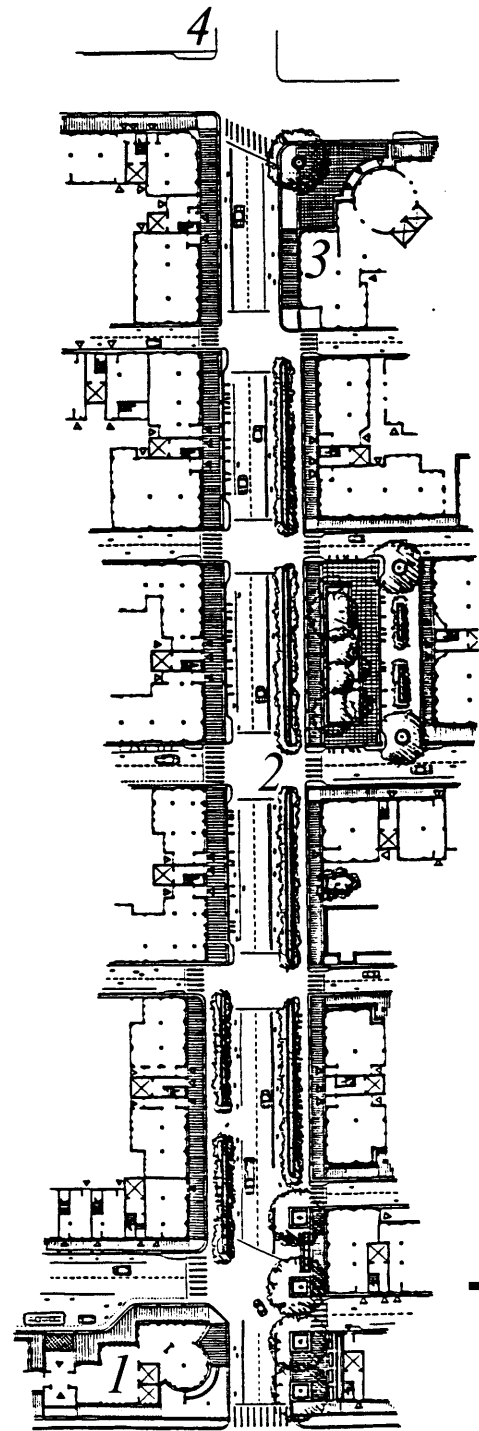


Fig. 4.8.2.4 Detailed street plan (south)  
Scale: 1/1,500

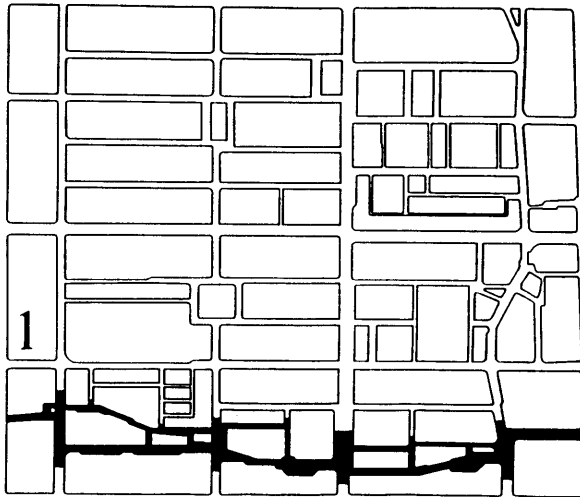


Fig. 4.8.3.1

Street location

### 3. The New Informal Street: (Fig. 4.8.3.1, 4.8.3.2, 4.8.3.3)

The new informal street intends to provide the setting for a revival of Taipei's urban romance. A street layout inspired by the non-rectangular pattern of the road network and a street scale adopted from local historical sources, a parcel module derived from the time of the Japanese-occupation, as well as indigenous architectural forms are all assembled in a way that generates an environment reminiscent of the city's past.

The historic urban design components are joined in a way that takes seriously contemporary urban issues. The informal street is a multi-purpose, multi-function street, which illustrates the possibility of creating exciting urban environments that cover redevelopment costs. This is achieved without monotonous high-density redevelopment, but by raising land values through the creation of commercial potential on the site. It is also an opportunity for the city government to reclaim the public housing land,

to reduce the unnecessary density, and to demonstrate the merits of a proposal that follows traditional urban design strategies. A Transfer of Development Rights programs, implemented at the superblock level, will direct the redevelopment pressure exerted on the informal street site to the vacant lot (1) and to the edges of the superblock. This new street functions not only as a secondary commercial area behind Chung Shiao East Road and the newly-built large department store, but it also channels the development pressure brought on by the MRT station into a linear activity zone, a "traditional" urban concept that has been abandoned in recent urban development projects.

A description of this new informal street, beginning with the east end, includes two corner plazas (2), an MRT station joint development project with a drop-off area (3), the beginning of an exclusively pedestrian informal street with traditional forms of mixed-use row houses that include commercial activity on the ground floor (4), a major north-south street with a series of articulated places (5), an additional MRT joint development project with a drop-off area (6), another section of pedestrian street and stores (7, 8), a number of preserved public housing units (9), a new city-wide department store (10), a vehicular and pedestrian entrance to the underground parking garage (11), and the closing pedestrian spaces of the street with a corner plaza and a neighborhood park. (12)

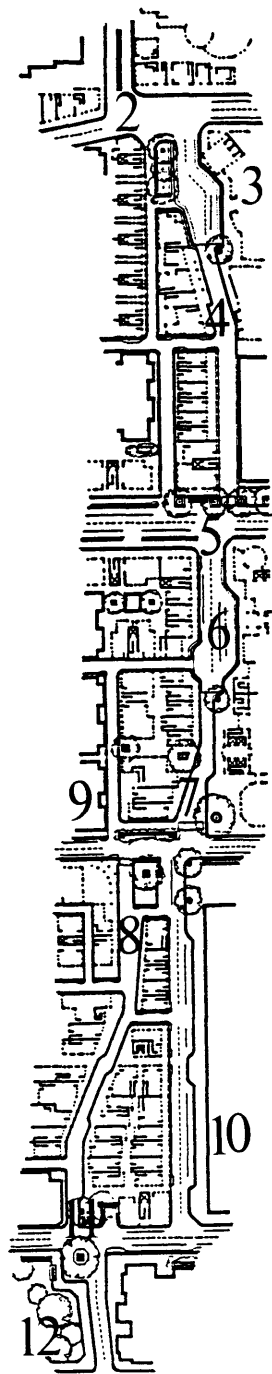


Fig. 4.8.3.2 Street plan Scale: 1/3,000

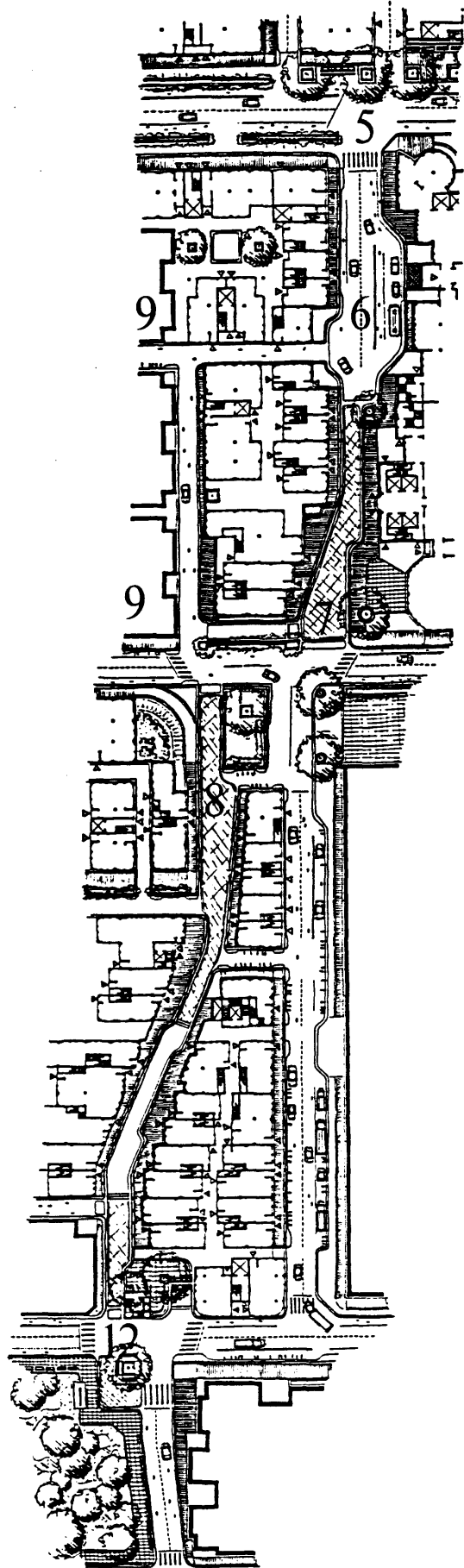


Fig. 4.8.3.3 Detailed street plan Scale: 1/1,500

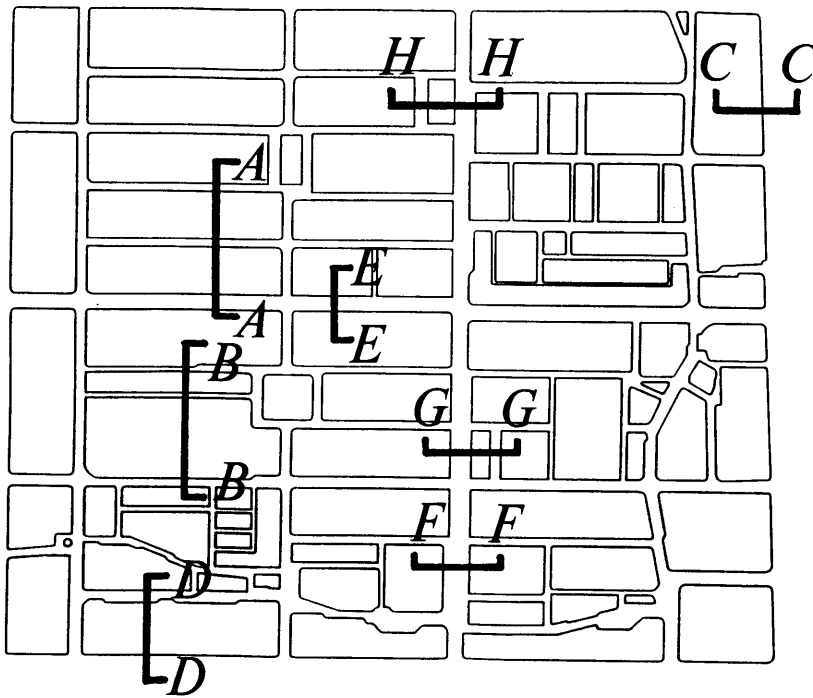


Fig. 4.8.4.1 Location map for street sections

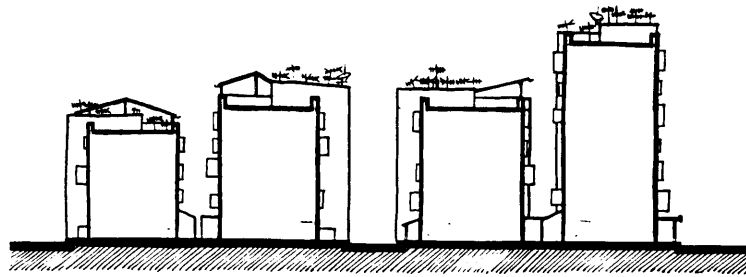


Fig. 4.8.4.2 Section A-A: A secondary east-west street with back alleys behind buildings Scale: 1/2,000

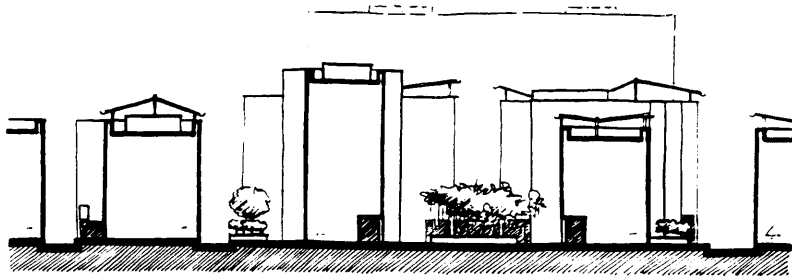


Fig. 4.8.4.3 Section B-B: A secondary east-west street and proposed courtyard housing Scale: 1/2,000

4. Portfolio of Street Sections and Sketches (Fig. 4.8.4.1, 4.8.4.2, 4.8.4.3, 4.8.4.4, 4.8.4.5, 4.8.4.6, 4.8.4.7, 4.8.4.8, 4.8.4.9, 4.8.4.10, 4.8.4.11)

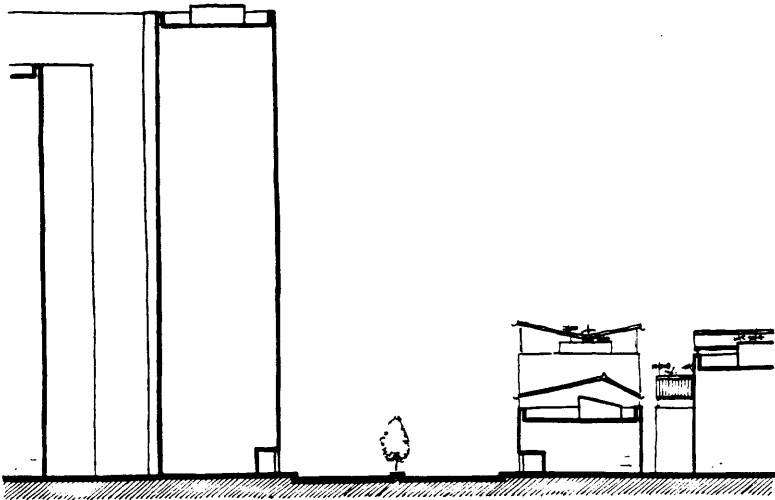


Fig. 4.8.4.4 Section C-C: A city-wide thoroughfare-  
Shun-Shan Road Scale: 1/2,000

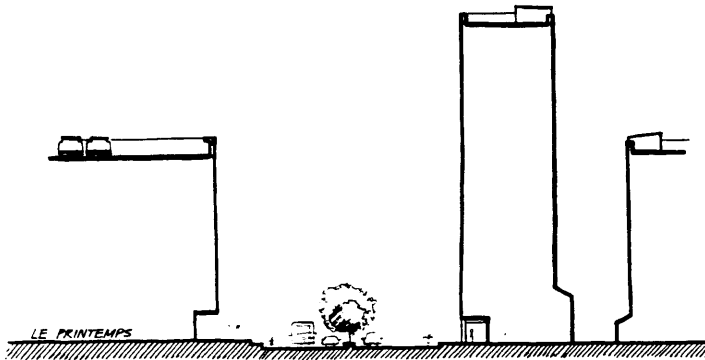


Fig. 4.8.4.5 Section D-D: A city-wide thoroughfare-  
Chung-Shiao East Road Scale: 1/2,000

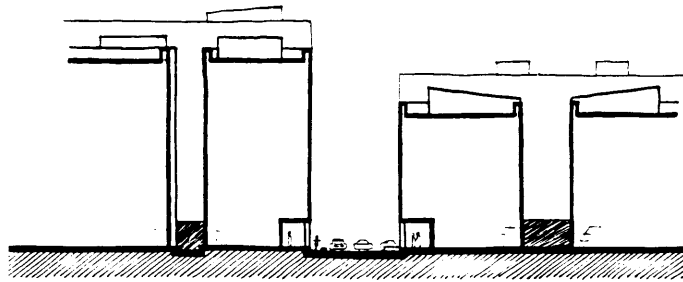


Fig. 4.8.4.6 Section E-E: The major interior east-west  
street Scale: 1/2,000

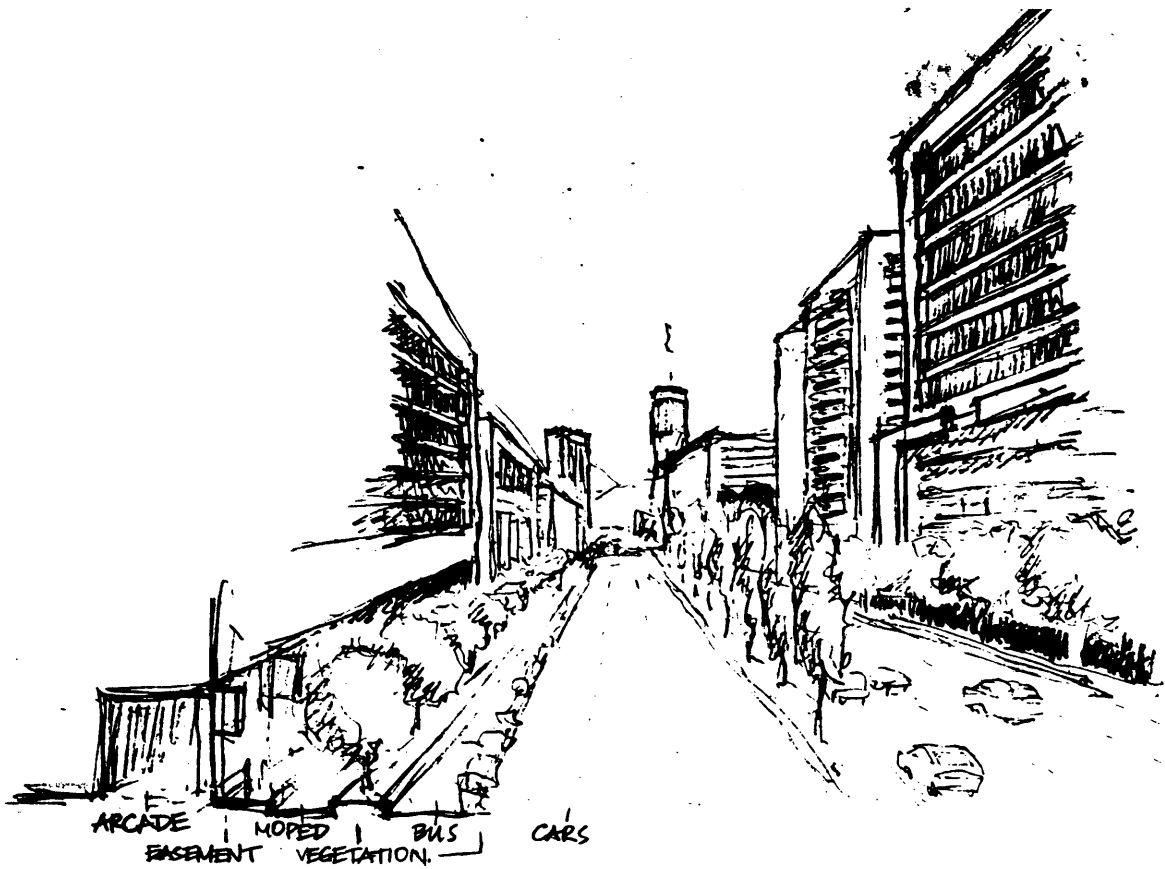


Fig. 4.8.4.7

Sketch of a proposed superblock edge

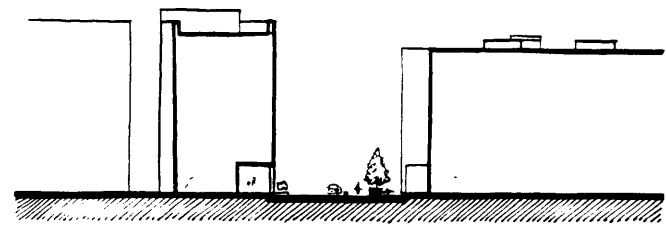


Fig. 4.8.4.8

Section F-F: Procession I, major interior north-south street

Scale: 1/2,000

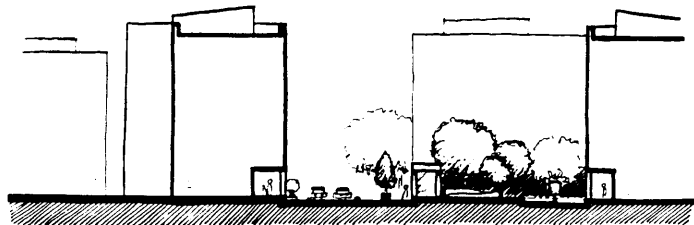


Fig. 4.8.4.9

Section G-G: Procession II, major interior north-south street on a neighborhood park

Scale: 1/2,000





Fig. 4.8.4.10 Sketch of the proposed new informal street

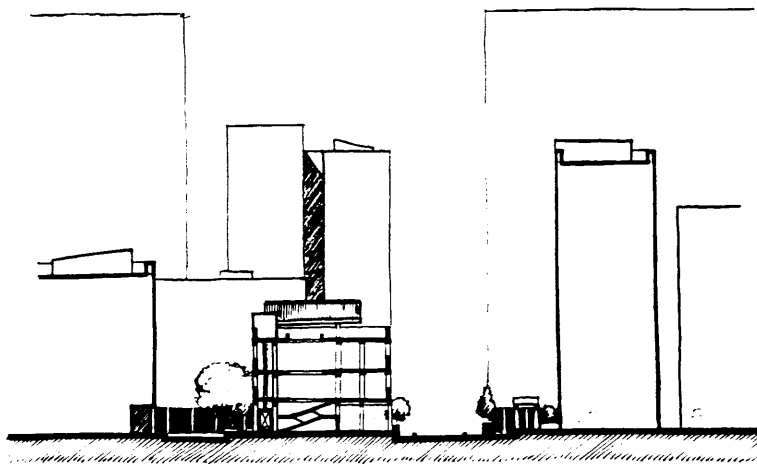


Fig. 4.8.4.11 Section H-H: Procession III, major interior north-south street on a market place

Scale: 1/2,000

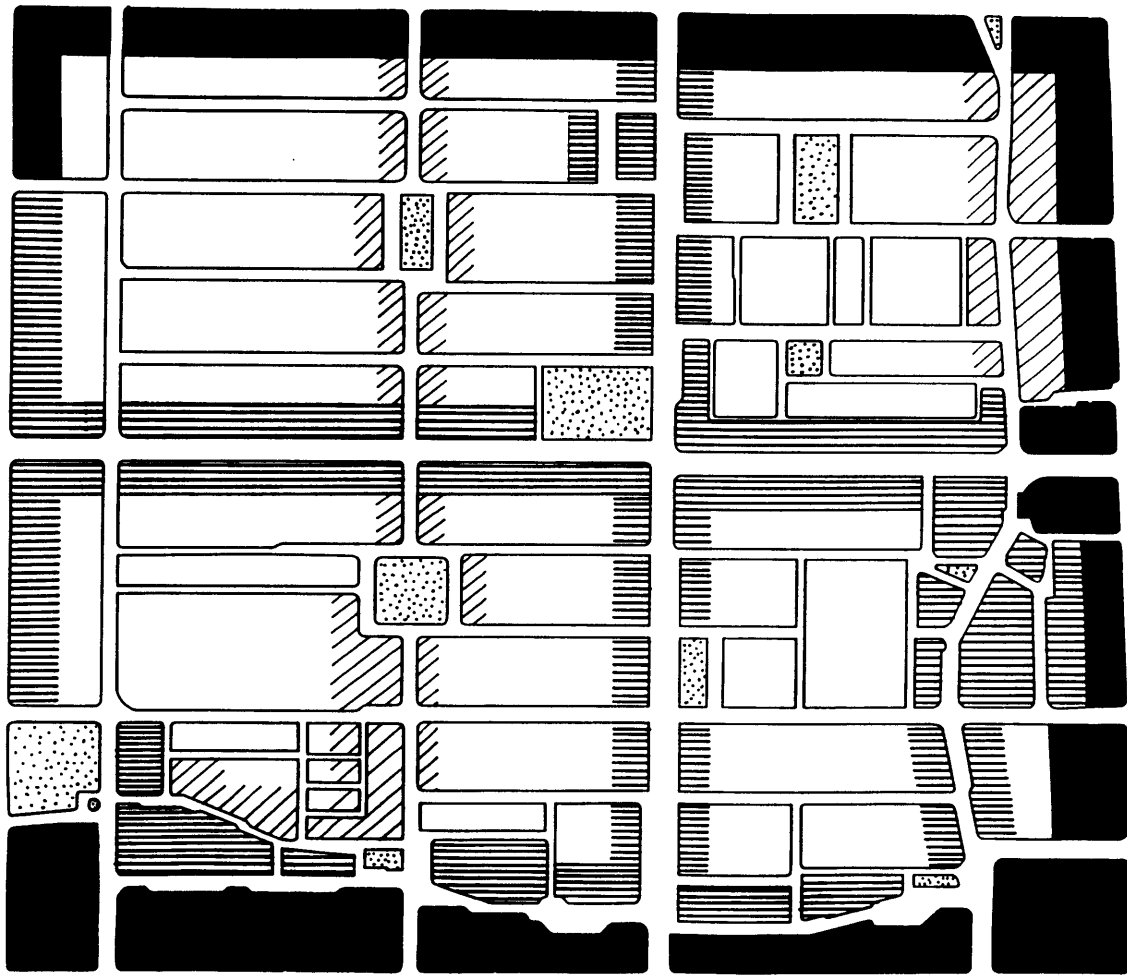


Fig. 4.9.1

Proposed zoning map

Scale: 1/4,000

## IX. IMPLEMENTATION

To ensure that the design proposal is implementable and that the redevelopment experiences can be repeated in similar situations elsewhere in the city, a comprehensive zoning map is proposed. Urban- and architectural design guidelines will form part of this zoning ordinance. Given the dominance that the street enjoys in Taipei's urban life, especially in its commercial activity, careful consideration must be given to the uses

and the physical characteristics of the streets. Both aspects form critical components of the implementation strategies.

### 1. Zoning Map: (Fig. 4.9.1)

The existing Taipei zoning ordinances are over-simplified and do not represent current urban conditions. The proposed zoning institutes a finer grain of various use layers and incorporates specific urban design guidelines into the different zones.

a. City-wide commercial:

This is a band of structures that surrounds the superblock with a depth of 30m to 40m. The uses are city-wide commercial and offices. These commercial uses are allowed from basement levels to the middle-height of the building if the building is intended for vertical mixed-use. Maximum FAR in this band can range from 6.5 to 8 (compared to the existing c-2, FAR 6.3 ). The ground site coverage must be below 60% (compared to the existing c-2, 70%) and a maximum height of twice the street width is required so that tall, thin buildings result. The required spaces between the buildings are developed as plazas, openings and corner places. In strategic locations, such as at the four corners of the superblock, a special building height is imposed and an FAR of 8 to 10 is required.

Moped parking spaces and pedestrian sidewalks are located next to the vehicular traffic arteries. Arcades are also required; site site coverage bonuses are offered as incentives. Special pavement, landscaping, and street fixtures are incorporated into the guidelines for sidewalk and arcade requirements.

b. District/neighborhood-wide commercial:

District and neighborhood commercial zones are prescribed for the two major interior streets of the superblock and the two market streets. The former two have a width of 15m to 20m, whereas the latter are 10m to 15m wide. District and neighborhood-wide commercial, mainly grocery stores, services, and restaurants, are allowed on the ground

floor space and may extend vertically for up to one third of the total building height. FAR 4 to 5 (compared with the existing r-3-1, FAR 3) and site coverages ranging from 60% to 70% (compared to the existing r-3-1, 50%) and no side-yard setbacks are proposed to ensure the creation of a continuous street wall. The maximum building height is limited to 1.5 times the street width.

Arcades are again required and arcade incentives in this scenario carry FAR bonuses in addition to the site coverage incentives. The incentive package should therefore be attractive enough so that continuous arcades are guaranteed. Curb and sidewalk design again have to be integrated with on-street parking; and special pavement treatment is required for arcades and sidewalks. All of the north-south streets are required to include landscape components. Buildings located at the intersections of these two streets are required to have setbacks that are dedicated to corner plazas or for other public use; higher FAR provisions are the incentive.

c. Neighborhood commercial:

Neighborhood commercial uses are located on both sides of third-level streets in the hierarchy of paths. The street width ranges from 6m to 8m. Only neighborhood services such as convenient stores, laundry facilities, or barber-shops, are allowed on the ground floor only. The floors above are for residential uses. An FAR between 3 and 3.5 is prescribed (compared to the existing r-3 zone with an FAR of 2.25). Ground site coverage of 50% and a maximum build-

ing height of 1.5 times the width of the street are required. Front, rear, and side yard setbacks are required in proportion to the building bulk and the particular site. Narrow pedestrian sidewalks and parking lanes are required only when the street width is more than 7m. Arcades are needed only when a property faces a public open space.

d. Exclusively residential:

This zone represents all areas of the superblock area not covered by the other three use zones. FAR, site coverage, maximum building height, and minimum setback requirements remain the same as in the existing Residential-3 category. No arcades are required. Public sidewalks are also not necessary since re-parcelization ensures that each plot benefits from front and back access.

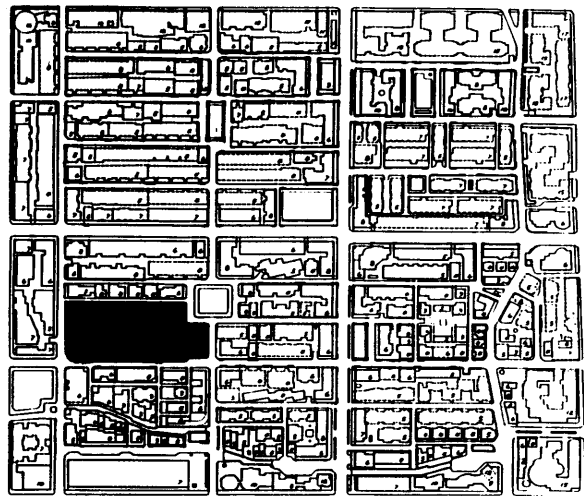


Fig. 4.9.2.1 Application location for proposed housing design guidelines

2. Architectural and Urban Design Guidelines: (Fig. 4.9.2.1, 4.9.2.2)

Urban design guidelines represent the most effective way for the government to regulate redevelopment projects at the architectural scale. Design guidelines for different redevelopment scenarios and housing prototypes with block consolidation strategies can be written to transfer the design experiences of a representative site in the city to a legal framework of use to future development projects.

The diagram (Fig. 4.9.2.2) illustrates how a specific courtyard housing complex proposed for the south-west quadrant of the superblock can generate a set of general design guidelines:

a. Open spaces:

Each development is required to preserve as open space at the rear of the building an area along the entire width of

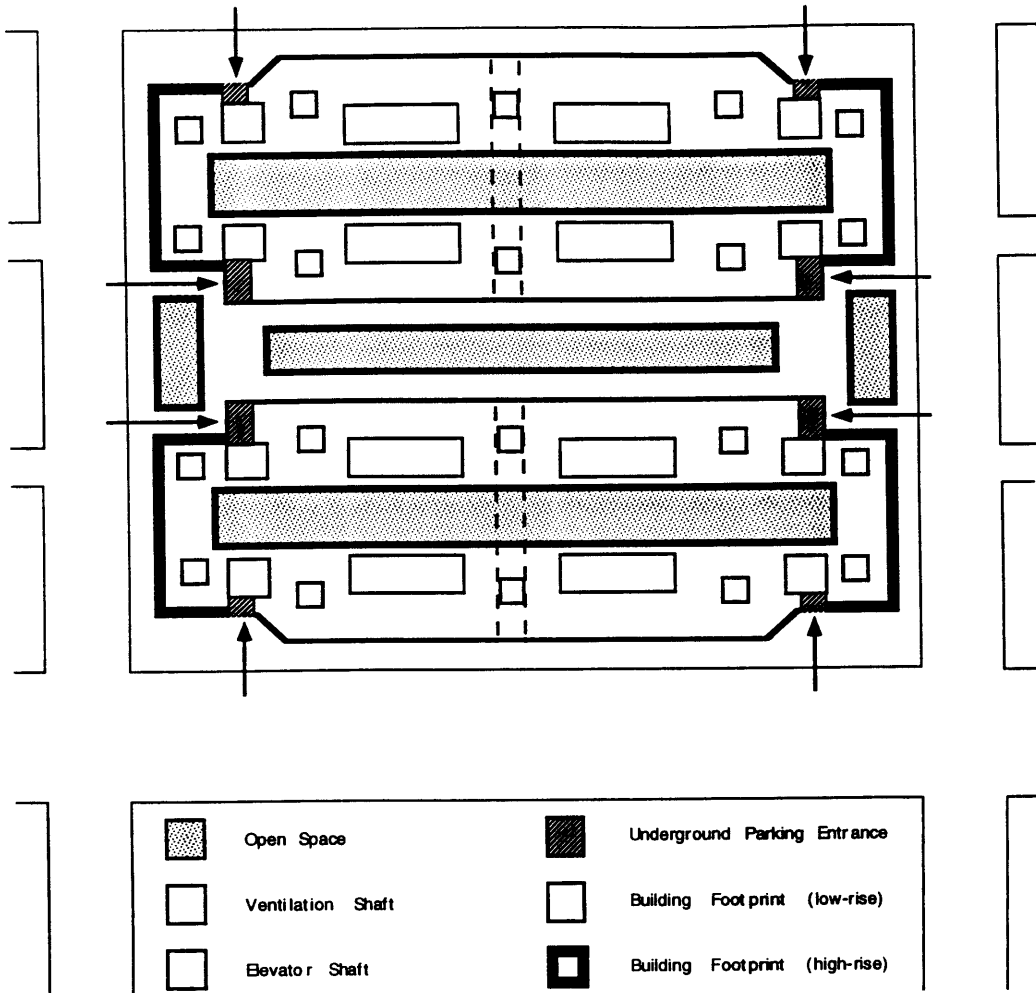


Fig. 4.9.2.2 Proposed courtyard housing design guidelines

the lot with a minimum depth of 5% of the length of the standard block. This open space may not be walled off so as to permit connections to open spaces from adjacent development.

b. Ventilation shafts:

All kitchens, bathrooms, and service balconies shall be oriented toward ventilation shafts.

c. Parking:

Each development is required to provide a minimum of one parking space per unit.

d. Parking entrances:

Underground garage entrances must be provided in the first 15% of the total length of the block. Development occurring in the middle of the block must provide underground garage entrances at the end of the site closest to an intersection.



## CONCLUSION

The thesis demonstrates that Taipei's current and future development pressures may be successfully accommodated through street-oriented urban design strategies, flexibility for redevelopment options, and the strategic use of selective traditional urban form prototypes.

The thesis suggests a redevelopment and re-design process for a typical super block. The analytical process is composed of three necessarily consecutive steps: 1. Studying various historic prototypes of urban form, both from Taipei and from abroad. 2. Applying these urban form strategies to the site and determining their feasibility, impact, and consequences at a particular site. 3. Identifying which specific elements of these urban form prototypes may be applied and which are inappropriate. The feasibility criteria include: implications for traffic flow, projected residential densities, redevelopment potential, demands for open spaces, and cultural aspects, which include identity of place, and life styles of residents. All of these criteria must be considered in determining the appropriateness of a particular prototype for a given redevelopment site. The methodology suggested is imple-

mented by a street-driven regulatory framework. Such a framework combines site-specific zoning requirements with general urban design guidelines. This framework ensures a minimum, but strategic control. It is complemented by public actions ranging from infrastructure interventions (opening new streets and re-organizing or re-designing existing ones), implementing programs for the transfer of development rights, and sponsoring MRT joint development programs. In its totality of guidelines, public actions and programs, the regulatory framework exerts a minimal but decisive control over the development of the city. The flexibility inherent in the proposed legal framework leaves the qualities of the physical outcome to the designers' genius. Architects and urban designers who follow the analytical process and who abide by the guidelines may generate a palette of different proposals that nevertheless embody the physical uniqueness and spiritual identity of Taipei.

Now is the crucial moment for the City of Taipei to seize the enormous opportunities that accompany large-scale change in cities. Maintaining the social and urban fabric while dealing with rapid growth of the city is the most challenging and urgent issue identified in this thesis. I argue throughout that there exists a close



relationship between urban form and the social life of the city. Together, the physical form and the social life that takes place within the form generate the unique qualities of a particular place. The potential impact upon that quality must be carefully considered in the evaluation of any redevelopment proposal for the City of Taipei. The parameters of traditional urban form represent a lens through which the new proposals should be viewed. This lens must be wide enough to leave room for both the planned and unplanned aspects of a physical environment. The changing social life of the city, which plays itself out in the city's spaces, should be given a general direction for development.

The relationship of urban form to human activities is of particular importance for the social life of cities. Human activities, the mundane and the ceremonial rituals of urban life, forge the spaces demanded for their performance. The provision of inappropriately designed spaces, on the other hand, impedes the performance of these rituals. The form/social life dynamic, though, is a two-way relationship: in crowded cities limited space means that people become resourceful

about the way in which they tailor the built environment to their specific needs. In Taipei, roof gardens and illegal encroachments are two good examples of how residents exert influence over their surroundings and craft them to their own needs. It is therefore critical to carefully select and manipulate only the important, key parameters that directly influence the urban form and human activities in a design project, and to leave enough flexibility for personal intervention under a simple yet clear structure for human creativity to interpret the form. This strategic selection of what is to be manipulated and what is to be left flexible also explains the planned and unplanned argument.



## APPENDIX

## APPENDIX I

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- Fig. 2.2 Diagram of the Feng-Shui principle and the Taipei "Fu"
- Fig. 2.3 Diagrams of the growth of the City of Taipei from 1895-1990 (Fu-Min Institute of Agricultural Geography, The Growth of the City of Taipei 1895-1956, Taipei, 1956; for the 1895, 1900, 1920, 1945, and 1956 diagrams Tamkang University, Taipei, 1992; for the 1990 diagram).

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Foundation, Incorporated, Historic Savannah, Savannah, Georgia:  
Historic Savannah Foundation, Incorporated, 1968, p. 46).  
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## APPENDIX II

### SUMMARIZED TRANSLATION FROM TAIPEI 2010, Volume I, Analysis on Existing Conditions†

#### Ch. 1 Introduction

#### Ch. 2 Natural Environment and Resources

**City of Taipei City has a total area of 272 km<sup>2</sup>.** The area of plains (lower than 20m altitude) is 120km<sup>2</sup> (44% of total area) and the area of hills (higher than 20m altitude) is 152 km<sup>2</sup> (56% of total area). (p. 11)

The area of non-urban land uses, including the regulated uses of "preservation", "agriculture", and "river front", is 16,482 hectares, roughly taking 61% of the total city domain. Whereas the **urban land use**, including the regulated uses of "residential", "commercial", "industrial", "educational", "institutional", "open space", "airport", and "redevelopment", take up 10,695 hectares, **39% of the total area.** (p. 21)

The urban "**green**" area (vegetation land lower than 20m altitude) of **Shin Yi Precinct** (where the study block is) takes only **8.7% of the total precinct area.** (p. 56, from "Survey on Taipei Green Resource", Institute of Aerial Survey, 1988)

Noise, air pollution (especially the dust volume), and river pollution are the most serious environmental issues Taipei is confronting today. (pp. 55-60)

#### Ch. 3 Population Analysis

**The City's total population** grew from 2,196,237 in 1979 to **2,719,659 in 1990.** The **annual growth rate** fell from a range of 23% to 26% in the early eighties to **6.27% in 1990.** Current density reaches **25,000 people per km<sup>2</sup>.** (pp. 72-73)

Some numbers from the 1990 census:

1. The male to female ratio: 1.0184 : 1 (p.75)
2. Age composition: under age 15, 24.78%; age 15-24, 24.10%; age 25-34, 19.98%; age 35-44, 16.86%; age 45-54, 8.87%; age 55-64, 6.87%; age 65 and up, 6.43%. The percent-age of the population age 65 and older grew in the past 10 years from 3.88% to 6.43%, showing an aging population for the City of Taipei. (p. 76)
3. The marital status of the population age 15 and older: single, 34.96% (715,064 people); married, 57.93% (1,185,032 people); widowed, 3.7784% (77,290 people); divorced, 3.33% (68,210 people). The significant change is that the divorced percentage jumped from 1.47% in 1979 to 3.33% in 1990, a more than doubled growth. (p. 77)

For the **Shin Yi Precinct**, the area is 10.9530 km<sup>2</sup>, with a residential population of 244,953 and 74,525 households. These numbers lead to **3.29 persons per household** and a density of **22,364 people per km<sup>2</sup>.** (p. 82)

#### Ch. 4 Economical Development



## Ch. 5 City of Taipei Urban Development

**History of urban development:** first settlements before 1710, mass immigration of Han people from mainland in 1710-1860, trilogy of “three cities” period from 1860 to 1895, Japanese colonization between 1895-1945, first Kuomintang (KMT) period 1945-1967 and second phase after 1967. (pp. 108-111)

**Transformation of urban spatial structure:** river front commercial settlements from the early days to the late 19th century; walled city from 1884 to 1895, modern development under colonization between 1895-1945, “temporary” capital after the 1949 KMT retreat from mainland China, and internationalization after 1967. (pp. 112-113)

## Ch. 6 Land Use

**Current issues related to land uses:** for commercial zones, the linear, concentrated street activities result in problems of traffic overload, the lack of public amenities, and the insufficiency of infrastructure; for residential areas, existing FAR is already higher than that of the policy's, existing uses do not match regulated ones, and there is a general mismatch between zoning regulations and actual conditions. (pp. 156-157)

**Important public projects** and their impact on land uses. (pp. 158-178)

## Ch. 7 Transportation

**Numbers of motor vehicles:** in 1988, the total number of motor vehicles registered in Taipei was 935,382; 33.5% of which are cars (341,332 cars), and 56.6% of which are mopeds (529,448). The above numbers indicate an ownership ratio of **1 car per 7.8 persons and 1 moped per 5.1 persons**. Average **growth rate** of motor vehicles between 1979 and 1988 was **13.2% for cars and 7.84% for mopeds**, respectively. (p. 189)

According to 1991 motor vehicle registrations, there are 5,011 buses, 9,330 trailers and trucks, 426,886 cars, 54,163 commercial compact pick-ups and utility cars, 716,717 mopeds, and 5,221 others. (p. 512)

**Road Surface Area:** in 1988, the road surface area comprised 17,901,376m<sup>2</sup>, **6.59% of the total city area**. In the ten year period between 1979 to 1988, the road area increased 25%, whereas the motor vehicle number increased 108%. (p. 189)

**Number of Parking Spaces:** It is estimated that Taipei required **218,938 public parking spaces in 1988**. But the legal parking facilities could only house up to 170,625 vehicles. Also, no information on residential parking is available in the *Taipei 2010* report. (p. 201)

## Ch. 8 Public Amenities

**Public Open Spaces:** in Shin Yi Precinct in 1990, there are **57 hectares of gardens, 0.31 hectares of green spaces, and 0 hectare of playground**. As for city-wide numbers, there are 1,169.12 hectares of parks, 108.06 hectares of green spaces, and 2.35 hectares of playground scattered throughout Taipei. In addition to that, there is only one public stadium in the city. (p. 215)

**Other Public Facilities (Markets):** according to a survey in 1983, 86.6% people (assuming of the City's residential population) answered that there is at least one mar-

ket place located within 10 minutes walking distance or 500m from their residences. The Taipei 2010 report argues that ideally, a **neighborhood market** should serve an area with a **600m radius and a population of 17,000**. (p. 221)

#### Ch. 9 Tourism, Entertainment, and Leisure Resources

According to public surveys, what people usually do in their leisure time are: reading, watching TV, chatting with friends, listening to radio broadcast, strolling, and shopping. (pp. 245-249)

#### Ch. 10 Urban Landscape

Shin Yi Precinct is pictured here as a secondary city "core" and its future uses will include governmental, financial, and business offices, residential units, exhibition and entertainment facilities. (p. 273)

Open space analysis, including the open spaces attached to private and public buildings, those within urban blocks, others like streets, plazas, parks, river front, and the linear spaces claimed by covering old open city ditch and completing the railway track underground project. (pp. 282-286)

#### Ch. 11 Educational and Cultural Resources

#### Ch. 12 Water Resources

#### Ch. 13 Public Safety

#### Ch. 14 Social Welfare

#### Ch. 15 Medical Resources

#### Ch. 16 Public Nuisances

#### Ch. 17 Housing Development

In **1990**, the percentage of **private ownership of residences** rose from 54% in 1976 to **70% in 1989**. (p. 415)

There are more than **7,500 units of public housing<sup>(1)</sup> in Shin Yi Precinct by 1992**. It also has the second highest number of public housing units among all Taipei precincts. (p. 420)

The **total construction volume** in Sun Shan Precinct<sup>(2)</sup> between 1979 to 1988 reached 6.3 million square meters and that was **the largest in the whole city**. (p. 424)

The quality of life has been improved in the past ten years, too. The **gross housing floor area<sup>(3)</sup> per person** rose from **8.50 ping (28.10m<sup>2</sup>) in 1979 to 10.36 ping (34.25m<sup>2</sup>) in 1989**. The average room number per person changed from 0.813 room in 1979 to 1.002 in 1989. Furthermore, the **number of people living in one household declined from 4.57 in 1979 to 3.64 in 1989**. (p. 425)

The projected net living area per person is 7.96ping (26.31m<sup>2</sup>) in the year 2010; however, it was 7.44ping (24.60m<sup>2</sup>) in 1992. (p. 436)

#### Ch. 18 Financial Analysis

The major financial resources for Taipei Municipal Government are taxes, which generate 80% of the total revenue. Amongst all taxes, **Land Increment Tax<sup>(4)</sup> and Sales Tax add up to 68% of governmental tax income.** Other important taxes are Building Tax, which takes 11% of all tax revenue, Land Tax (6%), Indenture Tax (5%), and Licensing Tax (4%). (p. 438)

#### Ch. 19 Administrative Organization and Precincts

### TAIPEI 2010, Volume II Envisioning and Appraising of Future Development

#### Ch. 1 Introduction

#### Ch. 2 Natural Environment and Resources

The projected population of Taipei in the year 2010 will be between 3.55 million and 4.15 million according to natural and social parameters. However, given the limitation of water supply resources, the maximum allowable population should be around **3.85 million.** (p. 501)

The commuting population in Taipei has always been 75% of the total population. That is to say, in the year 2010, there will be **6.75 million** people in the city during daytime. Since the buildable area in Taipei is only 91km<sup>2</sup>, the residential population density will then reach **42,300 people per km<sup>2</sup>** and **daytime density** will rise to **74,200 people per km<sup>2</sup>.** (p. 506)

The number of motor vehicles in 2010 will hit **1,155,000 cars and 1,540,000 mopeds** if no restrictions or discouragement are to be implemented. (p. 510)

#### Ch. 3 Population Analysis

**Shin Yi Precinct** is estimated to have a **population of 552,456 in the year 2010,** and the daytime / night-time population will be between 531,782/308,065 and 591,962/342,929. (pp. 515-517)

The possible trends for future Taipei families are: more "two-income" families, more single-parent families (5% to 10% of total families), and more demand for elderly care and housing. (pp. 515-522)

#### Ch. 4 Economical Development

Ch. 5 Analysis of Future Transportation Development  
(Trip generation and modal choice)

**Projected trips generated in the city once Metropolitan Rapid Transit (MRT) is in operation:** 33.85% of all trips by car, 8.44% by taxi, 20.14% by moped, 20.74% by bus, and 16.93% by MRT in 1995. These numbers will become 41.85% by car, 7.1% by taxi, 17.26% by moped, 13.94% by bus, and 19.94% by MRT in 2000. (p. 555)

**Projected numbers for motor vehicles:** in 2010, there will be 749,000 cars, 875,000 mopeds operated by a population of 3,500,000. Therefore, **car ownership will be 1 car per 4.67 persons and 1 moped per 4 persons.** (p. 558)

Ch. 6 Public Amenities

Ch. 9 Housing Development

**The existing / projected numbers of night-time population and housing requirement for Shin Yi Precinct are:** population- 254,575 / 316,743; housing units- 75,766 / 94,268, presuming that the number of people per household will be maintained. Therefore, another 18,502 units will be needed in the next 15 years. (p. 584)

**The ideal net floor area per housing unit<sup>(5)</sup>:** between 31ping (102.48m<sup>2</sup>) and 40ping (132.23m<sup>2</sup>), average 35.57ping (117.59m<sup>2</sup>), according to a public survey done in 1989. However, some theoretical research points out that the area should reach **46.87ping (154.94m<sup>2</sup>) per unit plus 11.92ping (39.40m<sup>2</sup>) of public facilities** (such as walkways, stair cases, and utility rooms). (p. 589)

**The expected room numbers per unit:** the public expectation is **3 bedrooms and 2 living rooms** (mostly one living room and one dining room); other research points out that **4.13 bedrooms and 2.2 living rooms** would meet the future need. (p. 590)

**Ideal locations for housing:** the five preferred public choices are (by priorities): close to schools, markets, work places, parks or open spaces, and bus stops. Whereas the choices suggested by researchers are: close to parks or open spaces, work places, schools, suburbs, bus stops. (p. 593)

TAIPEI 2010, Volume IV.

Issues, Goals, Strategies, and Concepts on Departmental Development

- Ch. 1 Land Use (pp. 647-664)
- Ch. 2 Transportation (pp. 665-699)
- Ch. 3 Public Facilities (pp. 700-707)
- Ch. 4 Tourism and Entertainment (pp. 708-718)
- Ch. 5 Urban Landscapes (pp. 719-726)
- Ch. 6 Educational and Cultural Development (pp. 726-737)
- Ch. 7 Water Resources (pp. 738-745)
- Ch. 8 Public Safety (pp. 746-761)
- Ch. 9 Social Welfare (pp. 762-775)
- Ch. 10 Medical Care (pp. 776-783)
- Ch. 11 Prevention on Public Nuisances (pp. 784-794)
- Ch. 12 Housing Development (pp. 795-814)
- Ch. 13 Financial Development (pp. 815-829)
- Ch. 14 Administrative Development (pp. 830-850)

TAIPEI 2010, Volume V.

Implementation Strategies

(pp. 851-890)

† "Taipei 2010" was published by Division of Urban Planning, Department of Public Works, taipei Municipal Government in 1992. The summarized translation is done by the thesis author.

Footnotes

(1) In most of the cases in Taiwan, public housing is considered to be very desirable. Living in public housing does not carry very strong social connotation compared to the same situation in the United States.

(2) Shin Yi Precinct was separated from Sun Shan in 1990 precinct adjustment.

(3) "Gross housing floor area" includes "net floor area", which is the private living space in a unit, and the floor area for public facilities such as apartment entrance halls, stairways, and utility spaces.

(4) Land Increment Tax is based on the market survey done by the government each year. People who own land need to pay a certain percentage of the land price difference.

(5) "Net floor area" in Taiwan means the private living space in a unit. The floor area for public facilities such as apartment entrance halls, stairways, and utility spaces, is calculated separately.

## APPENDIX III

### THE COMPILATION OF URBAN DEVELOPMENT LAWS AND REGULATIONS IN THE CITY OF TAIPEI†

By the Department of Urban Development,  
Taipei Municipal Government  
June, 1994

- \*marks indicates central government laws, codes, or regulations
- dates indicate the time that law, code, or regulation as amended up to

#### Chapter of Urban Planning

##### I. Of Planning Genre

1. Urban Planning Law\*, 15/7/1988
2. Implementation Details for Urban Planning Law in City of Taipei, 2/11/1993
3. Regulations of Land-Use Zoning in City of Taipei, 2/11/1993
4. Article 5, Use-Groups and Uses of Land and Buildings; Regulations of Land-Use Zoning in City of Taipei, 4/11/1993
5. Regulations of Periodic Review for Urban Planning\*, 7/9/1990
6. Regulations of Multi-Purpose Use for Dedicated Public-Use Land in Urban Planning\*, 24/12/1992
7. Regulations of Temporary Structures on Reserved Public-Use Land in Urban Planning\*, 12/10/1988
8. Policy to Encourage the Private-Funded Construction of Parking Facilities\*, 21/5/1984
9. Policy to Encourage the Construction of Public Facilities in City of Taipei, 22/10/1993
10. Implementation Regulations of Urban Renewal in City of Taipei, 17/9/1993
11. Regulations of the Assessment, Trust, and Use of Urban Renewal Fund in City of Taipei, 5/11/1993
12. Regulations for Special Permit during the Period of Construction Ban when Making, Expanding, and Changing of Urban Planning in Progress for the District of Taiwan\*, 3/5/1983
13. Regulations for the On-Site Construction after the Demolition of Legal Buildings in City of Taipei, 10/4/1973

##### II. Of Design Genre

1. Application Extent of Urban Design in City of Taipei, 6/8/1991
2. Instructions for the Submitted Drawings of Landscaping Projects, Subject to

Be Executed in the Area Required for Urban Planning Review in City of Taipei, 26/2/1993

3. Policy on Signage\*, 21/12/1981
4. Detailed Regulations for Signage in City of Taipei, 1987
5. Guidelines of the Signage on Buildings and of Locating of Signage in the West-Gate Pedestrian Area, City of Taipei, 5/11/1993
6. Guidelines of the Signage on Buildings and of Locating of Signage in the Historic Street Area of Heng-Yang Road, City of Taipei, 5/11/1993
7. Guidelines of the Signage on Buildings and of Locating of Signage in the Neighborhood of the Circus on Yen-Ai Road and Dung-Hwa South Road, City of Taipei, 5/11/1993

### III. Of Survey Genre

1. Regulations for the Protection of Survey Monuments and Benchmarks\*, 15/11/1952
2. Implementation Details for the Regulations for the Protection of Survey Monuments and Benchmarks\*, 7/6/1955
3. Regulations for the Measurement and Management of the Urban Planning Survey Monuments and Benchmarks\*, 17/4/1989
4. Instructions for the Coordination between Urban Land Re-adjustment and Urban Planning\*, 1/9/1983
5. Supplementary Regulations of the Measurement and Management of the Urban Planning Survey Monuments and Benchmarks in City of Taipei, 7/11/1988
6. Charge Standard for the Application of the Re-survey on the Urban Planning Survey Monuments and Benchmarks, Applied by the Land-Right Related Persons in City of Taipei, 9/5/1991
7. Instructions for Defining Areas of Slow Urban Development with Completion of Public Facilities, 6/5/1994

### Chapter of Regional Planning

1. Regional Planning Law\*, 31/1/1974
2. Implementation Details for Regional Planning Law\*, 27/6/1988
3. Regulations for the Use of Non-Urban Land\*, 1/6/1994
4. Regulations for the Management of Buildings in the Regional Planning Areas\*, 12/3/1986
5. Implementation Instructions for the Master Development Plans for Counties and Cities\*, 11/11/1989

## **Chapter of Building Management**

1. Building Code\*, 1/1984
2. Building Regulations in City of Taipei, 5/2/1974
3. Regulations for the Use of Small-Area/Irregular-Shaped Land in City of Taipei, 1/3/1991
4. Building Regulations of the Development on Slope Sites\*, 14/2/1990
5. Instructions on the Disposition of Unregulated Structure\*, 10/1/1992
6. Instructions for the Change from Reservation Areas to Residential Development Areas in City of Taipei, 20/12/1978
7. Instructions for the Residential Development on Slope Sites in City of Taipei, 13/11/1979
8. Instructions for the Application of the Resort Facilities in Reservation Areas in City of Taipei, 28/10/1989
9. Policy to Encourage the Addition of Interior Public Parking Spaces in City of Taipei, 1/11/1990
10. Guidelines for the Landscaping in Buildings and Legal Open Spaces in City of Taipei, 13/7/1992
11. Instructions for the Application of Abolition or Route Change of Existing Roads in City of Taipei, 7/8/1990
12. Instructions of the Compensation on the Demolition or Move of Legal Buildings and Vegetation, Plus the Disposition of Illegal Buildings, both Caused by the Implementation of Public Constructions in City of Taipei, 9/9/1991
13. Flight Safety Standard and the Prohibition and Restriction of Construction around the Airports, Flight Fields, and Flight-Aid Facilities\*, 30/5/1989

## **Chapter of Land Laws**

1. Law of Land\*, 29/12/1989
2. Regulations under the Law of Land\*, 5/1/1990
3. Equalization of Land Holding Right\*, 2/2/1994
4. Regulations under the Equalization of Land Holding Right\*, 6/4/1992
5. Guidelines for the Management and Disposal of Public-Owned Land\*, 21/7/1993

## **Chapter of Organization**

1. Instructions for the Establishment of Taipei Urban Renewal Review Committee, 29/10/1993
2. Instructions for the Establishment of Taipei Urban Development Committee, 26/1/1994



## Others

1. Standard Law for Central Government Laws and Regulations\*, 31/8/1970
2. Law of National Park\*, 13/6/1972
3. Implementation Details under the Law of National Park\*, 2/6/1983
4. Code of the Conservation, Reservation, and Use of Hillside Land\*, 10/1/1986
5. Implementation Details under the Code of the Conservation, Reservation, and Use of Slope Hillside Land\*, 30/6/1987
6. Law of Parking Facility\*, 10/7/1991
7. Policy to Encourage the Application of Private Dump Sites for Waste Earth Generated by Constructions in City of Taipei, 4/5/1993
8. Instructions for the Hiring of Consultant(s) for Technical Service(s) by Taipei City Government and Its Related Offices, 8/4/1994

† Thesis author's translation on the table of contents only. This piece was part of my final paper for course 11.337J/4.247J, Environmental Design Policy and Action, and the instructor was Professor John deMonchaux.

## APPENDIX IV

### PLANNING PROCESSES AND REGULATIONS IN THE CITY OF TAIPEI

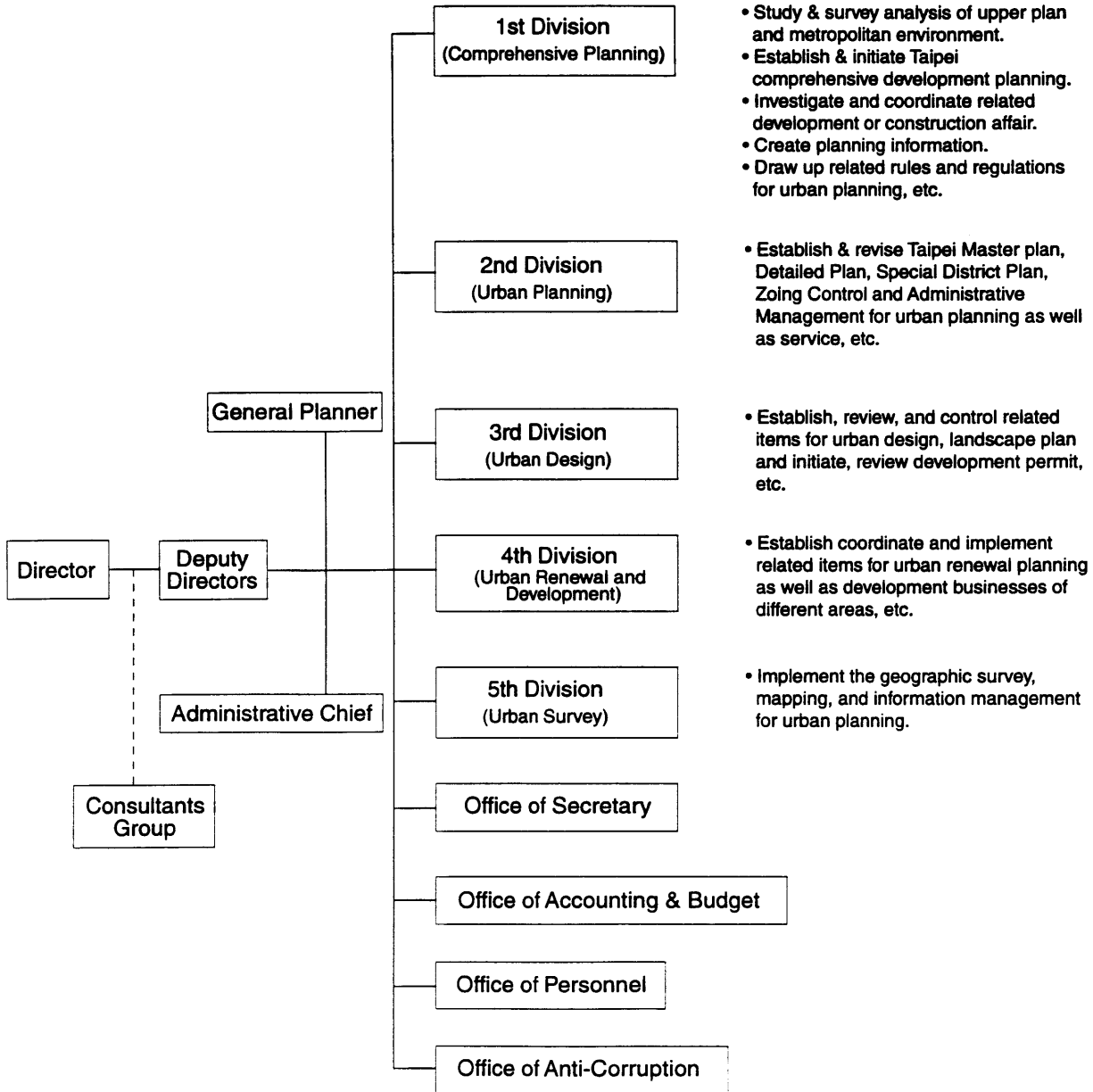
by the Department of Urban Development,  
Taipei Municipal Government  
July 1994

The information here is published in a brochure named "Toward International City for the 21st Century - My Home in Taipei" by the Taipei Municipal Government in July 1994. It includes the following documents:

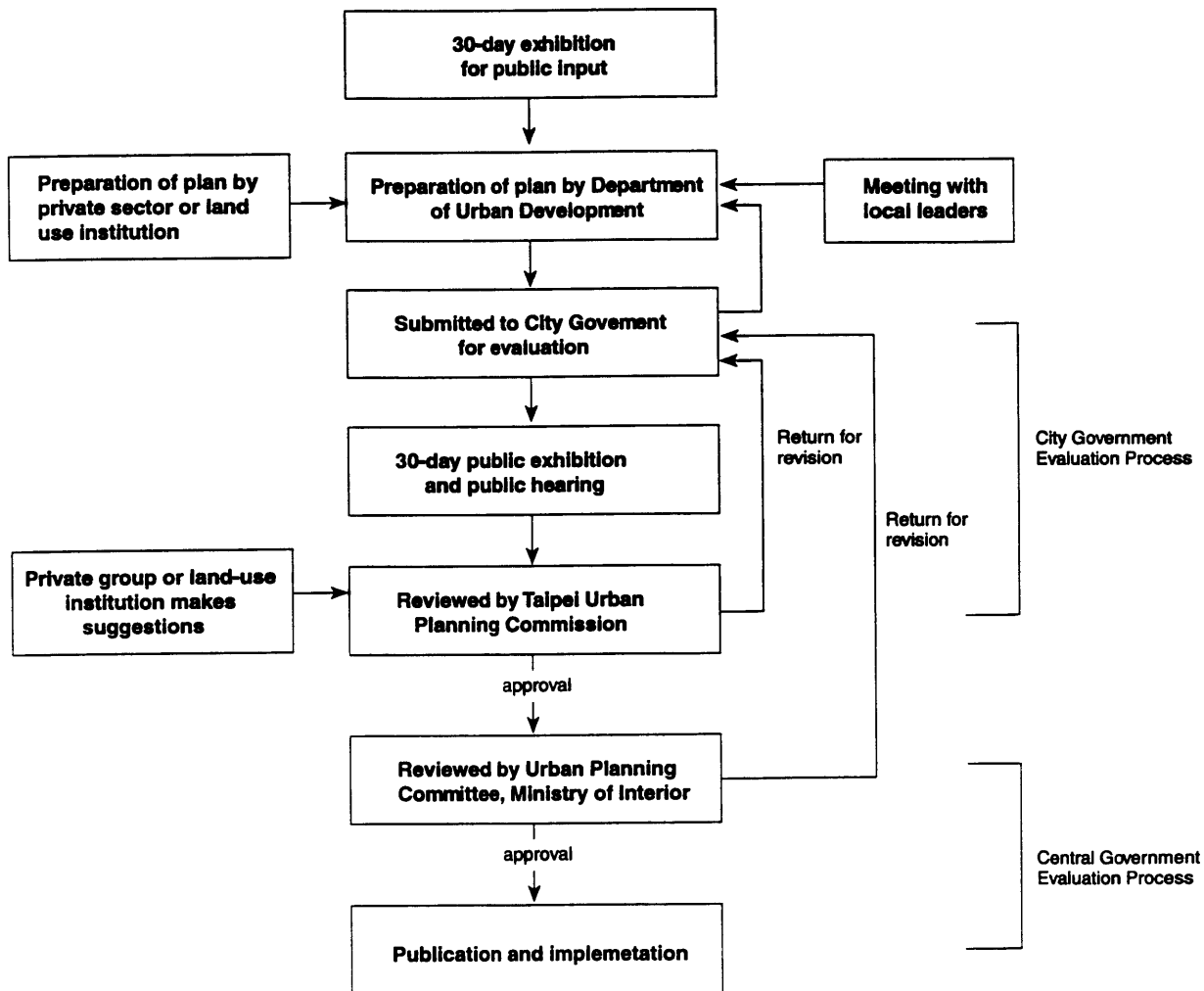
1. Organization chart and responsibilities of the Department of Urban Development, Taipei Municipal Government.
2. Flowchart for city planning process.
3. Flowchart for urban renewal application.
4. Flowchart for urban design review.
5. Zoning ordinance.
6. Table of zoning.

## ORGANIZATION CHART AND RESPONSIBILITIES

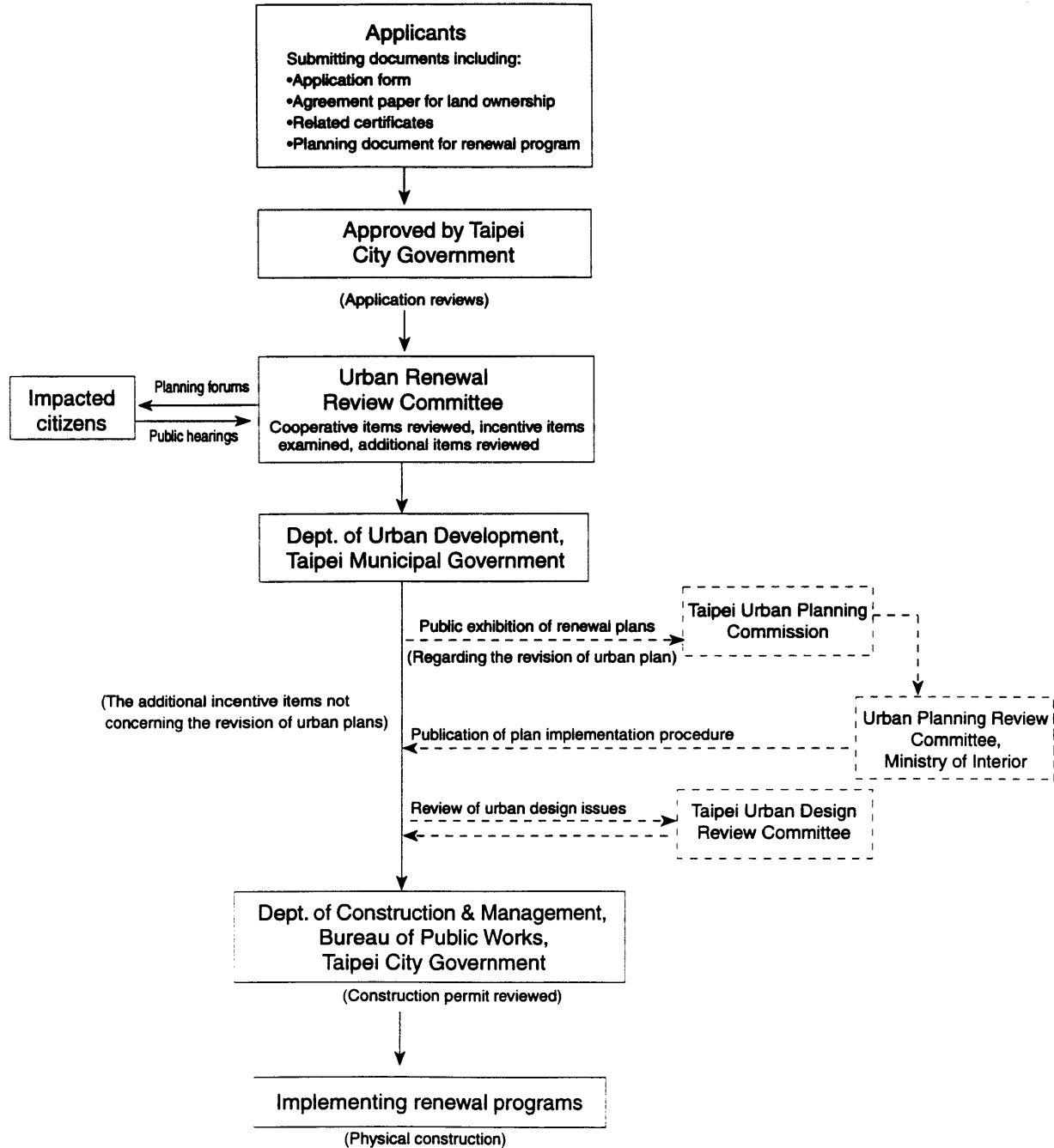
Organization System for the Department of Urban Development, Taipei City Government



## CITY PLANNING PROCESS

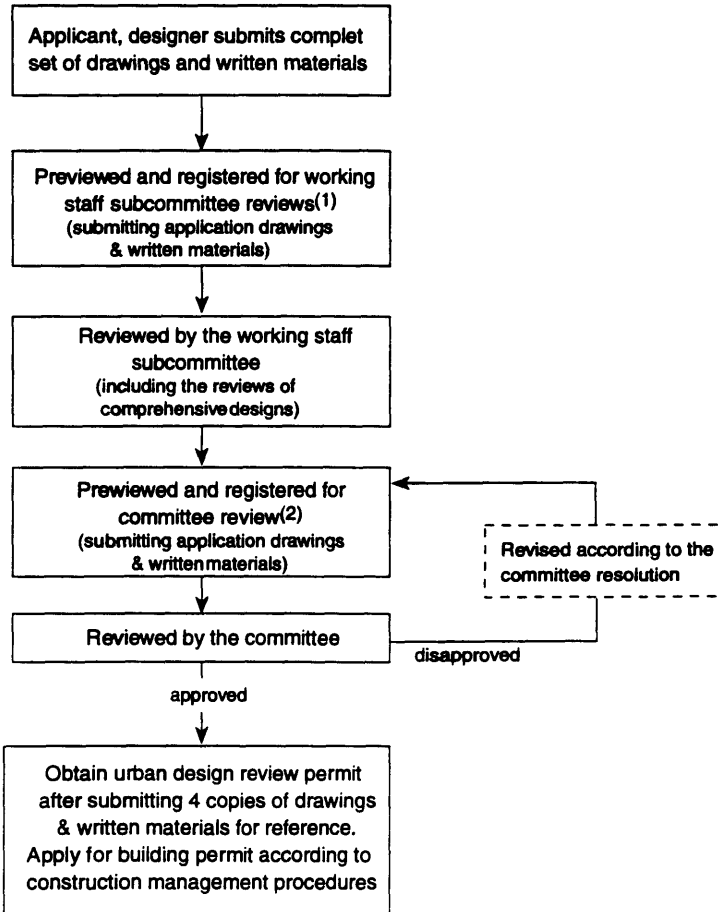


## FLOWCHART FOR URBAN RENEWAL APPLICATION



## THE PATH CREATING PERFECT ENVIRONMENT- URBAN DESIGN

Flowchart for Urban Design Review in Taipei City



(1) Working staff subcommittee review within 14 days

(2) Convene the committee review within 45 days,  
from the day of committee registration

Use Groups & Zones			Residential Area								Commerical Area				Industrial Area			Administrative Area	Cultural Area	Warehouse Area	Scenic Area	Agricultural Area	Coservational Area	
			R1	R2	R2-1	R2-2	R3	R3-1	R3-2	R4	R4-1	C1	C2	C3	C4	I1	I2	I3						
Floor Area Ratio (%)			60	120	160	225	225	300	400	300	400	360	630	560	800	150	200	300	400	240	300	60		
Building Bulk (%)			30	40	40	40	50	50	50	60	60	60	70	70	80	50	50	60	40	40	60	20	5 40	5 15 30
Height Ratio			1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.0			
Minimum Front-yard Depth (M)			6	5	5	5	3	3	3	3					3	3	3	6	6		10			
Minimum Rear-yard Depth (M)			3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	3.0	3.0	3.0	2.5	6	3	3	3	3	3	3			
Minimum Rear-yard Depth Ratio			0.6	0.4	0.3	0.3	0.25	0.25	0.25	0.25					0.4	0.3	0.3	0.3	0.3	0.3	0.6			
Minimum Side-yard Width (M)			2.0	2.0	2.0	2.0	2.0	2.0	2.0					3	3	3	3	3	3	3				
Minimum Building Site		Width (M)	12	10	10	10	8	8	8	4.8	4.8	5	5	5	5	15	8	5						
		Depth (M)	20	20	20	20	16	16	16	14	14	15	18	18	18	50	20	15						
Distance Between Adjacent Buildings	Front to Rear	Times Heigt	0.8	0.6	0.6	0.6	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2				0.6	1.0	0.6				
		Meter	4	4	4	4	3	3	3	3	3	3	3	3	3				6	6	6			
	Side to Side	Times Heigt																						
		Meter	3	3	3	3	2	2	2	2	2	3	3	3	3									
Distance Between Adjacent Buildings	Minimum Area of a Building Site (M <sup>2</sup> )			2000	2000	1500	2000	1500	1500	1500	1500	1500	1500	1000	1000									
	Minimum Ratio of Open Space Reserved in Building Site (%)			70	65	55	65	55	55	55	55	55	45	45	35									
	Minimum Ratio of Open Space to Building Site (%)			50	50	40	50	40	40	40	40	40	40	40	30									
	Increase of Total Floor Area Permitted (Effective Area of Open Space, Bulk Ratio) *Number Indicated In			2/5	2/5	2/5	2/5	2/5	2/5	2/5	2/5	2/5	1/3	1/3	1/3									

ZONING ORDINANCE OF TAIPEI CITY (TABLE OF F.A.R., BUILDING BULK & YARDAGE)

## ZOING MAP OF TAIPEI CITY (TABLE OF ZOING)

Use Groups & Zones		Residential Area					Commerical Area				Industrial Area			Administrative Area	Cultural Area	Warehouse Area	Scenic Area	Agricultural Area	Coservational Area
		R1	R2	R3	R4	R4-1	C1	C2	C3	C4	I1	I2	I3						
			R2-1 R2-2	R3-1 R3-2															
1	Single family and duplex house	○	○	○	○	○								△	△		△	*	*
2	Multi-family	△	○	○	○	○	○	○	○	○									
3	Rental house			○	○	○	○						△	△	△				
4	Pre-school facility	△	○	○	○	○	○		○	○	○				○			△	△
5	Educational facility	□	○	○	○	○	○	○	○	○					○				
6	Community recreation facility	○	○	○	○	○	○	○	○	○					○		△		□
7	Medical and health facility		△	○	○	○	○	○	○	○			△	△	○	○			
8	Social welfare facility	△	△	○	○	○	○	○	○	○				○	○				△
9	Community communication facility	○	○	○	○	○	○	○	○	○			△	○	○	○	○	△	
10	Community security facility	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	△	△
11	Large-scale recreational facility	△	△												△		△		
12	Public service facility	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
13	Government office	△	△	△	△	○	○	○	○	○	△	○	○	○	○		△	△	△
14	Assembly				○	○	○	○	○	○				○					
15	Social-education facility	○	○	○	○	○	○	○	○	○				○	○		△		
16	Activity facility	△	△	△	○	○	○	○	○	○				△	○		△		
17	Grocery	△	△	△	△	△	△	○	○	○	○				△		△	*	*
18	Retail market		△	△	△	△	△	○	○	○	○								
19	General retail A			△	△	△	△	○	○	○	○							*	*
20	General retail B				△	△	△	○	○	○	○								
21	Eatery		△	△	△	△	△	○	○	○	○								*
22	Restaurant				△	△	△	○	○	○	○								
23	Department store							○	○	○									
24	Special retail A	∖	∖					○	○	○	○								
25	Special retail B	∖	∖						○	○									
26	Daily service	△	△	△	△	△	△	○	○	○	○								*
27	General service			□	△	□	△	○	○	○	○								
28	General office			△	△	△	△	○	○	○	○								
29	Professional office		△	△	△	△	△	○	○	○	○								
30	Financial office			□		△	△	○	○	○		□	□	△					
31	Repair service							○	○	○									
32	Entertainment service							△	△	△									





## APPENDIX V

### CONVERSION CHART FOR METRIC, FOOT, AND TAIWANESE SYSTEMS

$$1 \text{ km} = 1,000 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ mi} = 1,759.996 \text{ yd}$$

$$1 \text{ mi} = 5,279.983 \text{ ft}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ km} = 0.621 \text{ mi}$$

$$1 \text{ m} = 1.094 \text{ yd}$$

$$1 \text{ m} = 3.281 \text{ ft}$$

$$1 \text{ m} = 39.370 \text{ in}$$

$$1 \text{ cm} = 0.394 \text{ in}$$

$$1 \text{ mi} = 1.609 \text{ km}$$

$$1 \text{ yd} = 0.914 \text{ m}$$

$$1 \text{ ft} = 0.305 \text{ m}$$

$$1 \text{ in} = 2.540 \text{ cm}$$

$$1 \text{ km}^2 = 100 \text{ hectares}$$

$$1 \text{ km}^2 = 1,000,000 \text{ m}^2$$

$$1 \text{ hectare} = 10,000 \text{ m}^2$$

$$1 \text{ m}^2 = 10.76385 \text{ ft}^2$$

$$1 \text{ acre} = 43,559.8810 \text{ ft}^2$$

$$1 \text{ acre} = 0.40469 \text{ hectare}$$

$$1 \text{ acre} = 4,046.87 \text{ m}^2$$

$$1 \text{ ft}^2 = 0.09290 \text{ m}^2$$

$$1 \text{ ping} = 3.30579 \text{ m}^2$$

$$1 \text{ m}^2 = 0.3025 \text{ ping}$$

$$1 \text{ ping} = 35.58303 \text{ ft}^2$$

